



Pathways to the Future of Transportation

A Non-Traditional and Emerging Transportation Technology (NETT) Council Guidance Document

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Letter from the Secretary

At the U.S. Department of Transportation (USDOT or the Department), our priorities are safety—which is always Number One—infrastructure, and preparing for the future by engaging with new technologies to address legitimate concerns about safety, security and privacy without hampering innovation. Innovation is especially important because it is a driver of economic growth, helps create jobs, and has long been one of our country’s greatest strengths.



Elaine L. Chao
United States Secretary of Transportation

At USDOT, it is imperative that the regulatory environment keep pace with rapidly evolving new technologies, so that consumers can enjoy greater safety benefits and traditionally underserved communities—especially seniors and people with disabilities—can have greater access to mobility. The operating structure of the Department, however, is diffuse, decentralized, and not easy for innovators to navigate. Thirty-one different Federal entities governing different modes of transportation were melded into five operating elements to create the Department in 1966. Today, USDOT consists of the Office of the Secretary of Transportation and nine operating administrations (OAs), each with its own jurisdiction and bureaucracy, which is still decentralized and difficult for stakeholders to navigate. That’s especially true for new technologies that involve more than one mode of transportation—such as hyperloop and technologies that would use advanced boring machines.

These formerly abstract ideas, evocative of science fiction, have now matured into physical prototypes and project proposals. Inventors, investors and stakeholders are ready to build out these technologies. Yet too often when they come to USDOT to obtain the necessary safety authorizations, permits, and, in some cases, funding, they are unsure which part of the Department has jurisdiction. So, I have directed the creation of a new Non-Traditional and Emerging Transportation Technologies (NETT) Council, as a one-stop-shop for new, cross-modal technologies. This will help ensure that the traditional modal structures at USDOT do not impede the deployment of new technology.

This policy document is the Department’s first step in providing a clear path for innovators of new, cross-modal technologies to engage with the Department. It lays out a process for the Department to review plans and proposals for cross-modal technologies—a one-stop-shop.

As always, the Department will remain tech-neutral. We are not in the business of picking winners or losers among new technologies. We welcome the visionaries, the doers, the stakeholders with solutions to today’s transportation problems, and we believe that communities are in the best position to choose the mix of transportation solutions that suit them best.

The Department welcomes feedback on this document to consider as the Department continues to develop the NETT Council.

Thank you.

A handwritten signature in black ink that reads "Elaine L. Chao". The signature is written in a cursive, flowing style.

I. Introduction

NETT Council

The U.S. Department of Transportation recognizes that innovation and consumer demand drive the development of new transportation technologies. In response to this evolving ecosystem, the Secretary established the Non-traditional and Emerging Transportation Technologies (NETT) Council (Council or NETT Council) in April 2019 to develop policies and guidance for how the Department can best engage with the developers of transformational and innovative transportation systems.

Congress has provided authority to the Department to regulate the safety of certain transportation networks throughout the Nation. This authority is implemented by the Department’s OAs and extends to technologies under recognized and established operational systems. Systems that use new technologies may not fit precisely into the Department’s existing framework, and are prime candidates for the NETT Council to consider. The NETT Council was formed to provide project sponsors a single point of access to the Department to discuss innovative transportation proposals, coordinate oversight of such projects, and to develop and establish Department-wide processes, solutions, and best practices for managing new transportation technologies and systems.

Congress reacted positively to the formation of the NETT Council. The FY 2020 Consolidated Appropriations Act provided the Department with funding to support the NETT Council and the corresponding Senate Report requested that the Council study the Department’s existing authorities and policies that may apply to “cross-modal” transportation technologies and provide a report to the House and Senate Committees on Appropriations.¹

On November 26, 2019, the Department published a Request for Comment (RFC) to gather input on how USDOT’s existing regulatory structure impacts innovation, and how the NETT Council can be in a better position to support transportation innovation. This document includes references and determinations based on comments received, and a summary of the comments received (in Section IV). This document does not bind the public, except as authorized by law or incorporated into a contract.

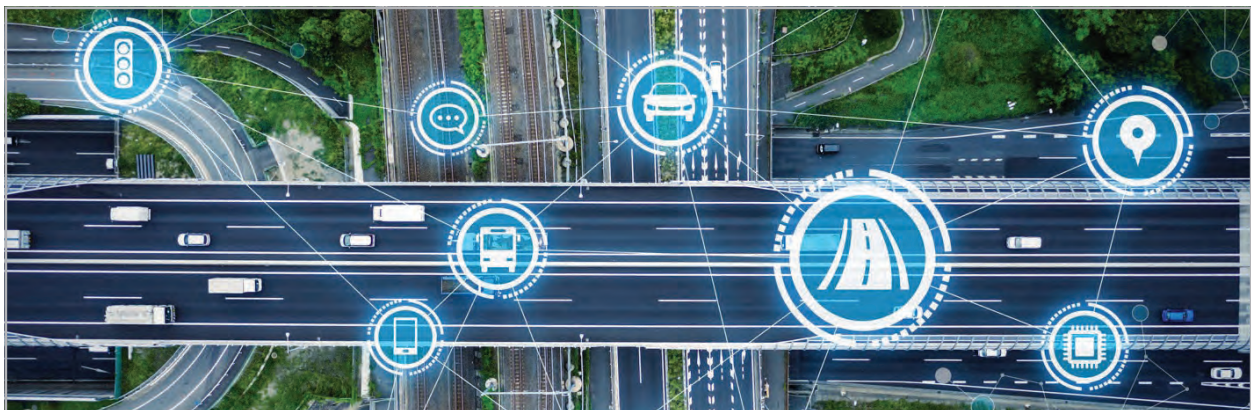


Photo Credit: US DOT

¹ S. Rep. No. 116-109, at 11



Some of the major themes in the RFC comments were:

