”The complete history of SkyTran plus a discussion of all the latest technical breakthroughs - in 13 minutes!”

PodCar City9 2015

Mountain View, California

Friday November 6, 2015

by

Douglas J. Malewicki

SkyTran, Inc. Founder and Chief Visionary

SkyTran history & all the technology in 13 MINUTES!!

Quickly, *quickly* – there's no time!!

The “complete” HISTORY of SkyTran

HISTORY – early 1960's

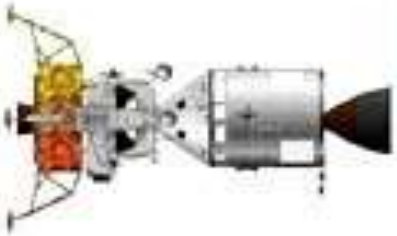
Education & early work

HISTORY – mid 1960's

Apollo-Saturn V – Man to the Moon Program, Senior Structural Loads Analyst, North American Aviation

Lunar module/Service module – Structural dynamic response analysis showed that the units docking ring structure had to be strengthened to withstand a possible hard-over thruster engine failure.

Launch Escape Abort System – Dynamic analysis and software for pyrotechnic event that deployed stabilizing canards.

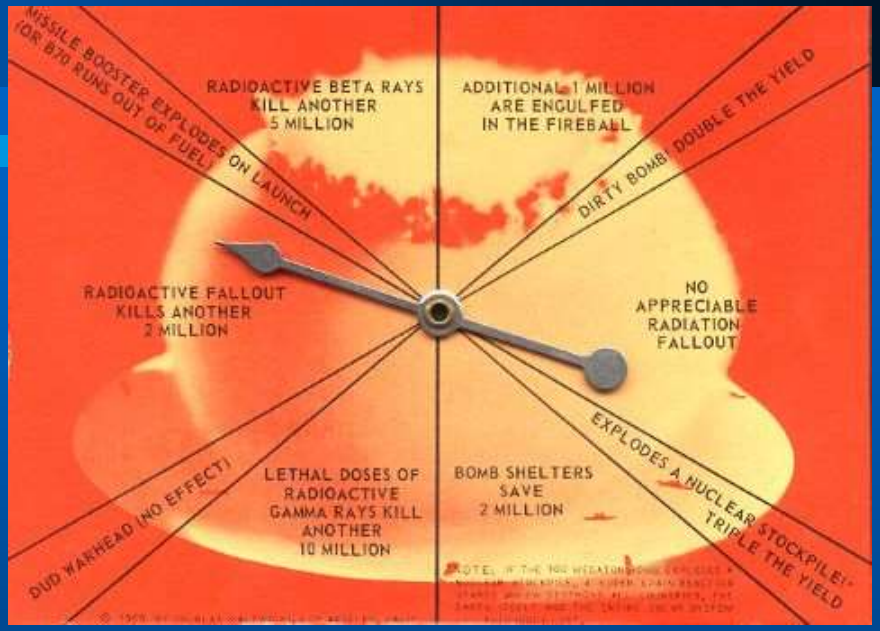


Lunar Module docked with Service Module

Launch Escape System

HISTORY – mid 1960's

First invention published in 1965



HISTORY – late 1960's

The Malewicki Equations

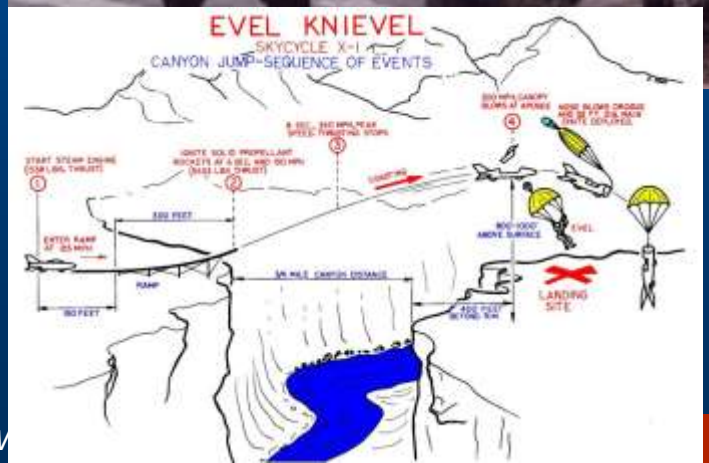
$$\text{MAXIMUM ALTITUDE} = \frac{1}{g}\frac{W_1 - \frac{1}{2}W_p}{C_D A \frac{1}{2}\rho} \ln\cosh\left\{g\sqrt{\left(\frac{F_{AVE}}{W_1 - \frac{1}{2}W_p} - 1\right)\frac{C_D A \frac{1}{2}\rho}{W_1 - \frac{1}{2}W_p}}\, t_B\right\}$$

$$+\frac{1}{2g}\frac{W_1 - W_p}{C_D A \frac{1}{2}\rho} \ln\left\{1 + \left(\frac{W_1 - \frac{1}{2}W_p}{W_1 - W_p}\right)\left(\frac{F_{AVE}}{W_1 - \frac{1}{2}W_p} - 1\right)\tanh^2\left[g\sqrt{\left(\frac{F_{AVE}}{W_1 - \frac{1}{2}W_p} - 1\right)\frac{C_D A \frac{1}{2}\rho}{W_1 - \frac{1}{2}W_p}}\, t_B\right]\right\}$$

$$\text{COAST TIME} = \frac{1}{g}\sqrt{\frac{W_1 - \frac{1}{2}W_p}{C_D A \frac{1}{2}\rho}} \tan^{-1}\left\{\sqrt{\left(\frac{W_1 - \frac{1}{2}W_p}{W_1 - W_p}\right)\left(\frac{F_{AVE}}{W_1 - \frac{1}{2}W_p} - 1\right)}\tanh\left[g\sqrt{\left(\frac{F_{AVE}}{W_1 - \frac{1}{2}W_p} - 1\right)\frac{C_D A \frac{1}{2}\rho}{W_1 - \frac{1}{2}W_p}}\, t_B\right]\right\}$$

HISTORY – late 1968 to 1972

More rocket stuff – Evel & Doug

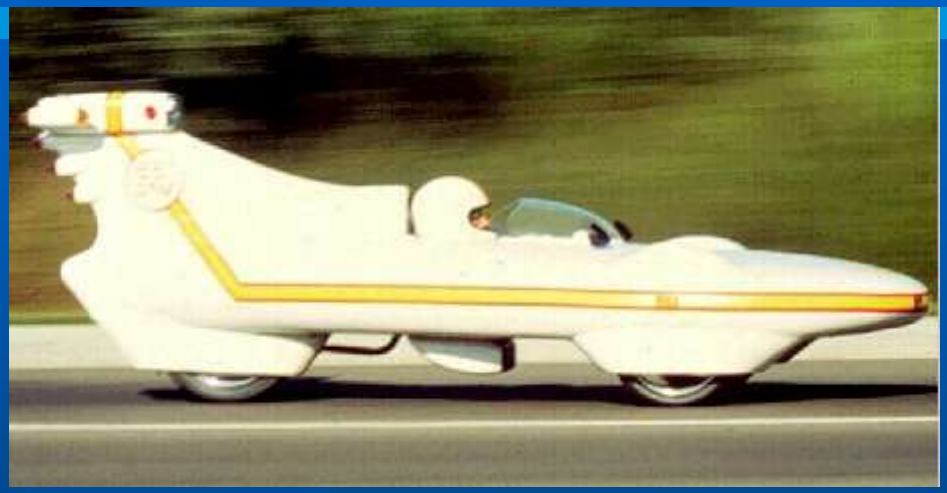


Design : **DOUG MALEWICKI**
Builder : **DON EDMUNDS**
Rocket Eng : **FAG CAMPOY**
BOB TRUAX · BILL SPROW
Recovery System: **PARANETIC**
Paint : **JACK O'BRIEN**

HISTORY – 1980 & 1981

The street & freeway licensed

California Commuter



Doug has two Official Guinness World Records

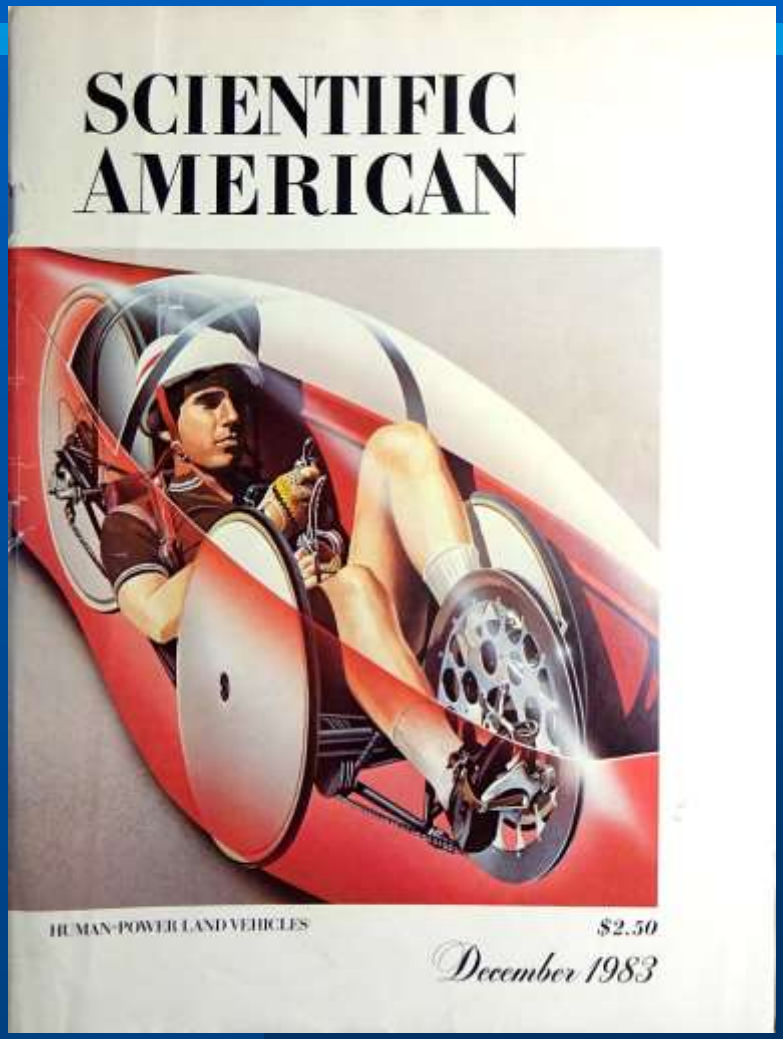
157.192 MPG - gasoline record - LA to SF. Just 2.87 gallons to travel 451.3 miles!

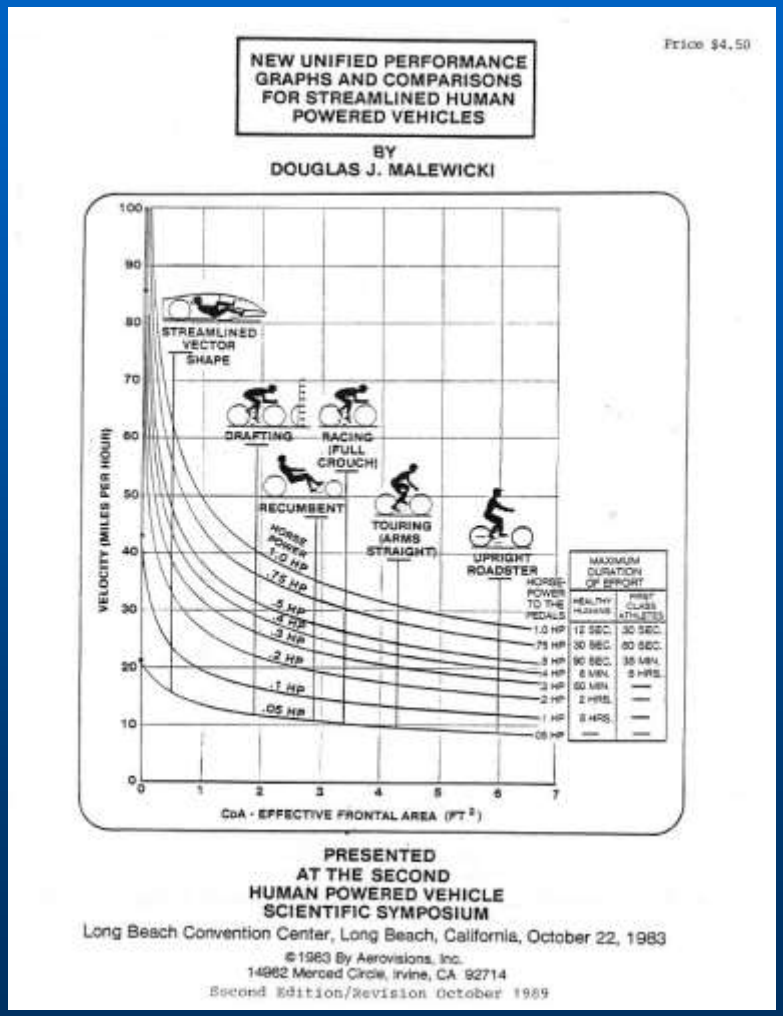
156.53 MPG - diesel record - Anaheim, California to Las Vegas, Nevada. Just 1.68 gallons of diesel to travel 263.4 miles while climbing 7,993 feet of elevation gains.

HISTORY - 1983

"Aerodynamics of Human Powered Land Vehicles"

Cover feature article





HISTORY - 1985

Chief engineer for Olympic cyclist & Hawaii Ironman winner John Howard's Bonneville Salt Flats motor paced speed record attempt

152.284 MPH

average over a measured mile pedaling!

