

FAQs

What are the primary advantages of the Freight Shuttle System (FSS)?

The Freight Shuttle System (FSS) operates at a cost commensurate with or less than current freight transportation costs with the added benefits of predictable delivery and non-stop service. The elevated system separates freight movement from other transportation modes; is automated, requiring no drivers; can operate 24/7; relocates freight trucks to less-congested roadways; reduces infrastructure damage; and generates no point-of-service pollution at all.

How does the autonomous Freight Shuttle System differ from other transportation concepts like high-speed rail, mag-lev trains and “hyperloop” systems?

The FSS is for freight only and is designed around innovative applications of time-tested technologies, rather than conceptual (and untested) new technologies for freight transportation. From the linear induction motors that power each individual transporter to the low-friction advantage of steel wheels on flat steel-running surfaces, the FSS combines proven technologies in robust ways that transform surface freight transportation.

Won't this threaten the trucking and rail industries?

The FSS complements both trucking and rail. The FSS is best suited for the congested and high-volume, short- to intermediate-distance hauls of less than 500 miles, which account for a substantial amount (70 percent nationally) of all surface freight movement. Railroads typically become cost-effective at distances greater than that. Trucks carry about 80 percent of the freight to its final destination. The FSS will provide a new tool to help the trucking industry mitigate some of its current challenges, such as increased roadway congestion, driver shortages, decreased hours of service, and lower fuel efficiency due to tougher emissions restrictions. Neither railroads nor trucks are as cost-effective at high-volume, congested short-distance hauls typical of seaports and border crossings.

Won't the Freight Shuttle System face the same right-of-way challenges and environmental study requirements that are being experienced with high-speed rail developers?

Actually, no. The FSS is designed to share highway right-of-way with existing highways and roadways. However, it will occupy the currently unused air space above existing highway rights-of-way. The footprint of the FSS is typically just enough for placement of a five- or six-foot column every 160–180 feet along the right-of-way, so it fits well within existing roadway medians or along shoulders. Employment of innovative construction methods will allow much of the construction to take place from the bridge deck itself, eliminating the need to impede traffic. Each FSS commercial application will obtain a Record of Decision in accordance with NEPA regulations. Importantly — because the guideway



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and operations will reside within existing rights-of-way and provide positive environmental impacts, such as air quality improvement — it is expected that the environmental permitting will be accomplished more easily than for projects requiring additional right-of-way.

What about the impact of adding this system to a utility's power grid?

Energy efficiency is one of the Freight Shuttle System's signature strengths. Moving 70,000 pounds of freight at a cruising speed of 60 miles per hour will consume about one-third of the energy in electricity that a diesel-powered truck would consume in fuel energy — or about 10 cents per mile. The energy demand of the FSS will have no impact on a utility's current generating capacity and, in fact, the constant, level use of power by the FSS is the kind of consumption the electric utilities prefer and seek.

The Freight Shuttle System's guideway is elevated. Won't this create potential problems moving hazardous cargo?

The FSS is not designed or intended to transport hazardous cargo — liquid fuel, toxic chemicals, etc. It will be used to move both truck trailers and international shipping containers. The elevated guideway provides additional security for the owners of the freight and grade separation from other transportation modes (e.g., passenger cars), while decreasing overall traffic noise by reducing the number of 18-wheelers on the highways.

Will this system require new tax dollars to build?

No. The FSS is privately financed. The business model for the FSS is based on obtaining private investments through licensing the FSS technology for application in appropriate settings. Public-private partnerships are possible if that business model would be advantageous for taxpayers, but the FSS is designed to be profitable and to provide good return on private investments. The FSS provides an opportunity to bring private investment into transportation infrastructure while reducing costs for shippers, resulting in the public sector not needing to build new infrastructure as soon as it would have otherwise.

Who pays for this service?

Shippers will reserve and pay for the use of the guideway capacity and for the use of transporters to deliver their cargo from origin to destination. Currently, the majority (by tonnage) of cargo moving less than 500 miles is carried by truck over the interstate and U.S. highway system. Trucks must interact with passenger cars, buses, motorcycles, and emergency vehicles. The FSS operates on its own dedicated guideway and can operate 24/7 without any interaction with other forms of transportation within the highway right-of-way.

How many trucks is this system expected to take off the highway?

The FSS has a throughput capacity of up to 8,640 shipments per day in each direction, for a total of more than 17,000 shipments per 24-hour period. At full capacity with a 70,000-pound payload per transporter, the FSS potentially can move more than 600,000 tons of freight per day. The FSS is not a replacement for trucking, but a tool to be employed by shippers and trucking interests to better operate in locations where trucking can no longer operate effectively due to severe congestion. Trucks will continue to be the first and last mile for the majority of cargo deliveries. The FSS helps relocate trucks to settings that are logistically favorable and more fluid from a traffic perspective.

Can you move people as well as freight on the FSS? Could a similar system be built to move people?

Technically, people could be moved with a system similar to the FSS and there are many examples of *personal rapid transit* systems available for review by those who are interested in the topic. However, the requirements for moving people are vastly different than those for moving cargo — creature comforts, the potential for medical emergencies, a desire for amenities, and the need for connectivity to other transportation modes are just a few of the reasons that Freight Shuttle International chose to focus on freight rather than people or mixing people and freight. The last point is particularly important — the FSS, unlike our highway system, is an approach that segregates freight and people transport (to the benefit of both). While the safety of the FSS will be equal to or better than any transportation system available, mixing people and freight on the same system would decrease the effectiveness and financial viability of the system.

How noisy is the Freight Shuttle System?

Because the guideway is elevated and includes sound walls, the sound generated by a FSS transporter will be both above the highway and focused upward in what is called a sound-shadow, greatly reducing the noise that would have been generated by trucks on the highway. In addition, the propulsion system for the FSS is inherently quieter than a diesel engine.

I see that the Freight Shuttle System can be operated using solar- and wind-generated power. Is that the case now?

The FSS uses direct current (DC) produced in a substation from the electric grid's higher-voltage, alternating-current (AC) power. Alternative, renewable sources of power such as solar and wind systems also produce DC power, so they could certainly be utilized directly or indirectly by delivering the energy to the utility's power grid. However, as of now, it is unlikely that either wind or solar energy would completely power the system, particularly when it is running 24/7. Mixing power sources is certainly possible and probably desirable as the system reaches commercial application.



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Is there an *ideal* application for this system?

The most immediate need is where congestion bottlenecks are creating choke points. Congested border crossings and seaports are likely locations for the FSS, as the system will allow ports to decongest container facilities by rapidly moving containers inland to locations away from urban development and congested roadways. Texas, in particular, faces a new challenge at its ports as the result of the expansion of the Panama Canal. The expansion is allowing significantly larger cargo ships to pass through the canal, which could increase the volume of cargo that comes off and goes onto each vessel and could potentially create congestion in Texas ports.

Is the Freight Shuttle System safe?

Yes, the FSS is built with safety and redundancy to ensure that the public is never endangered and has multiple safety measures incorporated into its design. Because the system is segregated from roadways and railways, no contact with vehicles or trains is possible. System operations will be centrally monitored by both computers and operating personnel. GPS and wireless communications, in conjunction with a fiber-optic backbone, will provide a constant flow of information on vehicle health and performance, shipment status, position, and operating conditions to help ensure maximum safety. Vehicles have both forward- and rear-facing adaptive radar systems incorporated into their control systems (similar to many automobiles today) to ensure that safe operating distances and conditions are maintained. Weather conditions, particularly wind speed and direction, are continuously monitored as well.

Further details of the many safety features and redundancies may be found at www.freightshuttle.com.