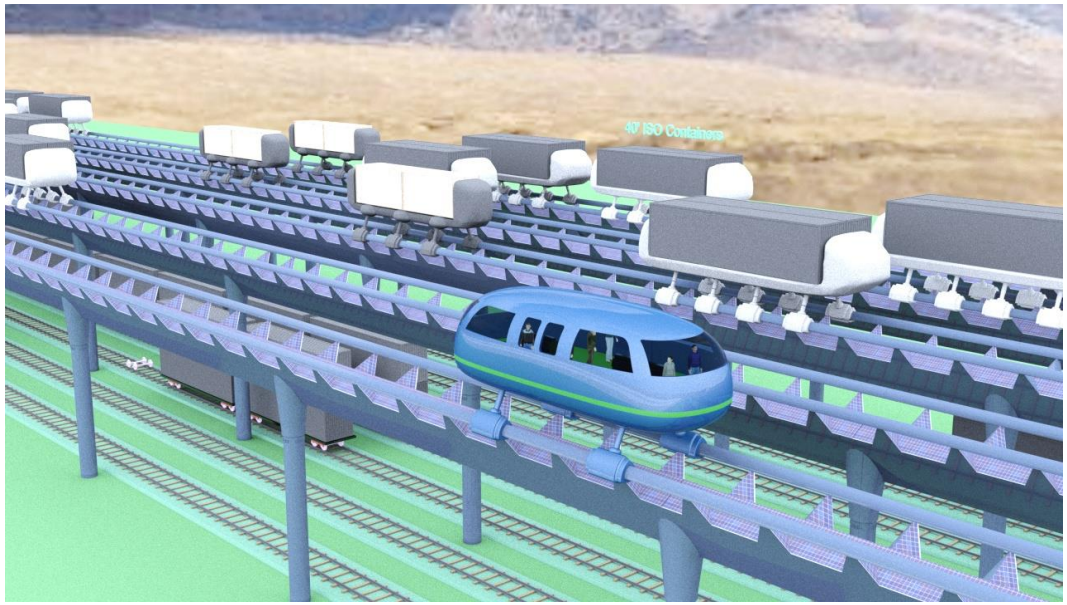
HSH Video Intro

Let's take a ride...



Click Link: https://www.interstatetraveler.us/MEDIA/HSH-Video-2019-v9-720x480.mp4

The Interstate Traveler Company, LLC

Presents:

Hydrogen Super Highway

Advanced Alternative Transportation
&
Hydrogen Based Energy Systems

State-of-the-Art Convergence of Energy & Transportation

HYSKY

Congratulations to HySky Society

For taking the lead on the grand decarbonization of the aerospace industry!

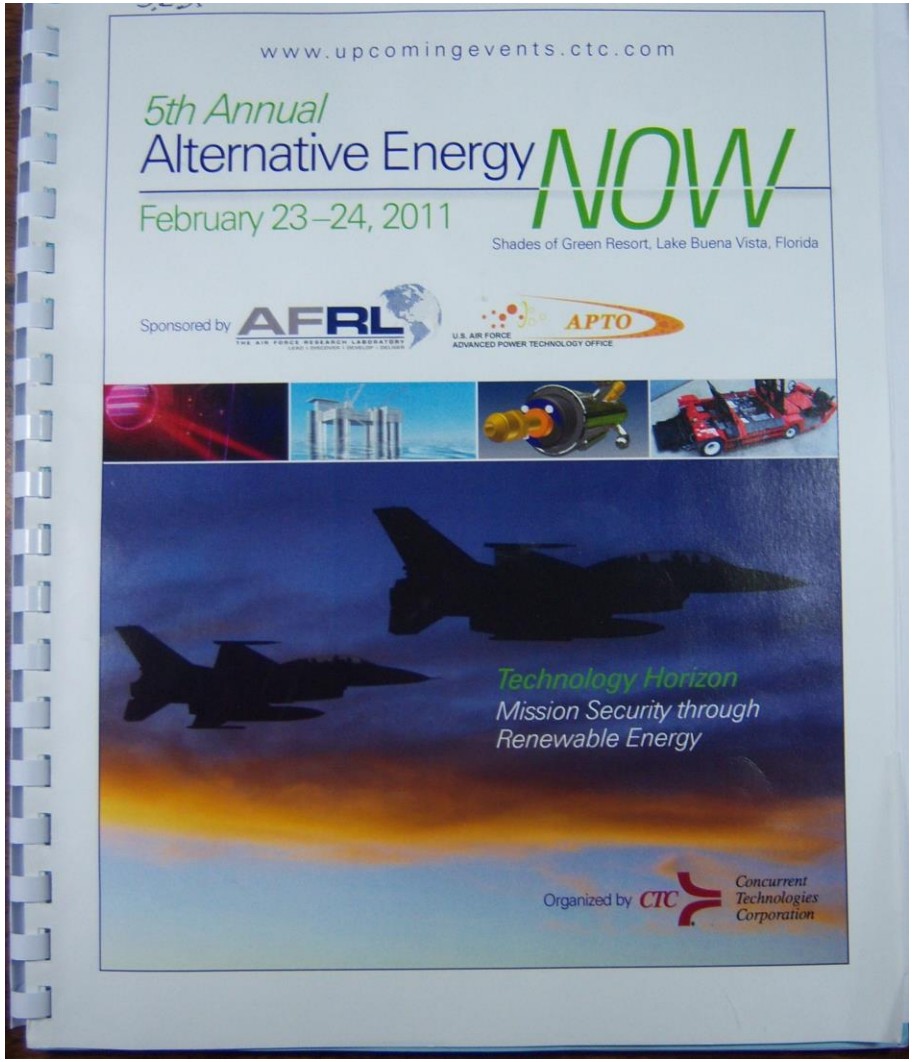
The HSH recognizes the historic leadership position of HySky to bring a Hydrogen Revolution to the global aerospace industry.

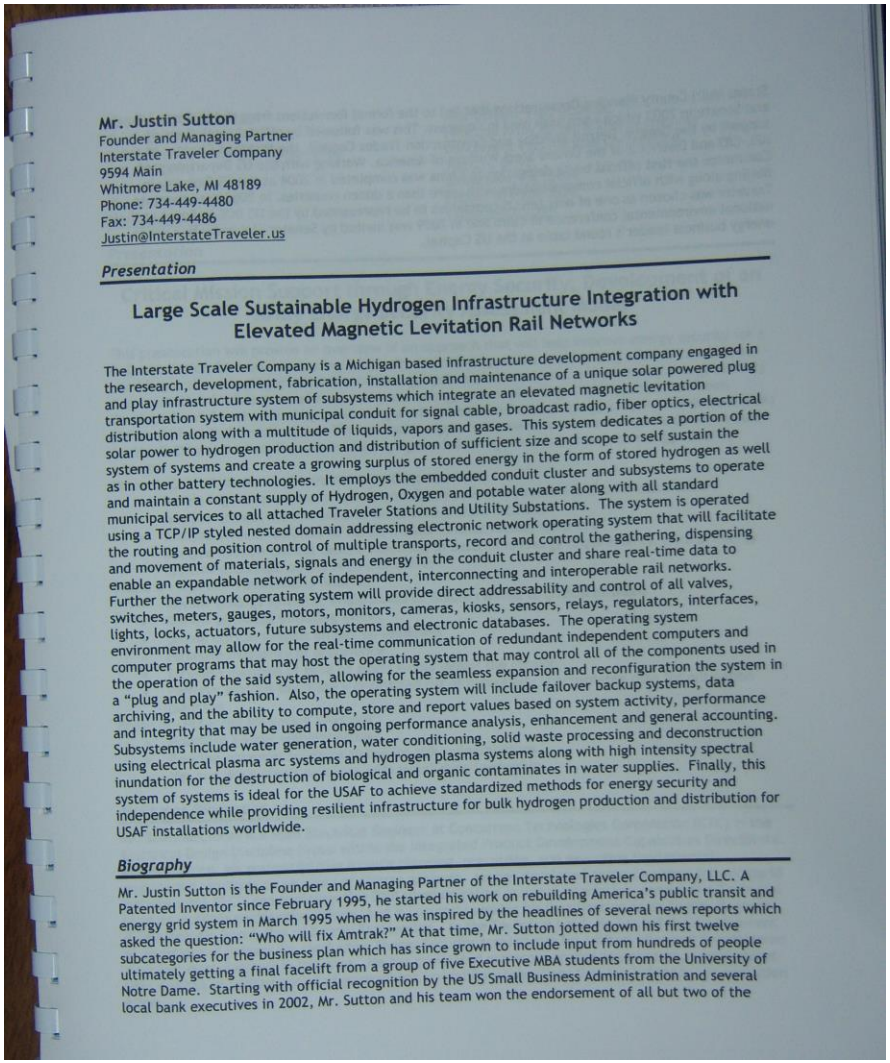
Agenda

1. A four-minute ride on the HSH
2. Review of Modified US Air Force 3-Part CEC Presentation
3. Remarks on Hydrogen and hydrocarbons

Bulk Hydrogen

US DOD Subject Matter Expert Testimony





Mr. Justin Sutton
Founder and Managing Partner
Interstate Traveler Company
9594 Main
Whitmore Lake, MI 48189
Phone: 734-449-4480
Fax: 734-449-4486
Justin@InterstateTraveler.us

Presentation

Large Scale Sustainable Hydrogen Infrastructure Integration with Elevated Magnetic Levitation Rail Networks

The Interstate Traveler Company is a Michigan based infrastructure development company engaged in the research, development, fabrication, installation and maintenance of a unique solar powered plug and play infrastructure system of subsystems which integrate an elevated magnetic levitation transportation system with municipal conduit for signal cable, broadcast radio, fiber optics, electrical distribution along with a multitude of liquids, vapors and gases. This system dedicates a portion of the solar power to hydrogen production and distribution of sufficient size and scope to self sustain the system of systems and create a growing surplus of stored energy in the form of stored hydrogen as well as in other battery technologies. It employs the embedded conduit cluster and subsystems to operate and maintain a constant supply of Hydrogen, Oxygen and potable water along with all standard municipal services to all attached Traveler Stations and Utility Substations. The system is operated using a TCP/IP styled nested domain addressing electronic network operating system that will facilitate the routing and position control of multiple transports, record and control the gathering, dispensing and movement of materials, signals and energy in the conduit cluster and share real-time data to enable an expandable network of independent, interconnecting and interoperable rail networks. Further the network operating system will provide direct addressability and control of all valves, switches, meters, gauges, motors, monitors, cameras, kiosks, sensors, relays, regulators, interfaces, lights, locks, actuators, future subsystems and electronic databases. The operating system environment may allow for the real-time communication of redundant independent computers and computer programs that may host the operating system that may control all of the components used in the operation of the said system, allowing for the seamless expansion and reconfiguration the system in a "plug and play" fashion. Also, the operating system will include failover backup systems, data archiving, and the ability to compute, store and report values based on system activity, performance and integrity that may be used in ongoing performance analysis, enhancement and general accounting. Subsystems include water generation, water conditioning, solid waste processing and deconstruction using electrical plasma arc systems and hydrogen plasma systems along with high intensity spectral inundation for the destruction of biological and organic contaminates in water supplies. Finally, this system of systems is ideal for the USAF to achieve standardized methods for energy security and independence while providing resilient infrastructure for bulk hydrogen production and distribution for USAF installations worldwide.

Biography

Mr. Justin Sutton is the Founder and Managing Partner of the Interstate Traveler Company, LLC. A Patented Inventor since February 1995, he started his work on rebuilding America's public transit and energy grid system in March 1995 when he was inspired by the headlines of several news reports which asked the question: "Who will fix Amtrak?" At that time, Mr. Sutton jotted down his first twelve subcategories for the business plan which has since grown to include input from hundreds of people ultimately getting a final facelift from a group of five Executive MBA students from the University of Notre Dame. Starting with official recognition by the US Small Business Administration and several local bank executives in 2002, Mr. Sutton and his team won the endorsement of all but two of the

The Interstate Traveler Company, LLC

Three Primary Learning Objectives

1. *History of Hydrogen*
2. *Hydrogen Super Highway - 'Smart-Grid'*
3. *Essentials of a Public Private Partnership*