HISTORY

Other Relevant Jobs leaning to an eventual SkyTran

Conveyor belt assembly lines – humans (70's)

Semi-automated equipment handling machines (80's)

Advanced sensors and controls (90's)

ROBOTS…

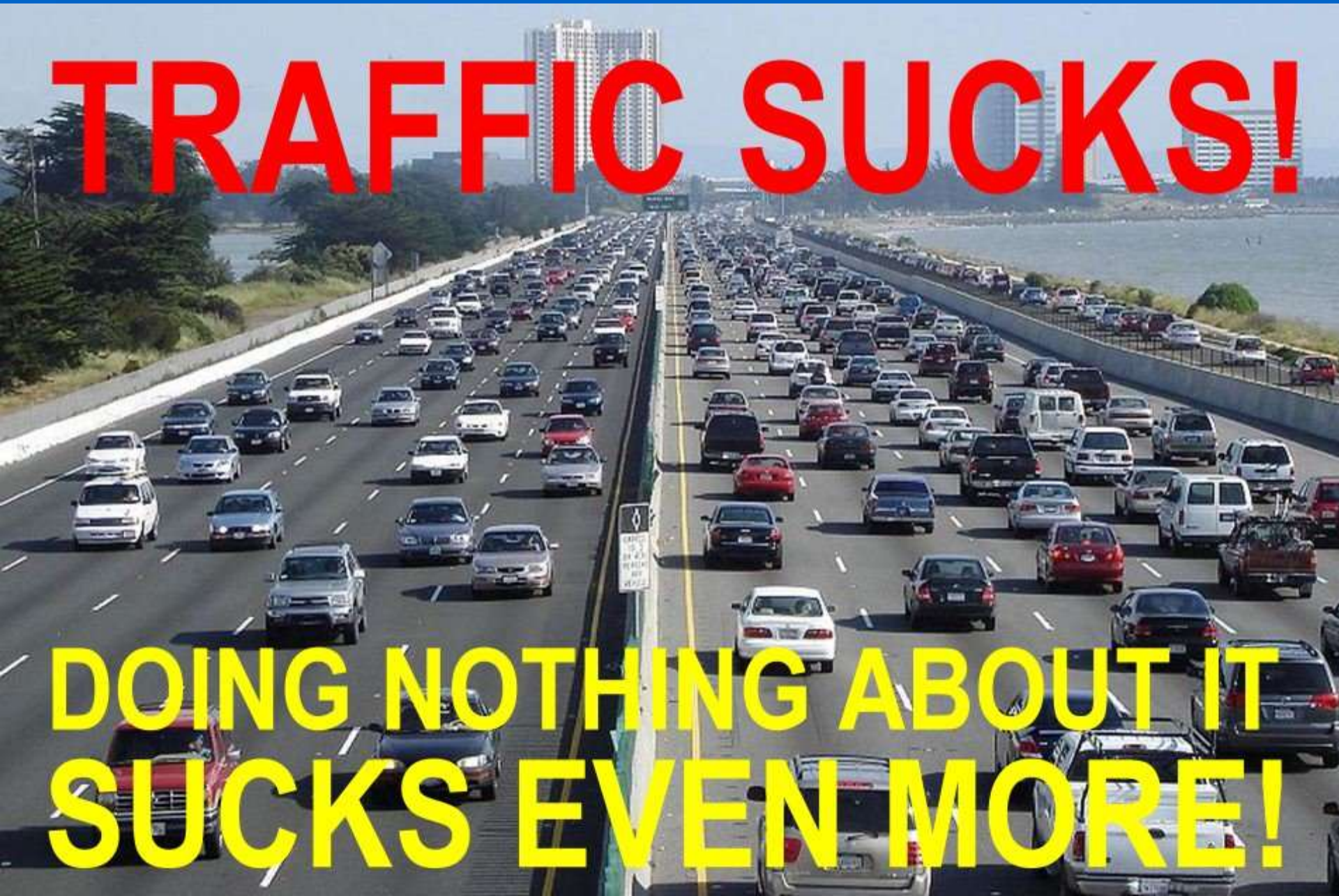
GIANT car eating ROBOTS!

CAR-nivorous
Robosaurus

Giant TRANSFORMING Robots!

Robo did his 1st show in January 1990

TIME TO END THE *INSANITY*!



WORSE - there is NO more LAND for building more roads!

+ so much disgusting, visual pollution!

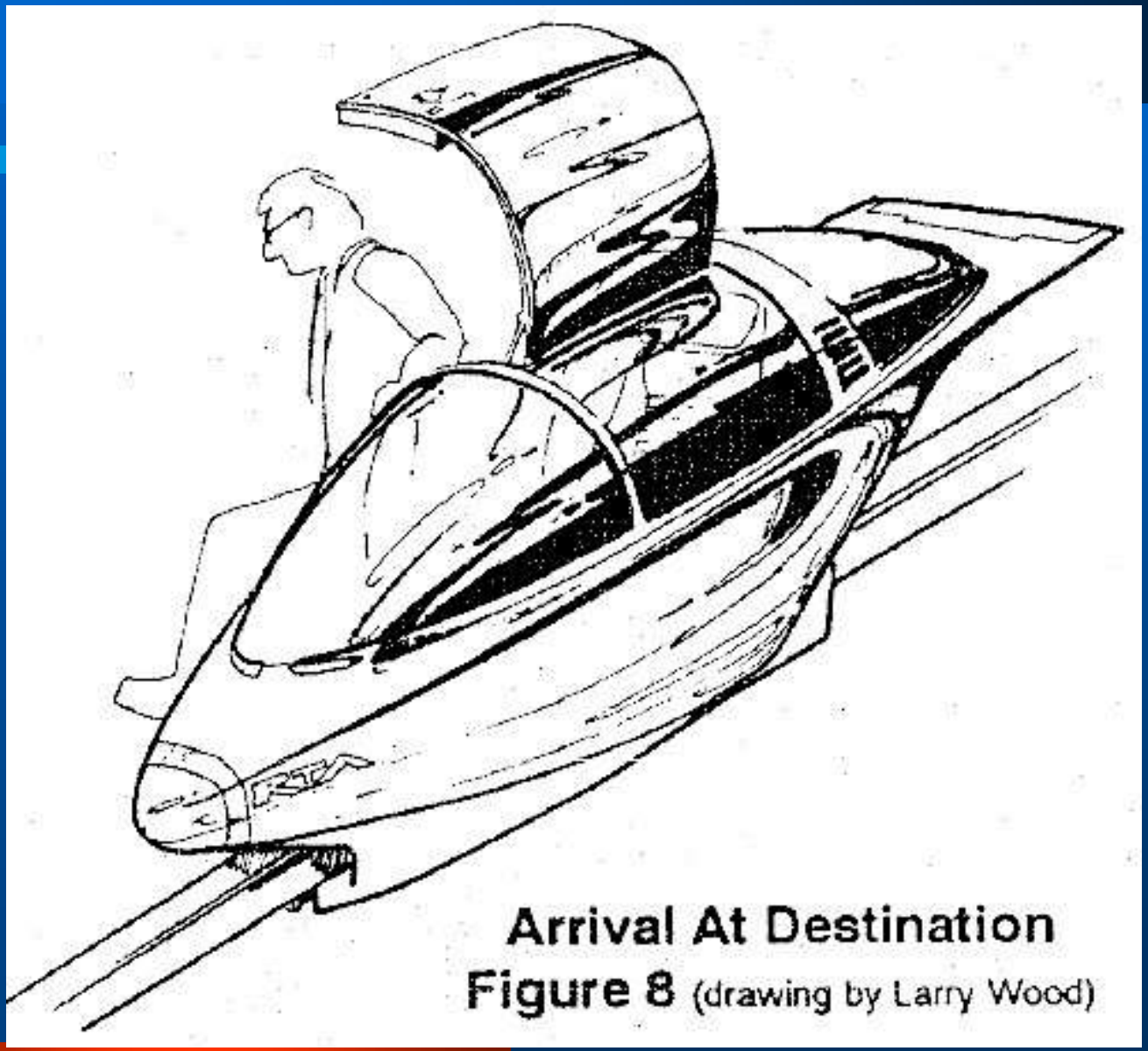
The ideal IS *ZERO* visual pollution

HISTORY

All that *FRUSTRATION!* Then POOF 3 lbs of organic glop created People Pods (precursor to today's SkyTran)

(Originally was strictly for Commuters)

People Pods HISTORY



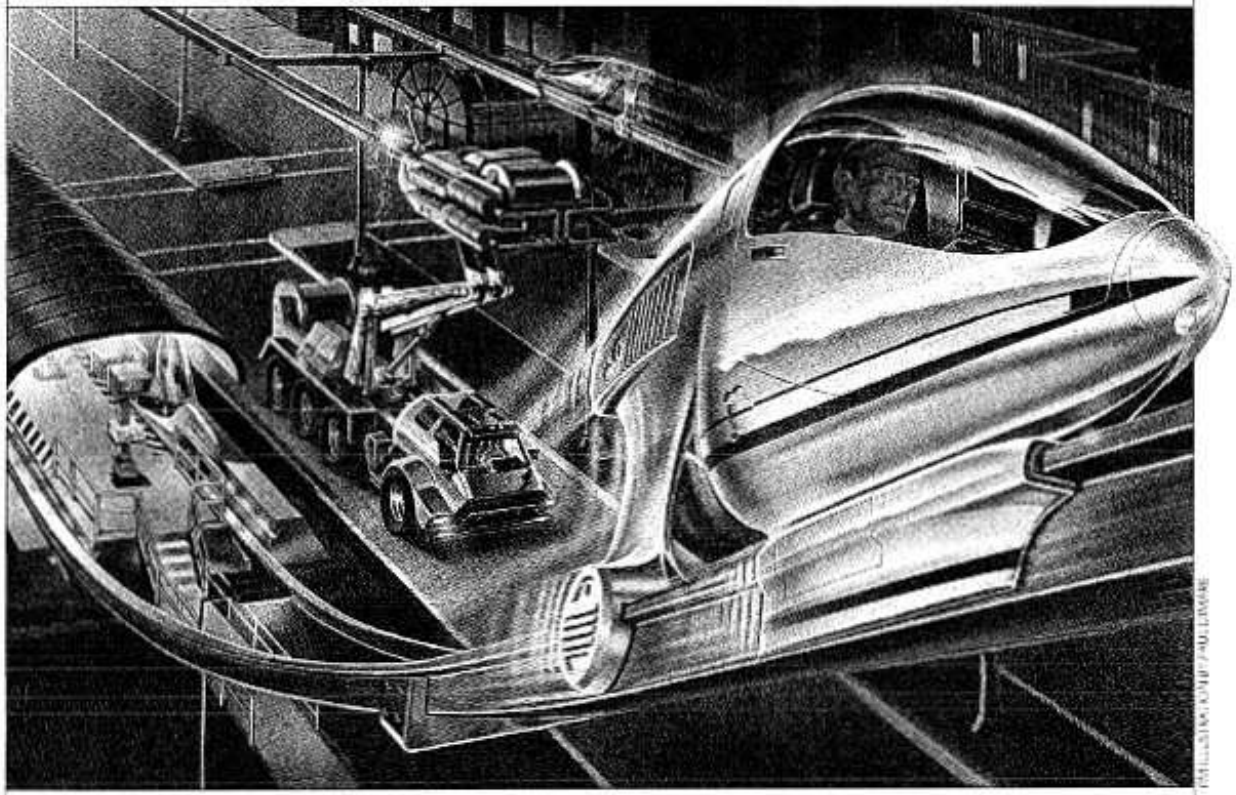
Arrival At Destination
Figure 8 (drawing by Larry Wood)

People Pods HISTORY

Popular Mechanics
January 1992
JANUARY 1992

TECH UPDATE

News Of Tomorrow's Technology Today



Personal Maglev, Public Transportation

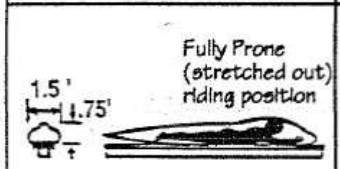
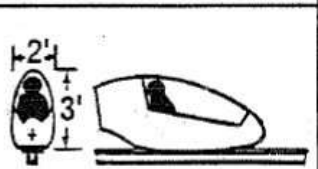
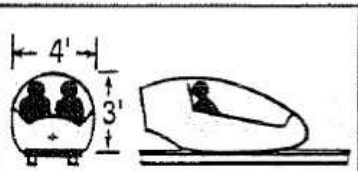
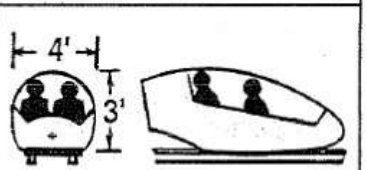
IRVINE, CA—How do you get Southern Californians out of their cars and into mass transit? It may take an ingenious marriage of new ride. Meanwhile, the master computer routes idle Pods to high-traffic areas and controls Pod-spacing density.

Malewicki is currently jockeying for funds to build a 1-mile test track in Orange County, California.

One key to People Pod economics: roll-forming machine, in background, lays steel track across utility poles.

People Pods HISTORY

Performance Comparisons of Possible People Pod Concepts (6)

Single Seater	Single Seater	Two Passenger	Two Passenger	Four Passenger
Absolute Min. Teardrop (no luggage)	Comfortable + 30lbs Luggage	Tandem	Side by Side	Two Front, Two Rear
				
Pod Weight 100	150	190	270	350
People Weight 170	200	400	400	800
Total 270	350	590	670	1150
Frontal Area .88 sq. ft.	4.7 sq. ft.	4.7 sq. ft.	10.2 sq. ft.	10.2 sq. ft.
Drag Coef. .08	.1	.11	.13	.145
$C_D A$ .070 sq. ft.	.47 sq. ft.	.52 sq. ft.	1.326 sq. ft.	1.479 sq. ft.
Horsepower @ 100mph: Air .50 HP	3.38 HP	3.74 HP	9.53 HP	10.63 HP
Rolling .36 HP	.46 HP	.79 HP	.89 HP	1.53 HP
Total .86 HP	4.04 HP	4.77 HP	10.97 HP	12.8 HP
Kilowatts .68 KW	3.03 KW *	3.58 KW	8.23 KW	9.60 KW
Energy cost per 100 miles $ .06	$.27	$.32	$.74	$.86
MPG Equiv. 2,167 mpg	481 mpg	407 mpg	176 mpg	151 mpg
Relative Eff. 450%	100%	83%	36%	31%
Accel. Power 13.5 HP	17.5 HP	29.5HP	33.5 HP	57.5 HP

Note: Gas cost = $1.30 per Gal and Elect. cost = $ .08979 per KW-Hr (Steady Speed of 100 mph) D. Malewicki 6/16/90

* This is the power of two hair dryers

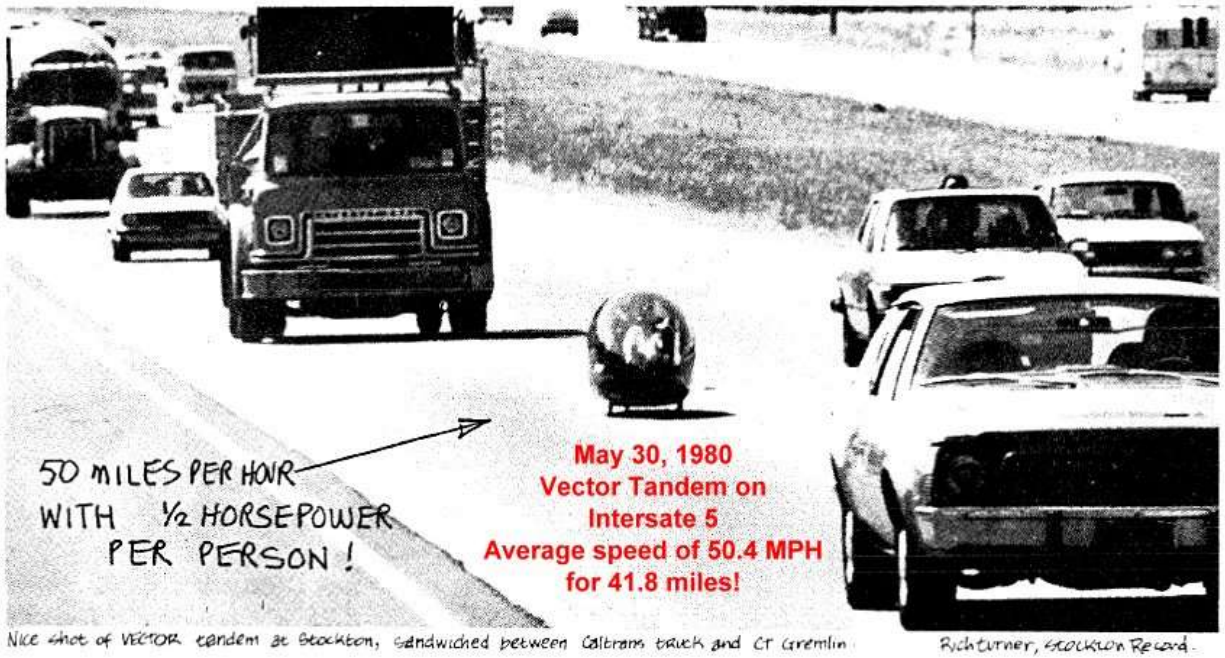
NOTE DATE: June 16, 1990

People Pods Inspiration

HUMAN POWER

Official IHPVA Newsletter

Winter, 1981



Nice shot of VECTOR tandem at Stockton, sandwiched between Caltrans truck and CT Gremlin

Rich Turner, Stockton Record

HUMAN POWER ON THE FREEWAY

On Friday morning, May 30, 1980, Fred Markham and Chris Springer peddled the Vector Tandem on California Interstate 5 from Stockton to Sacramento, a distance of 41.8 miles. The trip took just under 50 minutes, giving an average speed of 50.5 miles per hour. This is the story of how it happened.

