Columbia River CROSSING

Meeting Summary

Meeting: Columbia River Crossing Task Force

Meeting Date: March 22, 2006

Location: WSDOT SW Region Headquarters,
11018 NE 51st Circle, Vancouver, WA

Members Present:

Sam Adams, City of Portland
Rex Burkholder, Metro
Bob Byrd, Identity Clark County
Lora Caine, Friends of Clark County
Serena Cruz, Multnomah County
Hal Dengerink, Washington State University Vancouver (Task Force Co-chair)
Dave Frei, Arnada Neighborhood Association
Jill Fuglister, Coalition for a Livable Future
Lynne Griffith, C-TRAN
Jerry Grossnickle, Columbia River Tugboat Association
Brad Halverson, Overlook Neighborhood Association
Alan Lehto for Fred Hansen, TriMet
Henry Hewitt, Stoel Rives (Task Force Co-chair)
Monica Isbell, Portland Business Alliance
Dean Lookingbill, Regional Transportation Council
Ed Lynch, Vancouver National Historic Reserve Trust
Dick Malin, Central Park Neighborhood Association
Steve Petersen, Portland Business Alliance
Bob Russel, Oregon Trucking Association
Steve Stuart, Clark County
Jeri Sundvall-Williams, Environmental Justice Action Group
Walter Valenta, Bridgeton Neighborhood Association
Scot Walstra, Greater Vancouver Chamber of Commerce
Tom Zelenka, Oregon Freight Advisory Committee
Susie Lahsene for Bill Wyatt, Port of Portland

Task Force Members Absent:

Dr. Wayne Branch, Clark College
Charles Becker, City of Gresham
Rich Brown, Bank of America
Elliott Eki, Oregon/Idaho AAA
Eric Holmes, City of Battle Ground
Janet Ray, Washington AAA
Art Schaff, Oak Harbor Freight
Karen Schmidt, WFMSIB
Jonathon Schlueter

Team Members Present:

Doug Ficco	Gregg Snyder
Rob DeGraff	David Parisi
Kris Strickler	Mike Baker
Jay Lyman	Linda Mullen
Barbara Hart	Anne Pressentin

I. Meeting Minutes

The Task Force approved the February 1 meeting minutes. Language was added to read "Based on previous studies the costing of moving the rail bridge is about $42 million. If moving the rail bridge is determined to be necessary to provide for marine safety for an alternative, it will be included in the description of that alternative."

Action: Changes proposed were approved.

II. Opening Remarks

Chairman Hal Dengerink introduced Barbara Hart as the new facilitator for the Task Force and noted that Katy Brooks would still be involved, but as a representative of the Port of Vancouver.

Chairman Dengerink updated the Task Force about changes made to the Evaluation Framework by the Project Sponsors Council and InterCEP. He explained that the points were minor, that these groups have some institutional or regulatory interests in the project. He and Co-Chair Hewitt had discussed the items and felt they were acceptable changes.

Action: Consensus to accept the changes

III. Arch Miller, Regional Transportation Council

Chairman Dengerink then introduced Arch Miller, of the Regional Transportation Council. Mr. Miller commented that the I-5 bridge needs to be fixed, and that the decision to do so was made by the I-5 Partnership in 2002. He then updated the Task Force with information relating to a new north-south corridor study process that RTC will be taking on. It may provide an opportunity or avenue to discuss a third crossing between Vancouver and Portland, in a longer-term process.

Rex Burkholder commented that he supports that effort and would like coordination with Metro at the appropriate time.

Action: No action necessary

Jill Fuglister asked why the public comment section was moved to the end of the agenda. It was noted that the group had agreed to have public comment at the beginning of the agenda when it was a decision-making meeting. This meeting was informational so the comment period was moved.

Action: No action necessary

IV. Step A Component Screening

Jay Lyman introduced the task force to the component screening background information that had been mailed to members the week prior. The Step A screening process was meant to identify components that have fatal flaws, and was applied only to Transit and River Crossing components – the other components will be considered later in the process.

The primary criteria were the six pass/fail questions based upon the problem definition, whereby any component that didn't meet the criteria would be recommended to fail and not advance in the process. The six questions are below and apply specifically to the Bridge Influence Area.

Does the component:
Increase vehicular capacity or decrease vehicular demand?
Improve transit performance?
Improve freight mobility?
Improve safety and decrease vulnerability to incidents?
Improve bicycle and pedestrian mobility?
Reduce seismic risk of the I-5 Columbia River Crossing?

Each of the six criteria applied to the River Crossing component and the first two applied to the transit component.

Mr. Lyman noted that the context for answering the pass/fail questions related to travel demand and market analysis; vehicular, aviation and navigation safety; design constraints and seismic considerations. He requested that Task Force members hold their questions until the end because of the quantity of material to get through in the meeting.

David Parisi gave an overview of traffic and travel information in the Bridge Influence Area that included volume information, where people are entering and exiting the area, current and 2020 projected hours of congestion.

Gregg Snyder reviewed transit information including existing service, existing and 2020 projected transit travel times and future travel markets. Most trips will originate in Downtown Portland, North Portland, Rivergate, Delta Park and Hayden Island.

David Parisi reviewed freight movement, including current and projected tonnage by mode, and how mid-day congestion will impact freight travel in the future.

Kris Strickler introduced the marine navigation and aviation issues affecting the project. These include reducing or eliminating the "s curve" maneuvers that marine vessels must navigate between the I-5 bridges and the railroad bridge to the west. The project team has been in discussion with the US Coast Guard regarding acceptable height clearances for marine navigation. USCG prefers a higher, wider, upstream bridge and will issue public notice for 30 day review on height/width after DEIS is published for comment.

The Federal Aviation Administration also has interest in preserving/protecting flight space for Pearson Airpark and, to a lesser extent, Portland International. The existing I-5 bridge intrudes into Pearson Airpark airspace because it was there before the airport. However, FAA would not grandfather the existing height into a new bridge.

Together, the marine and air space issues provide a tight area within which any new structure could be constructed.

David Parisi gave an overview of vehicular safety issues in the Bridge Influence Area, which included an analysis of five-year crash data on both sides of the river. He noted that there is an average of more than once crash per day in the Bridge Influence Area and that the accident rates are higher than average for similar urban Interstates. Parisi showed maps of where the accidents occur, the type and severity. Through this work, he demonstrated a strong correlation between collisions and out-dated, or non-standard highway design features, including narrow shoulders, short on and off-ramps, merging and diverging spaces and sight distances. He noted that bridge lifts result in a three to four times more likelihood of collisions, and that over twice as many collisions occur during periods of congestion.

Parisi walked the Task Force through the current routing of the bicycle and pedestrian pathways, noting the narrow path, the steep climbs and descents, lack of connectivity and other impediments to safe bike or foot travel.

Kris Strickler reviewed the seismic issues, noting that I-5 is a lifeline yet the current bridges don't meet seismic standards, and we don't currently know if it's feasible to upgrade/retrofit them.

The Task Force took a break for dinner and reconvened for the Screening Report Results.

V. Component Screening Results

Transit was discussed first. There were 14 ideas that had been considered. Each was presented with a recommendation to advance or not in the process. A summary follows:

TR-1 – Express Bus in General Purpose Lanes	Advance
TR-2 – Express Bus in Managed Lanes	Advance
TR-3 – Bus Rapid Transit Lite	Advance
TR-4 – Bus Rapid Transit Full	Advance

TR-5 – Light Rail Transit — Advance
TR-6 – Streetcar — Advance

TR-7 - High Speed Rail — Do not advance
This alternative fails on the following questions:

- Does not satisfy Questions 1 and 2

- Q1 – Could not serve many of the identified travel markets, generate significant ridership and thus reduce vehicular demand (hard to do with trains that go 175+ MPH)
- Q2 – Does not improve transit performance and can't be feasibly integrated into existing service structures

TR-8 – Ferry Service — Do not advance
This alternative fails on the following questions:

- Does not satisfy Questions 1 and 2
- Q1 – Long, out of direction travel times would not generate significant ridership and thus reduce vehicular demand.
- Q2 – Does not improve transit performance and can't be feasibly integrated into existing service structures
  Note: Ferry service wouldn't serve multiple transit markets such as Hayden Island, Delta Park, and North Portland.

TR-9 – Monorail — Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 2
- Q2 –Does not improve transit performance and can't be feasibly integrated into existing service structures
  Note: Monorails have special purpose applications and have not been successfully used for general public transit service in the U.S.

TR-10 – Magnetic Levitation Railway — Do not advance
This alternative fails on the following questions:

- Does not satisfy Questions 1 and 2
- Q1 – An experimental high-technology rail system that serves long distance trips (i.e., Salem to Seattle). Would not generate significant ridership and reduce vehicular demand.
- Q2 – Does not improve transit performance and can't be feasibly integrated into existing service structures

TR-11 – Commuter Rail Transit — Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 2
- Q2 –Does not improve transit performance and can't be feasibly integrated into existing service structures. Existing railroad right-of-way misses key transit markets.

Note: Prior studies show that commuter rail can't be operated on the existing, congested freight rail trackage.

TR 12 – Heavy Rail Transit Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 2
- Q2 –Does not improve transit performance and can't be feasibly integrated into existing service structures.
  Note: Heavy rail transit service is appropriate for the world's largest and most congested cities where population density and ridership demand exceeds light rail and bus capacity.