- **Innovators are concerned that regulatory uncertainty creates a barrier to innovation.** The Department agrees, and while regulatory flexibility is necessary as new technologies are developed, USDOT determinations in this document show how engagement with the NETT Council can help technologies gain clarity for regulatory oversight and funding opportunities.
- **Project sponsors that have engaged with the NETT Council are interested in Federal funding opportunities that are available for their technologies.** The Department encourages robust participation in all discretionary transportation grant programs and in Section II, highlights some programs to which non-traditional and emerging transportation technology projects may be eligible to apply.
- **NETT Council involvement at the appropriate time would aid project development.** The Department agrees, and Section III of this document covers how and when non-traditional and emerging transportation technology developers should engage with the NETT Council.
- **USDOT should consider international and private sector standards.** The Department agrees, and in Section V, the Department highlights next steps for the NETT Council, including a plan to explore how addressing standards and best practices can engender non-traditional and emerging transportation technology innovation.

The Department also received comments about technologies that already have regulatory certainty. Although existing workstreams in unmanned aircraft systems (UAS),² automated vehicles,³ urban air mobility (UAM), and commercial space transport may have cross-modal implications, FAA clearly has the authority for UAS, UAM, and commercial space transport. For automated vehicles, the AV3.0 and AV4.0 documents clarify the relevant authorities for OAs within USDOT and other Federal agencies.

NETT Council Pathways Document

This NETT Council pathways document is intended to help readers understand the purposes of the Council and its methods of operation; the principles informing the Department policies in transformative technologies; the overarching regulatory framework for non-traditional and emerging transportation technologies; how the NETT Council will engage with innovators and entrepreneurs to enhance the Nation's transportation system; and the next steps of the NETT Council.

The Department's efforts are continually grounded in the Secretary's four strategic goals for achieving USDOT's mission: safety, infrastructure, innovation, and accountability. The NETT Council responds to each of these:

- **Safety**—As the Department's top priority, the NETT Council will work to help ensure that non-traditional and emerging transportation technologies are deployed and operated consistent with necessary safety regulations.
- **Infrastructure**—The NETT Council will assist in the Department's overarching efforts to appropriately evaluate emerging technologies help the efficiency of new infrastructure.
- **Innovation**—Recognizing that innovation is vital for the U.S. transportation sector, the NETT Council will explore ways for regulators and stakeholders to engage and responsibly engender the development of non-traditional and emerging transportation technologies.

² <https://www.faa.gov/uas/>

³ <https://www.transportation.gov/AV>

- **Accountability**—In response to growing stakeholder interest and market dynamics, the NETT Council will work to increase the Department’s responsiveness to the implementation needs of non-traditional and emerging transportation technologies.

NETT Council Guiding Principles

The NETT Council aims for a clear and consistent Departmental approach to shaping the policy of the country’s future of transportation. As such, the Department sets forth the following principles for projects considered by the NETT Council.

1. Safety first.

Transportation systems are on the verge of significant transformation with the development of new and emerging technologies. The Department’s greatest priority is the safe deployment of such technologies, which have the potential to alter mobility patterns for the future. The Council will work to identify and recommend potential solutions to resolve jurisdictional and regulatory gaps, including by recommending actions the Department or the OAs may take to establish, update, or more effectively communicate appropriate, performance-based safety standards for non-traditional and emerging transportation technologies.

2. Technology neutrality.

The Department will use the NETT Council in a technology neutral manner, and will approach all projects with due diligence and a consistent process.

3. OneDOT approach to project implementation.

Understanding the importance of innovation when there is no prescribed roadmap within the Department, the NETT Council seeks to provide clarity regarding statutory and regulatory requirements, applicability of Department-wide standards, and the process for deploying and implementing projects. The NETT Council’s cross-modal membership seeks to streamline stakeholder engagements with USDOT, and serve as a single point of contact.

4. Determining Federal role.

The NETT Council plays a coordinating function that ensures that the appropriate and relevant experts from across the OAs are able to identify relevant regulations, determine when regulations are outdated, and/or consider whether the Department should establish new standards for when cross-modal transportation technologies and systems. Federal laws and regulations surrounding new technologies and systems is critical to removing barriers for advancing of such projects. To this extent, the NETT Council will also engage governmental (i.e., State, local, tribal) and industry stakeholders on how to design and implement flexible and adaptable standards and approaches.