Still, the Vector Tandem holds the current endurance record of 46+ miles in one hour and could maintain the legal minimum freeway speed (45) for that distance if the riders were of top quality. We could have a CHP escort, which would make it as safe as possible, and we could make the run early on Saturday morning, so it wouldn't be so hot or windy, and the traffic wouldn't be very heavy.

It all sounds almost conceivable, and what a great chance to show the world what human power can do! We'll do it! Now to find two brave, strong riders. Will White volunteered to ride with me, but

HISTORY

Portland, Oregon - First presentation– Aug 1991

HISTORY

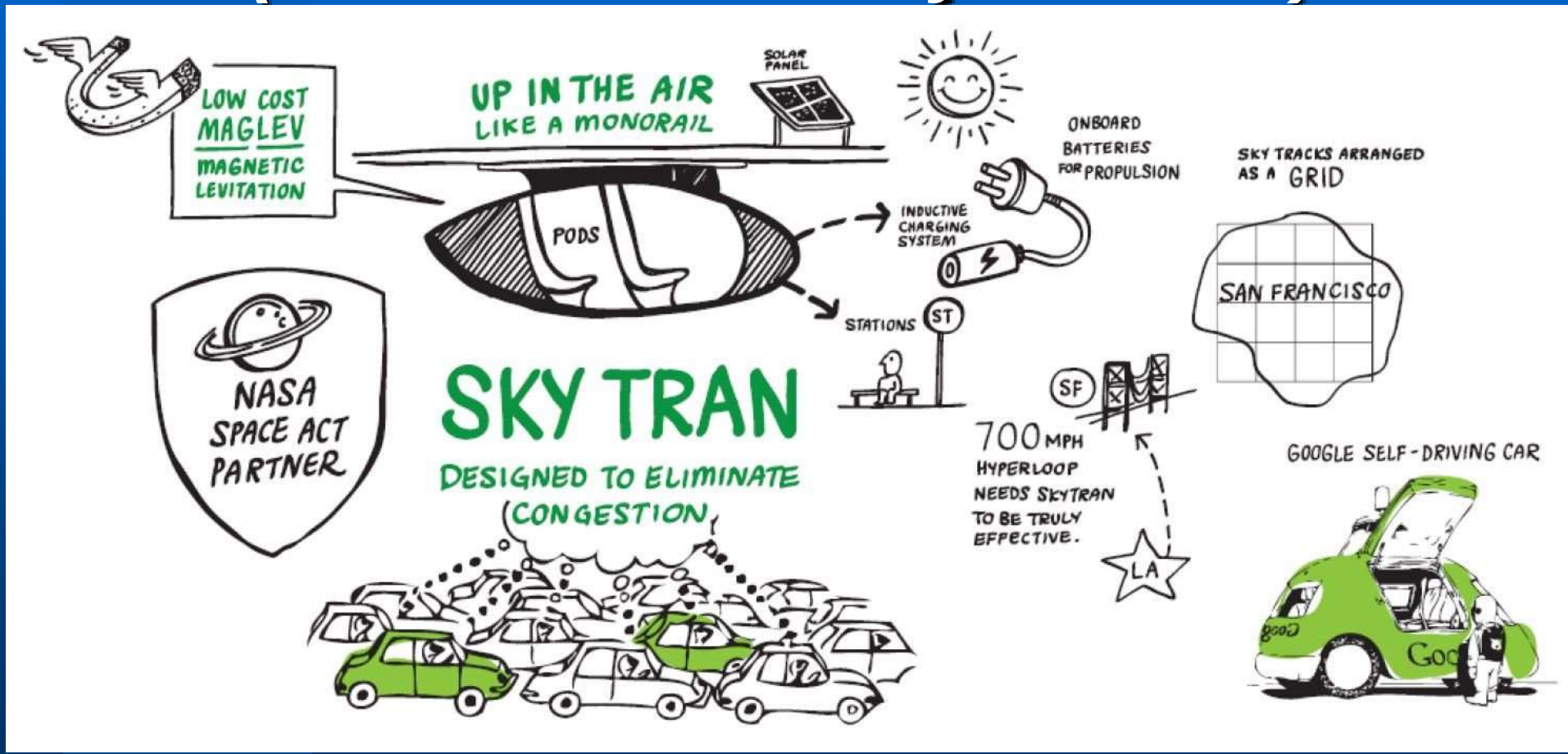
Mexico City - First exposition display - Nov 1992

HISTORY

Mexico City
1992
Hector Patino
Ron Swenson &
Jim Nilsen

ENOUGH HISTORY!

Time to discuss super new SkyTran tech. (well worth the 25 year wait!)



What is it?

skyTran™

Tomorrow's Transportation Today

25 years later!

#1 - Advanced magnetic LEVITATION

#2 - Magic magnetic PROPULSION

#3 - VERTICAL magnetic switching

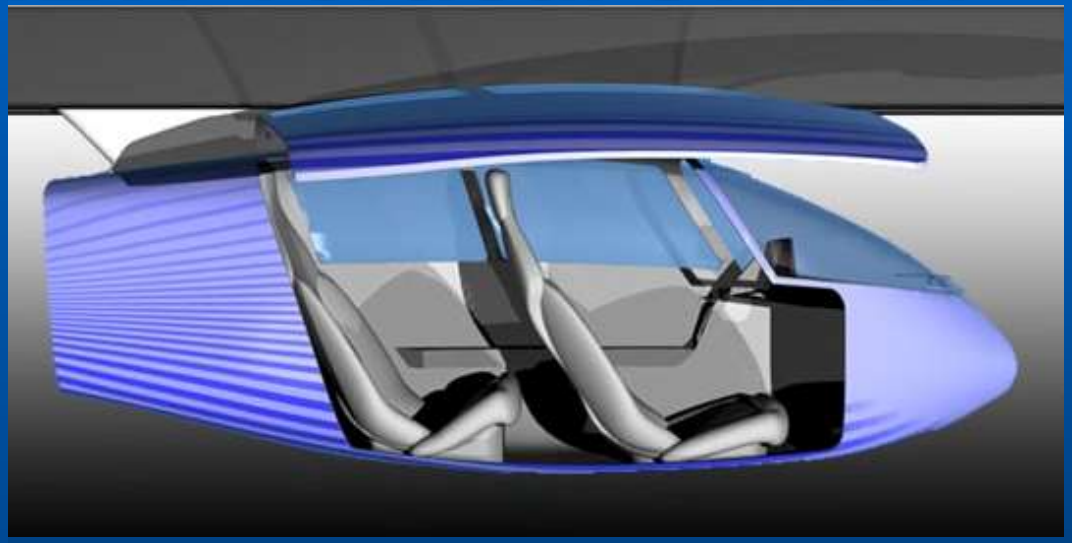
#4 - Totally passive guideways

MagLev Private Rapid Transit *(MPRT)*

No New Land? No problem!

#1 - Two seat tandem = skinny

#2 - NEW vertical switch = skinny



SkyTran has ALWAYS been designed to be elevated above existing side walks

No destructive right-of- ways required

POINT-TO-POINT PERFORMANCE

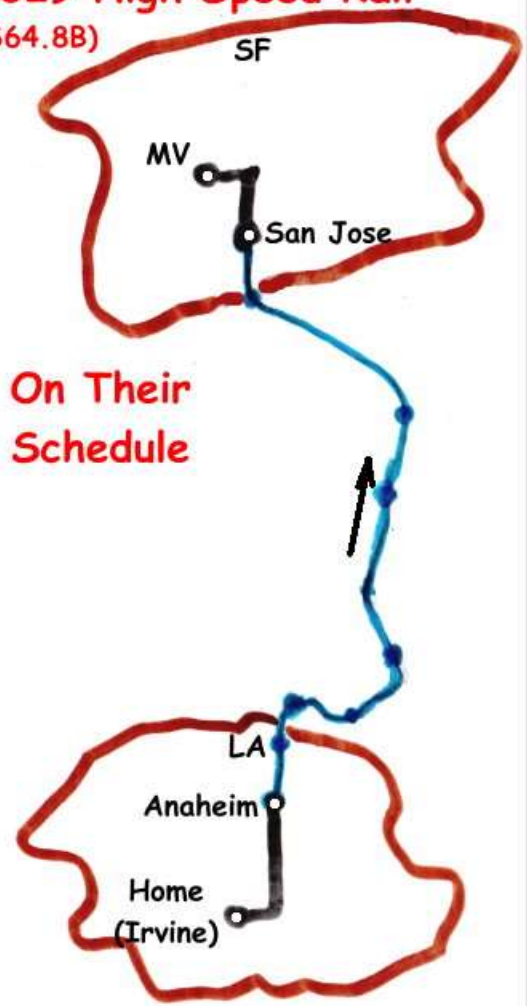
(My trip to PodCar City9 - Irvine, CA to Mountain View, CA)

Drive (human)

Fly

2029 High Speed Rail

($64.8B)

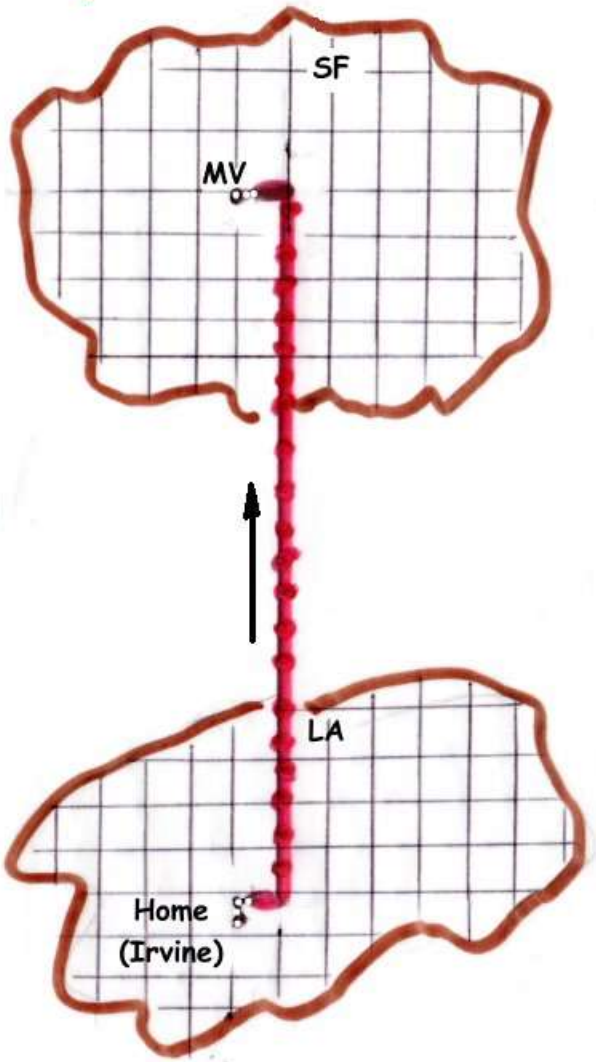


		If all are Google Cars:		W/all 7 stops
Time:	6:12	5:35	4:01	Non-stop 4:22 / 5:09
Average Speed:	60.6 MPH	70 MPH	91.8 MPH	86.9 MPH / 73.8 MPH

POINT-TO-POINT PERFORMANCE

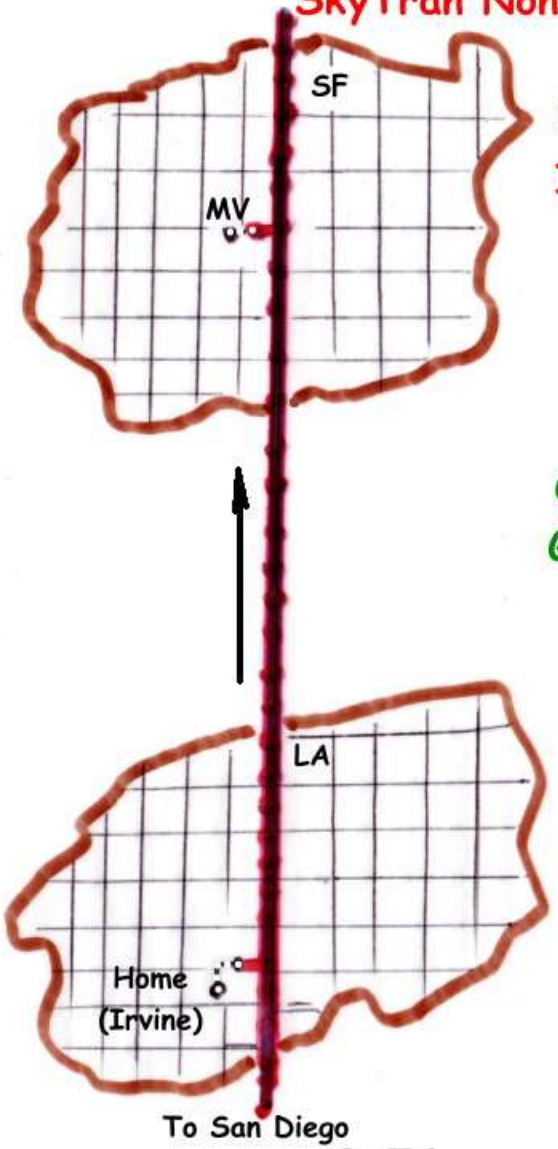
(My trip to PodCar City9 - Irvine, CA to Mountain View, CA)

SkyTran Non-stop 100 MPH



On Demand
Go Anytime!