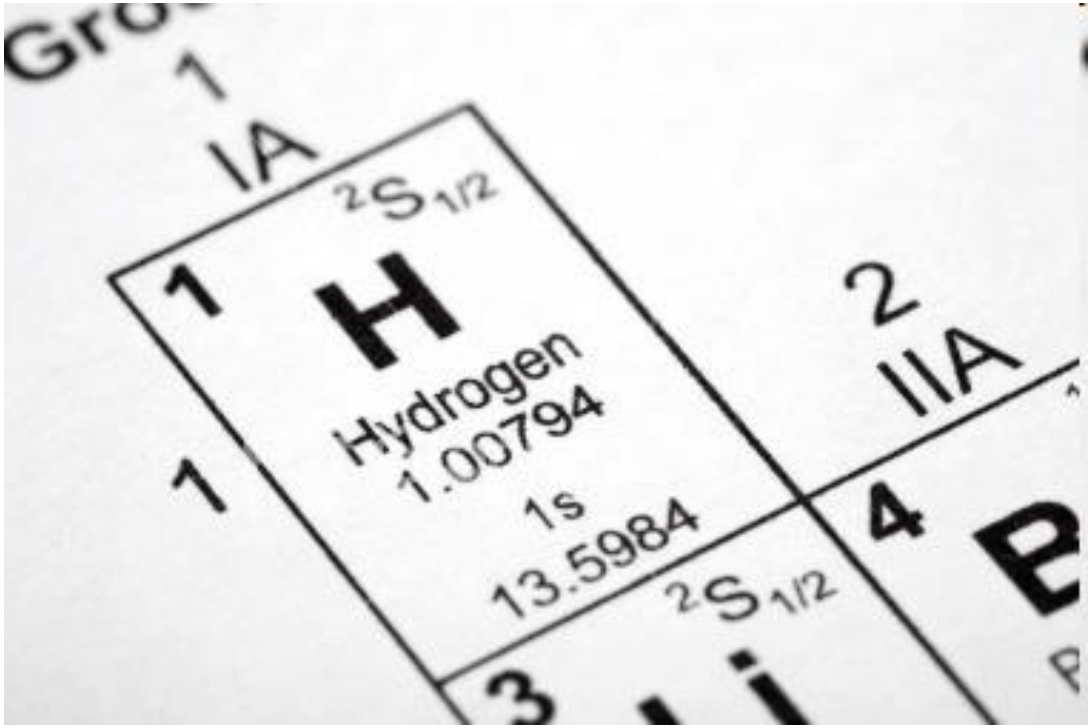
The Interstate Traveler Company, LLC

Learning Objective #1

1. History of Hydrogen

Hydrogen

Primary Building Block of All Matter



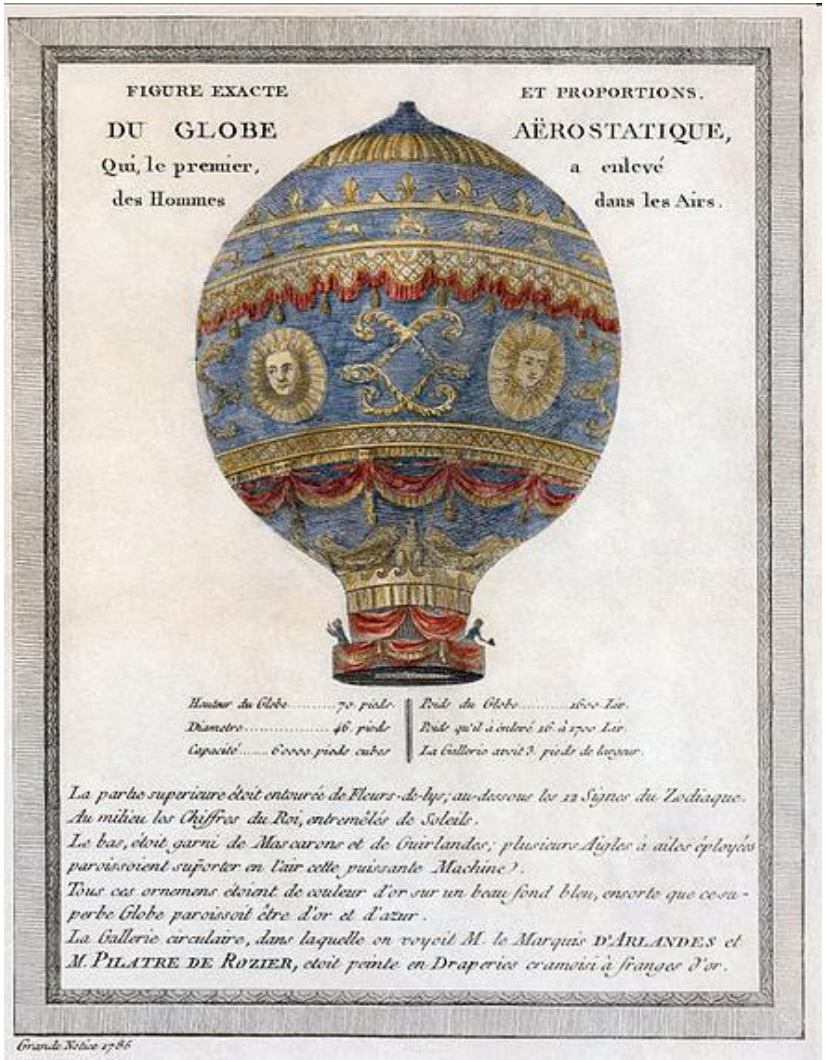
Hydrogen

- First Isolated in 1671 – Robert Boyle (341 years ago)
- "Flammable Air" 1766 – Henry Cavendish (246 years ago)
- Greek *ὕδρω hydro* "water" & *γενῆς genes* "creator"
  - So Named "Hydrogen" **1783** - Antoine Lavoisier (229 years ago)
  - Father of Modern Chemistry
- Exhaustive Research Abounds
- http://en.wikipedia.org/wiki/Hydrogen

Antoine Lavoisier Laboratory Instruments c.1780's 230 Years Ago

Montgolfier Brothers Hot Air Balloon 19th of September 1783

At Versailles, before King Louis XVI & Queen Marie Antoinette



The "Charlière" Hydrogen Balloon December 1st 1783

JACQUES ALEXANDRE CESAR CHARLES

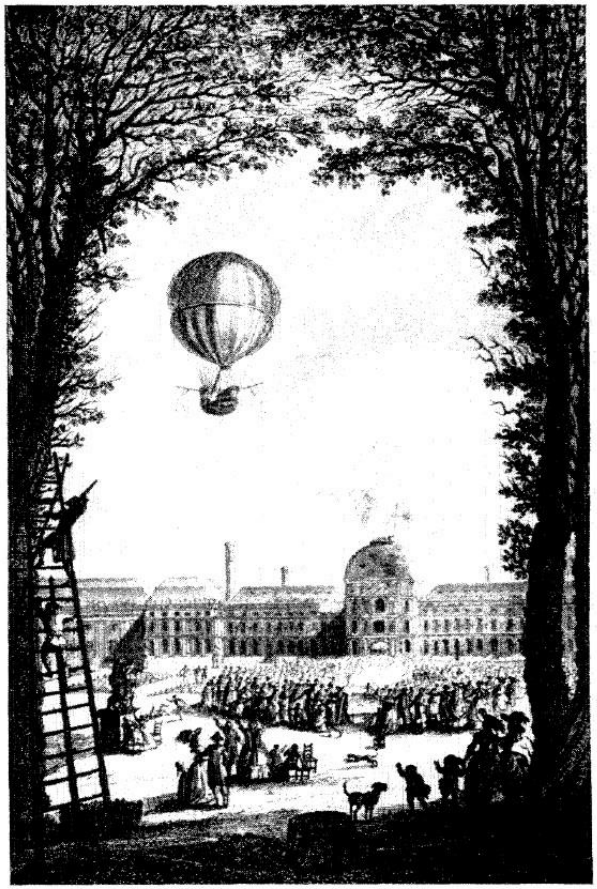


Plate 3. The ascent of Charles and Robert from the Tuileries, December 1, 1783.

François Isaac de Rivaz

First Hydrogen Engine that Powered a Car was in 1807 - Switzerland

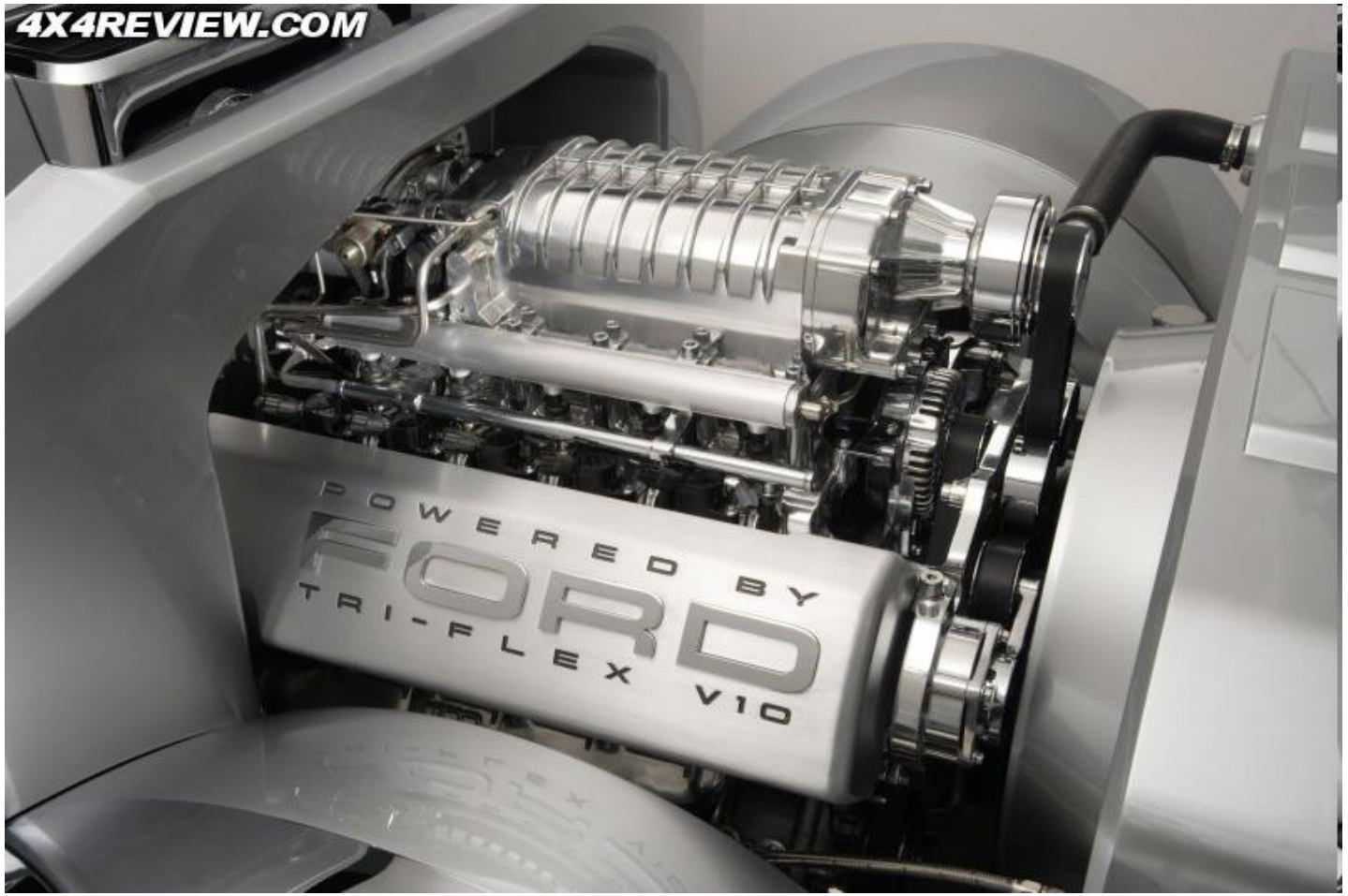
The Hippomobile invented by Étienne Lenoir in 1863 which carried its own internal combustion engine that burned Hydrogen. Lenoir sold about 350 to 400 Hippomobiles.

BMW Hydrogen 7 V-12 ICE

BMW Hydrogen 7 V-12 ICE

Ford Super Chief - Hydrogen V-10

Ford Super Chief Hydrogen V-10



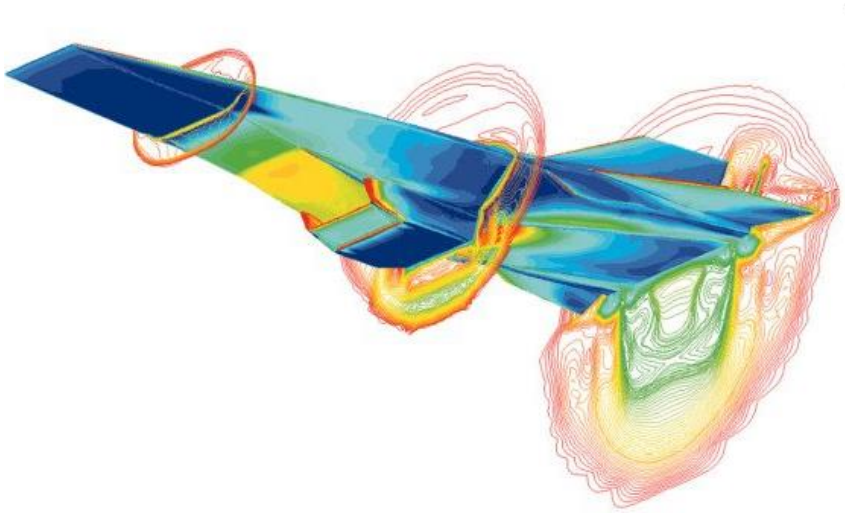
Ford Super Chief Hydrogen V-10

SR-71 BlackBird

Saturn V


Apollo 4
Apollo 6
Apollo 8
Apollo 9
Apollo 10
Apollo 11
Apollo 12
Apollo 13
Apollo 14
Apollo 15
Apollo 16

SCRAMJET – Hypersonic Flight



USAF X-51A @ Edwards AFB

DTIC® Online
Information for the Defense Community

Search

Results **1** - **10** of about **1630** for **hydrogen powered jet aircraft**. Search took **0.61** seconds.