NETT Council Membership

The NETT Council is composed of the Office of the Secretary of Transportation and nine OAs.

Office of the Secretary

The Office of the Secretary (OST) oversees the formulation of national transportation policy and promotes intermodal transportation. Other responsibilities range from negotiation and implementation of international transportation agreements, assuring the fitness of U.S. airlines, ensuring accessible travel, enforcing airline consumer protection regulations, issuance of regulations to prevent alcohol and illegal drug use in transportation systems, and preparing transportation legislation. The NETT Council is a function of the Office of the Secretary.



Federal Railroad Administration

The Federal Railroad Administration's (FRA) mission is to enable the safe, reliable and efficient movement of people and goods for a strong America, now and in the future. With the responsibility of ensuring railroad safety throughout the Nation, FRA employs safety inspectors to oversee railroad compliance with Federally mandated safety standards. FRA also partners and collaborates with stakeholders (e.g., industry, safety advocates, State and local governments, law enforcement agencies, and other OAs) to improve continually rail safety and address the impact of rail operations on communities.

Federal Aviation Administration

The Federal Aviation Administration (FAA) oversees the safety of civil aviation and commercial space transportation. The safety mission of the FAA is paramount and includes the issuance and enforcement of regulations and standards related to the manufacture, operation, certification, and maintenance of aircraft. The agency is responsible for the rating and certification of airmen and for certification of airports serving air carriers, as well as licensing of commercial space launches and launch sites.

Federal Highway Administration

The Federal Highway Administration (FHWA) coordinates highway transportation programs in cooperation with States and other partners to enhance the country's safety, economic vitality, quality of life, and the environment. Major program areas include the Federal-Aid Highway Program, which provides Federal financial assistance to the States to construct and improve the National Highway System, urban and rural roads, and bridges. This program provides funds for general improvements and development of safe highways and roads.

Federal Motor Carrier Safety Administration

The mission of the Federal Motor Carrier Safety Administration (FMCSA) is to reduce crashes, injuries, and fatalities involving large trucks and buses. FMCSA works with industry, safety advocates, and State and local governments to keep the Nation's roads safe and improve commercial motor vehicle safety through regulation, education, enforcement, research, and technology.

Federal Transit Administration

The Federal Transit Administration (FTA) assists in developing improved public transportation systems for cities and communities nationwide. Through its grant programs, FTA helps plan, build, and operate transit systems with convenience, cost, accessibility, and safety in mind. In providing financial, technical, and planning assistance, the agency provides leadership and resources for safe and technologically advanced transit systems while assisting in the development of critical research in the field of public transportation.

Maritime Administration

The Maritime Administration (MARAD) promotes development and maintenance of an adequate, well-balanced, United States merchant marine, sufficient to carry the Nation's domestic waterborne commerce and a substantial portion of its waterborne foreign commerce, and capable of serving as a naval and military auxiliary in time of war or national emergency. MARAD also seeks to ensure that the United States enjoys adequate shipbuilding and repair service, efficient ports, effective intermodal water and land transportation systems, and reserve shipping capacity in time of national emergency.

National Highway Traffic Safety Administration

The National Highway Traffic Safety Administration (NHTSA) is responsible for reducing deaths, injuries, and economic losses resulting from motor vehicle crashes. NHTSA sets and enforces safety performance standards for motor vehicles and equipment, and through grants to State and local governments enables them to conduct effective local highway safety programs. NHTSA investigates safety defects and noncompliances in motor vehicles

and equipment, sets and enforces fuel economy standards, helps States and local communities reduce the threat of drunk drivers, promotes the use of seat belts and child safety seats, investigates odometer fraud, establishes and enforces vehicle anti-theft regulations, and provides consumer information on motor vehicle safety topics. Research on driver behavior and traffic safety is conducted by NHTSA to develop the most efficient and effective means of bringing about safety improvements.

Pipelines and Hazardous Materials Safety Administration

The Pipeline and Hazardous Materials Safety Administration (PHMSA) develops and enforces regulations for the safe, reliable, and environmentally sound operation of the nation's 2.6 million mile pipeline transportation system and the nearly 1 million daily shipments of hazardous materials by land, sea, and air. Its mission is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives. To do this, PHMSA establishes national policy, sets and enforces standards, educates, and conducts research to prevent incidents. PHMSA also prepares the public and first responders to reduce consequences if an incident does occur.

II. Regulations and Authorities for Projects


Departmental Authority over the Safety of Non-Traditional and Emerging Transportation Technologies

This section provides a preliminary and high-level overview on how USDOT OA regulatory authorities could apply to non-traditional and emerging transportation technologies. This section highlights certain legal authorities based on information the NETT Council and its working groups received from stakeholders about current or proposed projects; however, the question of whether specific authorities apply or do not apply must be analyzed on a project-by-project basis. This analysis depends on several considerations, enumerated below, including the proposed operations. Accordingly, this section does not constitute a legal determination and should not be relied upon as legal advice. However, early engagement by non-traditional and emerging technology innovators with the NETT Council enables the Department to make determinations regarding potential regulatory processes and funding opportunities.