SkyTran Non-stop 100 MPH with 150 MPH Intercity



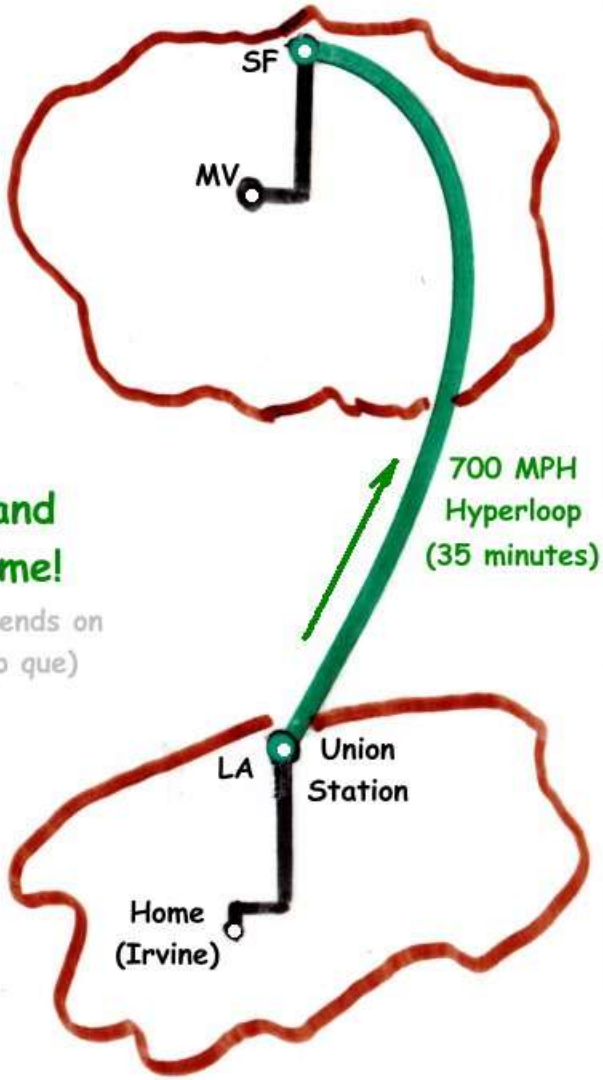
On Demand
Go Anytime!

Time:	4:18	2:51
Average Speed:	89.2 MPH	137 MPH

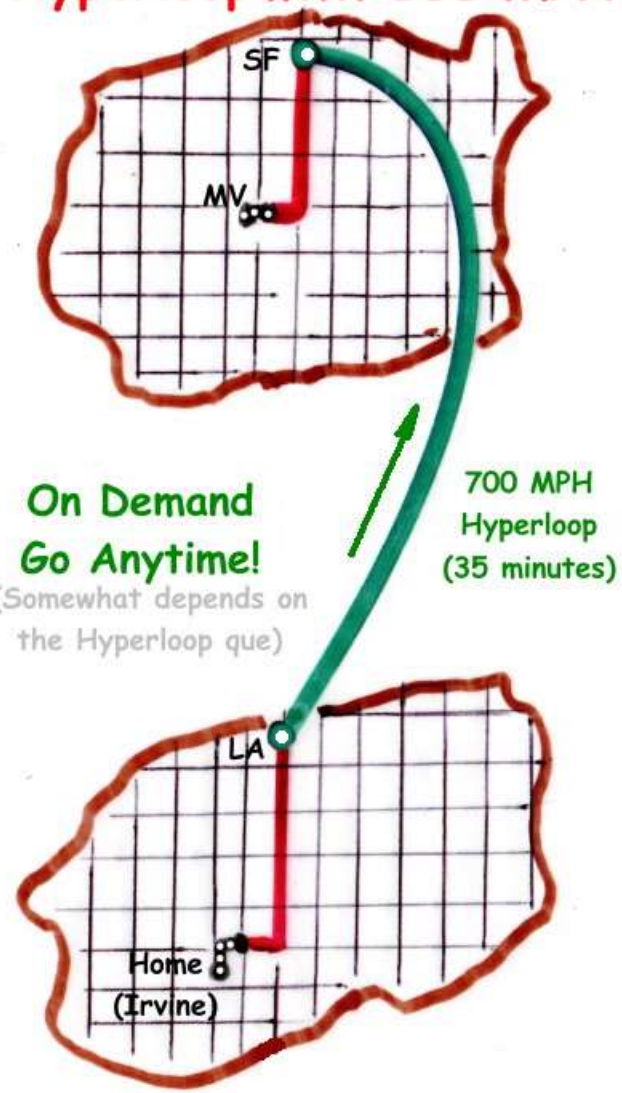
POINT-TO-POINT PERFORMANCE

(My trip to PodCar City9 - Irvine, CA to Mountain View, CA)

Hyperloop



Hyperloop with 100 MPH SkyTran



Time:	2:58	1:50
Average Speed:	152.2 MPH	304.6 MPH

Eliminating traffic will take Super Heroes!

Where are they when you need them?

One of them is here to help!

The other is Elon Musk!

(WTF! Why That's Fascinating.)

skyTran™

Tomorrow's Transportation Today

References

Website: *www.SkyTran.us*

Main business contact:
CEO Jerry Sanders *Jerry@SkyTran.us*

CEO Jerry Sanders **TedX** talk in India:
http://youtu.be/Tqx2gLI 8pM

IEEE paper: Silicon is about to Change the World – Again!
http://tinyurl.com/IEEE-Silicon

Plus 13 pages of all new SkyTran insights discussed in Doug's Amazon Kindle eBook

SkyTran

21st Century *Silicon Based* Transportation

The End

(But wait, there's MORE!)

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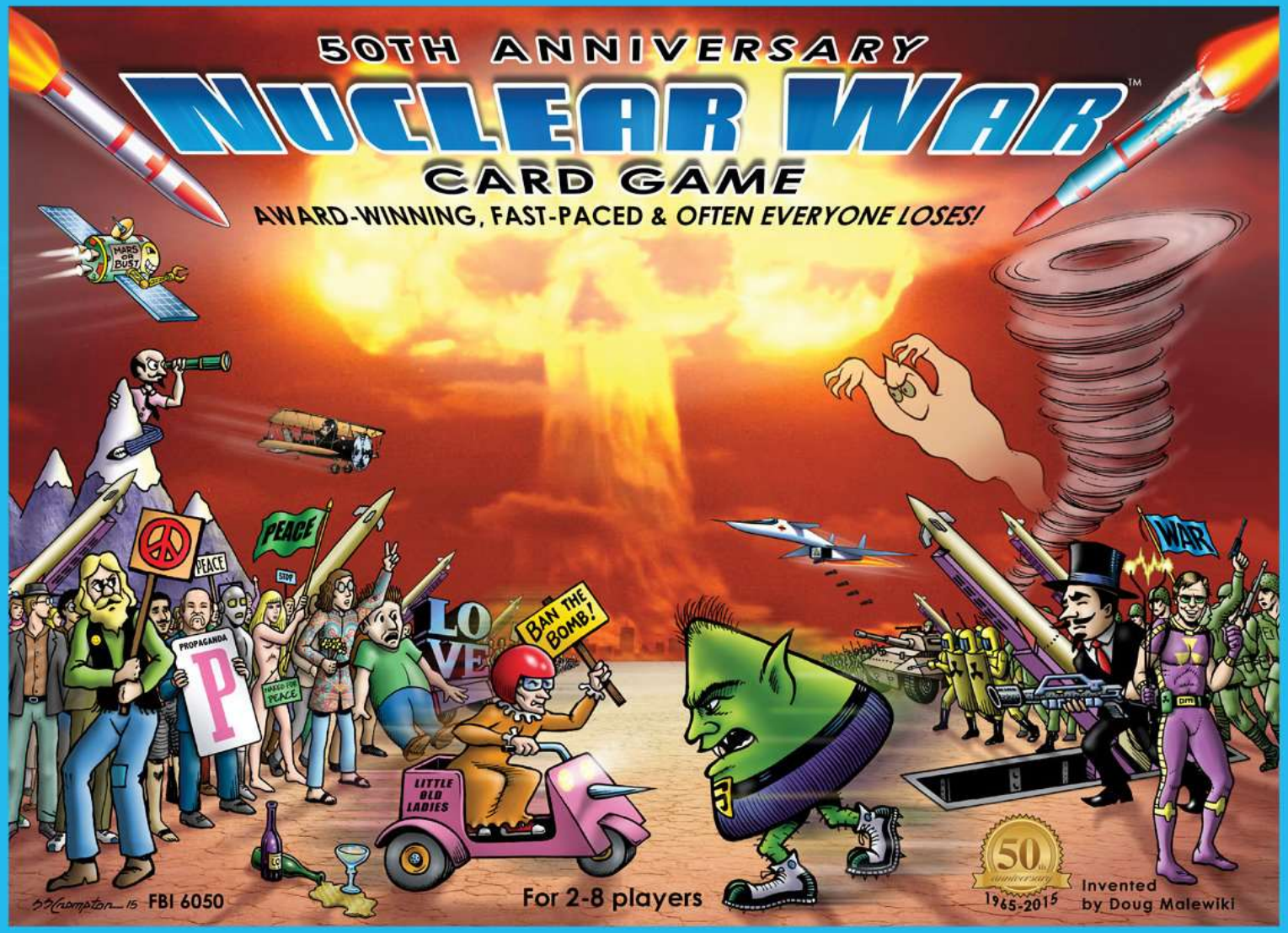
I didn't forget!



Nuclear Escalation 1982

SuperVirus
(was based on the Space Shuttle)

2015

Electrocution wand

More SkyTran?

I’m done, but THERE IS A

PART 2

(If EcoPRT’s
Professor Choromanski
still hasn’t appeared!)

SkyTran – PART 2

The ULTIMATE *Transportation* Solution

PodCar City9 2015

Mountain View, California

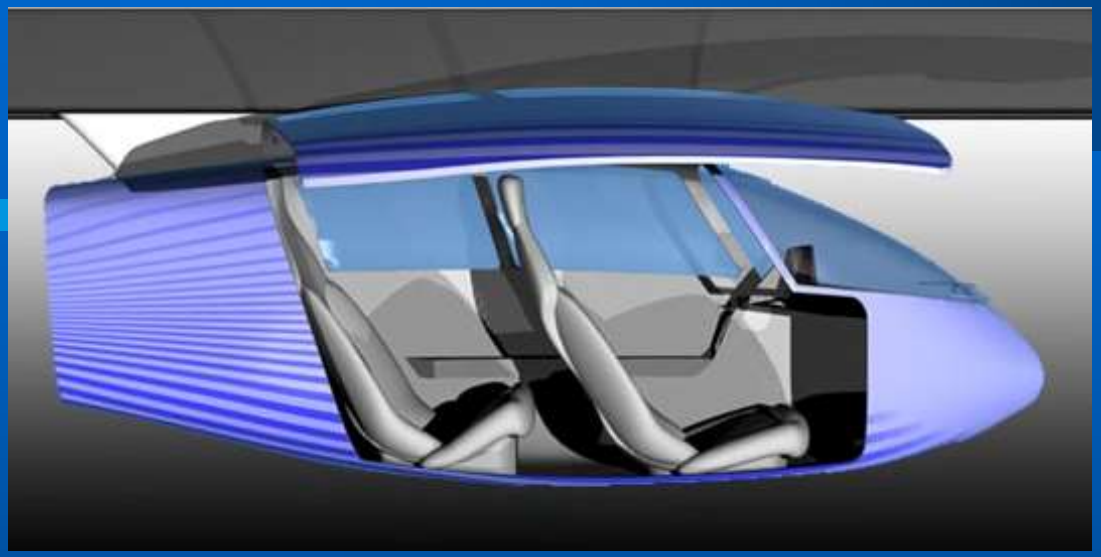
Friday November 6, 2015

by

Douglas J. Malewicki

SkyTran, Inc. Founder and Chief Visionary

That TITLE is a LIE!



SkyTran alone is NOT the ULTIMATE transportation solution!

