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THE NEW PARADIGM FOR 21<sup>ST</sup> CENTURY AVIATION™

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February 9, 2009

The Honorable Ray LaHood  
Transportation Secretary  
U.S. Department of Transportation  
1200 New Jersey Ave, SE  
Washington, DC 20590

**RE: *Apollo 21*; an earthbound goal to turn our nation toward its future, provide near-term economic recovery, and long-term GDP expansion into the 21<sup>st</sup> century.**

Mr. Secretary,

I am requesting your support for investigating a national transportation concept which I believe has great potential for expanding the American economy into the 21<sup>st</sup> century.

Our nation needs a bold national challenge which will alter the course of current events. When President John Kennedy issued his famous challenge to our nation in 1961, '(to land) a man on the moon' before 1970, the U.S. economy was in a year-long recession. More importantly, the primary reason for embarking on that course was to establish national technological superiority over our most threatening ideological adversary at the time; the former Soviet Union. At the time of President Kennedy's challenge, the technology for ensuring the successful achievement of that goal did not even exist.

Things are not so very different now. Instead of facing a near-term threat from a sovereign super power, our nation faces pervasive threats from a global borderless ideology, a mounting national debt held by foreign governments, and a scarcity of resources in a shrinking global economic environment. While it has been established that technological superiority is, at times, limited against these threats, our disproportionate consumption of global resources has emerged as perhaps our newest and most exploitable vulnerability.

V1 believes America has been presented with a compelling opportunity to begin mitigating the unfavorable dynamics of these issues through the commitment to a single Apollo-like program. This program would employ already emerging technology in a new paradigm of economic structure to vastly reduce our consumption of global resources. Engaging in this endeavor now would provide near-term stimulus to our nation's economy, as well as an enduring transportation infrastructure for efficiently expanding our economy into the 21<sup>st</sup> century.

## The basic idea

V1 recently completed an independent research proposal - *The V1 Concept of Air Transportation Management*. The proposal develops underpinnings for a market-based system of safe-separation airspace consumption as the economic enabler (source of funds) for a holistic, intermodal national transportation infrastructure. It was written for the purpose of growing a conversation about market-based airspace management among members of the aviation industry, academe, and the legislative branch. The proposal makes some of the following assertions:

As a result of the Airline Deregulation Act of 1978, the supply of seat and freight capacity in U.S. commercial aviation is governed by private enterprises and the free market. However, the supply of safe-separation airspace for providing air transportation throughput continues to be centrally predicted and planned by the DOT and the FAA. In addition, the consumption of this airspace is centrally controlled and rationed through federal aviation regulations. Yet, the taxation of aviation fuel and passenger and freight fares for its consumption is an inefficient enabler of supply and an inadequate governor of demand. Due to all of these dynamics, the supply and demand of safe-separation airspace capacity is not held accountable to the free market, but the supply and demand of aviation seat and freight capacity is. During 'up' cycles in the U.S. economy, this leads to consistent over consumption and under supply of aviation infrastructure resources by the nimble supply of free-market seat and freight capacity. These circumstances yield the proposition:

**If three-dimensional units of safe-separation airspace were to be considered as commodities in the same manner that three-dimensional units of seat and freight capacity already are, this would provide a much more efficient air transportation system for the nation. This concept would also unlock the intrinsic wealth in our national airspace for the purpose of funding the re-creation of our entire transportation infrastructure. If proven valid, this paradigm should be embraced now, for its potential as an efficient governor of scarce resources and a critical enabler of U.S. GDP growth.**

## Three paragraphs that go a bit deeper - followed by advantages and the key point, funding

*The V1 Concept of Air Transportation Management* begins with the assertion that the Airline Deregulation Act of 1978 did not go far enough. While the modern commercial air transportation industry is often referred to as deregulated, there exists an inherent flaw. This flaw appears as the detachment between the deregulated free-market production of seat and freight capacity, and the regulated control of two primary aviation resources which must be consumed to provide seat and freight throughput. V1 defines these two resources as runway environment capacity (REC) and safe-separation airspace capacity (SSAC). The research proposal highlights the economic detachment between these two centrally controlled resources, and the free-market provision of seat and freight capacity. It does this by demonstrating how the taxation of aviation fuel and passenger and freight fares serves as an ineffective governor of demand and an inefficient enabler of supply for both runway environment capacity and safe-separation airspace capacity. This compound fault

promotes the overconsumption of these centrally predicted and planned resources by the much more nimble free-market provision of seat and freight capacity. In turn, the resulting delays impede air transportation from achieving its potential as a critical enabler of U.S. GDP expansion.