Next >

Sort by date / Sort by relevance

[PDF] Liquid **Hydrogen** as a **Jet** Fuel for High-Altitude **Aircraft**
... the weight and configuration of a **hydrogen**-fueled airplane ... in figure 27 for the airplane **powered** with turbojet ... engines (b) Two ram-**jet** engines with ...
www.dtic.mil/dtic/tr/fulltext/u2/c051938.pdf - 1955-04-15 - Text Version - [Citation]

[PDF] Bibliography of Books and Published Reports on Gas ...
... Avro system provides fast starting for **jets**. ... **Hydrogen**-peroxide starting motors. ... tor-operated engine cooling system for a turbojet **powered** airplane. ...
www.dtic.mil/dtic/tr/fulltext/u2/a278213.pdf - 1953-12-01 - Text Version - [Citation]

Synthetic Fuels for Naval Applications Produced Using ...
... SHIPBOARD, *NUCLEAR **POWER** PLANTS, *SYNTHETIC ... MATERIALS, NAVY, **HYDROGEN**, PROPULSION ... CARBON DIOXIDE, **JET** ENGINE ...
www.dtic.mil/docs/citations/ADA299090 - 22k - 1995-06-01 - Cached - [PDF]

[PDF] TARDEC's **Power** and Energy Vision
... data for FCVs and **hydrogen** fuel- ing ... currently engaged in applying **power** management to ... petroleum-derived kerosene (synthetic **jet** fuel) through ...
wstiac.alionscience.com/pdf/WQV9N1_ART03.pdf - 2009-06-10 - Text Version

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ammtiac.alionscience.com/pdf/WQV9N1_ART03.pdf - 2009-06-10 - Text Version

Related search keywords

- jet fuel
- hydrogen peroxide
- jet engine
- hydrogen fuel
- jet aircraft
- liquid hydrogen
- power plants
- hydrogen oxygen
- jet powered
- power energy

The Interstate Traveler Company, LLC

Learning Objective #2

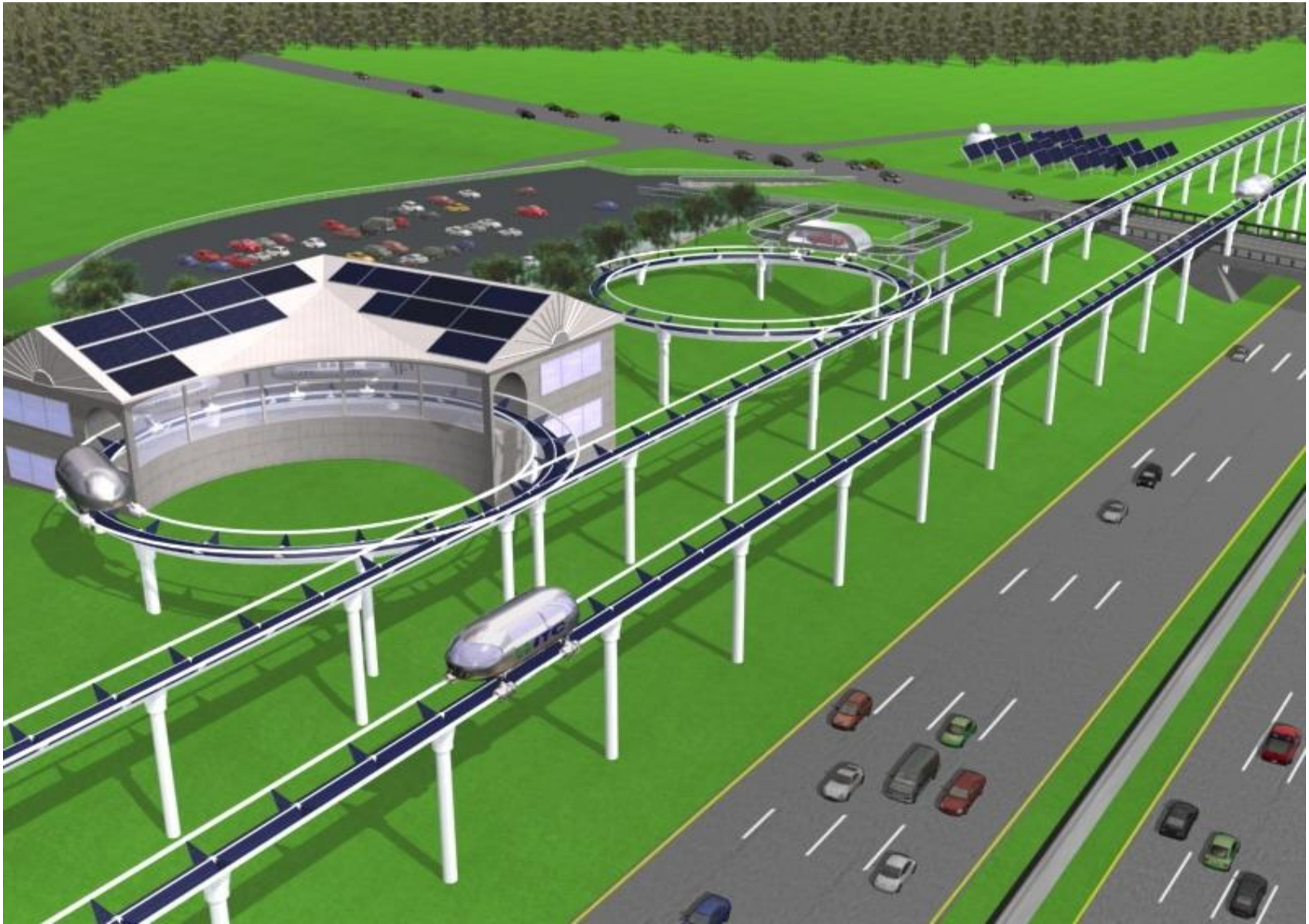
Hydrogen Super Highway
&
Sustainable Bulk Hydrogen Production

Hydrogen Super Highway

A system designed to upgrade the Interstate Highway Network

The Hydrogen Superhighway

Interstate Highway Integration

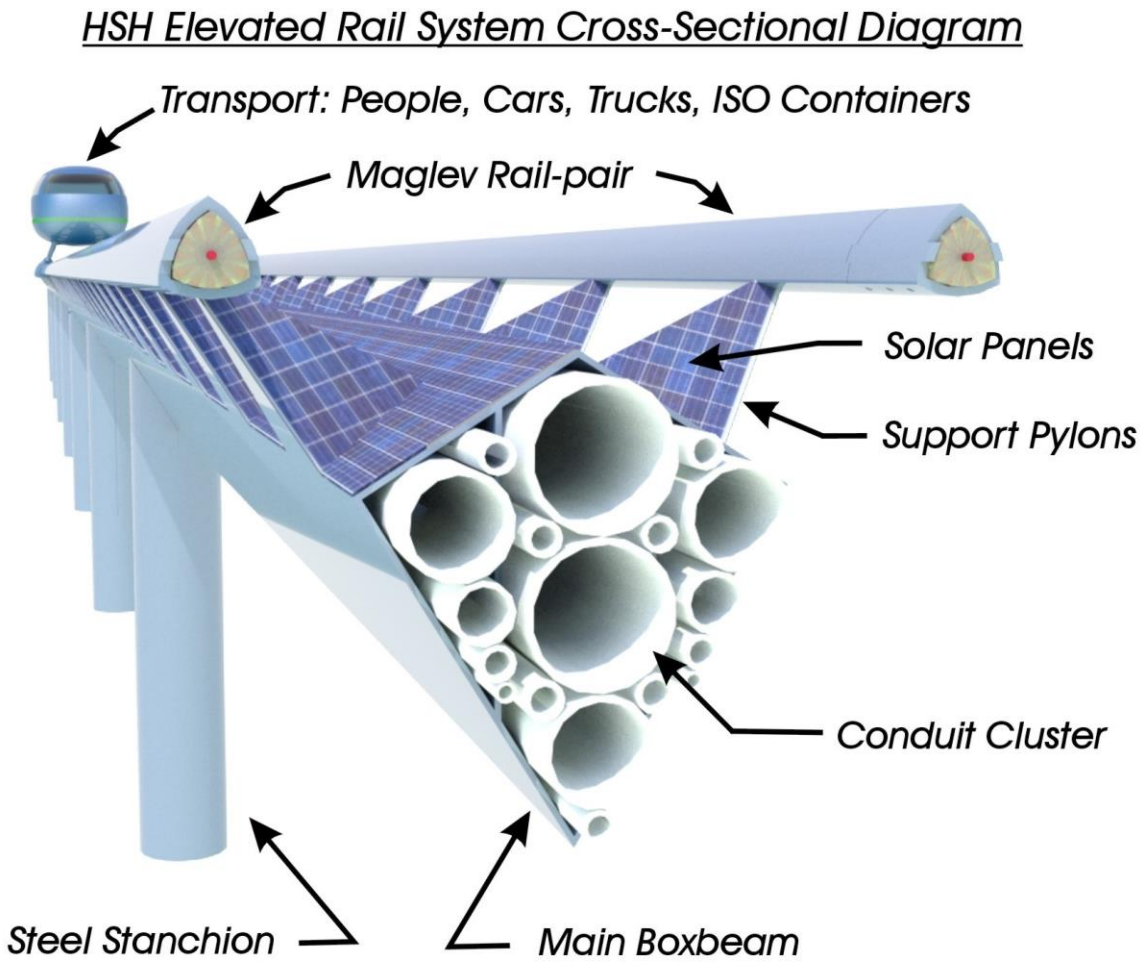


What is the Hydrogen Super Highway?

- Transportation System
- Solar Energy Collection Grid
- Municipal Conduit
- Hydrogen Production & Distribution
- Energy Storage & Distribution
- Wireless Internet Access
- Millions of Tons of Stainless Steel
- Many Thousands of Jobs
- …and so much more…