TR-13 – Personal Rapid Transit Do not advance
This alternative fails on the following questions:

- Does not satisfy Questions 1 and 2
- Q1 – As a theoretical concept, a PRT system has never been built for general public transit service and therefore can't reduce vehicular demand
- Q2 – Does not improve transit performance and can't be feasibly integrated into existing service structures

TR-14 – People Mover/Automated Guideway Transit Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 2
- Q2 –Does not improve transit performance and can't be feasibly integrated into existing service structures.
  Note: People movers are rare because they consist of driver-less trains operating in either underground tunnels or elevated railways.

River Crossing Components

There were 23 considered.

RC-1 – Replacement Bridge/Downstream/Low-level/Movable Advance
RC-2 – Replacement Bridge/Upstream/Low-level/Moveable Advance
RC-3 - Replacement Bridge/Downstream/Mid-level Advance
RC-4 – Replacement Bridge/Upstream/Mid-level Advance

RC-5 – Replacement Bridge/Downstream/High-level Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 4
- Q4 – Would result in unacceptable encroachment into Pearson Airpark airspace

RC-6 – Replacement Bridge/Upstream/High-level Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 4

- Q4 – Would result in unacceptable encroachment into Pearson Airpark airspace

RC-7 – Supplemental Bridge/Downstream/Low-level/Movable Advance
RC-8 – Supplemental Bridge/Upstream/Low-level/Movable Advance
RC-9 – Supplemental/Downstream/Mid-level Advance

RC-10 – Supplemental/Upstream/Mid-level Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 4
- Q4 – Would result in unacceptable encroachment into Pearson Airpark airspace Note: Bridge high point located far enough north to align with north channel of Columbia River. Creates the airspace encroachment.

RC-11 – Supplemental/Downstream/High-level Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 4
- Q4 – Would result in unacceptable encroachment into Pearson Airpark airspace

RC-12 – Supplemental/Upstream/High-level Do not advance
This alternative fails on the following questions:

- Does not satisfy Question 4
- Q4 – Would result in unacceptable encroachment into Pearson Airpark airspace

RC-13 – Tunnel to Supplement Existing Bridges Advance

RC-14 – New Corridor Crossing Near BNSF Do not advance
This alternative fails on the following questions:

- Does not satisfy Questions 2, 4, 5 and 6
- Q2 – Does not provide service to population centers on Hayden Island. Out of direction travel times for trips between Salmon Creek and downtown Portland. Does not improve transit performance within the Bridge Influence Area.
- Q4 – Maintains known I-5 non-standard design features that contribute to vehicular collisions. Future I-5 safety would be expected to worsen as demand increases.
- Q5 – Does not improve or provide new multi-use pathway across Columbia River in the I-5 corridor or improve I-5 related bicycle/pedestrian connections.
- Q6 – Investment in an alternative corridor does not reduce the seismic risk of the I-5 Columbia River crossing.

RC-15 – New Corridor Crossing, plus widen existing I-5 bridges Do not advance
This alternative fails on the following questions:

- Does not satisfy Questions 2, 4, 5 and 6
- Note: Not feasible to add new travel lanes between existing I-5 bridges. Without the I-5 improvement, it performs similar to RC -14.
- Q2 – Does not improve transit performance within the Bridge Influence Area.

- Q4 – Maintains, and may exacerbate, known I-5 non-standard design features that contribute to vehicular collisions. Future I-5 safety would be expected to worsen as demand increases.
- Q5 – Does not improve or provide new multi-use pathway across Columbia River in the I-5 corridor or improve I-5 related bicycle/pedestrian connections.
- Q6 – Investment in an alternative corridor does not reduce the seismic risk of the I-5 Columbia River crossing.

RC-16 – New Western Highway (I-605) Do not advance

This alternative fails on the following questions:

Does not satisfy Questions 1 through 6

- Q1 and 3 – Does not significantly increase vehicular capacity or reduce demand for commuter and truck freight travel along I-5.
- Q2 – Does not improve transit performance within the Bridge Influence Area due to:
  - Not directly serving transit markets in North Portland,
  - Long, out of direction travel times for trips between Salmon Creek and downtown Portland,
  - Little future transit demand for travel between Clark County and Washington County.
- Q4 – Maintains known I-5 non-standard design features that contribute to vehicular collisions. Future I-5 safety would be expected to worsen as demand increases.
- Q5 – Does not improve or provide new multi-use pathway across Columbia River in the I-5 corridor or improve I-5 related bicycle/pedestrian connections.
- Q6 – Investment in an alternative corridor does not reduce the seismic risk of the I-5 Columbia River crossing.

RC-17 New Eastern Columbia River Crossing Do not advance

This alternative fails on the following questions:

- Does not satisfy Questions 1 through 6
- Q1 and 3 – Does not significantly increase vehicular capacity or reduce demand for commuter and truck freight travel along I-5.
- Q2 – Does not provide service to Hayden Island or Delta Park. Long, out of direction travel times for trips between Salmon Creek and downtown Portland. Does not improve transit performance within the Bridge Influence Area.
- Q4 – Maintains known I-5 non-standard design features that contribute to vehicular collisions. Future I-5 safety would be expected to worsen as demand increases.
- Q5 – Does not improve or provide new multi-use pathway across Columbia River in the I-5 corridor or improve I-5 related bicycle/pedestrian connections.
- Q6 – Investment in an alternative corridor does not reduce the seismic risk of the I-5 Columbia River crossing.

RC-18 – I-205 Improvements Do not advance

This alternative fails on the following questions:

- Does not satisfy Questions 1 through 6
- Q1 and 3 – Does not significantly increase vehicular capacity or reduce travel demand for commuter and truck freight along I-5.
- Q2 – Does not improve transit service to identified I-5 transit markets.
- Q4 – Maintains known I-5 non-standard design features that contribute to vehicular collisions. Future I-5 safety would be expected to worsen as demand increases.
- Q5 – Does not improve or provide new multi-use pathway across Columbia River in the I-5 corridor or improve I-5 related bicycle/pedestrian connections.
- Q6 – Investment in an alternative corridor does not reduce the seismic risk of the I-5 Columbia River crossing.

RC-19 – Arterial Crossing to Supplement I-5 Do not advance

This alternative fails on the following questions:

- Does not satisfy Questions 1, 3, 4, and 6
- Q1 and 3 – Does not significantly increase vehicular capacity or reduce demand for commuter and truck freight travel along I-5.
- Q4 – Does not address known I-5 non-standard design features that contribute to vehicular collisions. Future I-5 safety would be expected to worsen as demand increases.
- Q6 – Investment in an alternative corridor does not reduce the seismic risk of the I-5 Columbia River crossing.

RC-20 – Replacement Tunnel Do not advance

This alternative fails on the following questions:

- Does not satisfy Questions 1, 2, 3, and 5
- Q1 and 3 – Does not serve I-5 commuter and truck freight trips within the Bridge Influence Area.
- Q2 – Does not improve transit performance within the BIA because it does not provide service to key transit markets in downtown Vancouver, Hayden Island, and North Portland.
- Q5 – Does not improve or provide new multi-use pathway across Columbia River in the I-5 corridor or improve I-5 related bicycle/pedestrian connections.

RC-21 – 33rd Avenue Crossing Do not advance

This alternative fails on the following questions:

- Does not satisfy Questions 1 through 6
- Q1 and 3 – Does not significantly increase vehicular capacity or reduce demand for commuter and truck freight travel along I-5.
- Q2 – Does not provide service to Hayden Island or Delta Park. Out of direction travel times for trips between Salmon Creek and downtown Portland. Does not improve transit performance within the Bridge Influence Area.

- Q4 – Does not address known I-5 non-standard design features that contribute to vehicular collisions. Future I-5 safety would be expected to worsen as demand increases.
- Q5 – Does not improve or provide new multi-use pathway across Columbia River in the I-5 corridor or improve I-5 related bicycle/pedestrian connections.
- Q6 – Investment in an alternative corridor does not reduce the seismic risk of the I-5 Columbia River crossing

RC-22 – Non-Freeway Multi-Modal Columbia River Crossing Do not advance
This alternative fails on the following questions:

- Does not satisfy Questions 1, 3, 4, and 6
- Q1 and 3 – Not feasible to elevate existing I-5 structures to eliminate bridge lifts. Does not significantly increase vehicular capacity or reduce travel demand along I-5. Results in out-of-direction travel for commuters within the Bridge Influence Area.
- Q4 – Many known I-5 non-standard design features that contribute to vehicular collisions would remain.
- Q6 – Investment in an alternative corridor does not reduce the seismic risk of the I-5 Columbia River crossing.

RC-23 – Arterial Crossing with I-5 Improvements Advance

Mr. Lyman discussed next steps, including applying Step B screening to the Transit and River Crossing Components and reporting Step B results at the April 26 Task Force Meeting.

VI. Question and Answer and Comments Session

Many Task Force Members had questions or comments to offer. They are summarized below.

Tom Zalenka – Regarding the Pass-fail criteria, shouldn't question 1 be two separate questions – one for increasing capacity and one for decreasing demand?
Mr. Lyman – The criteria reflect the problem definition as approved by the Task Force.
Mr. Zalenka – I don't think that the question was a straightforward question now that I've had more detail to look at. I want to make sure the process is transparent.