As a remedy for this detachment and the subsequent waste of resources and productivity which it promotes, V1 proposes that runway environment capacity and safe-separation airspace capacity be treated as commodities, just like seat and freight capacity. Toward this end, *The V1 Concept of Air Transportation Management* constructs an economic model which distinguishes granular units of digitally defined runway environment capacity and safe-separation airspace capacity as virtually tangible, transiently consumed commodities; which can be dynamically traded in individual units or entire 4-dimensional trajectories. This allows the intangible characteristics of 3-dimensional safe-separation airspace to resemble the tangible characteristics of 3-dimensional seat and freight volume. In this manner, all resources consumed can be made available to the consumer for a fare which is accountable to the free market; without the economically inefficient tax intervention of the federal government (with the exception of sales tax).

To enable this concept, navigation services would become privatized utilities, thereby bearing market-based accountability for their own costs. This would make the consumption of safe-separation airspace a market-based business expense for air transportation providers in place of economically inefficient taxation. The intended result is that the true economic cost for the consumption of all resources would be properly reflected in the market price paid for passenger and freight fares. Market cost would govern demand for the consumption of the two primary aviation resources. Market premiums would enable supply.

### **Summarizing the above**

V1's primary focus is the development of an economically sustainable concept for meeting the market demand for airspace consumption. The concept proposes that research be conducted to determine the influence on air transportation throughput where runway environment capacity and safe-separation airspace capacity would both be recognized as sharing attributes commonly related to seat and freight capacity. These shared attributes are:

1. (Virtually) tangible
2. Transiently consumable
3. Divisible into granular units
4. Tradable in a free market
5. Recyclable for rapid and sequential consumption

**Percolating the advantages of commoditized airspace beyond airspace management; an earthbound Apollo project for the 21<sup>st</sup> century**

Consider these two unrelated yet compounding sets of circumstances:

1. In general, all of America's transportation resources are over-consumed and under-supplied. Bridges and highways are deteriorating faster than they can be repaired. Most of our national rail infrastructure belongs in a museum. And according to the GAO, our national air transportation infrastructure was responsible for eviscerating \$41 billion and 320 million passenger hours from our economy in 2007 due to delays. This sustained over-consumption and under-supply of transportation resources restricts the growth of our national GDP. Accordingly, it robs our nation of potential jobs, secure livelihoods, and general well-being as we try to recover from the current global recession.
2. Foreign governments such as China, Japan and Saudi Arabia are currently back-funding America's overconsumption and subsequent recession through their holdings in U.S. Government debt instruments. Accordingly, it seems America needs to begin creating real economic value once again before an unforeseen shift in the status quo of global relationships occurs which might drive up the opportunity costs for these foreign debt-holders and cause them to seek better investments elsewhere.

In light of these circumstances, I believe our nation has a great opportunity at hand in which the commoditization of safe-separation airspace can play a fundamental part. This opportunity calls for federal leadership as bold and encompassing as the Apollo space program of the 1960's. Such an initiative could yield the following results:

- Like Apollo, a national initiative for re-creating transportation infrastructure would conceivably create an immediate demand for jobs at all skill levels. Perhaps most importantly, it would create nation-wide job market demand for trained engineers. This would conceivably have the additional benefit of drawing more of our nation's students into advanced fields of study in engineering, science and mathematics; creating expansive opportunities for America.
- Unlike Apollo, the infrastructure called for would benefit our entire nation in local communities from coast to coast, and would enable our nation's sustained economic expansion into the 21<sup>st</sup> century.
- Unlike Apollo, the infrastructure which would be built would not necessarily be funded by, nor belong to, the federal government. Quite to the contrary, as previously mentioned, one of the reasons our national transportation infrastructure is so over-consumed and under-supplied (and maintained) is because it is not held accountable to the free market. The centralized prediction and preparation of our national transportation infrastructure requirements is much too cumbersome and the current system of federal taxation is much too inefficient for keeping pace with America's market-speed economy.