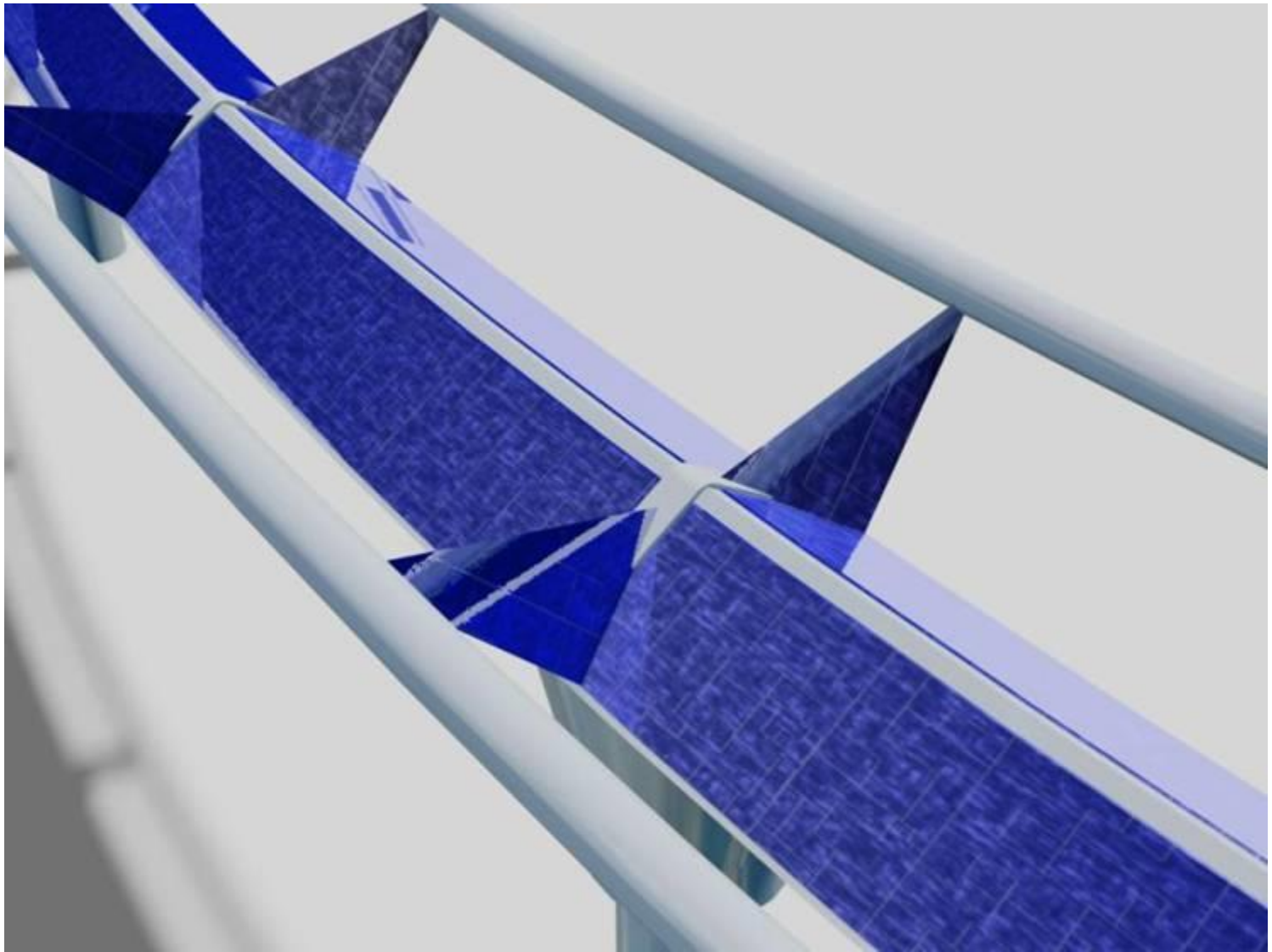
The Hydrogen Super Highway

Magnetic Levitation Rails & Conduit Cluster Box-beam



The Hydrogen Super Highway

Interstate Traveler Company Rail - Solar Skin

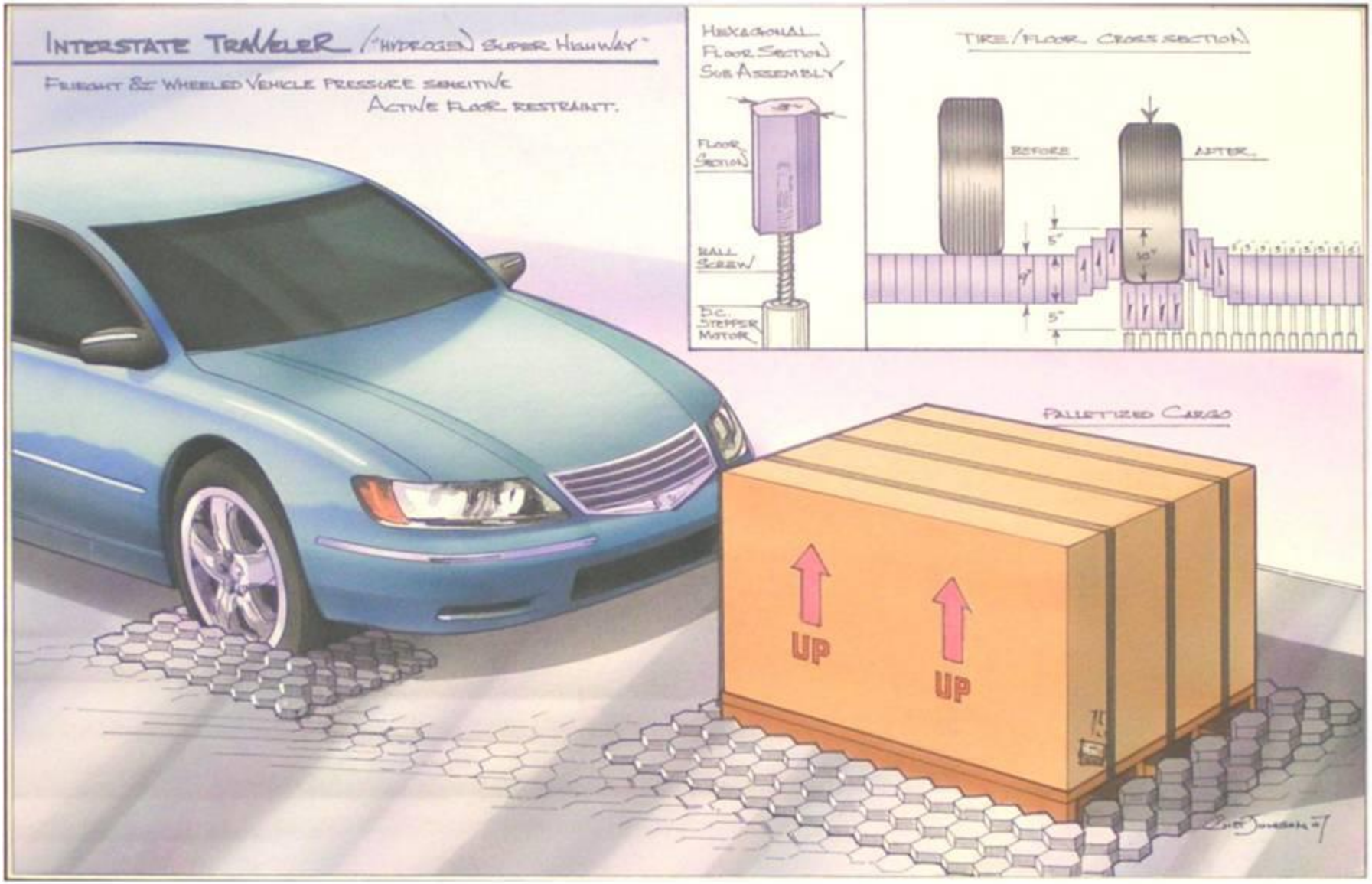


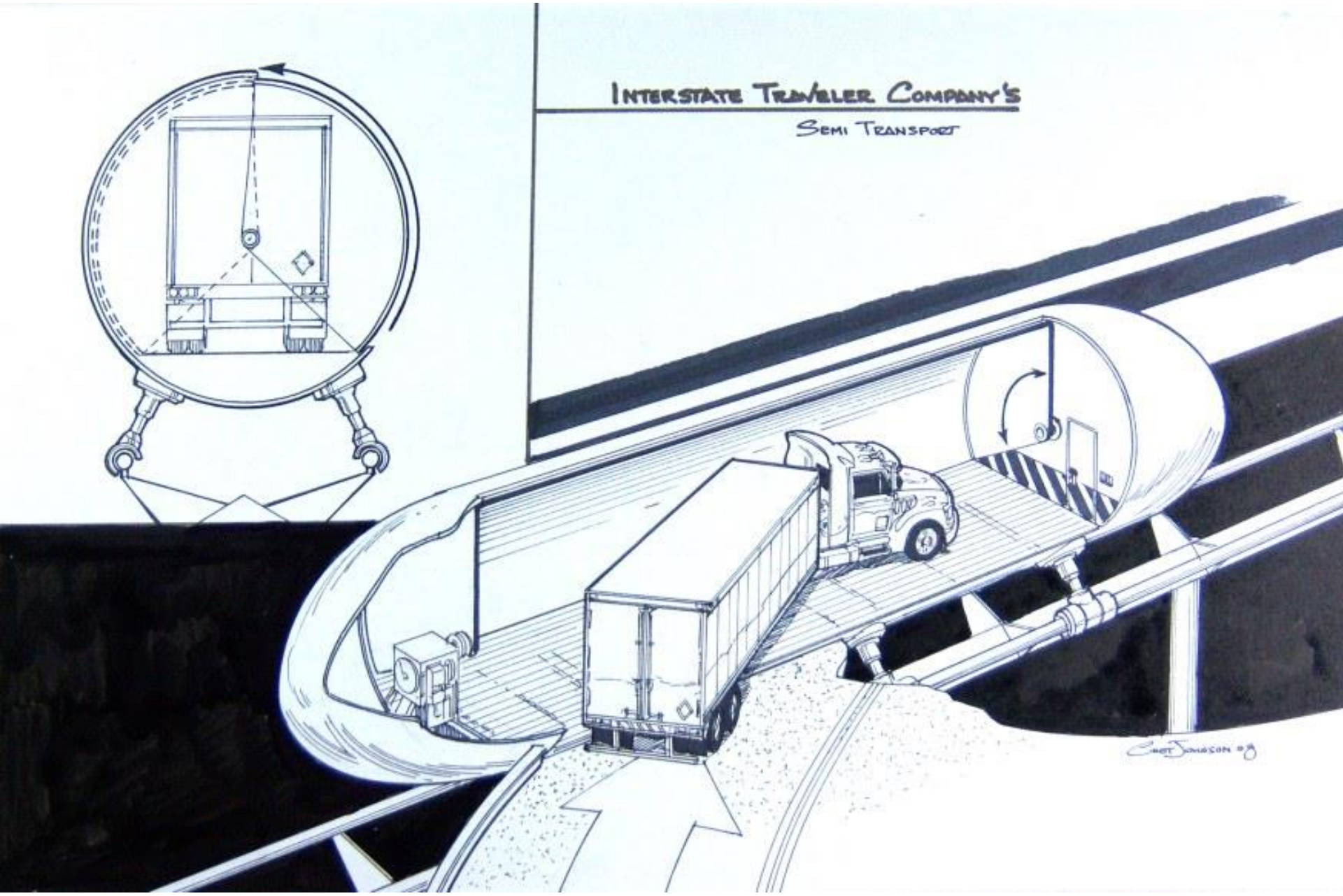
The Hydrogen Super Highway

Endless Variety of Transports

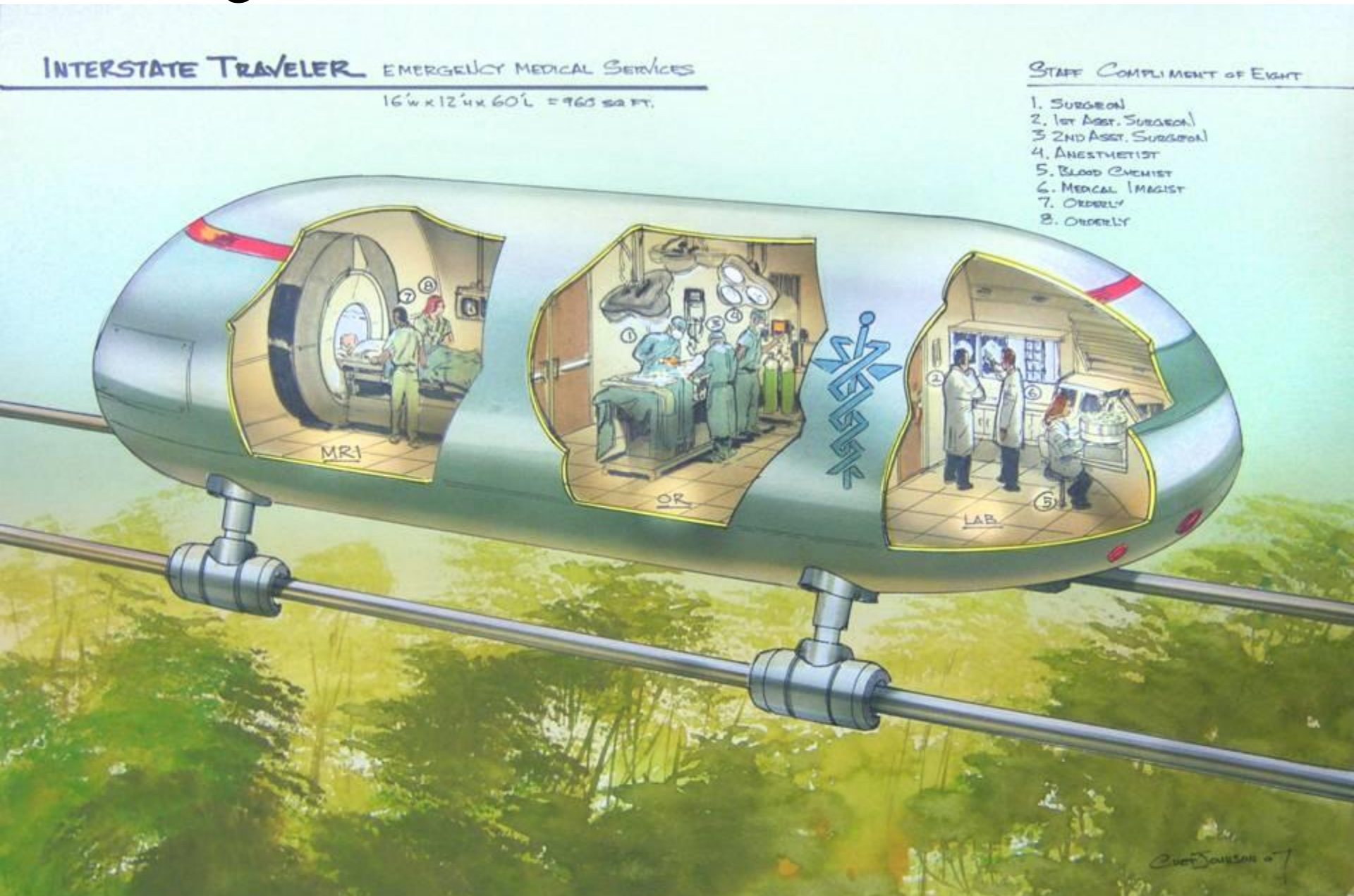
3 Primary Travelers

Active Floor Restraint




INTERSTATE TRAVELER COMPANY'S
SEMI TRANSPORT

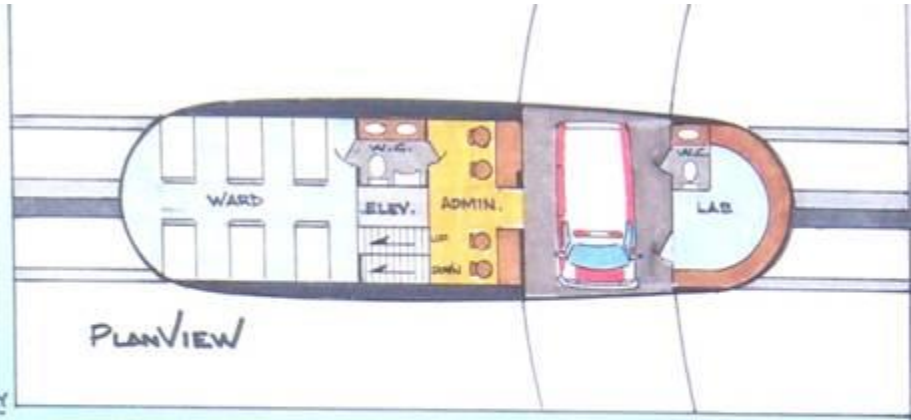
Triage Traveler

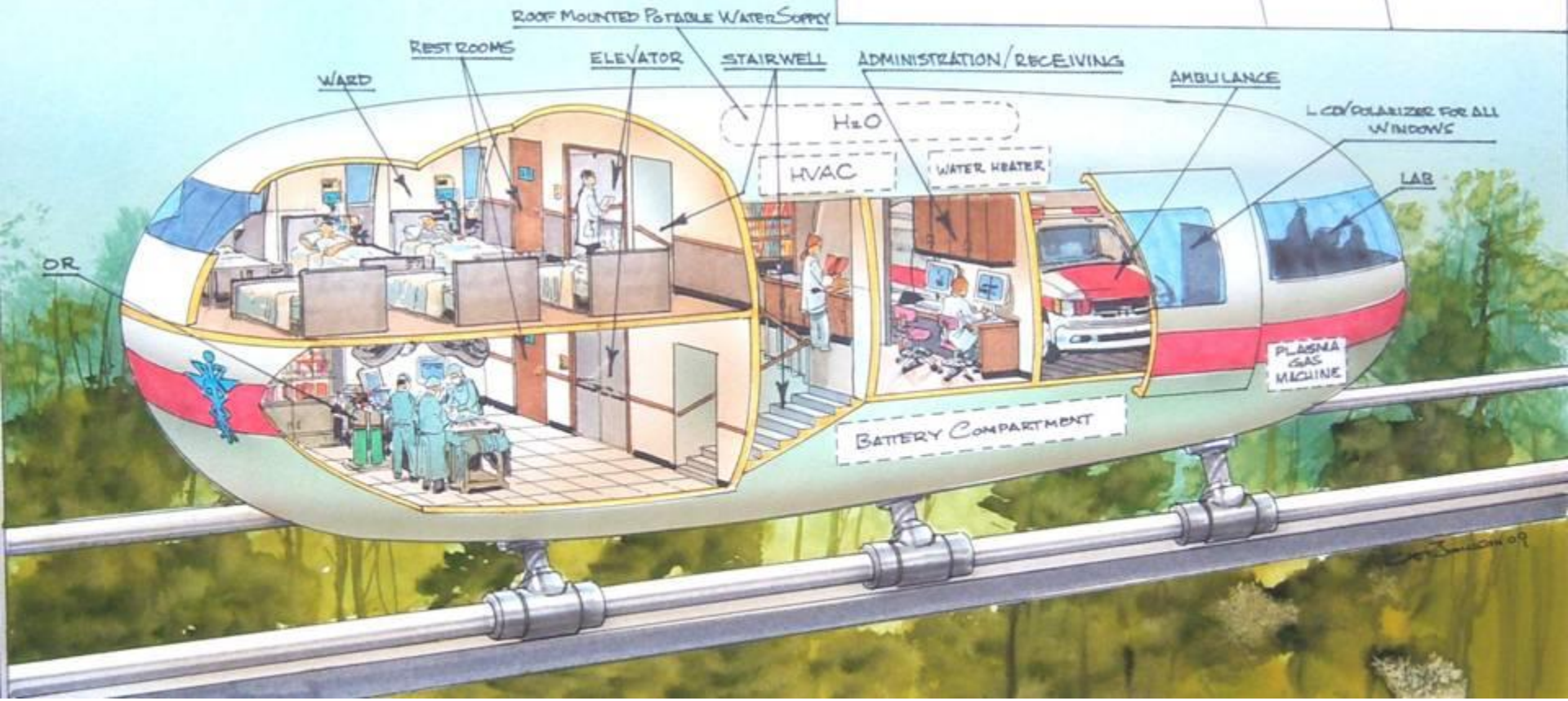


INTERSTATE TRAVELER COMPANY, LLC.