Steve Stuart – Commented that he didn't believe the term "Origin and Destinations" was an accurate way to portray Parisi's trip study and that the issue is entries and exits to the system.
Mr. Lyman – I agree

Mr. Stuart – How does the project define capacity?
Mr. Parisi – Roughly 1700 vehicles per hour
Mr. Stuart – How do you define congestion?
Mr. Parisi – It's based upon service levels and how many cars get through, how many are in the queue and when speeds go down

Serena Cruz: How can you measure excess demand?
Mr. Parisi: Count the cars stuck in traffic
Ms Cruz - How do you count the people who are taking the later trip?
Mr. Parisi – By watching the length of time that the delays occur

Henry Hewitt – What do you mean by pre/post HOV when measuring transit travel times?
Response – The travel times are meant to measure apples to apples, with the first count taken before the HOV lane was put in, and the second one after the HOV lane in Washington was taken out.

Jeri Sundvall – Regarding page 4 (Origin/Destination Slide) – What is the time period?
Mr. Parisi – Four hours northbound, between 2 and 6 p.m.

Ms. Sundvall – Regarding page 7 – How does fuel price affect volumes across bridge? Do you assume hybrids or other vehicles will increase?
Gregg Snyder – We haven't done that
Ms. Sundvall – Would sufficient transit be a solution for congestion?
Mr. Snyder **–** Yes

Scot Walstra – Does westbound Pearson traffic influence PDX airplanes?
Response – PDX airspace is considered.

Mr. Walstra – Does the safety data include pedestrians and bikes accidents? Bike and pedestrian people say they don't use the I-5 bridge because it's unsafe
Mr. Parisi – It includes them if they are on the mainline.

Rex Burkholder – Regarding page 3.7 in the report – Shouldn't the phrasing be regarding the BIA, not I-5 corridor?
Mr. Parisi – Yes.

Bob Byrd – Where did top line of green box (about marine navigation) come from?
Kris Strickler: It includes a survey of all potential users.
Mr. Byrd – Would USCG consider that?
Mr. Strickler – We could likely get an exception from the USCG.

Laura Caine – Regarding page 3.29, booklet 3.7 – other considerations, does that consider toll issues?
Mr. Lyman – We looked at feasibility and some technologies, but toll booths are not yet in the discussion. We are looking at electronic tolling and will have more information for you regarding that at a later time.

Ms. Cruz – Regarding safety and your comment that more vehicles cause more collisions, did you develop a rate that would show that the traffic does in fact group?
Mr. Parisi – We only looked at how DOT reports it. The relationship is about congestion, not volume.
Ms. Cruz – In relation to reducing traffic compared to today's levels: is that real or relative numbers?
Mr. Parisi – They're relative.
Ms. Cruz – Can't you do it with training, signage, other things instead of changing designs.
Mr. Parisi – There are 8 interchanges with in within 5 miles and standard call for no more than one per mile. Because of the non-standard designs, they lead to accidents.
Ms. Cruz – What if you created a traffic safety corridor, would that do it?
Mr. Parisi – Yes, to a limited extent. You could reduce speeds and reduce collisions, but you'd create more delay.

Jerry Grossnickle - Regarding Figure 3.5 – 9 hours of congestion - I saw a similar study for the towboat industry, but it had different results. Were restrictions on bridge lifts included? Because if so, it extends the congestion curve more.

Jill Fuglister – Regarding page 4 – Next Step, part b: As part of the O/D Survey, did you collect demographic info? That might be helpful for EJ issues. We'll need that.
Mr. Parisi – This was done through license plate monitoring, but the charts with the red and green dots can give that information.
Ms. Fuglister – Does that match with census tracts?
Mr. Parisi – We can try, but I won't guarantee it right now.
Ms. Fuglister – What other urban freeways compare to I-5?
Mr. Parisi – I-5 in the Portland central city, the I-405 loop, parts of I-205 and I-84

Bart Phillips – regarding the 2020 Transit Market, page12, 1st slide - Aren't those park and ride lots? What are we really measuring?
Mr. Snyder – Yes, some are park and rides, some are final destination
Mr. Phillips – Isn't this really saying that the locations of park and ride facilities is driving this?
Mr. Snyder – 2020 mode show final destination
Mr. Phillips – If you move the facilities, don't you control the demand?
Mr. Snyder – Potentially
Mr. Philips – Northbound direction only?
Mr. Snyder – Yes, evening peak is higher than morning, but we have morning peak data also.

Ms. Sundval – Can we get some large print?

Tom Zalenka – I have 4 or 5 questions or comments, but don't need answers now
1) North/South congestion slides – Northbound and Southbound have different peak times. Northbound has more people, a longer time, which makes it more complex.

2) Can we compare to other communities with a high percentage of commuter traffic to learn their through-put numbers and get ideas for better overall solutions? Include Seattle, Olympia, and the Canadian border.
3) Freight and the forecast mode split – there's nothing related to safety and design issues. Are we looking at rail safety? Are we backing up trains?
4) Transit markets, adjacent to I-5 – why isn't Washington County included? What about East county?
5) I want to understand the relationships between the Task Force, the Project Sponsors Council and InterCEP.

Steve Stuart – Regarding the Capacity/Demand graph, can we get average traffic speeds through BIA to help to begin to understand "acceptable congestion", i.e. how slow is slow. Also, regarding safety – page 3-25 – was there prioritization of the accident locations or most important factor?
Mr. Parisi – We didn't look at it like that because of the presence of non-standard features and high traffic levels.
Mr. Stuart – Regarding page 3.29 how many Willamette River Bridges meet seismic standards?
Is that a must?
Mr. Lyman – There are some important distinctions: the Willamette bridges serve local traffic; the Interstate is a lifeline structure.

Rex Burkholder – Page 4.1.1 seems written to interpret to add lanes. RC-19 and RC 22 – If combined with TDM, they might work. We might want these things when looking at what we can afford.
Response – RC-19 and 22 are safety issues, but RC 23 includes TDM.
Mr. Burkholder – Can we be careful about language? "Improvements" may be too value laden. Can we be more specific?

Steve Stuart – RC numbers 5, 6, 10, 11 and 12 all have one flaw – Pearson Air Park. Will we regret this 20 years from now if we take these off the table?
Royce Pollard – Pearson will be here longer than you and I.

Hal Dengerink – Regarding page 5, through trips versus others – If you gave them a different way to get on, would that change?
Mr. Parisi – The 2020 scattergram about origins and destinations in 2020 shows where people are traveling to and from. We could model traffic in other corridors to see if it would.
Mr. Dengerink – What is the threshold? Is there one for congestion and one for safety?
Mr. Parisi – We know we need to improve safety and can predict from the models that collisions will go up 50% to 60% by 2020.

Alan Lehto – Regarding TR-6, the streetcar. TriMet doesn't believe it is compatible with existing Max Station designs. Also, a streetcar wouldn't be able to meet capacity demands for crossing the bridge.

Walter Zalenka – Is the bias for new lanes? Does this information get to the less cars philosophy? We need to keep a valid slower growth idea on the table.
Mike Baker – The model for all of these included a high level of TDM/TSM.
Mr. Lyman – This will show up in greater detail when we begin the packaging efforts.

Dick Malin – It's vital to understand the impacts this will have on Vancouver. We need to consider better east-west transit
Mr. Lyman – Our goal is not to preclude new east-west transit options.

Question – Does recommending against the ferry preclude the water taxi idea being considered in Portland?
Answer – No

Ms. Cruz – Regarding TDM and TSM – RC 14, 19, and 22 with TDM might be doable.
Mr. Parisi – We don't know of a super TDM program that could save us 15 minutes.
Mr. Lyman – Our intent for now is to isolate these "stand-alone" components and address TDM in more detail in packaging. All will have an aggressive TDM program.

Ms. Fuglister – Can you clarify where we are in the process?
Bob Byrd – Is there something that staff sees that we don't? I would like to see the data that Dave is referring to so we can be convinced too.

Brad Halverson – RC 13 – and RC 20. Why does the short tunnel pass and the long tunnel fail?
Response – the Bridge Influence area is not served by the long tunnel. It misses SR 14, Mill Plain and Fourth Plain in Vancouver and Hayden Island in Portland.

Jeri Sundvall – Regarding the Task Force – are we advisory? How much weight to do have?

Mr. Dengerink – If we don't support something it is likely it won't happen.

Rex Burkholder – I have questions regarding the fact that Step A is not complete, yet you are moving forward with Step B and propose to bring us those results next month.

Doug Ficco – We are concerned about the schedule. We need to keep the Step B process moving so that work can continue. We need that information.

VII. Communications Report

Linda Mullen gave a run down of project communications activities, including the Open Houses on April 12 and 13; outreach to neighborhood associations; intention to be visible in the community. The EJ effort will include a committee made up of EJ and adjacent neighborhood members who will look at outreach plans, project milestones and design issues.

VIII. Public Comment

Paul Edgar – Sees errors in the analysis, thinks mixed use transportation is essential for Clark County and he doesn't want I-205 cut out of this project.

Mikki Blizzard – Washington County resident would like to see a combo of small, well thought out solutions because they will likely be more useful.

Sharon Nasset – would like to see a Bi-state industrial corridor. She would like the team to restudy the proposal she submitted.