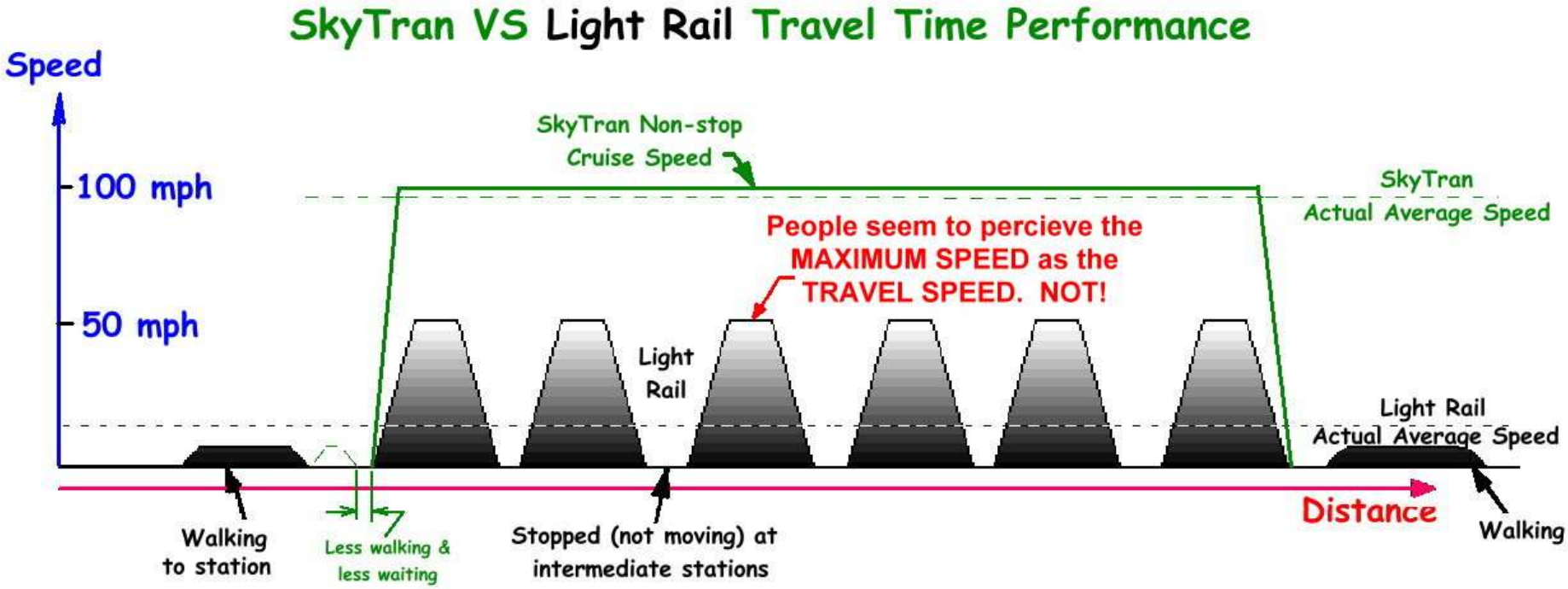
☹

The *real* ULTIMATE solution is:

A) HYPERLOOP combined with SkyTran
B) Google Cars
C) Bicycles & eBikes
D) Uber & WalkCar

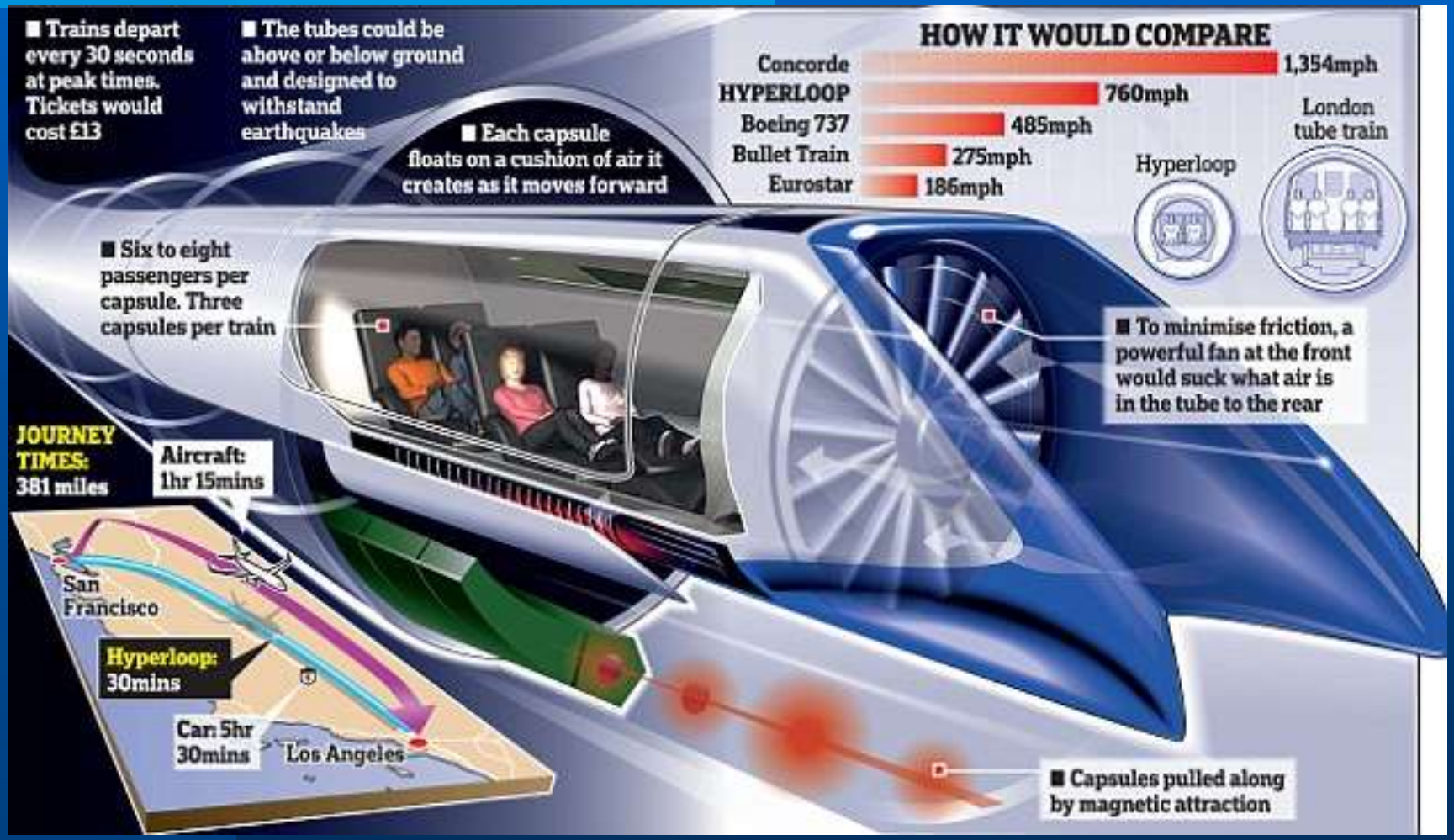
WHY?

Because people want to minimize TRAVEL TIME



Elon Musk's HYPERLOOP

THE TECHNICAL PRINCIPALS for what it will take to get from LA to SF in 35 minutes



HYPERLOOP IS HALF OF SOLUTION?

You better ASK…

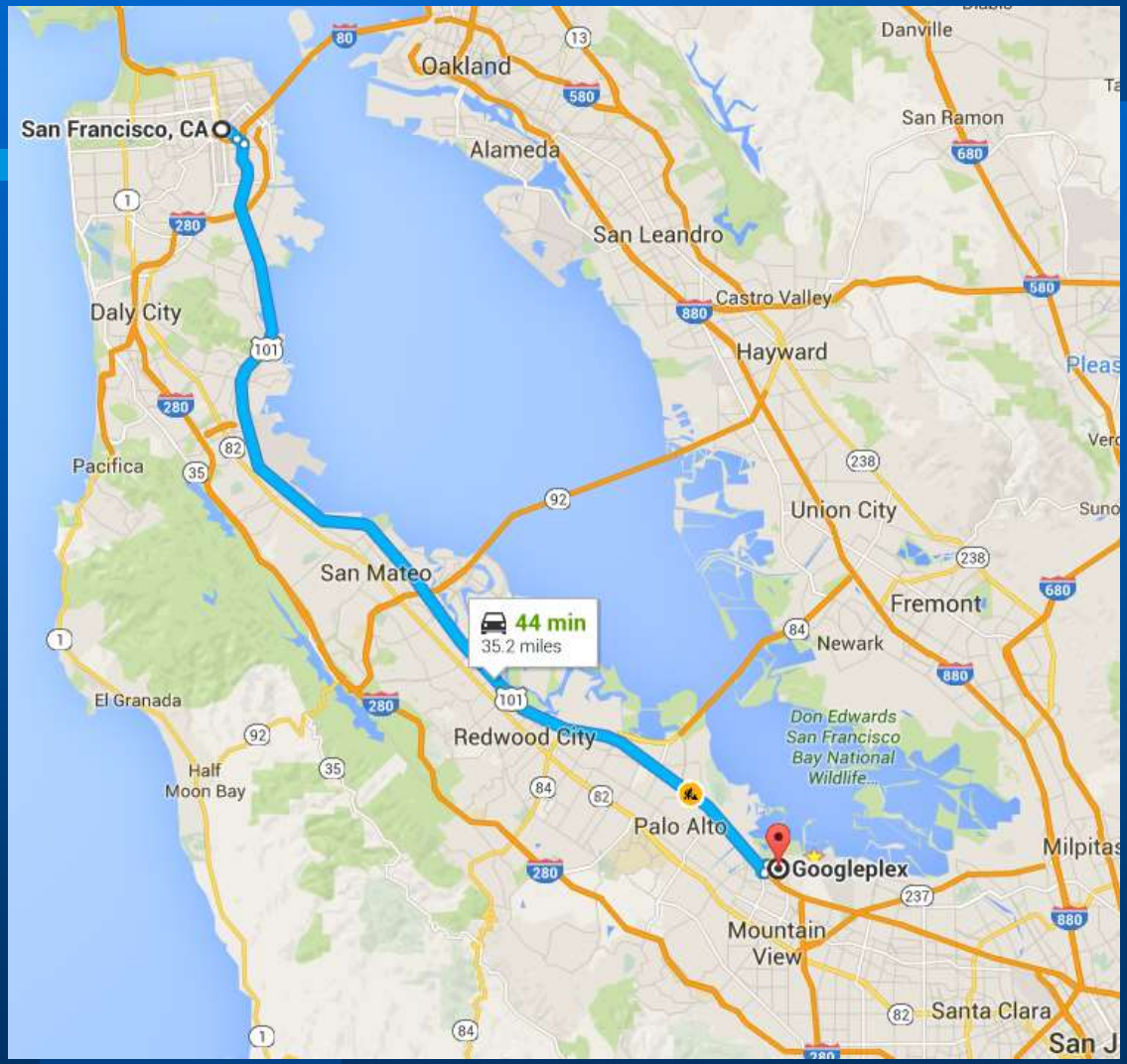
"How long did it take you to get TO the HYPERLOOP station in *LA and then* FROM the SF station to your desired final destination?"

Typically 1 to 1.5 hours* at each end?

SkyTran is not a 700 MPH system. HYPERLOOP is needed to take you *between* cities FAST!

SkyTran™
was designed to
ELIMINATE
commuter congestion
***within* cities!**

Benefits of Full City Coverage SkyTran 3D Grids



Go anywhere on a 3D Grid at 100 mph!

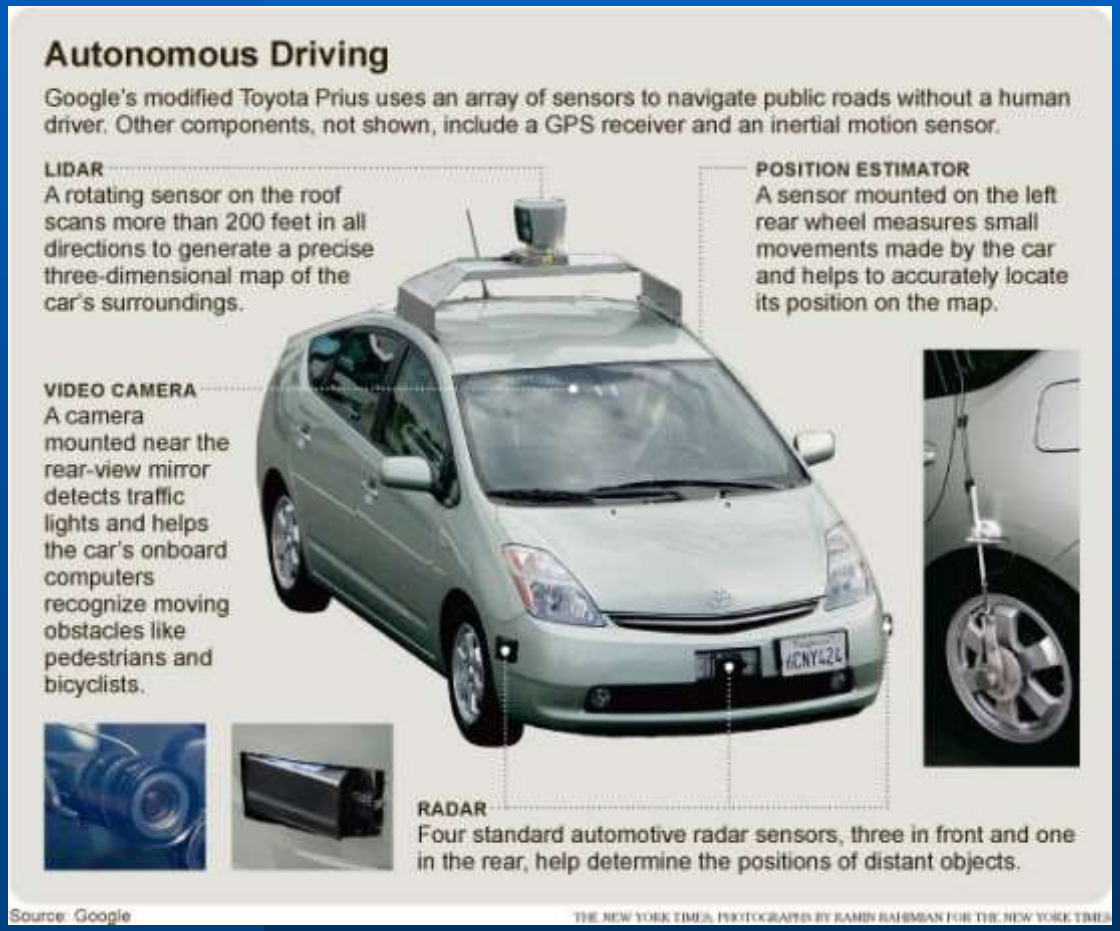
The 35.2 mile trip from SF to Google at a non-stop 100 MPH would take 21 minutes.

Would the young Google employees who prefer to live in SF approve?

At the same time let's TRIPLE the Hourly Capacity of existing Freeways

- - HOW? - - WITH AUTOMATION - -

THE GOOGLE CARS ARE COMING!