HY RAIL HOSPITAL

- 72 FEET IN LENGTH
- 24 FEET IN HEIGHT
- 20 FEET IN WIDTH

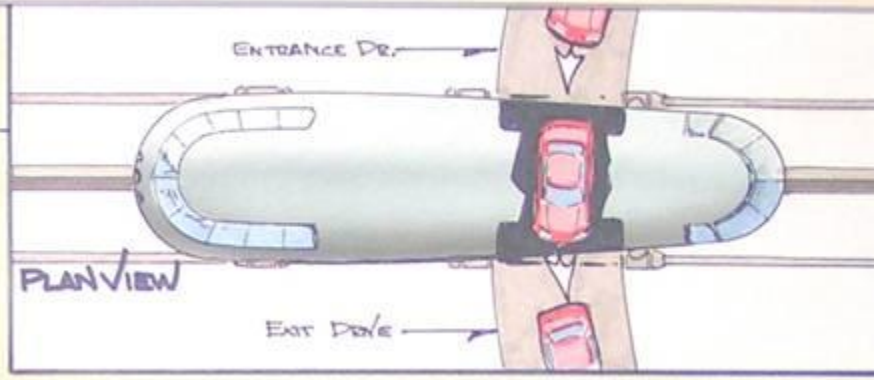




The Grand Traveler / Two Story – Tri Level

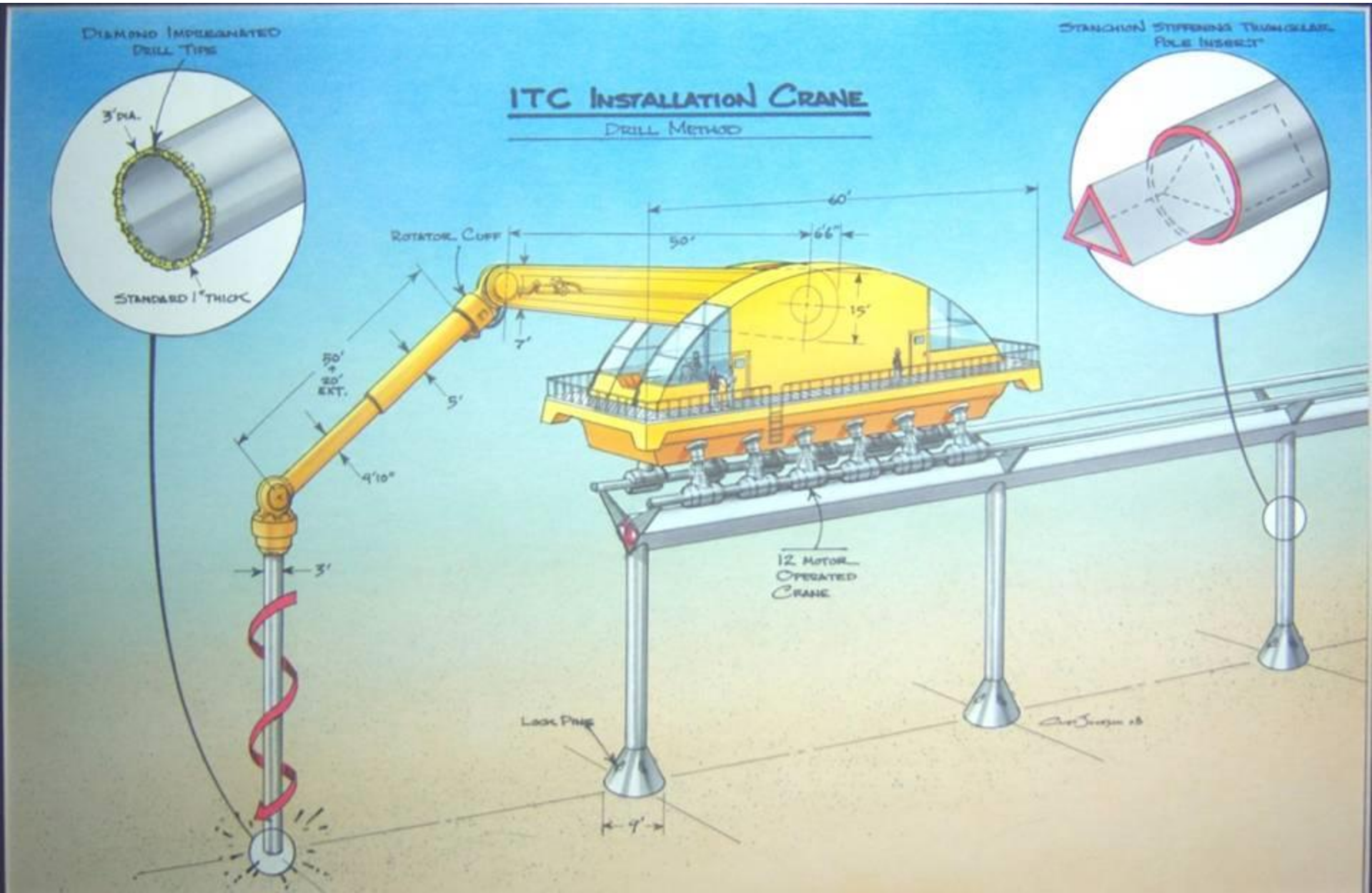
Built for Mainline Operations Only.

- 72 feet in length
- 24 feet in height
- 16 feet in width
- 1152 sq.ft. in main floor area

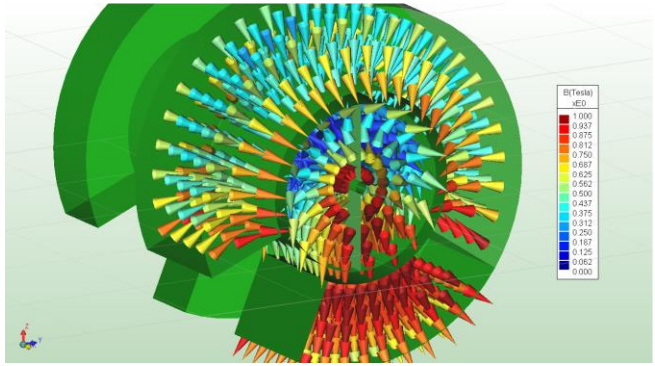


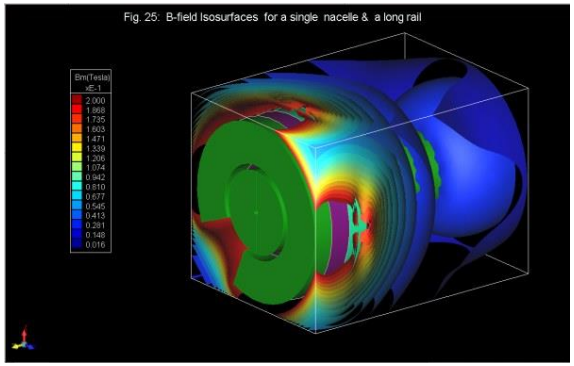
Master Suite
Grand Salon
Kitchen
Roof Mounted Potable Water Supply
Int./Ext.
Bike Racks
LCD/Polarizer for all Windows
H_2O
HVAC
Water Heater
Large Garage Door
2 Story Glass Wall "Rear Salon"
Plasma TV Machine
Battery Compartment

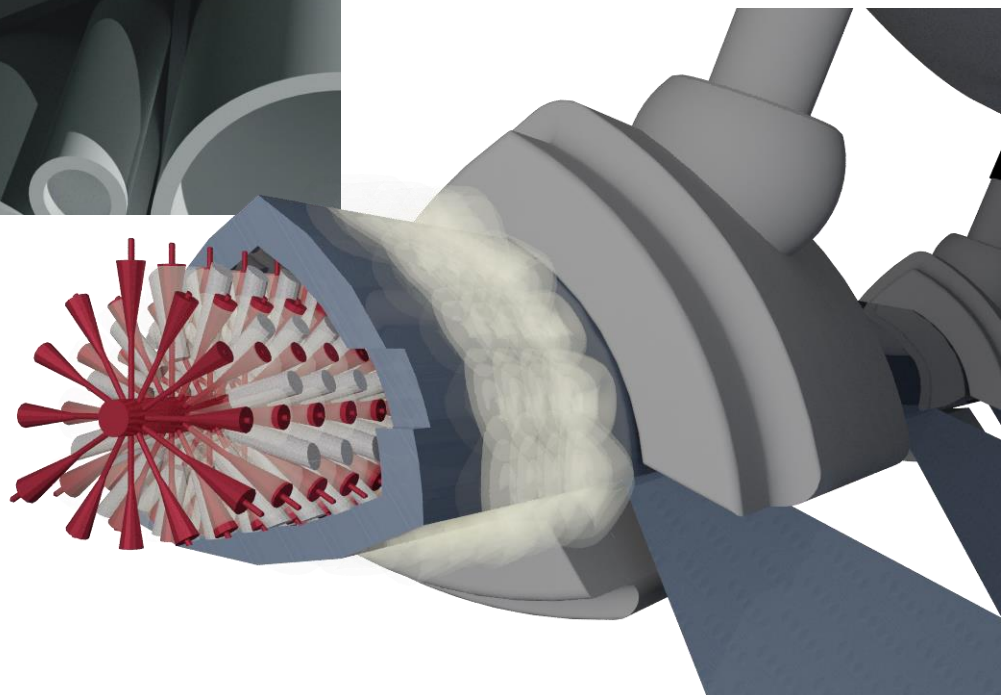
Rapid Installation



Rapid Installation







HSH
MagLev Tech

The Hydrogen Super Highway

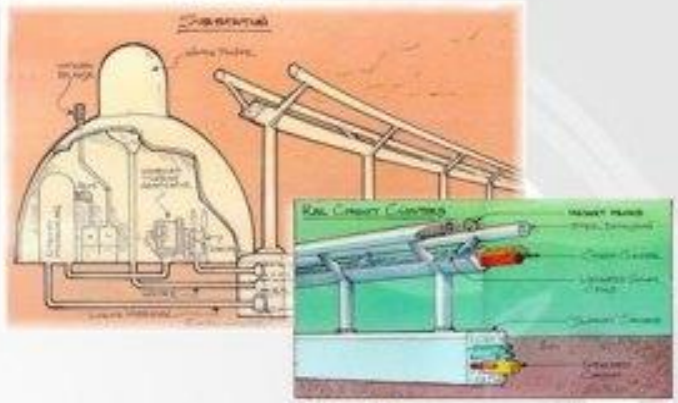
What do we do best?

We Create Clean Water and Bulk Hydrogen

From virtually any water source…..

The Interstate Traveler Company, LLC

Energy Process for Solar / Hydrogen Powered Maglev Rail and Hydrogen Production and Distribution Network



Solar Array

Rain Water Collectoin
Or other source...