Ben Wilson – advocated for a sky train that could go high speeds and is above the roadway system.

Appendices
to Task Force Meeting Summary

Handouts from Public Commenters

Paul Edgar

From: Paul Edgar [pauloedgar@qwest.net]

Sent: Tuesday, March 21, 2006 9:53 AM

To: Henry Hewitt; Harold A. Dengerink, Ph.D.; Rob DeGraff

Cc: Rep. Deb Wallace; Rex Burkholder; Sam Adams; Marc Boldt

Subject: I am going to speak to this at tomorrows CRC Task Force Meeting (Please print this and have it in the packets for the members)

Paul,

Thank you for your efforts to bring a regional perspective and a sense of accountability to the congestion problems in the Portland area. I agree with nearly everything you are trying to accomplish and I appreciate your efforts to "keep the pressure" on the leaders of the Region. In my opinion, we are on the same side...and we want the same things for Portland / Vancouver. If we differ at all, it's in the matters of scope and timing. Let me explain:

Scope: I think our goal should be, not to fix one corridor between Portland and Vancouver, but to fix them all. I don't want to just widen I-205, or build a new Columbia River Crossing at I-5 or to build a new third bridge connecting the Ports and better serving the western communities...I want all three, and, looking to the twenty year future, the metropolitan area will need all three. So what we are trying to do is to pursue a strategy that will give us the best chance of getting all three.

Timing: The question is...How to do this, and in what order??? Should we try for the easier (and less expensive) widening of I-205 first? Maybe, but if so, that might reduce the perceived need for an improved I-5 corridor? Should we try for the third bridge first to improve the connection between the Ports with a new "freight" corridor? Maybe, but that might be seen as a substitute for widening I-205 and for improving the I-5 corridor.

So, what we seem to be settling on is trying to get the most difficult project (the I-5 corridor) underway first. If we can get that project started (and funded) and prove to the public and the legislature our ability to make a positive difference at the I-5 crossing...then, it is not such a great leap to build public support for the other two, and ...there is no question that both other projects can still stand on their own as necessary and cost effective. The fear is, if we do I-205 or the third bridge between the Ports first, than these projects will be used by some as an excuse to not support the I-5 improvements and we will further delay the replacement of these critical bridges.

I hope that you can accept (or at least not object to) this strategy. In fact, my real hope is that you will use your considerable influence to support and help us find a way to build all three of these needed projects.

Thank you again for your active support of improved transportation in the Portland / Vancouver area.

David O. Cox
Division Administrator
FHWA - Oregon Division
503-399-5749

From: Paul Edgar, **Subject:** Economic Development Research Group Study

After printing out and reading the full text of the "The Cost of Congestion to the Economy of the Portland Region" by the Economic Development Research Group at first I thought to myself "that it was about time that this information was made available" but then the real light came on. Why not let this group independently setup the criteria to evaluate; the solutions on the table now and in the future like the Columbia River Crossing (CRC) Project proposal so that a comparison could be made to it; like the widening of I-205 to 4-lanes in conjunction with the building of a freight specific Port-to-Port, Westside arterial like outlined in the Bi-State Industrial Corridor (BIC) proposal as a public/private partnership. The BIC proposal also includes replacing the Heavy Rail Bridge crossing the Columbia River with the ability to include on it a MAX/Light Rail Loop that would provide the infrastructure to connect into Vancouver.

David Evans and Associates is doing the pre-EIS efforts for this I-5 CRC project and they have had the blinders put on them to virtually only design, engineer and sell this one project. The current process, instructions and players pre-ordain an action without identifying if this is the best use of all recourses and dollars that can be invested into transportation in our region. It precludes any region/system wide solutions from evaluation. How can we have and achieve an effective public process and ROI with the current plan and instructions? Many people believe that we will not even be able to achieve an effective EIS with the current charter/RFP that exists for the CRC Task Force and project teams.

The comparative cost of these alternate projects to the public should be approximately about that same or a little less when it comes to widening of I-205 because so much of the bridges and overpass infrastructure already exists. All of the Right-of-Way necessary to accomplish this widening of I-205 to 4-lanes is currently owned. The (BIC) Port-to-Port Westside arterial could be accomplished/built in an earlier time frame with-in a public private partnership. The funding for BIC would come from the combinations of contributions from the Ports (Portland and Vancouver), Heavy Rail Entities (UP and BNSF), Tri-Met, PDC, ODOT, WSDOT, FED's, Metro, Multnomah County, Clark County, City of Portland, City of Vancouver, River Commerce Groups, Tolls and other public and private investors. The big issue is the comparative benefits to the economy of the Portland/Vancouver region.

The benefit and cost analysis should depict what the net results are of any recommendation in the Portland/Vancouver Region as transportation entities try to implement recommendations to satisfy "The Cost of Congestion to the Economy of the Portland (Vancouver) Region". Right now in front of us is a major train going down the track call the Columbia River Crossing Task Force that can obligate much of the next 20-years of transportation, transit, highway and road investments dollars in this region. This task force is tightly looking at only the replacement of the Interstate Bridges and very little more. It does not at this time even take steps to look at real economic and congestion relieving alternatives that may have the possibility of costing less and bringing in more benefits as suggested as needed by the "Economic Development Research Group". If the CRC Task Force is not given instruction to open their charter and tasks to include and identify all options to the east and west of the I-5 corridor it is wrong. A result would that we will be doing a significant disservice to all stakeholders. We must identify and evaluate all transportation options and investments to ensure that the cost of congestion to our region is eliminated or substantially reduced.

Immediate steps must be taken by all parties to thrust the lack of "Freight Mobility" caused by congestion to the front of our area's priority list. We cannot continue to invest into feel good projects that suck up the majority of the transportation investment dollars that have little Return on Investment. We must change the mind-set of the public as to what is considered as politically correct. If the economic engine doses not spin, we will not have the needed family wage jobs and investments that create them. A major issue for all of the public servants is that we will not have the taxes/revenue come in that are needed to pay for the public services and public investments. This is a chicken or egg priority decision as to what comes first. I do not want to be Chicken Little but if we do not stop and/or change the direction of the CRC Task Force Train and transportation planning NO-ONE will have the dollars available to make reasonable decisions and investments to help solve this serious congestion problem and its subsequent cost that was identified in this report.

I want what this report suggests and that is that we can get a 2-dollar return for every 1-dollar invested. The current regional transportation plans do not currently provide this type of returns on our transportation investments. Something has to change.

Thanks, Paul O. Edgar

Description of the BI-State Industrial Corridor

for Placement in the Official Records of

Columbia River Crossing

includes

Description of the Northwest Passage

and

Description of the West Arterial

March 22, 2006

Sharon Nasset
Director, Economic Transportation Alliance

Phone: (503)283-9585
Email: sharonnasset@aol.com

BI-State Industrial Corridor (BIC)

1. From highway 30, 124th to Oil Time Road in Oregon connects with existing arterials Marine Dr., N. Lombard St., Columbia Blvd. and North Portland Rd. to Vancouver Washington along the east side of the BNSF north alignment to perhaps Ridgefield Washington.
2. BIC is a freeway corridor and would have nine or more complete ramps as entrance and exit access with NO stop lights.
3. A complete ramp is north and south access (18 or more). This would be in addition to and with no change of Fruit Valley Rd. There are several existing arterials in Vancouver that currently connect with the BNSF rail line.
   *Due to grade issues the trenching of Mill Plain has been removed.

Columbia River Bridge (BIC)

1. A high span bridge with 2 levels and no lift span.
   The Lower Level Consistingonsisting of 8 lanes with 4 in each direction. Truck friendly lanes thirteen feet wide with emergency lanes in the center and on the sides. This level is to be built to accommodate high wide and needs to remain at about a 2 percent grade.
   The Top lLevel Four lanes with 2 general purpose lanes in each direction general and an emergency lane on the side.
   Three lanes transit only, 1 as a future reversible lane and 2 lanes for transit. Two lane width for sidewalk, bike and viewing.

2. New rail tracks lift span bridge with 4 tracks(1or 2 extra heavy for high speed and large loads.) Commuter rail to be established with the new additional capacity.

3. Remodel of the existing BNSF from a swing to a lift span, adding a second lift to line up with the current I-5 bridge.
   North Portland Road
   North Portland Road to be upgraded to 4 lanes each in North/South direction. The upgrade from Marine Dr. to Columbia Blvd. As North Portland Rd. borders both Smith and Bybee lakes, this would provide both access and create a pedestrian friendly promenade.

Willamette River Bridge (BIC)

1. A one level bridge with no lift span consisting of 5 lanes, 4 general purpose truck friendly lanes, thirteen feet wide with emergency lanes in the center and on the side.

2. To be built to accommodate high wide, it needs to remain at about a low percent (2%-3%) grade.
3. One center lane to be used as a future reversible lane.

4. Two lane width right of way for bicycle and pedestrian traffic on east side of bridge.

5. New lift span bridge with 4 sets of heavy rail tracks, one or more set being for high speed or every heavy rail.

Northwest Passage Description

1. The Northwest Passage includes three bridges. First over the Columbia River, second the Columbia Slough, and third the Willamette River.