The Department's jurisdiction over transportation is derived from the statutory authority Congress granted with respect to types of transportation. That jurisdiction is not unlimited, however. Whether any particular type of transportation falls within the Department's jurisdiction depends on certain core considerations, including but not limited to: 1) the way a project is funded (i.e., formula apportionment, discretionary funding, or credit assistance); 2) the type of track, guideway, or roadway used; 3) the operational characteristics of the project; 4) whether the project is connected to existing jurisdictional networks, such as a public roadway or the general system of railroads; and 5) the features of the vehicles used. Typically, the Department's jurisdiction is exercised through the OAs. The



Photo Credit: US DOT



lead OA for a project can and should consider existing Federal regulations and best practices from all Department OAs, as well as existing U.S. and international industry standards, when considering the best approach to safety oversight.

FRA

FRA has broad authority to regulate every area of railroad safety. 49 U.S.C. 20103; 49 CFR 1.89 (*see also* 49 U.S.C. 103). “Railroad” is defined in 49 U.S.C. 20102(2) as “any form of nonhighway ground transportation that runs on rails or electromagnetic guideways...” and includes an exception for “rapid transit operations in an urban area that are not connected to the general railroad system of transportation.” By “general railroad system of transportation,” FRA refers to the network of standard gage track over which goods may be transported throughout the Nation and passengers may travel between cities and within metropolitan and suburban areas. See 49 CFR part 209, app. A. Except for self-contained urban rapid transit systems, FRA’s statutory jurisdiction extends to all entities that provide nonhighway ground transportation over rails or electromagnetic guideways, and extends to future railroads using technologies not yet in use. (Id.)

Sometimes, a transportation project falls within the statutory definition of railroad, but has novel or unique characteristics that FRA regulations do not contemplate or adequately address. If a novel project is expected to fall under FRA’s jurisdiction, the project owner should engage in technical discussions with FRA as early as possible. Depending on that early engagement and the technology involved in a particular project, a project owner could: 1) petition FRA for a rulemaking⁴ to establish a regulatory framework that enables FRA to provide effective safety oversight; 2) petition FRA for a temporary waiver of compliance from specific regulations (*see* 49 U.S.C. 20103(d), requiring FRA to base any waiver of its safety regulations on a finding that the waiver is “in the public interest and consistent with railroad safety”); or 3) if the project involves new technology or operational approaches, develop a test program under 49 CFR 211.51 to evaluate the effectiveness of the technology or operational approach(es). Rulemakings and waivers are subject to notice-and-comment procedures.

An example of such engagement is FRA’s March 2020 publication of a notice of proposed rulemaking (NPRM) for a rule of particular applicability for Texas Central Railroad’s proposed intercity passenger service that would use the internationally-proven Shinkansen rail technology between Dallas and Houston, Texas.


Based on feedback to the NETT Council RFC, the Department believes that, if a hyperloop system employs maglev technology, the necessary oversight authority for that system exists under FRA’s jurisdiction.⁵ FRA can and should take into consideration existing standards, authorities, and best practices from all Department OAs (e.g. FTA, PHMSA, FAA, and others as necessary). Hyperloop is a systems integration of technologies employed by multiple industries—and its safe integration into the transportation system could be accelerated through re-use, modification, and integration of existing (technical) standards from other transportation modes and (in some cases) non-transportation sectors.

FAA

Title 49 U.S.C. 40103(b)(1) and (2) directs the FAA to issue regulations to: 1) ensure the safety of aircraft and the efficient use of airspace; and 2) govern the flight of aircraft for purposes of navigating, protecting and identifying aircraft, and protecting individuals and property on the ground. In addition, 49 U.S.C. 44701(a)(5) charges the FAA

⁴ A rulemaking could be generally applicable to the industry, referred to as a rule of general applicability, or specific to a particular technology or operation, referred to as a rule of particular applicability.

⁵ For the purposes of this document, hyperloop is considered a pod- and magnetic levitation-based mode of transportation in a vacuum-sealed tube or system of tubes that operates in a low-pressure environment to reduce drag, increasing efficiency to drastically reduce travel times.



with promoting safe flight of civil aircraft by prescribing regulations the FAA finds necessary for safety in air commerce and national security.

The FAA also has safety authority over airmen certification and training, air agencies, and drug and alcohol abatement. The FAA exercises its broad authority under sections 106(f) and 44701(a)(5) of title 49 U.S.C. to prescribe regulations governing these areas. Under 49 U.S.C. 44711, a person may not serve as an airman without holding an airman certificate. Section 44703(a) requires the FAA to issue an airmen certificate when the Administrator finds, after investigation, that an individual is qualified for, and physically able to perform the duties related to, the position authorized by the certificate. The FAA is authorized to issue air agency certificates and amend, modify, suspend, and revoke air agency and other FAA-issued certificates. See 49 U.S.C. 44702 and 44709. Section 44707 authorizes the FAA to examine and rate air agencies, including civilian schools giving instruction in flying or repairing, altering, and maintaining aircraft, aircraft engines, propellers, and appliances. Additionally, 49 U.S.C. 45102 authorizes the FAA to prescribe regulations for air carriers and foreign air carriers to establish and conduct pre-employment, reasonable suspicion, random, and post-accident drug and alcohol testing of airmen, crew members, and other air carrier employees responsible for safety-sensitive functions.