Operating System

Power Conditioner

General Electrical Supply

Hydrogen

PEM
Hydrogen Fuel
Cell Generator

Electrolysis Unit

Hydrogen Compressor

Hydrogen Tank

Oxygen Tank

Ox

Power Conditioner

NiMH Batt
Reserve Power

Electricity

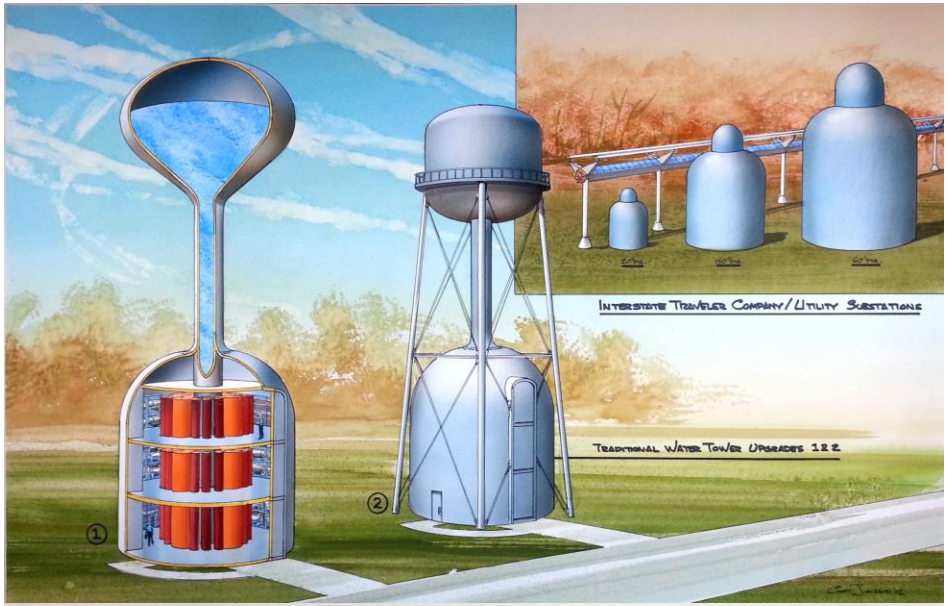
Oxygen Compressor

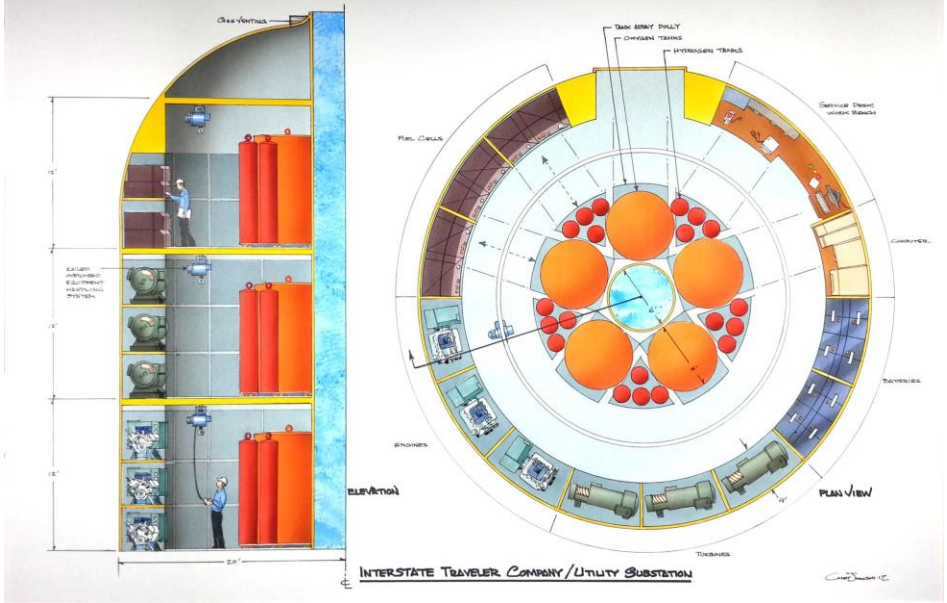
Clean Water

Copyright 2003, Justin Eric Sutton

Hydrogen Super Highway

HSH Utility Substation H2 Production

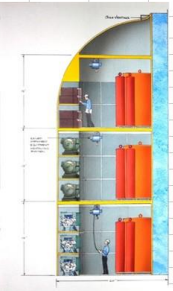




Interstate Traveler Utility Substation			
Cost Model Analysis			
Chose a Diameter of Substation in Feet			
40	Feet		
20	Radius		
3	Stories		
10	Story Height in Feet		
30	Total Height		
0.375	Steel Thickness in Inches		
$22.00	Cost / Sqft of Solar Panel		
20000	Square Feet of Solar Grid		
0.46	Acres of PV		
Solar Panel Installation			
15	watt/sqft		
300,000	Watts/Hour		
6	Solar Hours Per Day		
1,800,000	watts/day		
36	kg of H2 / day @ 50Kw/Kg		
Water Vessel Size			
88%	Percent of Diameter		
35.2	Water Vessel Diameter		
18.66	Radius		
31.16	Height of Water Vessel is = to the Radius * 1.67		
34,048.79	Volume of Cylinder		
15,291.37	Water Vessel Volume with domed ends		
49,340.17	Total Volume of Water Vessel in Cubic Feet		
365,117.23	Total Gallons 7.4 US Gallons Cubic Foot		
Cement Slab			
0.5	Slab Thickness in Feet		
628	Volume of Cement in Cubic Feet		
23.3	Volume of Cement in Cubic Yards		
$180.00	Cost of Cement per Cubic Yard Installed		
$4,186.67	Cost for Cement Foundation		
Total Surface Area of Steel on Primary Geometry			
2	Floors - Diamond Plate Flooring		
2512	Area of Floors Diamond Plate		
3768	Main Cylinder Wall		
2512	Top Dome		
3,650.17	Water Vessel walls		
4,371.46	Water Vessel Dome ends		
8,021.63	Total Surface Area of Water Vessel		
188.4	Center Water Column 2 foot in Diameter		
14,490.03	Total Surface Area of Steel in Square Feet		
2,086,564.71	Total Surface Area in Square Inches		
782,461.77	Total volume in Cubic Inches		
219,089.29	Total Mass @ 0.28Lbs / Cubic Inch		
1,095.45	Total Mass in Tons		
3%	% extra steel for structural assembly		
1,128.31	Total Mass in Tons with Structural Mass		
$1,314,535.77	Total Cost Type A		
$876,357.18	Total Cost Type B		
$328,633.94	Total Cost Type C		

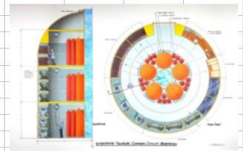
Substation Primary Component Costs		Qty	Total Amount	
$3,000.00	Gen-Set 12Kw	8	$24,000.00	
$22.00	SqFt Solar	20000	$440,000.00	
$3,000.00	Electrolyzer	4	$12,000.00	
$2,000.00	Electronics Controls	4	$8,000.00	
$2,000.00	Water SubSystems	4	$8,000.00	
$50.00	Batteries	48	$2,400.00	
$200.00	Pressure Vessels	24	$4,800.00	
	SubStation Structure	1	$328,633.94	Type C Steel
	Cement Slab	1	$4,186.67	
	Sub Total for Substation with Solar Panels		$832,020.61	
	Sub Total for Substation Only		$392,020.61	

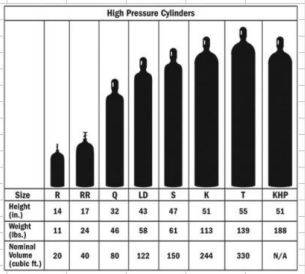
Volume		
Sphere	.75*3.14*R^3	
Cylinder	3.14*r^2*h	
Surface Area		
Circle	3.14*R^2	
Sphere	4*3.14*R^2	
Dome	4*3.14*R^2	
Cylinder	2*3.14*r*h	
Steel Cost Per Ton		
Type A	$1,200.00	
Type B	$800.00	
Type C	$300.00	
Surface Area		
Circle	3.14*R^2	
Sphere	4*3.14*R^2	
Dome	4*3.14*R^2	
Cylinder	2*3.14*r*h	



Trina Solar Honey 250 Poly Solar Panel

	MM	Inches	Feet
length	941	37.04717	3.087264
width	1650	64.9605	5.413375
SqMM	1552650		16.71252
		250	watts
		14.96	Watts/Sqft
		$205.00	retail



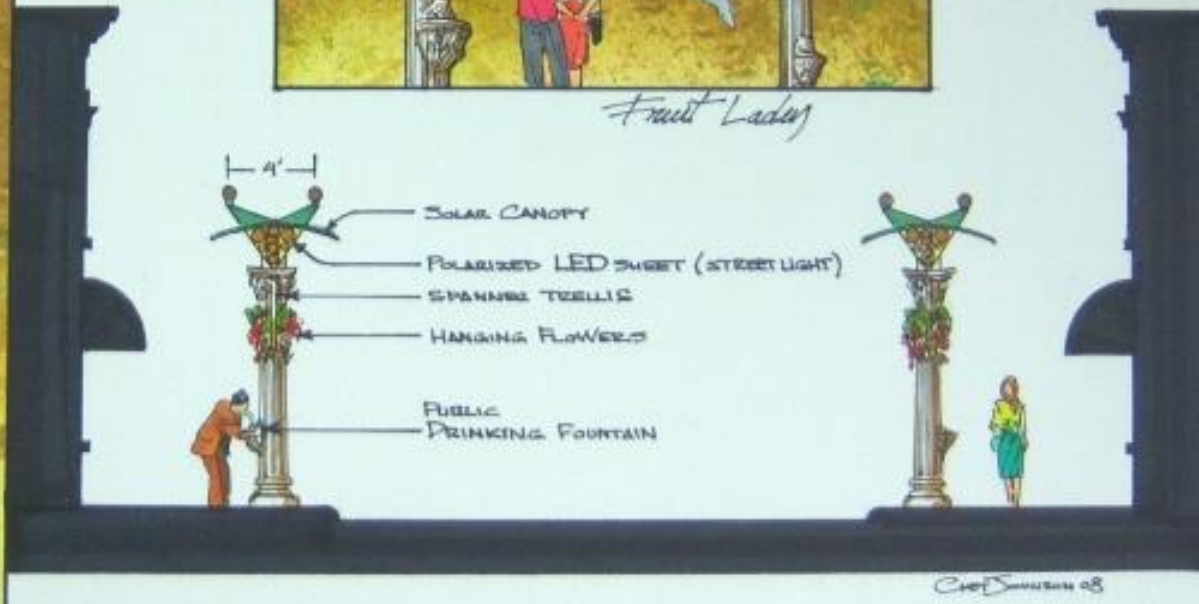


Size	R	RR	Q	LD	S	K	T	KHP
Height (in.)	14	17	32	43	47	51	55	51
Weight (lbs.)	11	24	46	58	61	113	139	188
Nominal Volume (cubic ft.)	20	40	80	122	150	244	330	N/A

Interstate Traveler Company, LLC

Garden Arbor Light Rail System
Solar Powered Water Treatment & Circulation

Fruit Ladies




INTERSTATE TRAVELER COMPANY LLC.
HYDROPONIC HIGHWAY INTEGRATION
SOLAR COLLECTOR
WATER SPRINKLER SUPPLY LINE
PROCESSED WATER
VARIOUS CROPS
DRAIN COVER
SHOULDER
GRAVEL BASE
CONCRETE HIGHWAY
STORM DRAIN FOR WATER COLLECTION

Grand Arbor

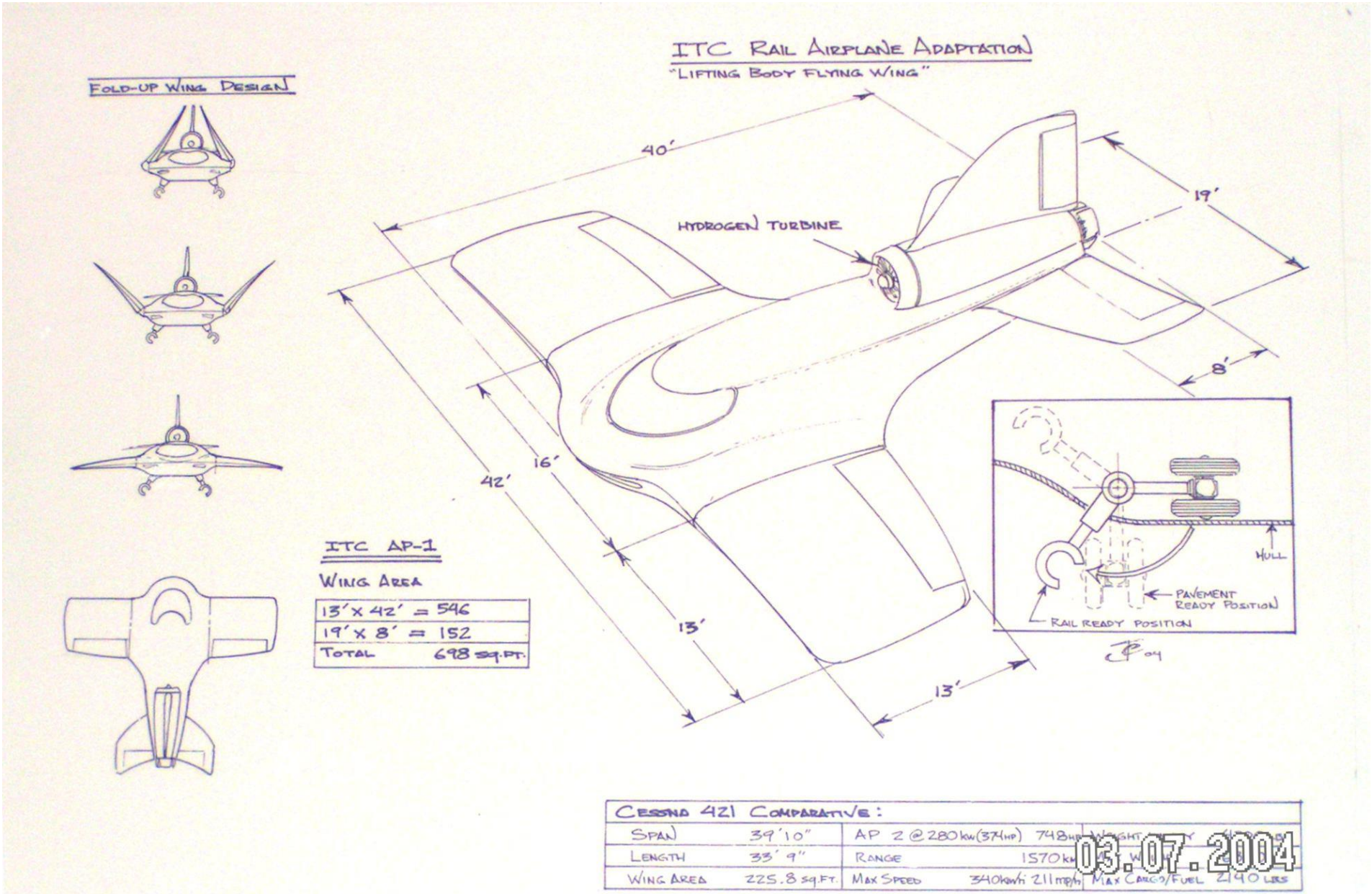

THE INTERSTATE TRAVELER COMPANY'S
GRAND ARBOR SYSTEM
REFORESTATION CARBON SEQUESTRATION MODEL
BASIS: U.S. DEPARTMENT OF AGRICULTURE STUDY,
1 ACRE OF FOREST ABSORBS 6 TONS OF CO_2
AND RELEASES 4 TONS OF OXYGEN.
HEXAGONAL POLYGON GRID
9x9=81 AREA
H/918 ACRES·6 TON=5,508 H/HARDWOOD=918 ACRES
M/941 ACRES·3 TON=2,823 M/MIXED =941 ACRES
YIELD 8,331 TON/AREA 1,899 ACRES
9,000 FT x 9,000 FT.
=81,000,000 SQ FT.
1.7 MILES
1,899 ACRES
PER 9x9 UNIT
FRUIT TREES
H
HARDWOOD FOREST
M
MIXED FRUIT TREES & GRASSLAND
RESERVOIR & FOUNTAIN
1H
1M
2H
2M
3H
3M
4H
4M
5H
9
3000