2. From Mill Plain in Vancouver (I-5) follows the BNSF line and uses as a viaduct "The Cut"
to Highway 30. This is 7 lanes, one center lane for emergency and emergency lanes on the curb side. (center lane reversible making 3-3 or 3-4 lane combination)

3. The NW Passage **does not include a lift span bridge** over the Columbia River and uses on and off ramps **not stop lights** on the express way.

4. An access road to Swan Island makes a second road out, that does not access I-5, and connects with the major industrial area on one continuous corridor.

5. The NW Passage also adds heavy rail capacity of 4 new train tracks and a for freight and commuter rail.

6. Accommodation is made for bicycle and pedestrian traffic.

West Arterial Description

1. A four-lane **lift span bridge** with two northbound and two southbound lanes.

2. **Includes 5 to 7 stop lights** which bring the traffic to a full stop.

3. No addition of heavy rail or commuter rail in comparison summaries

4. No additional lanes for bike and pedestrians.

*The NW Passage was not modeled by the BI-State I-5 Trade & Transportation Partnership.

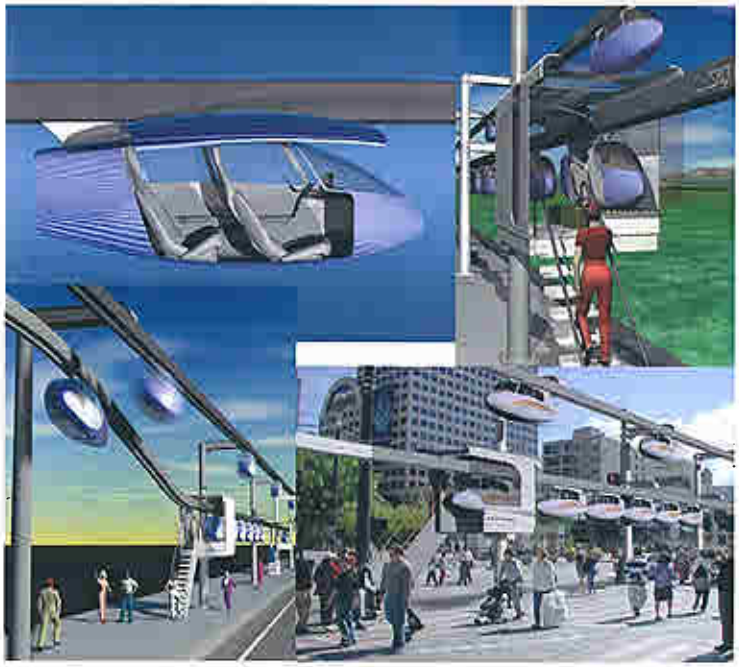
*The Western Arterial was a verion of NW Passage.

Columbia River Crossing SkyTran™ Proposal

By Ben Wilson
ben.wilson@accelero.info

What is SkyTran?

- Transportation system developed by UniModal™.
- Uses a network of elevated guideways.
- Small, computer-controlled, magnetically-levitated vehicles.
- Transit is point-to-point, non-stop.
- On-demand vehicles waiting at every boarding portal.



Key Features:

- Speed: Vehicles travel up to 100 mph.
- Cost: The lowest cost transportation mode to install and operate. 1/10th the cost of light rail.
- Capacity: One guideway has the same capacity as a 3-lane freeway.
- Energy & Pollution : Vehicles use clean electricity and get the equivalent of 200 miles per gallon.
- Maintenance: Magnetic levitation eliminates wheels, thus greatly reducing maintenance costs.
- Environment: Noiseless, visually unobtrusive lightweight vehicles and guideways blend into the city.
- Safety: Elevated guideways eliminate surface traffic collisions. Driverless, automated vehicles use computers, sensors and radar collision avoidance systems to merge and navigate.

Advantages Over Roads

- Congestion-free reliability
- Faster transit
- Cleaner energy
- No parking required
- Minimal land use required
- Significantly lower cost to build
- Significantly lower cost to operate

SkyTran for the Columbia River

- SkyTran can provide an effective extension to the MAX into Vancouver.
- SkyTran guideway can be attached to the existing bridge.
- SkyTran addresses the issue of commuter traffic, which is the primary cause of congestion.

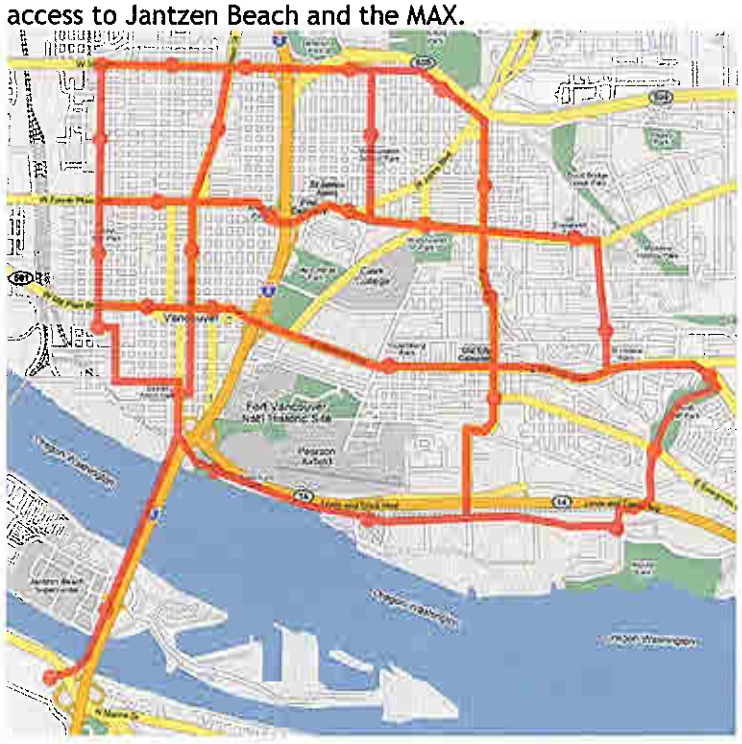
Phase 1

SkyTran link between 7th Street Transit Center and Expo Center MAX Station, with stop in Jantzen Beach

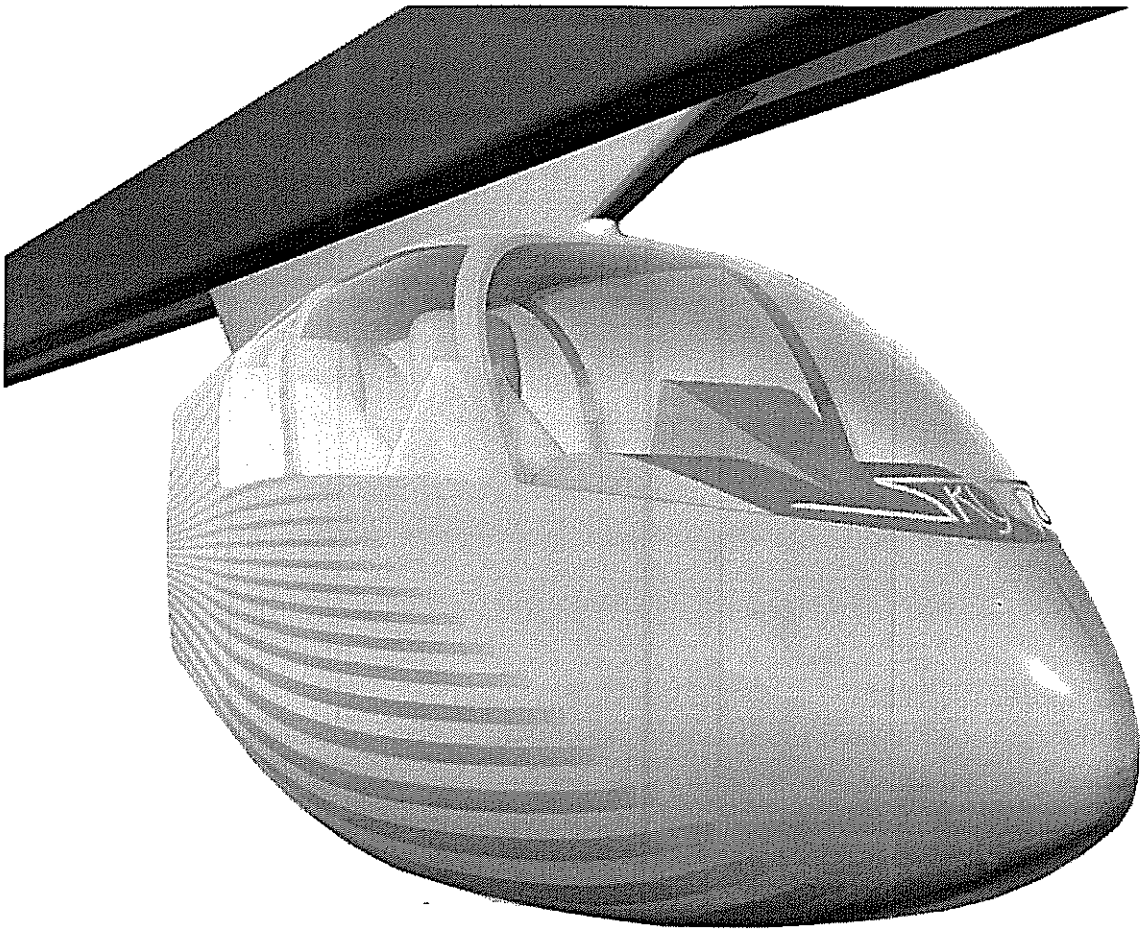
- 2-minute travel time from Vancouver to Expo Center.
- Estimated cost for research, development and installation: $90 million.
- Project Duration: 4 years.

