

Abstract: Solar Powered Highways, Public Transit and Freight Transport

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In 1908 there were about 8,000 cars, 150 miles of paved roads in America and about 30 people lived in Las Vegas. Since 1908, the number of cars has increased worldwide to about 1 billion, enabling civilization to expand into vast suburban areas, dwarfing urban areas. Older high density urban centers need and have public transit, but the vast suburban areas have suffered from increasing automobile traffic and the lack of a viable transportation solution.

One of the options considered in the US as a sustainable transportation system is trains, of which there are several different technologies available. Trains help mitigate traffic congestion, reduce reliance on imported fuels, and improve air quality and hence overall quality of life. A major challenge that faces trains is the mobility of people from and to train stations. Unless an efficient system provides access from and to these train stations, it would be extremely hard to attract people towards trains. Since most of the cities have expanded to suburbs over the past decades, it would be highly challenging, if not impossible, to provide public transportation facilities for most of these areas, connecting to train stops. On the other hand, history indicates that in the US, it is hard to change people's affinity to private automobiles. Because of the flexibility that automobiles provide, it is extremely difficult to change public behavior away from private automobiles.

One solution to satisfy these different competing requirements is to efficiently move automobiles with their passengers and baggage from one place to other. This would increase the capacity of the transportation system and eliminate the main source of highway problems – drivers. By transporting automobiles with trains, safe, fast, energy efficient and affordable service can be attained. Trains have the amenities that would attract drivers off the freeways, i.e. internet, TV, food, privacy and bathrooms.

In this presentation, a revolutionary concept of moving private automobiles, freight containers, and transit riders using high-speed solar-powered trains is discussed. In order to handle the demand and reduce travel times, the trains would be required to run continuously like vehicles on freeways, with transfer points enabling loading and unloading facilities without stopping the trains. Such a system would provide much faster, private, more efficient and convenient service than conventional high-speed trains because the following activities are eliminated:

- Parking and baggage handling
- Car rentals, public transportation, and taxi service
- Waiting for trains