Chapter 447 of Title 49 of the U.S. Code provides the FAA with broad safety authority over the design, production, maintenance, and continued operational safety of civil aircraft. Specifically, 49 U.S.C. 44701 authorizes the FAA to prescribe regulations and standards for aircraft design, production, and maintenance. Sections 44702 and 44704 provide the FAA with authority over the issuance of aircraft type certificates, production certificates, and airworthiness certificates. The FAA is authorized to prescribe aviation fuel standards to control or eliminate aircraft emissions that the EPA has determined to endanger the public, as well as regulations and standards to protect the public from aircraft noise and sonic boom. See 49 U.S.C. 44714 and 44715. Section 44707 authorizes the FAA to examine and rate repair stations and shops that repair, alter, and maintain aircraft, engines, propellers, and appliances.

Finally, the Commercial Space Launch Act of 1984, as amended and codified at 51 U.S.C. 50901–50923, authorizes the USDOT, and the FAA through delegation, to oversee, license, and regulate commercial launch and reentry activities, and the operation of launch and reentry sites as carried out by U.S. citizens or within the United States. Section 50905 directs the FAA to exercise this responsibility consistent with public health and safety, safety of property, and the national security and foreign policy interests of the United States. In addition, section 50903 requires the FAA encourage, facilitate, and promote commercial space launches and reentries by the private sector.

FHWA

FHWA has authority over design standards that apply to the construction of a highway designated on the National Highway System. 23 U.S.C. 109. In addition, FHWA regulations require agencies with jurisdiction over applicable bridges and tunnels to conduct regular inspections of all highway bridges and highway tunnels located on public roads. 23 U.S.C. 144. In general, FHWA does not have authority over the safety, operations, or maintenance of highways; this authority is exclusively within State jurisdiction.

For FHWA authority governing design standards or bridge and highway inspection requirements to apply to a non-traditional or emerging transportation technology project, the project must be considered a highway on the National Highway System for design or include highway bridges or tunnels on public roads for inspection. State DOTs are authorized to develop statewide highway functional classification utilizing FHWA guidance. Under, 23 CFR 470.105(b), “FHWA Functional Classification Concepts, Criteria and Procedures,”⁶ State DOTs follow the system

⁶ https://www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/section00.cfm

specific procedures to designate any particular route as Interstate and/or NHS. 23 CFR 470.111 & 470.113. FHWA then makes determinations regarding the Interstate and NHS designations. 23 CFR 470.115.

FMCSA

FMCSA has safety and commercial authority over certain commercial motor vehicles that transport property or passengers in interstate commerce. 49 U.S.C. subtitle IV, part B and subtitle VI, part B. FMCSA regulates several aspects of commercial motor vehicles, including operational safety, commercial drivers licensing, registration, and insurance.

To be subject to FMCSA's *safety* jurisdiction, a commercial motor vehicle must meet the definition in 49 U.S.C. 31132(1) and 49 CFR 390.5T. That definition includes the following vehicles, which must be operated on a highway in interstate commerce: a vehicle with a gross vehicle weight rating of more than 10,000 pounds; a passenger vehicle designed or used to transport more than eight passengers, including the driver, for compensation; or a passenger vehicle designed or used to transport more than 15 passengers, including the driver, irrespective of compensation. 49 U.S.C. 31132(1). FMCSA also has authority over vehicles transporting hazardous materials in both inter- and intrastate commerce irrespective of vehicle weight or passenger capacity. *Id.* For purposes of determining whether FMCSA has safety jurisdiction, the Federal Motor Carrier Safety Regulations define "highway" as any road, street, or way, whether on public or private property, open to public travel. 49 CFR 390.5T. "Open to public travel" means that the road section is available (except during scheduled periods, extreme weather, or emergency conditions), passable by four-wheel standard passenger cars, and open to the public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration. Toll plazas on public roads are not considered restrictive gates. (*Id.*)

FMCSA also has broad authority to "prescribe regulations on minimum uniform standards for the issuance of commercial driver's licenses and learner's permits by the States..." 49 U.S.C. 31308. The commercial driver's license requirements apply where a motor vehicle is used in commerce and meets the definition in 49 U.S.C. 31301(4) and 49 CFR 383.5. That definition includes a vehicle with a gross vehicle weight rating of more than 26,000 pounds; a vehicle designed transport 16 or more passengers, including the driver; and a vehicle of any size used to transport hazardous materials defined in 49 CFR 383.5. 49 U.S.C. 31301(4); 49 CFR 383.5. The term "motor vehicle" is defined, in part, to mean "a vehicle, machine, tractor, trailer, or semitrailer...used on public streets, roads, or highways, but does not include a vehicle, machine, tractor, trailer, or semitrailer operated only on a rail line or custom harvesting farm machinery." 49 U.S.C. 31301(12).