Given the above, V1's recommendation for effecting lasting and productive change in transportation infrastructure development, and providing for America's economic and strategic future, would be to recognize that the granular choices made each moment by millions of transportation consumers in a free market must be respected as superior to centralized prediction, preparation and funding by federal agencies. In other words, we should call on the executive branch to issue the challenge and lead the high level vision; let the legislative branch issue the seed money; but let the free market build our 21<sup>st</sup> century transportation infrastructure by answering specific market demand within the framework of a national vision. And it is proposed that this free-market element in a national transportation infrastructure will provide the market-generated premiums for long-term renewal.

In a perfect world, we would envision such a program unfolding as follows:

- President Obama issues a national challenge to re-create our national transportation infrastructure using 21<sup>st</sup> technology. The purpose is to put Americans back to work, create real economic value (not the borrowed kind) through efficient and sustainable transportation, and reduce our strategic vulnerability from the over-consumption of global resources.
- Congress makes available federally backed loans to qualified private enterprises which will build the new infrastructure. Design and construction proceeds under the broad guidelines of a general national plan. The two most important goals in the plan are the vast reduction of dependency on foreign oil, and a transportation system which will provide for the economically efficient and sustainable expansion of U.S. GDP.
- Private enterprises build and own the transportation infrastructure. There will be near-term and long-term demand, coast to coast, for employees of all skill levels. As previously mentioned, the demand for trained engineers will increase substantially. Students will once again be drawn into universities to pursue studies in engineering, science and mathematics. The emergent benefits for the nation could be quite expansive.

## KEY POINT

### **Funding 'Apollo 21' – Creating wealth by commoditizing airspace within the federal domain**

Natural atmospheric airspace exists within the domain of the federal government as sovereign national territory. Therefore, the consumption of digitally fabricated and privately provided safe-separation airspace within this resource may be considered as roughly analogous to allowing a cattle rancher to graze his or her heard on land belonging to the Federal Bureau of Land Management. Since public utilities would be permitted to profit from their provision of safe-separation airspace (as they must), then perhaps there would be a way for profit sharing to occur with the federal government above a defined threshold, as permitted by the availability of market-

generated premiums. If this provision could be enabled, then perhaps the federal portion of the profit could be turned for seeding (matching) further private investment in alternative intermodal transportation, such as high-speed rail and commercial tilt-rotor service. In effect, the consumption of safe-separation airspace as a commodity would serve as a natural market-based multiplier of national infrastructure capacity, commerce, the generation of economic value, and the expansion of U.S. GDP.

It is an innovative idea. And as with all innovative ideas, there are sure to be many devilish details and political barriers. However, given the condition of America's economy, the threat of global socio-political uncertainty, and our federal government's preparation for spending over one trillion dollars in economic stimulus, I am hopeful that many individuals will see the compelling potential in such a paradigm shift for generating real economic value and deem it worthy of honest research and investigation.

## Conclusion

*The V1 Concept of Air Transportation Management* is an independent effort. It was written for the purpose of growing a conversation about market-based airspace management among a broad spectrum of individuals in industry, government, academe, and the aviation media. However, beyond the possibility of improving air transportation the concept holds the potential for sustaining America's economy for the 21<sup>st</sup> century by releasing the intrinsic wealth in its airspace. Accordingly, this concept has been proposed to the NEXTOR group of research universities, which are commonly engaged by the FAA for concept validation. Whether or not these universities choose to consider this proposal may depend of the availability of research funds.

V1 requests your support for investigating this concept further.

Sincerely,

Scott R. Davies  
CEO  
Velocity 1 LLC

*We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because **that goal will serve to organize and measure the best of our energies and skills**, because that challenge is one that we are willing to accept, one we are unwilling to postpone... - JFK*