Phase 2

SkyTran feeders covering SW Vancouver, providing direct access to Jantzen Beach and the MAX.



- Estimated cost: $100 million.
- SkyTran expects to be able to fund phase 2 privately - no tax money required.
- All that is required is permission to build along public right of way.



Faster, Safer...Smarter.

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SkyTran™ Personal Maglev Transporter™

On UniModal's SkyTran™ you travel the city using a network of elevated guideways on which small, computer controlled, magnetically levitated vehicles provide you with point-to-point, non-stop, on-demand transit service.

THE SKYTRAN EXPERIENCE

You board a 2 passenger vehicle from one of many small, conveniently located stops throughout the city. After entering your destination, you experience a mild acceleration as your vehicle leaves the offline stop and merges onto the main guideway joining the elevated network of vehicles moving 100 mph to their specific destinations without any stoppage or interruption.

SkyTran behaves like an automatic car...but faster. There's no traffic lights, no traffic jams, and it works with greater capacity, safety, energy efficiency and far better economy.

KEY ADVANTAGES...

Speed: Vehicles travel 100 mph in the city and 150 mph between cities.

Cost: The lowest cost transportation mode to install and operate. 10 times less than light rail.

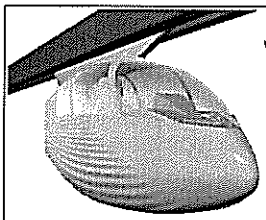
Capacity: One guideway has the same capacity as a 3 lane freeway.

Energy & Pollution : Vehicles use clean electricity and get the equivalent of 200 miles per gallon.

Maintenance: Magnetic levitation eliminates wheels, thus greatly reducing maintenance costs.

Environment: Noiseless, visually unobtrusive lightweight vehicles and guideways blend into the city.

Safety: Elevated guideways eliminate surface traffic collisions. Driverless, automated vehicles use computers, sensors and radar collision avoidance systems to merge and navigate.



SkyTran™ delivers public transit users the convenience of a car without the need for government subsidies to build and operate the system.

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Background

From Gridlock To Personal Freedom

Problem: The public overwhelmingly rejects light rail, monorails, buses, and car pool lanes as a solution to automobile gridlock.

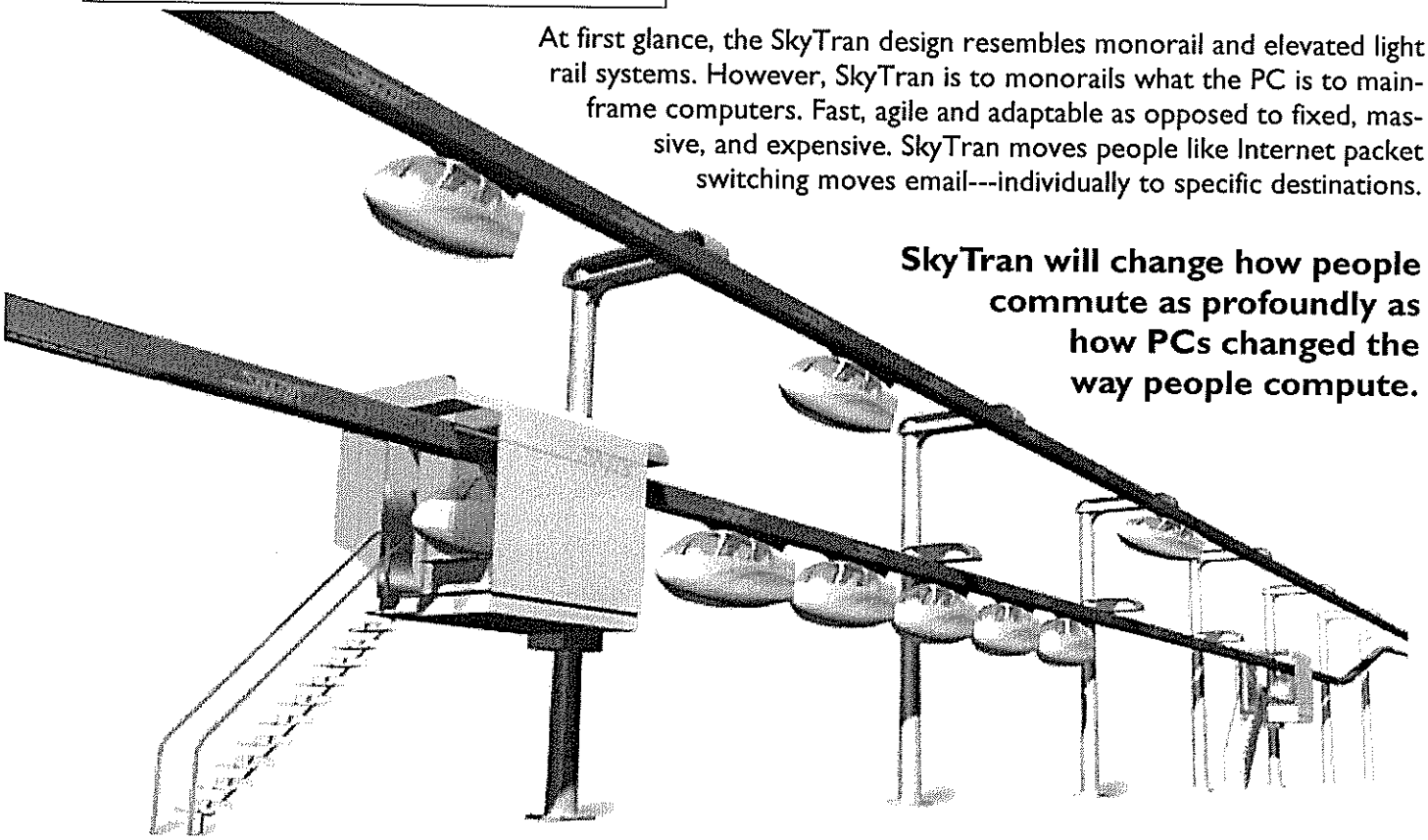
Analysis: Despite the reality of gridlock, the perceived convenience of cars outweighs the inflexibility that light rail, buses, and car pool lanes impose on personal transit.

Solution: A transportation option that allows personal point-to-point non-stop convenience like cars but at higher speeds and volumes and with less energy and pollution.

Q: Is the problem too many cars?

A: No. The real problem is how to quickly move small human payloads everywhere. Time to rethink using two ton machines to move 170 pound people.

The SkyTran Solution. SkyTran's unique design integrates key technical advances in engineering, automation, and propulsion and transforms them into a 21st century transportation solution that eliminates traffic gridlock and congestion.



At first glance, the SkyTran design resembles monorail and elevated light rail systems. However, SkyTran is to monorails what the PC is to mainframe computers. Fast, agile and adaptable as opposed to fixed, massive, and expensive. SkyTran moves people like Internet packet switching moves email---individually to specific destinations.

SkyTran will change how people commute as profoundly as how PCs changed the way people compute.

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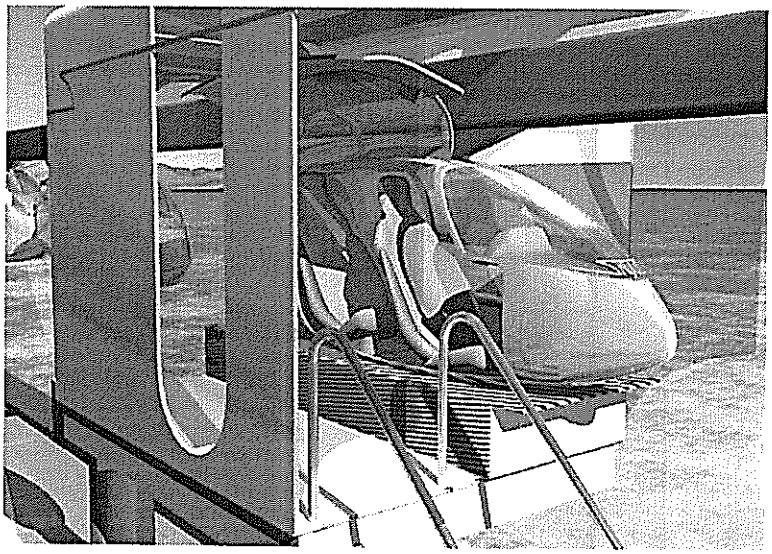
SkyTran Features

Safety, Convenience & Speed



Easy & Convenient. SkyTran is on-demand. There's no waiting, fixed routes or timetables. It's just like using your automobile. You board a waiting vehicle at the head of a queue at one of many city-wide off-line stops. The destination is either selected via display menu or voice activation. Payment is by credit card or a RFID device similar to a Mobil SpeedPass. Each vehicle has air conditioning, audio entertainment and vehicle-to-vehicle communication.