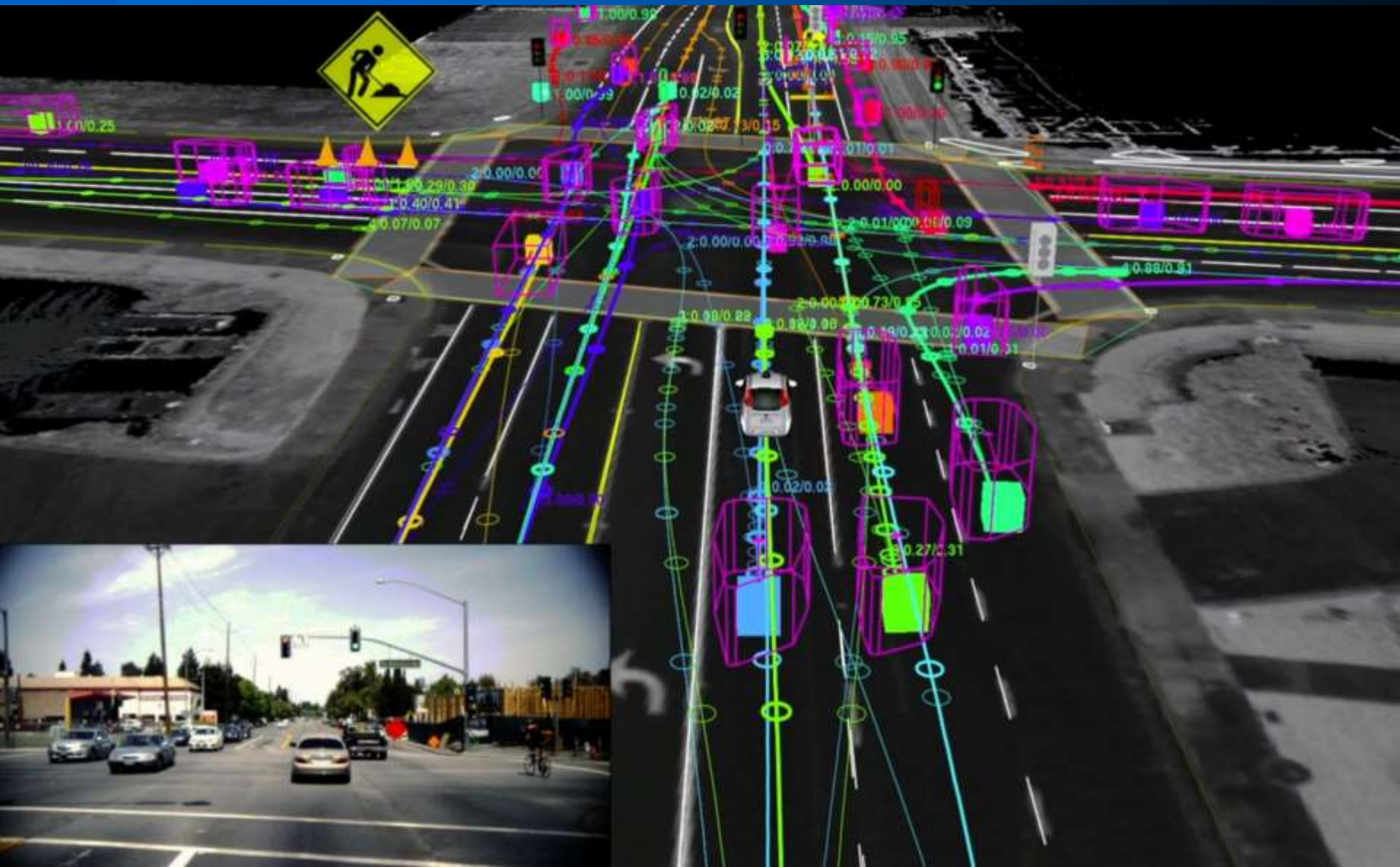
And better yet, the general public already accepts, believes and WANTS automated self-driving autos!

Fascinating Google driverless cars TED talk by head project manager, Chris Urmson

http://tinyurl.com/Car-Google-Robot

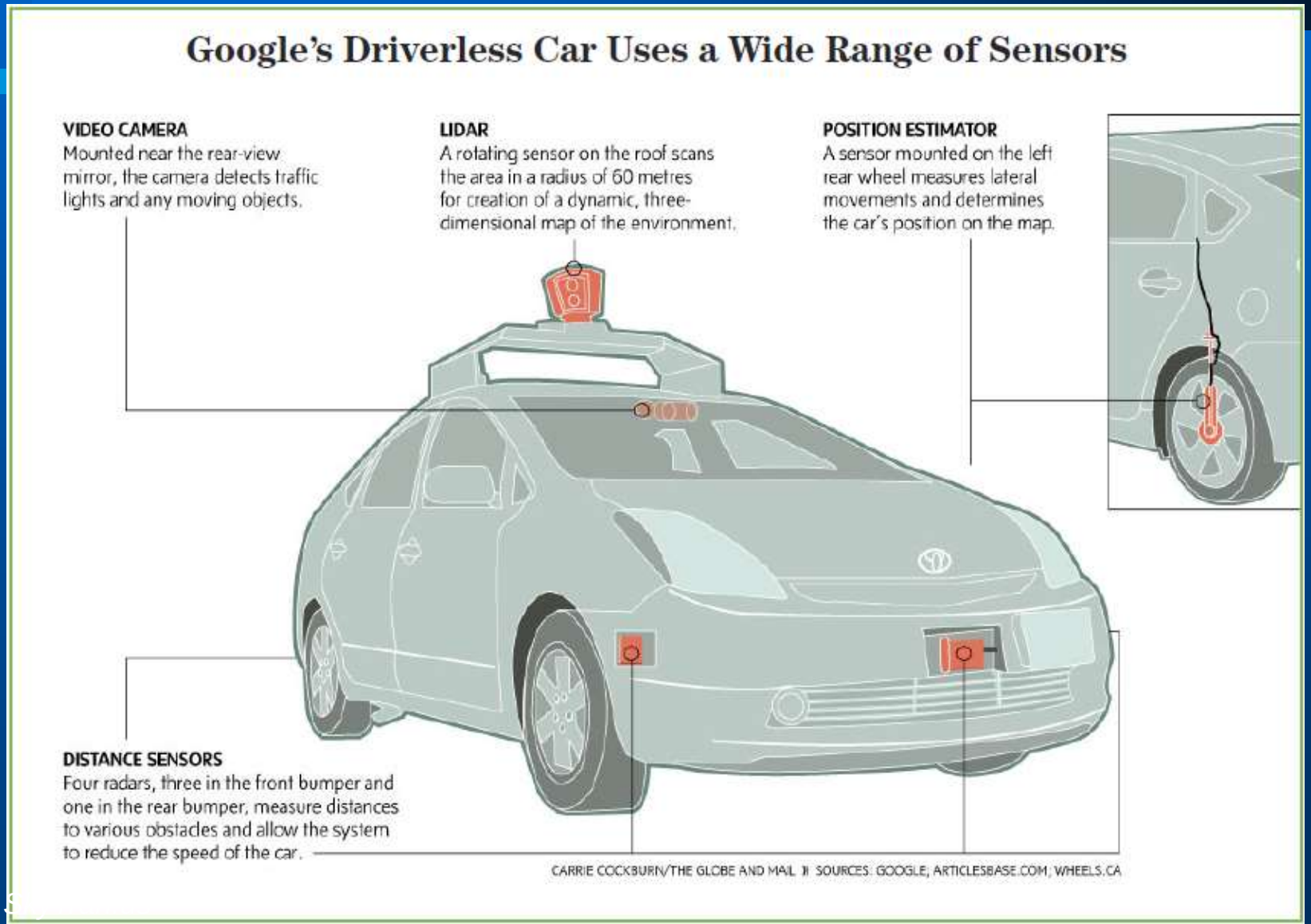
From Chris's TED talk - moving video clip of everything the Google cars are "seeing"

Real time mathematical extrapolations of all nearby movements & potential interactions

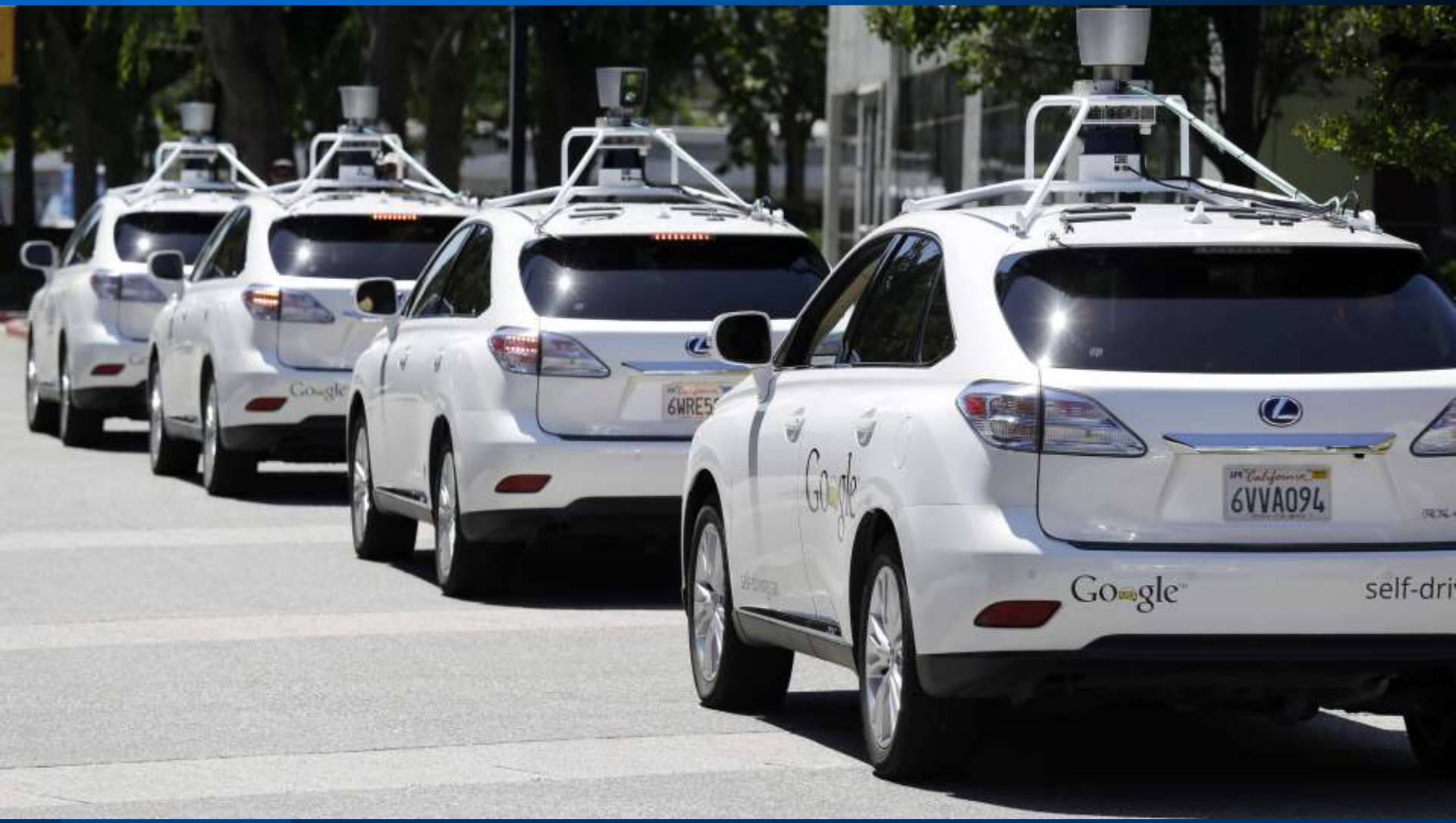


Google Cars pay attention 100% of the time!

The US NHSB says 93% of all accidents are due to inattention by the human sensing and control organisms (the drivers).



Google cars can also safely follow much closer that human driven cars.



Safe close following is essential to increasing hourly capacity per lane.

IT is NOT NEW! 1997 Caltrans Demo

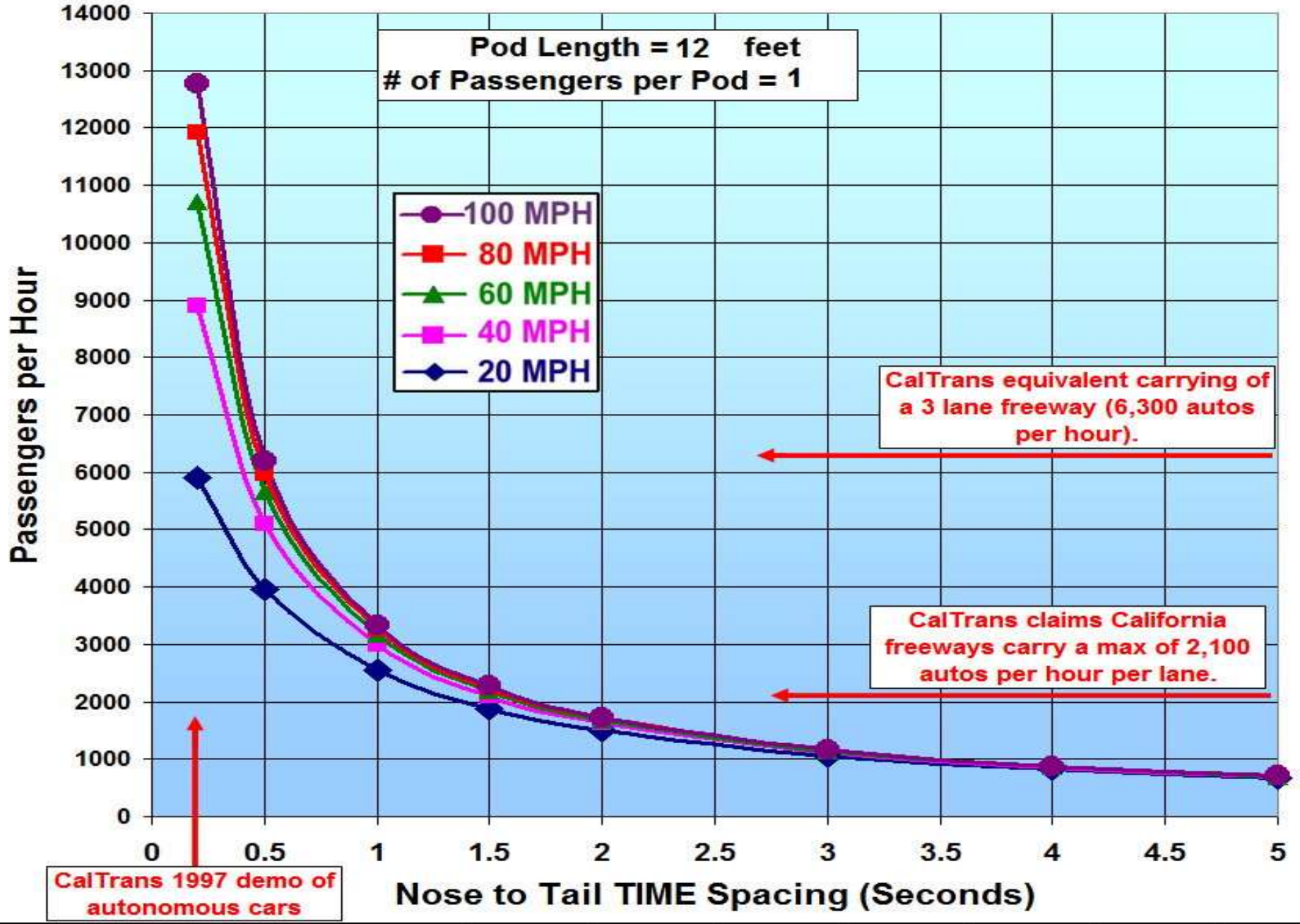
Spacing interval was 6.5 meters at 60 MPH =

.24 second!

Have their been any computer speed and control systems improvements since 18 years ago?

SkyTran pods will operate at ***½ second*** spacing. Twice this time interval

Hourly Passenger Carrying Capacity



Google cars will yield perfectly safe, freeway speed, one passenger, *micro super efficient* commuter cars

Doug's improved California Commuter aerodynamic shape will yield 300 MPG at 70 MPH
(even on fossil fuels)

SKINNY VEHICLES ON HIGHWAYS CAN DOUBLE THE HOURLY CAPACITY AGAIN
by driving side by side in one lane!

