

Emerging Infrastructure Opportunity

Transport of Goods and People in Urban, Suburban and Intercity Regions

Using Magnetic Forces

Magplane Technology first called attention to this opportunity to Streicher's New Your Office in May 2014. The imperative has only grown since that time.

The Need

There is a growing realization by many planners that the current transport infrastructure can not accommodate the future needs. All large cities are choked with automobiles and truck deliveries. The expectations for "instant" package delivery have burgeoned almost overnight. The growing distance and time lost between work and home are major factors in efficiency and family well-being.

Magnetics as a Contributor to Infrastructure Solutions

Imagine an Urban Transit system that operates noiselessly and doesn't require heavy guideways or significant right-of-way setbacks, is more efficient, has no slope or bad weather traction limitations and reduced capital cost relative to convention transit systems. This is a descriptions of a US developed magnetically levitated and magnetically propelled system referred to as the "M3" system. It has been widely judged to be less complicated and less costly than earlier systems developed in Germany, China and Korea. It is currently the local government choice for installation in Shanghai.

Imagine a container transport system that would efficiently transport containers between an inland depot and the conjected port area, eliminating the need for the hundred of daily tracks with their negative impact on traffic flow and diesel pollution. An overhead monorail system with magnetic propulsion could carry the fully loaded containers to the depot, or to other nearby ports. Such an MTI container transport system has been chosen for the port of Ningbo.

Imagine a goods transport system that is contained in a pipe that can transport packages or dry minerals efficiently through a "smart" network of delivery destinations. MTI has built a 1000m demonstration line carrying coal in Zhangjiakou China. The Magtrack system is sized to carry 10 million tons/year. A package handling system using the same magnetic propulsion technology will be developed together with JD Logistics in Beijing.

Imagine a high-speed Intercity transport system that would eliminate the very costly track and wheel maintenance of the convectional High Speed train networks, for example TGV or China CSR now deployed through out the developed world. MTI has designed a permanent magnet based maglev system the "Magplane" that is simpler and less costly than previous concepts, for example the Transraid in Shanghai. The Magplane concept is also applicable to the Hyperloop ultra high speed concept proposed by Elon Musk. The MTI system will be adopted the Hyperloop in an initiative from the Chinese Maglev R&D Center and Tongji University

The Team

MTI has put together a strong team in the US and China. In addition to MTI, a spin off from MIT in the 1990s, the team includes several MIT Laboratories and Departments including the Plasma Science and Fusion Center, the Francis Bitter Magnet Laboratory and the Department of Aerodynamics. The Aerodynamics Department at Old Dominion University in Virginia and the close association with NASA Aerodynamics Group. MTI has previously worked with AECOM, a large multidisciplinary A&E Firm. Magnetic Coil will be done by IEC Holden in Quebec.

MTI has put together several teaming arrangements in China with Strategic Partners and Financial Groups. [Binson fill in]. These arrangements bring in large infrastructure construction capability and special manufacturing expertise in vehicles, propulsion power and system control. The arrangements also include major financial groups. It is anticipated that several Joint Ventures will be established.

Return on Investment

One of the strong impacts on the potential for a favorable return on investment is how much the relative operating costs of the system compared with an alternate. The hypothetical case of a coal haul length of 100km, with a capacity of 15 million tons a year. The annual diesel fuel cost for the necessary fleet of trucks would be about 33 million dollars. The electricity cost for a magnetic pipe line of the same capacity would be about 2 million dollars, only 6% of the truck fuel cost. There is the addition benefit of removing a source of local pollution. Our case study of this system showed that an investor who had the contract to use this magnetic system would realize a return on investment of 3.4 years.

In a case study of an M3 Urban Transit system compared with convention rail transport system, the capital cost of the M3 was approximately 50 % of the world wide data base cost of light rail convention rail systems of comparable capacity.

Table 1.0				
		M\$/km	%	pphpd
Maglev				
M3 Urban Maglev		26	100	12000
Light Rail				
SD Trolley		55	210	
Los Vegas Monorail		56	214	
World wide LRT		50	193	8000
World wide APM		65	248	
World wide airport		74	286	
World wide LRT		50	193	8000
World wide APM		65	248	
World wide airport		74	286	

Investment Opportunity

1. Immediate: If J. Streicher can raise \$20M for MTL financing and restructure, MTL will pay a 3% cash commission, and award 3% equity in MTL.
2. Future: If J. Streicher can establish a fund to receive, manage, and disburse funds for various Magtrack projects, MTL will pay J. Streicher fund and project commissions (percentages to be negotiated).
3. Future: For projects introduced or arranged by J. Streicher, MTL will pay commissions or other reward (percentages/rewards to be negotiated).