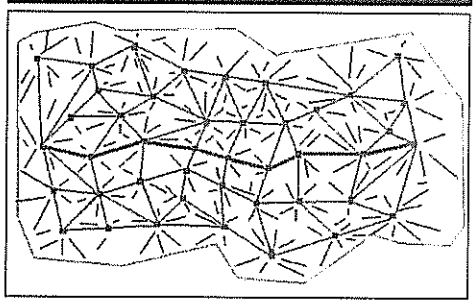
Fully Automated. Before departure occurs sensors determine the dynamic position of all oncoming SkyTran vehicles on the high speed guideway. At a precise calculated moment the off-line vehicle accelerates and merges safely with mainline traffic. A high reliability, high-speed, non-mechanical switch provides the transition onto the non-stop guideway. Once on-line you don't stop until you reach your destination. Then, the vehicle is switched off-line again. The rider exits and the vehicle joins the queue awaiting another rider to enter the vehicle, input a destination, and depart. In a fully developed system you are never more than a quarter mile from a stop to get on or off.

Fast: SkyTran utilizes line capacity more efficiently than light rail by moving the vehicles in a continuous stream. Every part of the line is continuously utilized network as opposed to light rail, where each line segment is utilized only for a few seconds when the train passes over it and then repeatedly sits idle at each station. When compared to the highway infrastructure, a SkyTran guideway has the same capacity as three lanes of freeway traffic.

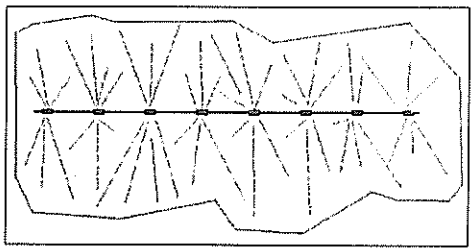
Energy Efficient : Gliding on no-contact, friction-free maglev bearings, the light plastic composite two-passenger vehicles add to energy efficiency by reducing wind resistance and drag through their aerodynamic design. This attention to vehicle shape and size allows for their suspension on narrow, lightweight, visually unobtrusive aerial guideways supported by standard utility poles with a very small right-of-way footprint.

Safe: There are no intersections where pedestrians or surface vehicles can collide with SkyTran because the system is elevated and the vehicles themselves run in only one direction eliminating the threat of vehicle collisions. The guideway's patented design "captures" the maglev-motor assembly in such a way that makes vehicle derailments impossible. Computer controlled collision-avoidance radar and guideway sensors update thousands of times per second to maintain proper position and speed with other vehicles.

SKYTRAN 3D NETWORK



SkyTran is laid out across a city in an elevated 3-D network configuration (above). You can get from any one point in the city to any another by a variety of different routes. And getting to any stop is only a short walk. In contrast, typical light rail design (below) serves an extremely limited number of stops, leaving most of the city without service.



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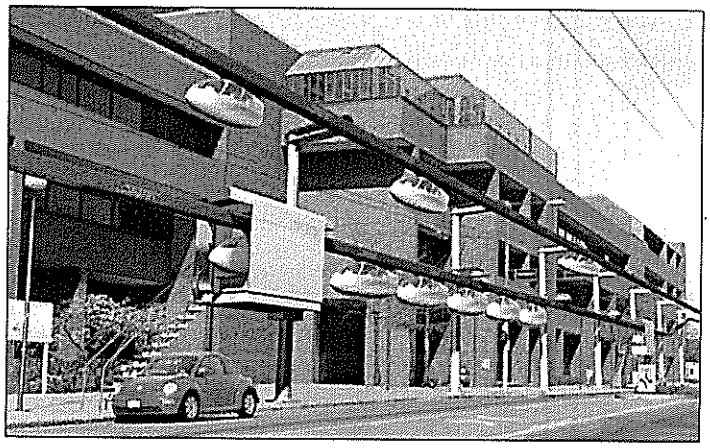
Design Philosophy

Mass Transit Transformed Into Personal Transit

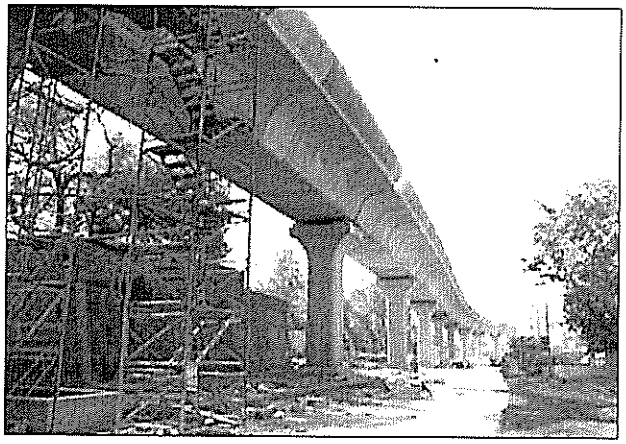


SkyTran uses off-the-shelf parts and civil engineering principles already proven in monorail and light rail systems. The paradigm shift is in how we design mass transit with those parts and principles. Instead of defining the *mass* as a few large groups of people moving in extremely heavy vehicles with multiple stops to a small number of destinations, SkyTran moves many tiny clusters of people (1 or 2) non-stop anywhere in a large network of destinations in an extremely light vehicle.

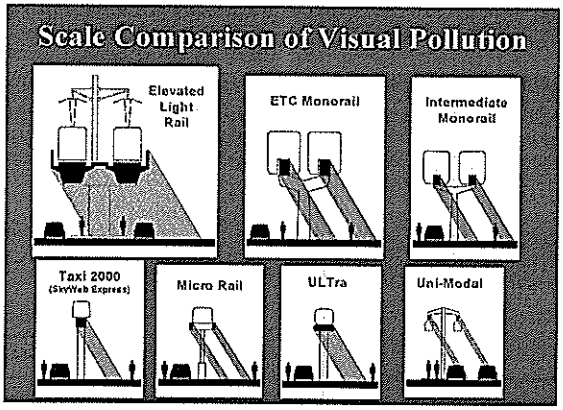
In contrast to a monorail's expensive, massive and visually intrusive support columns and trusses, the SkyTran design is so lightweight and agile that it can be suspended over residential sidewalks, attached to building exteriors, and even routed directly to gates at airport terminals or through shopping malls.

David vs. Goliath

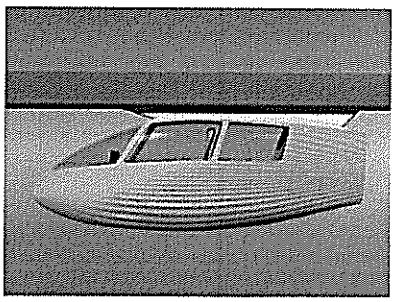
SKYTRAN: Lightweight, inexpensive, quick to install, and blends seamlessly into the urban landscape. Requires minimal right-of-ways.



LIGHT RAIL: Heavy concrete work, extremely expensive, difficult to install, and visually unappealing. Requires extensive right-of-ways.



Light vs. Shadow



Compared to other elevated forms of transit, the Unimodal design casts the smallest shadow on the urban landscape. Note the dramatic difference between the three current monorail and light rail designs and Unimodal. Even among other personal transit designs, Unimodal's SkyTran is the least visual obtrusive. The key is a philosophy that incorporates aerodynamic and lightweight design as its guiding principle.

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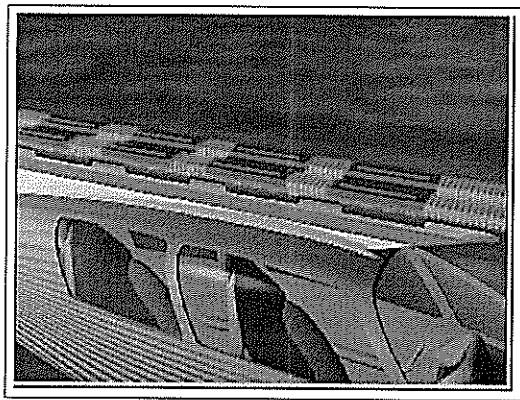
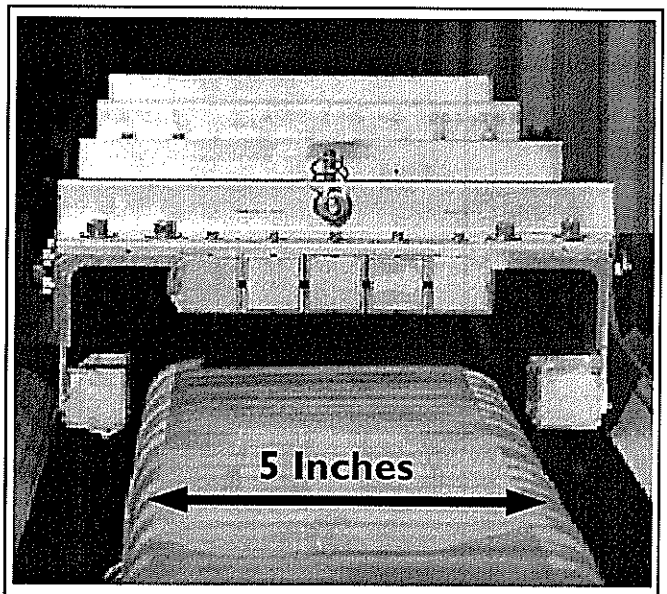
Maglev Technology

The "Wheel" of the 21st Century



SkyTran's PRT vehicle design is the first ever proposed that eliminates the use of wheels and mechanical rotary bearings. This revolutionary approach is possible by incorporating magnetic levitation (maglev) as a non-contact, no-friction bearing system that slashes costly maintenance because there are no moving parts to fail. Propelled by a linear motor, the vehicle requires no active electrical input for the magnets to levitate down the guideway at speeds of up to 150 mph. Energy efficiency is equivalent to a 200 mpg auto.