California Commuters & LITmotors.com's gyro stabilized, fully enclosed motorcycles

The baby Google car

No steering wheel , gas or brake pedals!

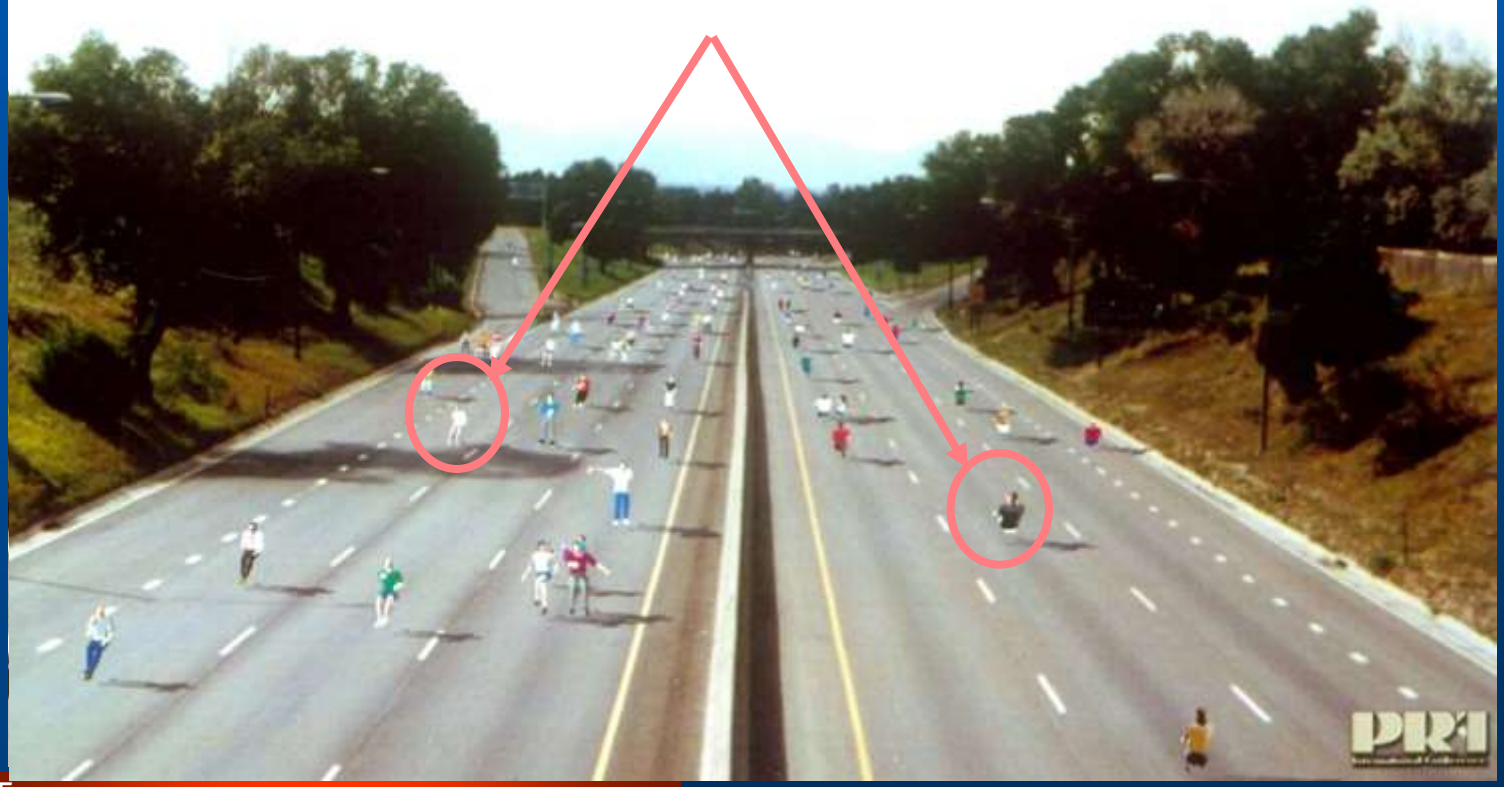
Coming sooner than you think!

The eventual NON-STOP future

Technology to ELIMINATE traffic signal frustrations is coming in 2D! Much simpler today to use 3D!

Why are we using tons of assorted raw materials, energy and labor to build 3,500+ lb. machines and expensive roads just to transport 170 lb. people?

THE REAL PROBLEM: How can we SAFELY move millions of small human payloads everywhere – super fast & efficiently!



Are you sure we need ALL this just to give humans mobility?

3,500 pounds of processed materials

Instead of 3,500 lb machines how about those 15 to 25 lb machines

Powered by oatmeal, NOT fossil fuels

In Copenhagen, 50% of commuters going to work & school use bicycles!

Bicycle commuting is popular in Europe and Asia


40

eBikes have proliferated!

20 mph cruise speeds instead of 13 MPH pedaling


Friluftsland

Surprise!

They do it in any weather, not just nice sunny days!

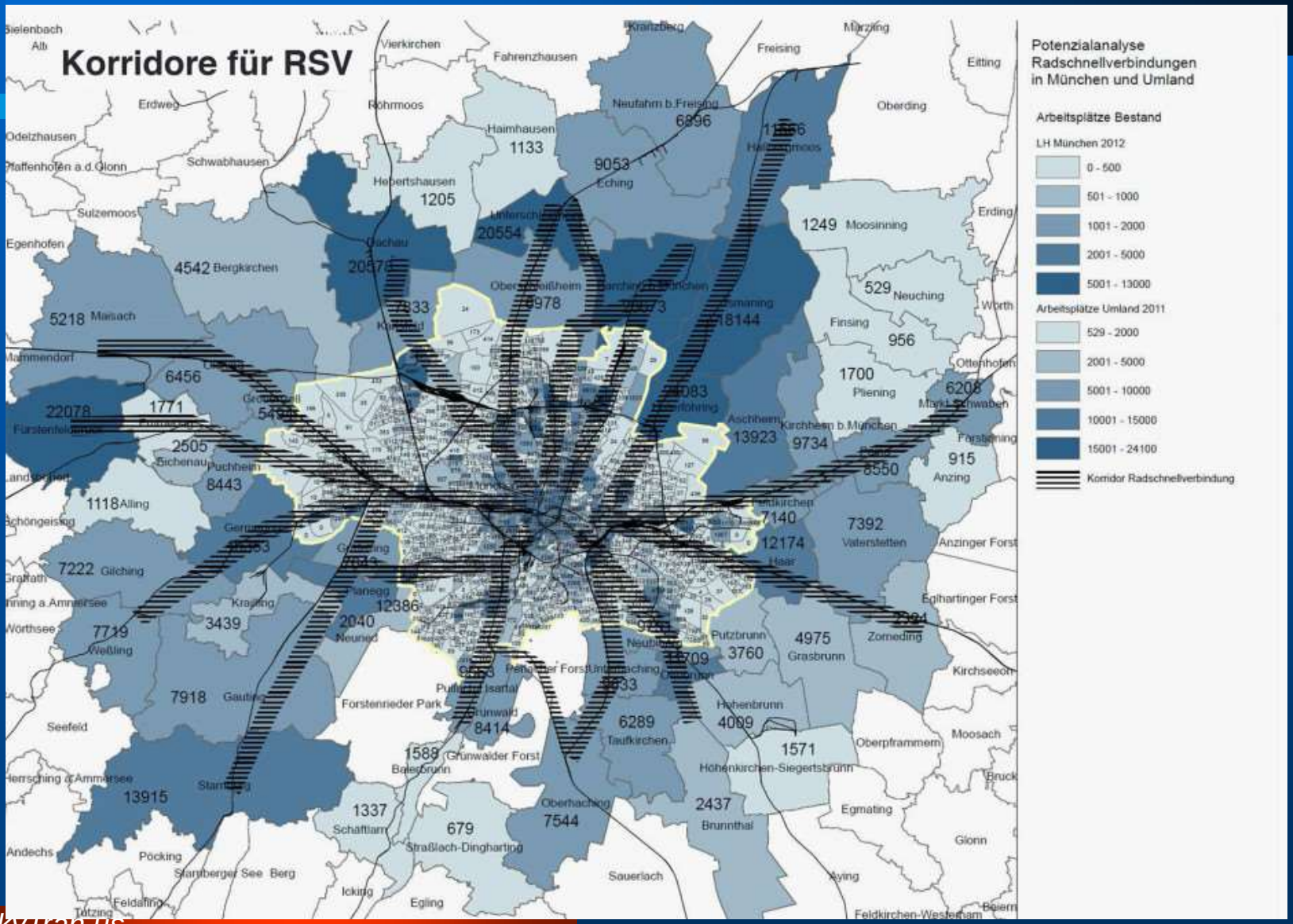
NO $20 per day parking fees either

10 times as many bikes as cars parked on the same amount of land

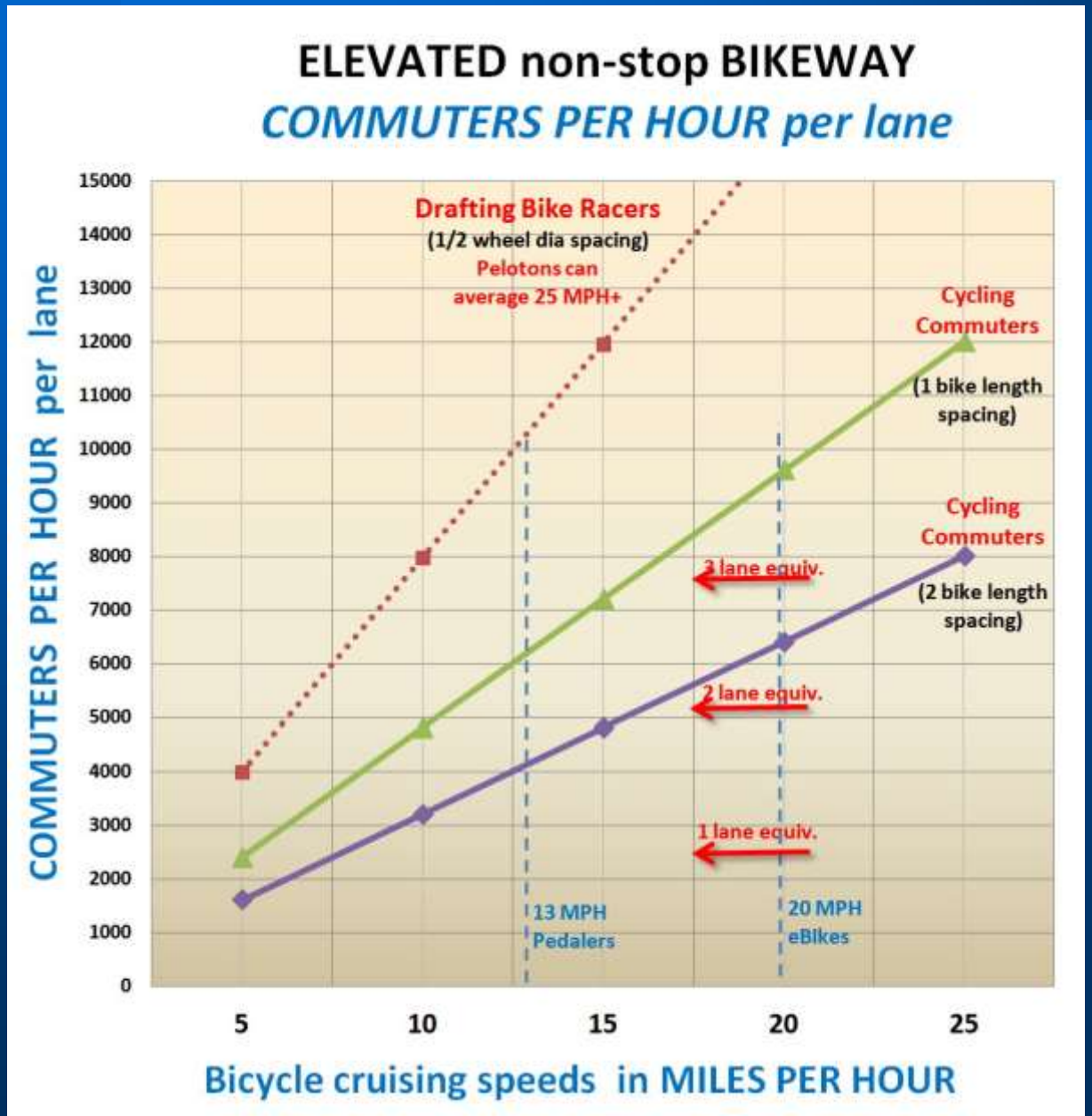
London Elevated Bikeway

Copenhagen Elevated Bikeway

Munich, Germany is planning $120 million of grade separated non-stop cycling routes.



Elevated non-stop Bikeway Capacity



4 bi-directional lanes
(2 lanes for each direction)

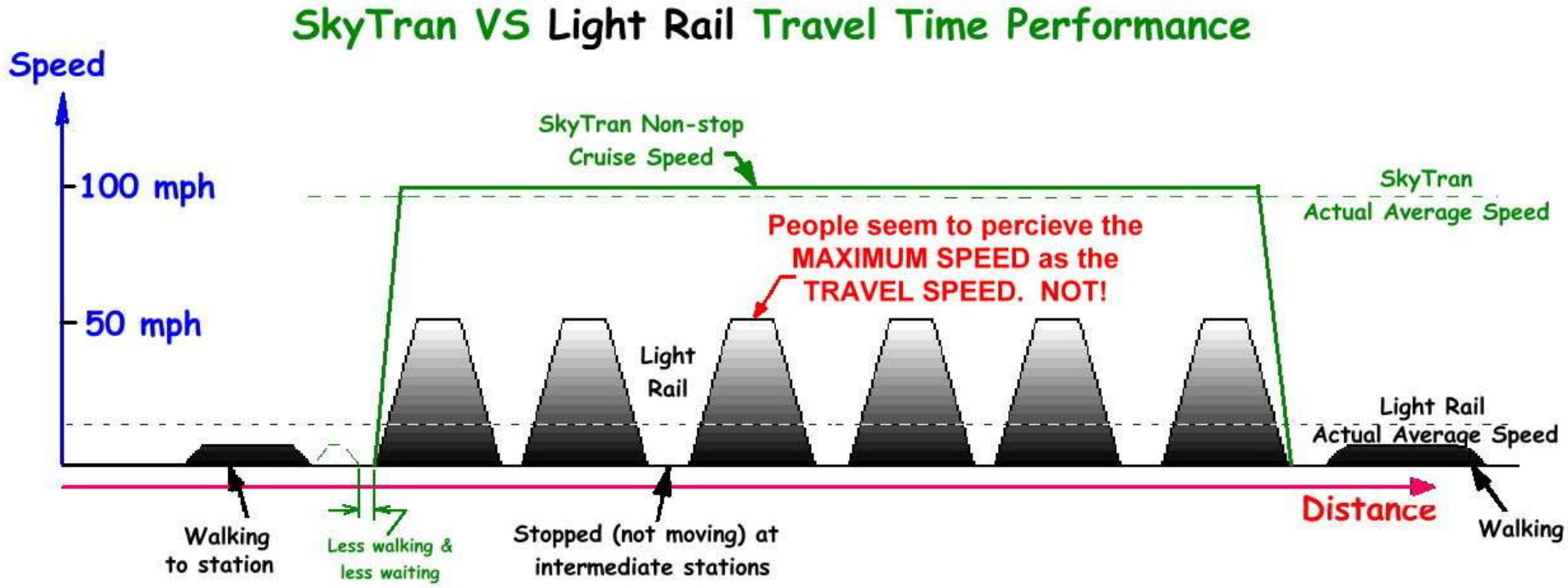
13 MPH in low speed lane for pedaling cyclists

20 MPH in high speed eBike lane

With a spacing of two bicycle lengths between ALL cyclists:

Commuters per hour per direction = 10,050 per hour!
(20,100/hr total)

What counts is TOTAL TRAVEL time – NOT maximum cruise speeds!