Grand Arbor


INTERSTATE TRAVELER COMPANY'S
GRAND ARBOR OASIS
AERIAL VIEW OF HEX/HEXWOODS
& RAILSTATION

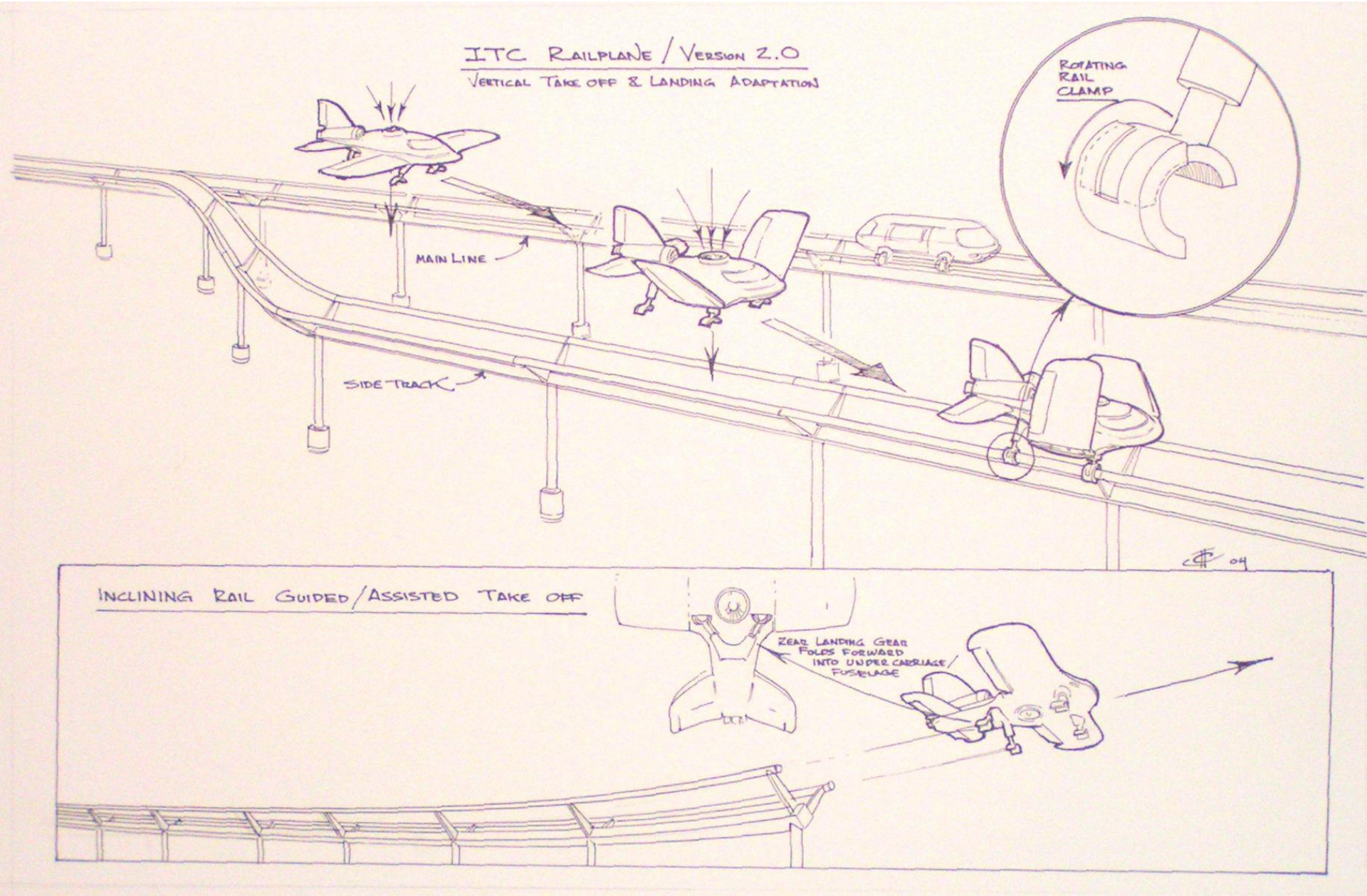
Interstate Traveler Company's Rail-plane Concept

H2-Powered Jet Aircraft



Interstate Traveler Company's Rail-plane VTOL Concept

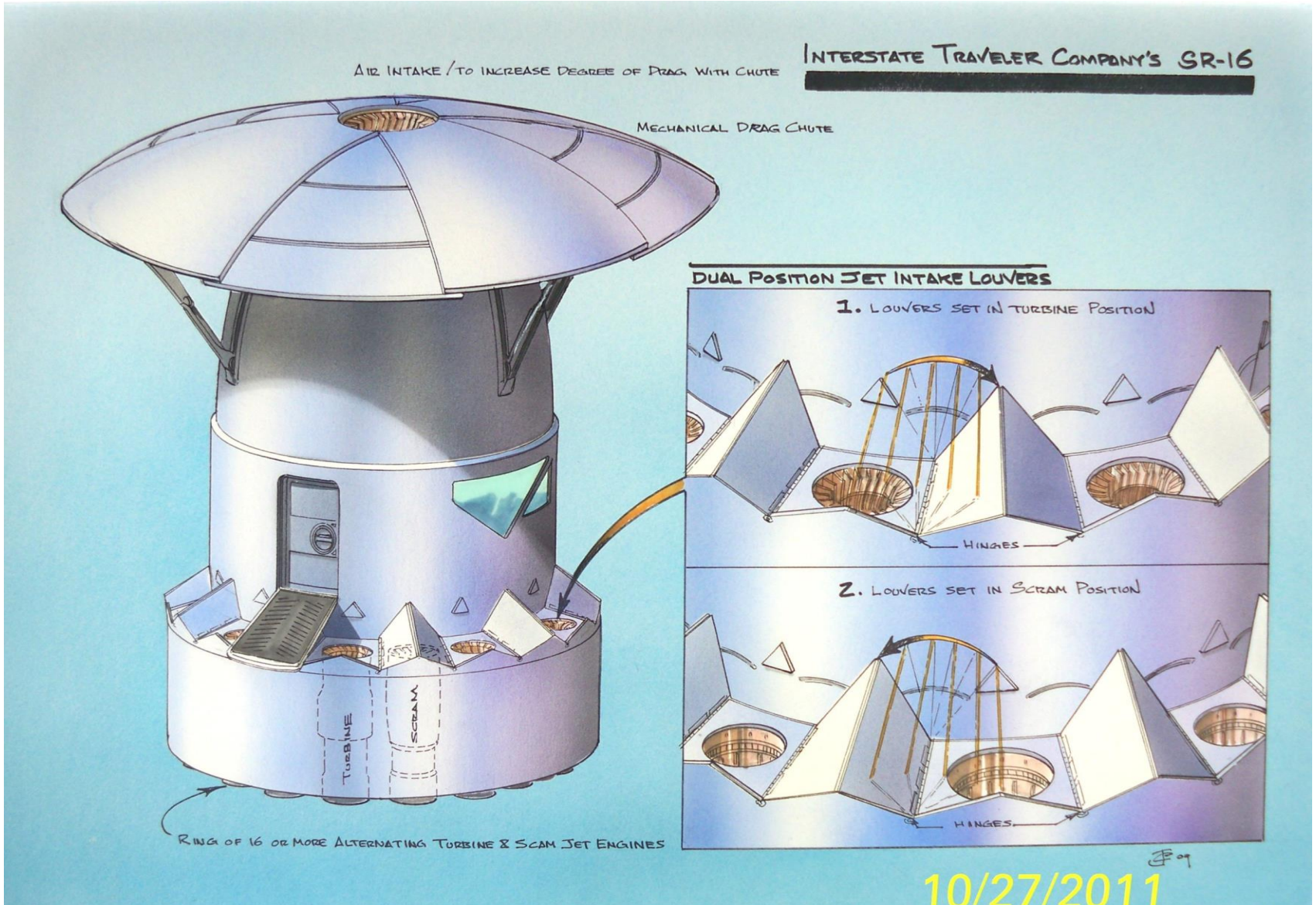
Magnetic Assisted Launch and Landing



Interstate Traveler Company's SR16 Single Stage to Orbit (SSTO) Concept

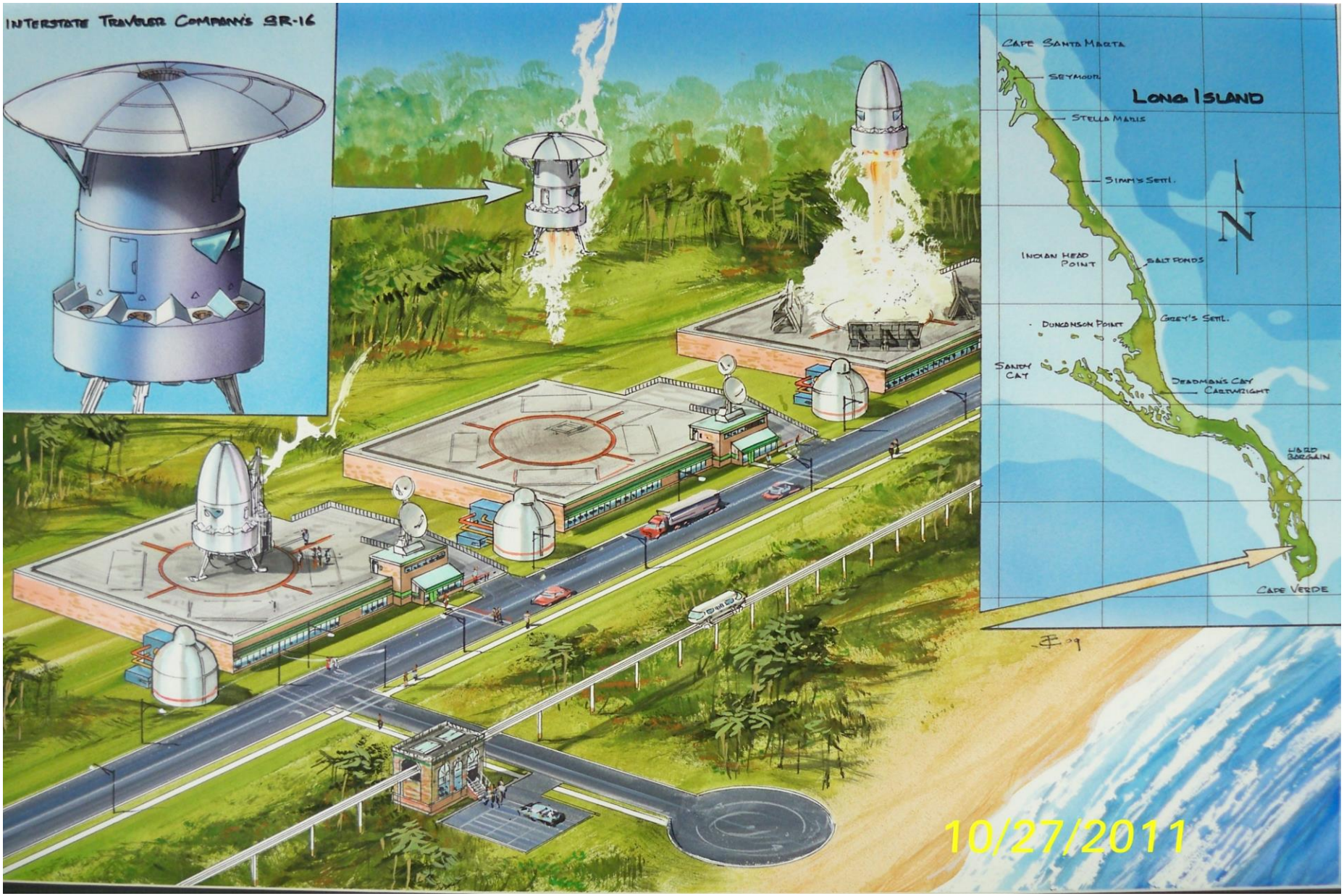
VTOL flight switchable array of 8 Turbine Jet and 8 Scram Jet

Single Central Turbine or Aerospike



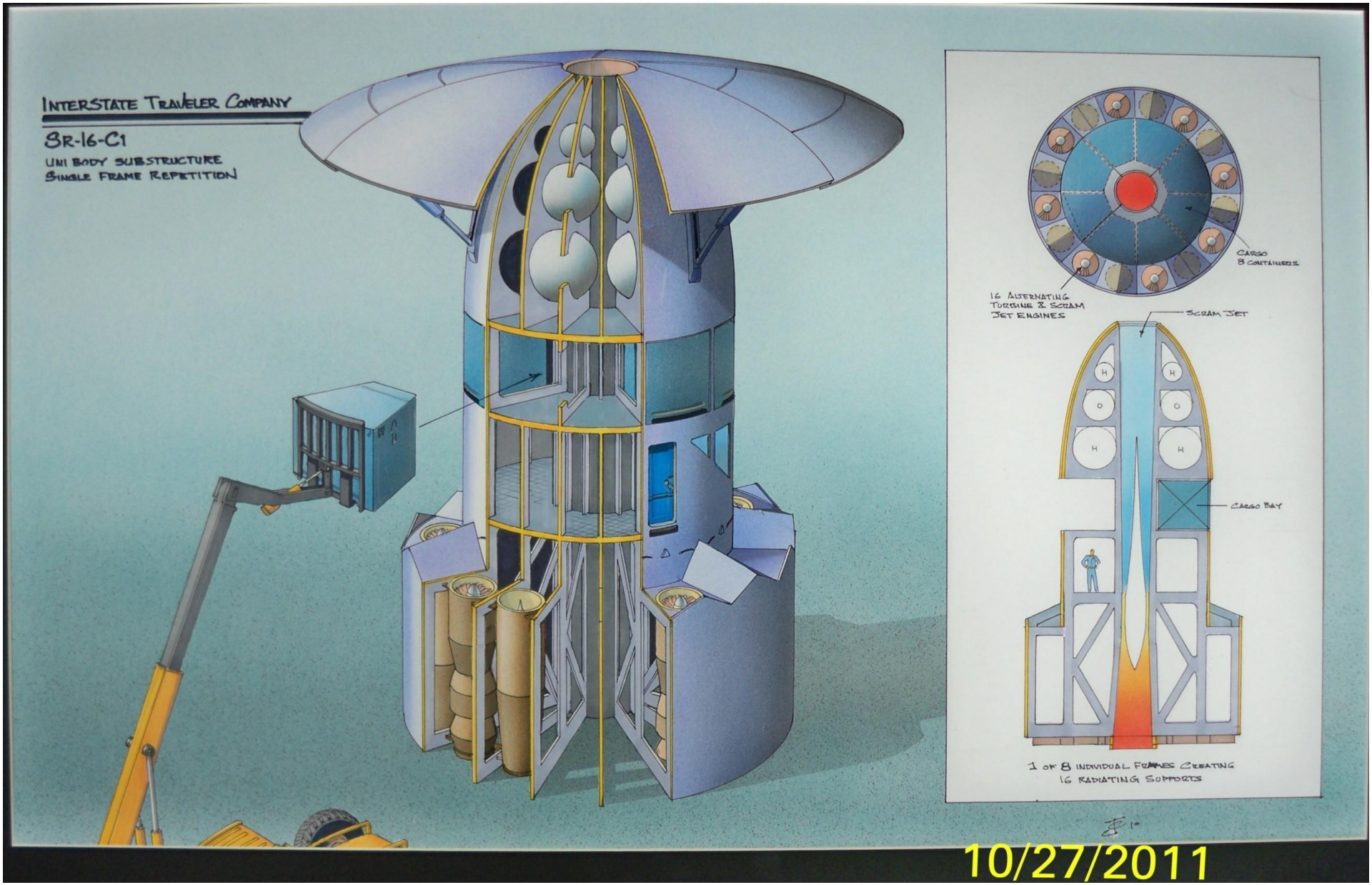
Interstate Traveler Company's SSTO Space Port Concept