FMCSA has *commercial* jurisdiction when a motor vehicle is used to transport property or passengers interstate for compensation, unless specifically exempt,⁷ irrespective of the size and configuration of the motor vehicle. 49 U.S.C. 13501.⁸ Generally, when FMCSA has commercial jurisdiction, a motor carrier must have operating authority registration, and must maintain and file evidence of financial responsibility. 49 U.S.C. chap. 139. FMCSA's commercial

⁷ Examples of the statutory exemptions to FMCSA's commercial jurisdiction include motor vehicles: transporting only school children and teachers to or from school; providing taxicab service; owned or operated by or for a hotel and only transporting hotel patrons between the hotel and the local station of a carrier; controlled and operated by a farmer and transporting the farmer's agricultural or horticultural commodities and products or supplies to the farm; transporting passengers incidental to transportation by aircraft. The full list of statutorily exempt motor vehicle operations is set forth at 49 U.S.C. 13506.

⁸ Under 49 U.S.C 13501, FMCSA has commercial jurisdiction "over transportation by motor carrier and the procurement of that transportation, to the extent that passengers, property, or both, are transported by motor carrier --- (1) between a place in (A) a State and a place in another State; (B) a State and another place in the same State through another State; (C) the United States and a place in a territory or possession of the United States to the extent the transportation is in the United States; (D) the United States and another place in the United States through a foreign country to the extent the transportation is in the United States; or (E) the United States and a place in a foreign country to the extent the transportation is in the United States; and (2) in a reservation under the exclusive jurisdiction of the United States or on a public highway."

jurisdiction is limited to carriers operating a motor vehicle “on a highway in transportation, or a combination⁹ determined by the Secretary....” 49 U.S.C. 13102(16). Here, the term “highway” means “a road, highway, street, and way in a State.” 49 U.S.C. 13102(9).

FTA

FTA has safety jurisdiction over certain public transportation¹⁰ systems that receive FTA funds. 49 U.S.C. 5329(a). Recipients subject to FTA’s safety authority include State and local governmental authorities and any other operators of a public transportation system not under the safety jurisdiction of another Federal agency, such as the U.S. Coast Guard or FRA. If an entity does not receive FTA funds, FTA does not have safety jurisdiction over the entity’s transportation system.

Effective in July 2020, recipients that operate public transportation systems in urbanized areas will be required to develop public transportation agency safety plans and implement a Safety Management System. Recipients will self-certify compliance with this requirement and FTA will review compliance through the triennial review process. 49 U.S.C. 5329(d).



Photo Credit: US DOT

States have primary responsibility for safety oversight of rail fixed guideway public transportation systems not regulated by FRA. FTA certifies States’ safety oversight programs and provides oversight of the States that oversee those rail systems. 49 U.S.C. 5329(e).

FTA has the authority to establish minimum safety performance standards for public transportation vehicles and operations, and may take enforcement actions against a recipient of FTA funds that does not comply with Federal law with respect to the safety of the public transportation system. 49 U.S.C. 5329(b) and (g). States responsible for rail safety oversight must have the authority to enforce Federal and local safety standards.

⁹ A combination refers to a configuration of vehicle, tractor, trailer, etc.

¹⁰ The term “public transportation” is defined in 49 U.S.C. 5302(14) and means regular, continuing shared-ride surface transportation services that are open to the general public or open to a segment of the general public defined by age, disability, or low income; and does not include Amtrak; intercity bus service; charter bus service; school bus service; sightseeing service; courtesy shuttle service for patrons of one or more specific establishments; or intra-terminal or intra-facility shuttle services.

FTA determines whether a project falls under its statutory safety jurisdiction based on several factors, including whether:

- The public transportation system receives Federal funds under 49 U.S.C. chapter 53. An entity operating a public transportation system that receives a one-time payment of FTA funds would be considered a recipient until it no longer receives funds from FTA or the Federal interest is otherwise extinguished;¹¹
- The project qualifies as public transportation; and
- The entity's system is subject to the safety jurisdiction of another Federal agency.

NHTSA

Under 49 U.S.C. Chapter 301, NHTSA's mission is "to reduce traffic accidents and deaths and injuries resulting from traffic accidents." 49 U.S.C. 30101. To carry out that mission, NHTSA is authorized and directed to issue Federal Motor Vehicle Safety Standards (FMVSS), which specify minimum performance requirements for motor vehicles and motor vehicle equipment. 49 U.S.C. 30102(a)(10), 30111(a). "Motor vehicle" is defined to mean "a vehicle driven or drawn by mechanical power and manufactured primarily for use on public streets, roads, and highways, but does not include a vehicle operated only on a rail line." 49 U.S.C. 30102(a)(7). "Motor vehicle equipment" includes any system, part, or component of a motor vehicle, and any accessory or addition to a motor vehicle. 49 U.S.C. 30102(a)(8).

Chapter 301 provides that, with certain exceptions, a person may not sell, lease, import or otherwise "introduce or deliver for introduction in interstate commerce" any motor vehicle or item of motor vehicle equipment unless it complies with and is certified as complying with applicable FMVSS in effect at the time it was manufactured. 49 U.S.C. 30112(a)(1). A similar prohibition applies to vehicles or equipment that a manufacturer or NHTSA has determined contain a safety-related defect. *Id.* 30112(a)(3). NHTSA traditionally has interpreted the term "introduction in interstate commerce" to occur if a vehicle is used on public roads. Manufacturers may apply for exemptions from the FMVSS under specified conditions and for particular purposes. *See* 49 U.S.C. 30113(b), 30114(a).