Eliminating *Red Light* stops for cyclists yields higher hourly capacity and speeds than buses!

SkyTran will be an important contributor to eliminating all future commuter congestion

Website: *www.SkyTran.us*

skyTran™

Tomorrow's Transportation Today

Why? Because SkyTran IS MagLev PRT.

It will travel at higher speeds than any wheel driven PRT, have higher MPGe & require less maintenance.

SkyTran™ Science Fiction is TODAY'S REALITY!

SkyTran™ is a Space Act partner with NASA!

SkyTran's powered MagLev demo exists at NASA

Our new Major partner since October 2014

A country that still embraces technology!

IAI is the largest employer in Israel – 17,000.

Link to a list of 64 recent Israeli innovations HERE. Medical (lots), computers, cell phone, food, desalination, solar power, etc.

The word is getting out!

INNOVATION ENDEAVORS

Recently *Innovation Endeavors* Google Chairman Eric Schmidt's investment company purchased all the Series A SkyTran stock

SkyTran uses a new radical form of counter-intuitive, low-cost MAGLEV

(magnetic levitation AND magnetic propulsion)

Invented by our partner **Lee Wamble**, whom we always picking on because we are sure he dreams about electro-magnetic fields in full color most every night!

VERTICAL MagLev Switches

- Cuts costs and enables more practical use of SkyTran systems **above existing sidewalks**.
- Engineers must think 3D to solve the commuting congestion problem totally (the vertical switches come from Lee's brain, NOT mine!).

Lee has also recently proposed that we must consider onboard batteries for propulsion.

Thank you Elon Musk!

- Quick burst, high rate charging at each station (during pauses as people exit, while in the dwell line and/or during the pause while boarding - as needed.)
- Use the minimum battery weight that gives a 100 mile max no-recharge range.

SkyTran, Inc. voted YES to go with ONBOARD batteries for propulsion

MAIN ADVANTAGES

Eliminates friction losses for catenary sliding power pickups at speed.

Enables a TOTALLY PASSIVE guideway
(levitation is already passive)

Thank you Elon Musk - again!

A PASSIVE guideway provides HUGE cost savings!

- Our cost analysis tells us - is the roughly the cost of sidewalks. US$3.2 Million per mile. (US$2 Million per km)
- Nowadays in the USA, a single mile of Light Rail costs US$150 Million per mile.
- Means a 10 mile long Light Rail system can be replaced with 469 miles of SkyTran elevated guideway!
- That is a 20 mile by 20 mile 3D grid enabling anybody to go anywhere within it FAST!

Whoa! What about the cost of the pods; the inductive charging systems, the stations, solar panels, electrical storage, distribution and profit to expand the SkyTran systems?

Ever hear of UBER? Want to invest in a pod that can do 10 to 20 revenue trips a day for you WHILE YOU ARE HOME or at your office? 5 pods? 10?

MagLev machines have no tires or gear trains to wear out, do they? Maintenance costs per year will be way less than a car.

Same for the other components listed above.

Any government who wants ALL the revenue, can pay the full US$8 Million per mile. (US$5M per km)

Everyone is always asking…

What about the LAST ½ MILE?

The "URB-E" *claims* to have SOLVED the "last mile" problem

WHAT? WHY does "URB-E" have a 20 mile (32 km) range?

To do get that excess range, it weighs 27 pounds! (13 kg).

BTW - The average walk from a SkyTran station will be ½ mile. Will take 10 minutes. (OR call UBER prior to arrival).

Last mile solutions

NOT GOOD

GOOD

Maybe BETTER - Robot Uber cars?

SkyTran's levitation innovation uses strong permanent magnets to "fly" on aluminum

- At low speeds the angle-of-attack has to increase to provide total lift.
- As speeds increase the angle-of-attack can be reduced for more efficient magnetic flight.
- This means SkyTran poles can be farther apart. Since SkyTran is flying like an airplane, it can now fly a laser straight line - even if the structural guideway beam naturally sags a bit from its own weight.

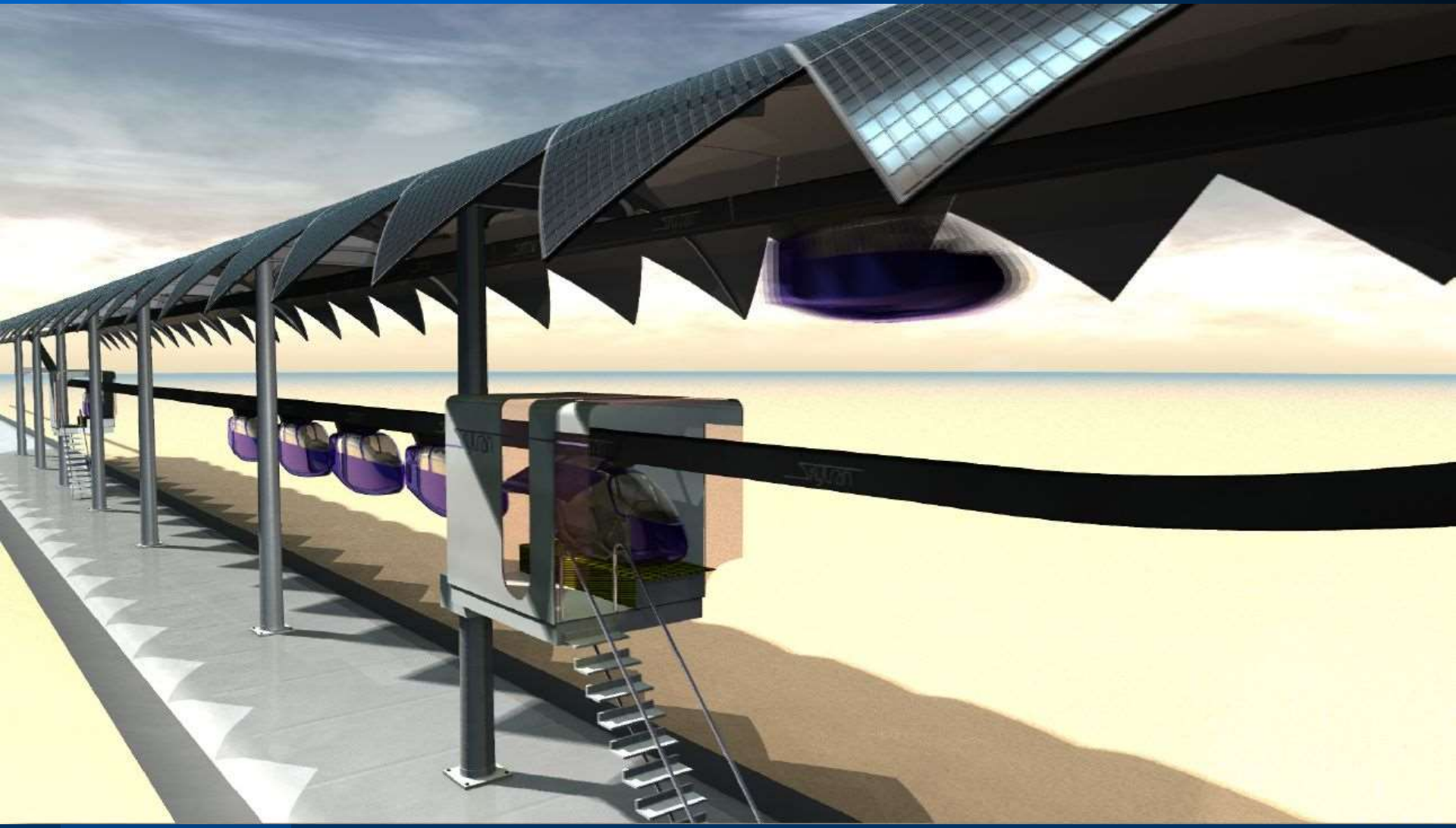
SkyTran's Director of Mechanical Engineering, Clark Foster demonstrates Magnetic Flight principles at:
http://tinyurl.com/SkyTranMagLev

New Form of Magnetic Drive "WAMdrive"

Worldwide Patents applied for…
but our CEO and other SkyTran, Inc. Directors don't want me talking about HOW it works - yet.

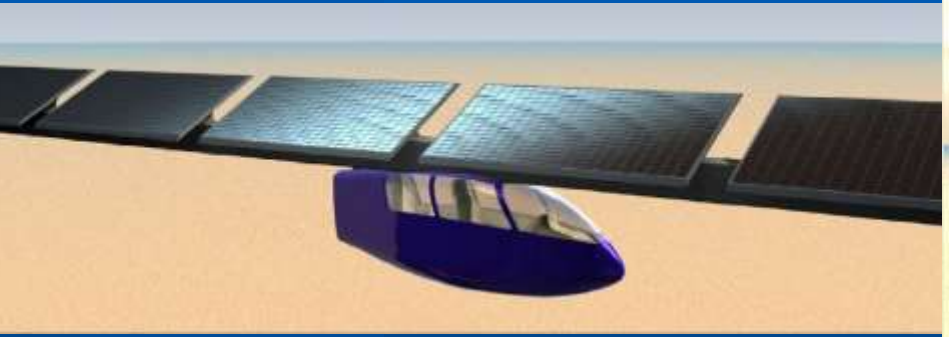
It does..

Solar SkyTran - Phase 1

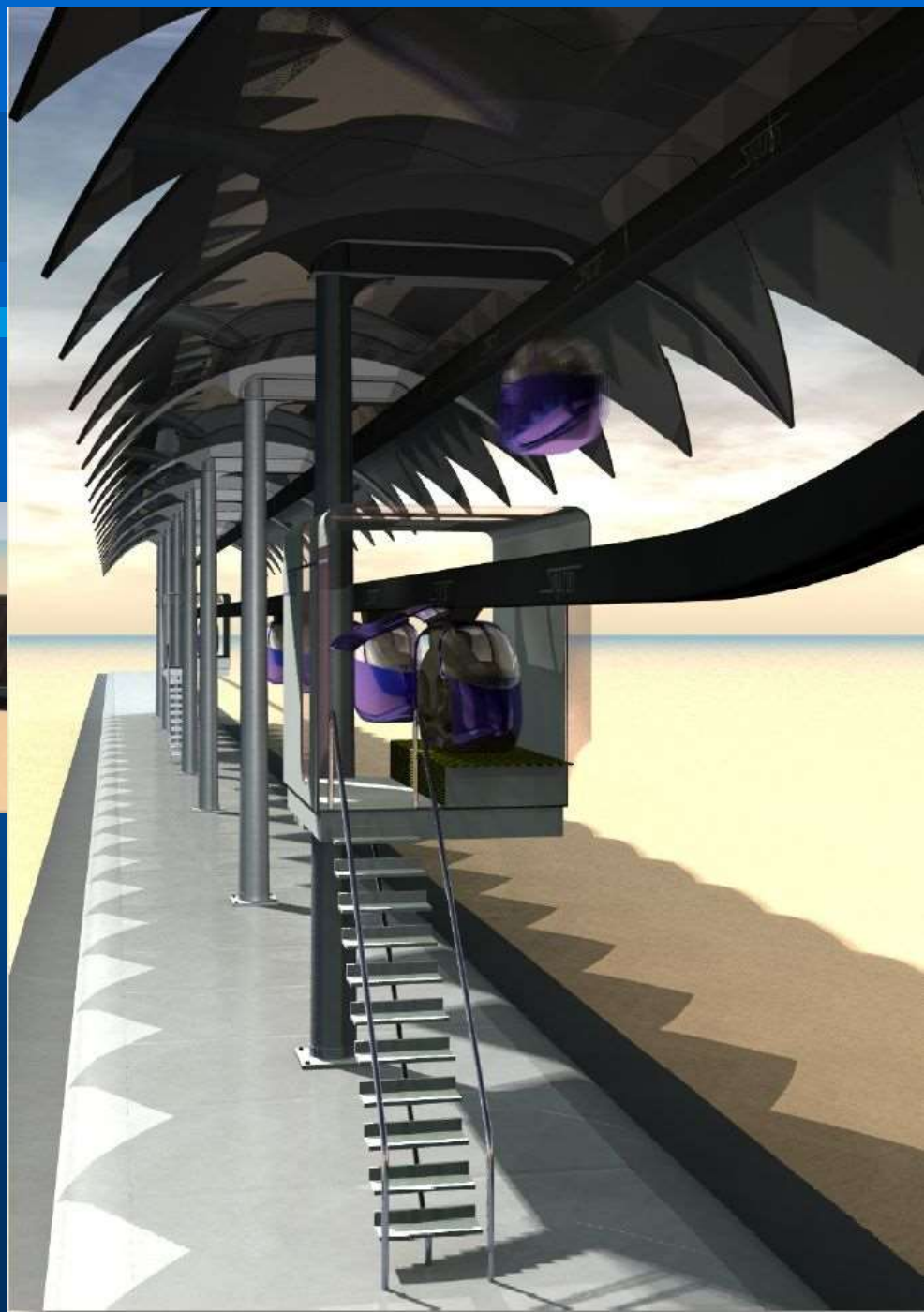


Solar SkyTran

- Phase 2



Breakeven & off the grid in 6 years!



www.SkyTran.us

The FUTURE keeps getting better!

The End

Get ready for a better world!

Thank You

Douglas J. Malewicki

SkyTran, Inc.

Founder and Chief Visionary