SkyTran uses a revolutionary maglev technology that stably rides an induced magnetic wave without requiring active electrical input to levitate. Unlike conventional active electrical input systems like the German Transrapid and Japanese HSST technologies, SkyTran's breakthrough approach allows for the design of elegant and compact linear motor/magnetic bearing suspension devices without the complex feedback systems and auxillary power supplies required by conventional maglev.



This photograph of an actual test of the first generation proprietary maglev technology used in SkyTran successfully demonstrated sustained, stable levitation and the feasibility of the compact bearing and guideway concept.

The magnetic bearings being developed for use in SkyTran use high performance permanent magnet materials combined with embedded conductive elements to provide an unprecedented combination of performance, safety, durability and economy. This approach is passively stable both laterally and vertically by improving upon the basic principle of electrodynamic suspension, producing lift from forward motion but also producing lateral centering forces to keep vehicles stable and on track without active control or unwanted vertical planar components that would hinder merging or diverging. And while in motion the vehicles are rigidly and precisely fixed in the vertical dimension by powerful repulsive magnetic forces and can carry wide ranging loads without requiring adjustment. These features allow the design of guideways that employ passive and fail-safe merge/diverge high speed switching operated solely by solid state devices on the vehicles——a technical achievement impossible to implement with conventional maglev designs. These proprietary switching methods are key to SkyTran's vehicle design. This arrangement allows for reduced guideway structural requirements and allows the safe use of under hanging vehicles which bank naturally in response to turning forces, providing greatly improved passenger comfort, higher cornering speeds, switching speeds and reduced torsion on guideway support structure.

In the event of a catastrophic power loss, vehicles continue to levitate while gliding gently down to a low speed before settling onto the track surface unlike conventional maglev designs. The complete lack of moving parts in both guideways and vehicles along with non-contact, friction-free vehicle motion ensures the highest level of reliability with extremely low maintenance requirements. Tightly integrated propulsion is by either linear synchronous or linear induction motors, or both depending on the application. High force and power capabilities enable rapid acceleration and steep grade climbing. Regenerative braking capability like that used in hybrid automotive vehicles improves overall system efficiency.

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SkyTran In Review

Specifications & Benefits

CONVENIENCE: SkyTran is on-demand—no fixed routes or timetables. It's just like your automobile. Vehicles are waiting for you whenever you need one and they take you straight to your destination without wasting time stopping at each and every station. A passenger keys in a desired destination address into a terminal at the originating portal.

EASE OF USE: No need to drive, vehicles are automatic. More affordable and safer than driving, much faster than auto, bus or light-rail.

VEHICLE CAPACITY: SkyTran vehicles can accommodate up to 2 people or 1 person with a luggage capacity equal to airline travel. Vehicle designs can accommodate special ADA needs.

SYSTEM CAPACITY: A single guideway is equivalent to 3 lanes of freeway traffic running at peak capacity. Anytime maximum capacity for a single guideway is 14,400 passengers per hour. SkyTran carries passengers in a continuous stream on a non-stop mainline unlike light rail which carries passengers in bursts where everyone stops at every station on the route. A stopping SkyTran vehicle does not cause other vehicles to stop, the vehicle branches off from the mainline and decelerates at an off-line line stop where passengers disembark.

SPEED: 100 miles per hour cruise speed non-stop in a city, 150 miles per hour non-stop between cities.

SAFETY: Elevated guideways insure there is no possibility of collisions with cars, trucks, pedestrians, children, animals or road debris. SkyTran vehicles move on a single guideway going only one direction—there is no risk of head-on collisions. Computers and sensors monitor vehicle spacing and speed for collision avoidance and each vehicle is enabled with safe high-g emergency braking. Compared to auto travel, there are no intersections where accidents can occur (75% of auto accidents happen at intersections), no dangerous passing or arbitrary lane changing. SkyTran is all-weather and unlike cars cannot slide out of control in rain, ice or snow. SkyTran can safely stop 10 times faster than a car. Derailments are impossible as the motor/maglev vehicle assembly is physically "captured" by the guideway.

COST: Under $10 million per installed mile including vehicles.

ENERGY EFFICIENCY: Each electric powered vehicle gets the equivalent of 200 miles per gallon. This is achieved by using no-contact, no-friction magnetic levitation bearings, a light weight, aerodynamic vehicle profile and regenerative braking technologies.

MAINTENANCE: A SkyTran vehicle has a mechanically simple, solid state design. Maglev means there's one moving part——the vehicle hovering down the guideway. There are no wheels, bearings, hydraulics, pistons, valves, tires, or linkages to fail resulting in very low maintenance.

ENVIRONMENTAL IMPACT: SkyTran has minimal environmental impact. Because there are no wheels, the vehicles travel almost silently and without vibration. Compared to an equivalent capacity three lane highway or a lower capacity light rail system, SkyTran has minimum visual impact .

LAND USE: Of all transportation options, SkyTran has the least intrusive right-of-way requirements. No expensive, destructive right-of-way acquisitions required, just easements on existing sidewalks. The installation footprint is only as large as the size necessary for the placement of standard utility poles that support the guideway.

INSTALLATION: No heavy digging, disruption or relocation of utilities and roads for installation. SkyTran's lightweight design enables installation on sidewalks, attachment to buildings, routing through shopping mall interiors even direct access to gates at airports.

ACCESSIBILITY: A mature 3-D network of SkyTran stops in a city would enable easy access to the system requiring a short walk. Stops are spaced approximately 1/8 to 1/4 mile apart. SkyTran has no large "stations" like those used with light rail. SkyTran is accessed by way of small portals or "stops" like a bus stop, that are conveniently sited through neighborhoods, cities and regions. The system can be accessed inside office buildings, hotels, malls, schools and airports.

PERSONAL CHOICE: SkyTran passengers always have the option to veto a particular vehicle due to sanitation or other issues.

SECURITY: The whole idea of SkyTran is to empower the passenger to have the personal freedom to select time of departure and destination. You never have to share your vehicle with anyone. Should problems arise, the system is programmed to divert a vehicle for immediate emergency intervention. SkyTran provides privacy, safety and personal freedom.

COMFORT: Vehicles are air conditioned and have entertainment and vehicle-to-vehicle communication options. In normal operations vehicles never accelerate/ decelerate at more than ½ g —well within human body comfort zone.

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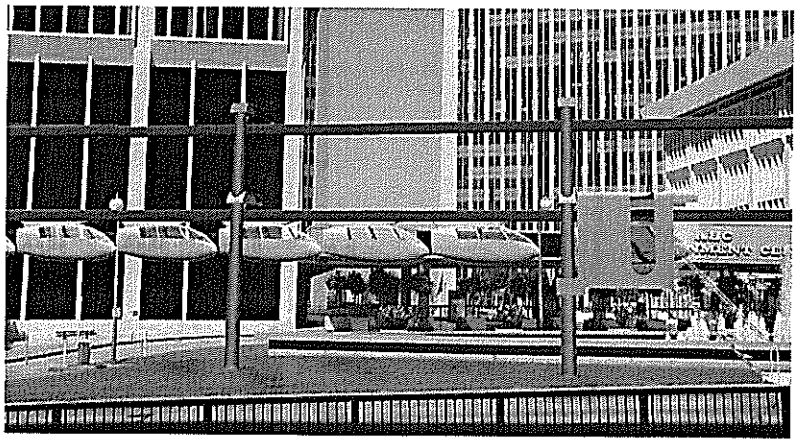
Transport Solutions for People, Products and Data

Unimodal, Inc.



UniModal is incorporated in the state of Montana whose principal stockholder is inventor, Douglas Malewicki.

UniModal owns key enabling technologies of the Skytran system. Mr. Malewicki is also the president and chief scientist at AeroVisons Inc., a company dedicated to the development, promotion and commercialization of aerospace related products. Some of his transportation accomplishments are: Guinness World record setting California Commuter vehicle that achieved 157 mpg at freeway speeds, and the world's fastest electric car, the White Lighting, clocked at 248 mph. Additional transportation firsts include the F-18 Jet Bike, an afterburning, jet powered motorcycle, the RB-2000 Personal Rocket Belt and Evel Knievel's canyon jumping, rocket powered X-1 Skycycle.

Mr. Malewicki's Aerovision is a qualified DARPA (Defense Advanced Research Project Agency, a US Defense agency) technology contractor. He recently worked on development of morphing wing UAV aircraft with DARPA. Mr. Malewicki has his Master's degree from Stanford University in Aeronautics and Astronautics. He also served as Senior Technical Specialist in Advanced Composites Manufacturing for Northrop on the B-2 project.

During his long and successful career working for key government and business organizations, Mr. Malewicki has specialized in low-cost design innovation, aerodynamics, engineering structural analysis, automation consulting, and vehicle performance analysis. He has authored numerous technical papers, books, and articles, including a cover feature story for *Scientific American*. He is often called upon by leading scientists for his insight and work as well as by the media for commentary on cutting-edge thinking and technology.

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