Further, under the "make inoperative" provision in 49 U.S.C. 30122(b), a manufacturer, distributor, dealer, rental company, or motor vehicle repair business is generally prohibited from altering a compliant vehicle in any way that makes inoperative a feature installed in compliance with the FMVSS.

PHMSA

PHMSA authorities relating to the transportation of hazardous materials (49 U.S.C. 5101 et seq.) could be implicated if a project carries hazardous materials by any mode of transportation in interstate, intrastate, or foreign commerce. 49 U.S.C. 60102 authorizes the agency to promulgate regulations pertaining to the design, construction, operation, maintenance, and emergency response of pipeline facilities in 49 C.F.R. parts 190 -199. 49 U.S.C. 5103 authorizes the issuance of regulations and standards for the classifying, handling and packaging of hazardous materials in 49 C.F.R. parts 1171-180.

PHMSA authorities relating to pipelines (49 U.S.C. 60101 et seq.) generally do not apply to non-pipeline modes of transportation. For example, they do not cover transportation of people. They also do not cover transportation by pipeline of gases that are not flammable, toxic, or corrosive, or liquids that are not hazardous.

¹¹ FTA considers different factors in determining whether the Federal interest in a transit asset has extinguished based on whether the transit asset is real property, infrastructure, or rolling stock. These determinations are fact-specific.

Federal Requirements for Transportation Projects Receiving Federal Funding

There are several Federal statutes and regulations that may apply to transportation projects, and therefore may apply to various non-traditional and emerging transportation technology projects such as non-traditional tunneling and hyperloop projects.

Grantmaking and Federal Loan Authorities

The Department and its OAs have grant making obligations and lending authorities. While the majority of the Department's \$87 billion annual budget is dispersed to the States through formula funding according to State population, several billion dollars are awarded annually in infrastructure spending through numerous discretionary grant programs. Engagement with the NETT Council can help a project sponsor understand eligibility requirements for grants and potential funding opportunities.

Hyperloop, for example, may be eligible for Federal financial assistance under certain Departmental programs in the same way that other maglev projects may be available for such programs, including FRA's Maglev Deployment Projects and Consolidated Rail Infrastructure Safety and Improvement grant programs. The Department's Infrastructure for Rebuilding America (INFRA) and Better Utilizing Investments to Leverage Development (BUILD) grant programs may also provide an opportunity to support innovative infrastructure investments to projects that meet eligibility requirements. The Department plans to award over \$2 billion collectively in FY 2020 through these four programs alone. Planning activities are eligible in some cases, and are evaluated against the same criteria as capital grant applications. Evaluation criteria include benefit cost analysis, project readiness, economic competitiveness, and other specific grant eligibility criteria. Grant submissions should meet eligibility requirements, respond to selection criterion of a given program, and demonstrate market viability for the proposed project. Particularly for programs with high subscription rates, planning grants that do not have a viable path to market score poorly.

As projects advance in maturity, the Department's financing programs, such as Transportation Infrastructure Finance and Innovation Act (TIFIA) and Railroad Rehabilitation & Improvement Financing (RRIF) may be available to non-traditional and emerging transportation technology projects. USDOT has provided \$8.4 billion in financing through TIFIA and RRIF since 2017, which has resulted in the delivery of nearly \$27 billion in transportation projects across the nation.

Buy America Requirements

The Department firmly stands behind Buy America and Buy American requirements including those outlined in Executive Order 13858, and as encouraged by the Executive Order, the Department intends to maximize, consistent with law, the use of goods, products, and materials produced in the United States, for all projects receiving Federal funding. Recipients of Federal funding for transportation infrastructure projects are required to abide by statutory requirements to support domestic industries, such as steel or iron, which are listed below. Waivers are considered on a case-by-case basis by the Department, consistent with statutory and regulatory requirements. Applicants should review the requirements under Buy America with the Department during the engagement process for a new technology. Furthermore, Executive Order 13858 encourages the Department to maximize domestic content when Federal funds are utilized.

Highway Projects: For highway projects, the relevant Buy America provisions can be found at 23 U.S.C. 313 and 23 CFR 635.410. Additional information can be found at <https://www.fhwa.dot.gov/construction/cqit/buyam.cfm>.

Transit Projects: For transit projects, the relevant Buy America provisions can be found at 49 U.S.C. 5323(j) and 49 CFR part 661. Additional information can be found at <https://www.transit.dot.gov/regulations-and-guidance/buy-america/buy-america>.

Rail Projects: For rail projects, USDOT expects projects to meet the domestic steel, iron, and other manufactured products content requirements that apply to FRA passenger rail grant programs. These requirements are described in 49 U.S.C. 24405(a). Additional information can be found at <http://www.fra.dot.gov/Page/P0185>.