Long Island Bahamas



Interstate Traveler Company's SSTO Concept Cargo Body

Large Central Scramjet



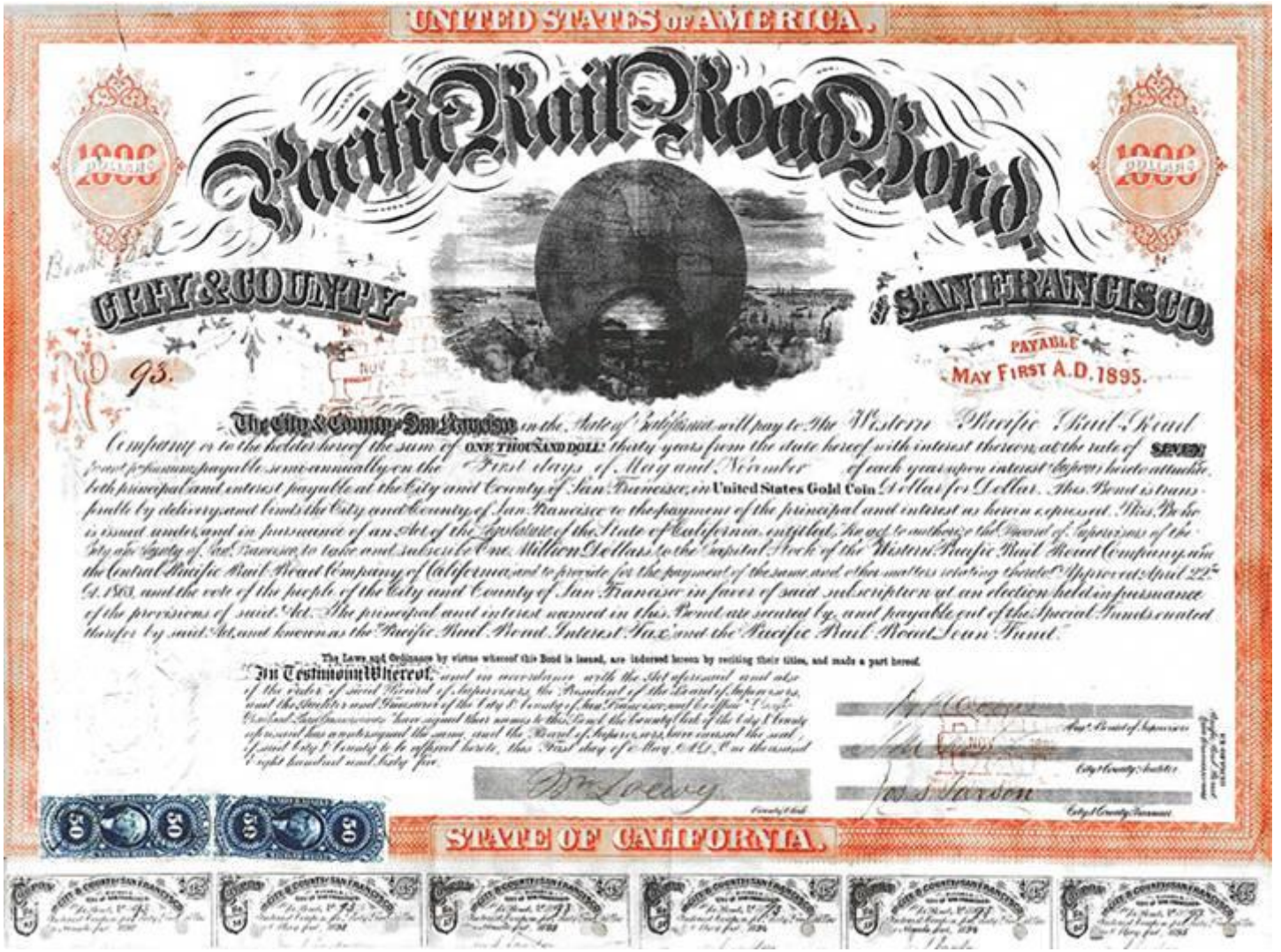
The Interstate Traveler Company, LLC

Learning Objective #3

Essentials of a Public Private Partnership

Money

Rail Road Bonds



The Ten Primary Deliverables

… and there are many more…

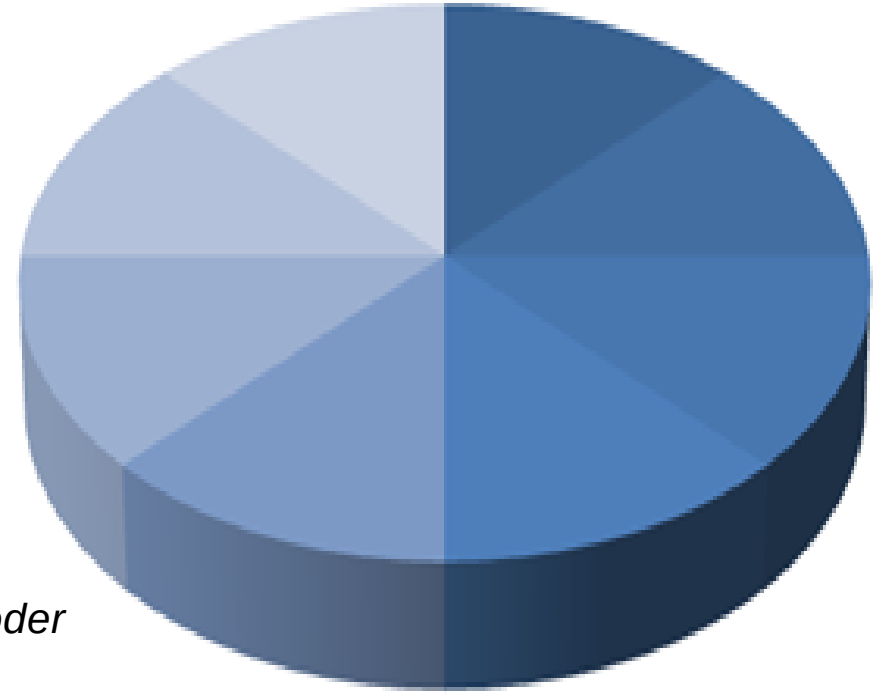
1. Rapid Transit = $ /minute
2. Advertising = $ /sign
3. Hydrogen = $ /kilogram
4. Electricity = $ /kilowatt
5. Energy Storage = $ /kilowatt
6. Fiberoptics = $ /bandwidth
7. Fuel pipelines = $ /gallon or cubic foot
8. Liquid waste = $ /barrel
9. Brand New Water = $ /liter
10. Internet / Telecom = $ /minute

Public Private Partnership

Per Capita Revenue Sharing shared with

Four levels of government

Four Public Trust Foundations



- FEDERAL = 12.5%
- STATE = 12.5%
- COUNTY = 12.5%
- LOCAL = 12.5%
- MEDICAL = 12.5%
- EDUCATION = 12.5%
- RECREATIONAL = 12.5%
- HISTORICAL = 12.5%

Chart by Ken Yoder

Eisenhower Interstate Traveler

<u>Eisenhower Interstate system 54,000 miles Main and Feeder</u>

Basic 'Round Number' System Estimates:

- 162,000 -Transports
- 22,000 -Traveler Stations
- 18,000 -Utility Substations
- 45,900,000,000 -watt/hour capacity (45.9 Billion Watts)
- 156,656,700,000 -BTU/hour (3.413 BTU/ watt-hour)
- 1,620,000 -gallons of water per hour
- 9,720,000 -passenger capacity
- $540,000,000,000 -cost to build at $10 Million / mile
- $242,000,000,000 -Annual Public Revenue
- 750,000,000 -Tons of Stainless Steel

Interstate Traveler's Energy

<u>One mile of HSH Elevated Rail System</u>

‘Round Number’ Estimates @12W/sqft PV & 50kW/kgH2

1 Mile of rail is expected to generate 1 MW/Hour ~ 20kgH2

1 Mile of rail is expected to generate 5 MW/Day ~ 100kgH2

1 Mile of rail is expected to generate 1.825 GW/Year ~ 36,500kgH2

Therefore:

100 Miles of rail is expected to generate 182.5 GW/Year ~ 3.6M kgH2

Closing Thoughts on Hydrocarbons

What is a Hydrocarbon?

Hydrocarbons such as gasoline form a bond of 8 carbons to every 18 atoms of hydrogen, or C8H18. When the hydrocarbon is oxidized, the hydrogen is burned away to create H2O and CO2

So for every C8H18 that is oxidized there are created 8 CO2 and 18 H2O molecules.

The molecular weight of carbon is 6
The molecular weight of hydrogen is 1
The molecular weight of Oxygen is 8

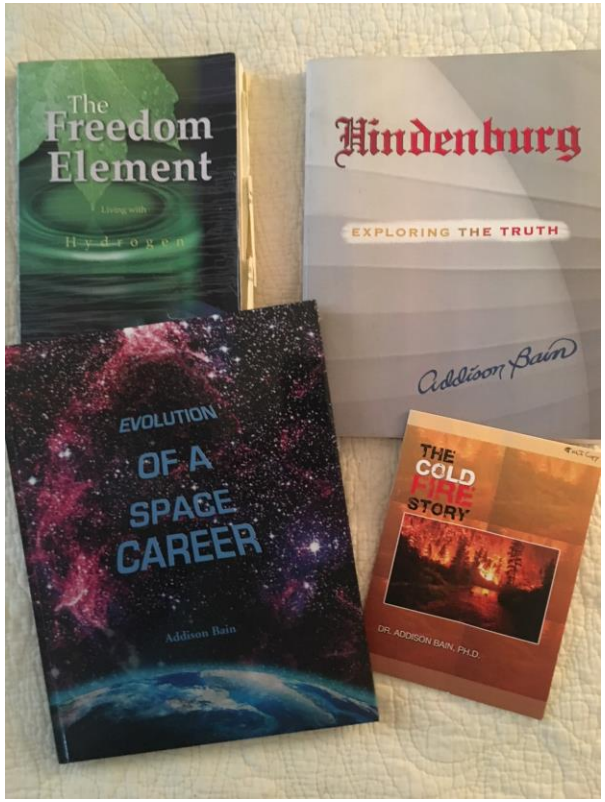
When a single C8H18 is oxidized it will produce 8 * 22mw = 176mw in CO2.
When a single C8H18 is oxidized it will produce 9 * 10mw = 90mw in H2O

Thus the factor of mass per unit of gasoline to mass per unit of carbon dioxide produced at oxidation is about 2.68.

This is why a gallon of gasoline that weighs 7.5 lbs can produce 18.6 lbs worth of CO2

Finally, the same oxidation cycle therefore consumes 16 atomic units of O for the CO2 and 9 atomic units of O for each H2O which is 25au * 8mw for a total of 200mws in Oxygen which is a factor of 3.03. Therefore, for each 7.5 lbs of gasoline oxidized, 22.72 lbs of Oxygen are consumed from the atmosphere.

Dr. Addison Bain – NASA Hydrogen Program Manager (Retired)



To whom it may concern:

I am Addison Bain, Ph.D., a retired NASA Hydrogen Program Manager. I am a founding member of the National Hydrogen Association and the International Association for Hydrogen Energy. I have more than four decades of experience designing, operating and maintaining hydrogen systems and equipment for the US military and NASA. This includes the Apollo, Centaur and Space Shuttle programs. I was responsible for the acquisition of liquid hydrogen to support all government requirements in the US.I served as the first chairman of the US Department of Energy's Hydrogen Safety Panel. I continue to serve on that panel as a consultant to support all USDOE hydrogen projects in the US. I was instrumental in developing the NASA Hydrogen Safety Manual and the USDOE Hydrogen Safety Best Practices guideline.

I am writing today to present the Interstate Traveler Company's Hydrogen Super Highway network rail and pipeline system to you.

Over the last six years, the Founder and Managing Partner of Interstate Traveler, Justin Sutton and more recently Chief Executive Officer and President, Jim M. Jung, has kept me apprised of their progress regarding the development and construction of their innovative system. The Interstate Traveler system uses solar energy to directly operate the transportation system during sunlight hours and to create hydrogen either from water electrolysis or reformation of natural gas (with subsequent carbon sequestration) to be used as an energy storage medium for use during non sunlight hours.

The potential of this system to provide a means of hydrogen generation and distribution for its own use and for use as a fuel source for road-bound vehicles is very promising. The Interstate Traveler system stores the hydrogen every 3 miles along its route and within the pipeline network itself which provides distribution between stations. This allows the Interstate Traveler infrastructure to act as a national hydrogen fuel infrastructure making the use of hydrogen-fueled automobiles practical wherever the system is built.

The Interstate Traveler Company has expressed their intent to adopt the strictest safety protocols consistent with those I developed during my employment with NASA and to meet or exceed all other safety standards. I have been asked and agreed to participate in hydrogen production, storage and distribution aspect of the company's system design and integration. I feel that while this system is in the late stages of development and has not yet been constructed, the concept is worthy of full development and when fully implemented will be of great benefit to the states and countries which adopt this system.

Please feel free to contact me via e-mail at addbain@juno.com.

Sincerely
Addison Bain Ph.D.
December 15, 2016

Respectfully Submitted

The Interstate Traveler Company, LLC

https://twitter.com/HSHElevatedRail
www.InterstateTraveler.us
www.HydrogenSuperHighway.com
www.HyRail.us