Other Projects: USDOT expects projects to meet the domestic steel, iron, and other manufactured products content requirements of the applicable modal agency by law or policy. Additional information for FAA Buy American Preferences Requirements can be found at https://www.faa.gov/airports/aip/buy_american/.

Recipients of Federal grant funds will need to comply with the requirements of 2 CFR Part 200, which includes requirements related to eligible expenses, procurement standards, performance and financial reporting, records retention.

Environmental Review/Permitting Federal Requirements

Environmental Review: An environmental review is the process of reviewing a project and its potential environmental impacts to determine whether it meets Federal, State, and local environmental requirements. Federal environmental review is required for all transportation projects involving a major Federal action by the Department. For example, if a project receives financial assistance from the Department such as a Federal-aid apportionment, discretionary grant, or credit assistance under the TIFIA or RRIF programs, it may be subject to environmental review. Similarly, Departmental approvals or authorizations, such as a modification of interstate access under 23 U.S.C. 111(a) or a rulemaking may trigger environmental review requirements. The extent of this environmental review will vary depending on the extent of the potential environmental impacts. However, every Federal agency must demonstrate that it has complied with the National Environmental Policy Act (NEPA), 42 U.S.C. 4321 et seq., and other applicable Federal environmental laws.

The National Environmental Policy Act of 1969 (NEPA) and its requirements: NEPA establishes a national environmental policy and provides a framework for environmental planning and decision-making by Federal agencies. NEPA and the Council on Environmental Quality (CEQ) implementing regulations direct Federal agencies, when taking a major Federal action to conduct environmental reviews to consider the potential impacts on the environment by their proposed actions. (42 U.S.C. 4321-4347, 40 CFR 1500-1508). The Department's NEPA Order¹² and OA NEPA Procedures¹³ further implement NEPA and the CEQ regulations in the context of the Department's programs and authorities. The NEPA process formally begins when a Federal agency develops a proposal to take a "major Federal action." These actions are defined at 40 CFR 1508.18 and in the Department's NEPA Order. Each proposed project must be evaluated to determine whether NEPA applies and if so, how NEPA requirements are satisfied. During this evaluation, the Department will also identify other applicable environmental requirements and any associated reviews, approvals, or permits that must be obtained to construct and operate the project. The Department will not take a major Federal action until it complies with NEPA.

¹² U.S. Department of Transportation Order 5610.1C, Procedures for Considering Environmental Impacts, (July 30, 1985) available at: https://www.transportation.gov/sites/dot.gov/files/docs/Procedures_Considering_Environmental_Impacts_5610_1C.pdf.

¹³ 23 CFR part 771, *Environmental Impact and Related Procedures*, describes the policies and procedures of the FHWA, FTA, and FRA, for implementing NEPA and the implementing regulations issued by CEQ. Together, these regulations set out the requirements under NEPA for processing highway, public transportation, and railroad related actions. The FAA implements NEPA and the implementing regulations issued by CEQ through FAA Order 1050.1F, *Environmental Policies and Procedures* available at: https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.current/documentNumber/1050.1.

The Department complies with its NEPA responsibilities in one of four ways:

- **NEPA Exemption:** A determination that the proposed action is not subject to NEPA because the proposal is not a “major Federal action” or is subject to a statutory exemption from NEPA.
- **Categorical Exclusion:** A categorical exclusion (CE) determination is issued for actions that do not individually or cumulatively have a significant effect on the environment. The Department and its OAs maintain lists of projects that generally satisfy NEPA requirements through a CE. See, e.g., 23 CFR 771.116-118 for a list of the FRA, FHWA, and FTA categorical exclusions. This class of action determination can generally be completed with minimal time and documentation.
- An **Environmental Assessment (EA)** is prepared for actions in which the significance of the environmental impact is not clearly established. Should environmental analysis and interagency review during the EA process find a project to have no significant impacts on the quality of the environment, a **Finding of No Significant Impact (FONSI)** is issued.
- An **Environmental Impact Statement (EIS)** is prepared for projects where it is known or determined through an EA that the action will have a significant effect on the environment.

Key components of the NEPA process involve:¹⁴


- Assessment of the social, economic, and environmental impacts of a proposed action or project;
- Analysis of a range of reasonable alternatives to the proposed project, based on the applicants defined purpose and need for the project;
- Consideration of appropriate impact mitigation: avoidance, minimization and compensation;
- Interagency participation: coordination and consultation;
- Public involvement, including opportunities to participate and comment; and
- Documentation and disclosure.

Satisfying Environmental Review Requirements: The Department utilizes an “umbrella” approach under which all applicable environmental laws, executive orders, and regulations are considered and addressed concurrently during the NEPA process and prior to a final project decision. Thus, conclusion of the environmental review process results in a decision that addresses multiple requirements. The environmental review process allows transportation officials to make project decisions that balance engineering and transportation needs with social, economic, and natural environmental factors. During the process, a wide range of stakeholders including the public, businesses, interest groups, and agencies at all levels of government, may provide input into project and environmental decisions.

Beginning Environmental Review: Environmental review should begin as soon as a meaningful evaluation of environment effects can be made in anticipation of a potential major Federal action, and before reaching a level of investment or commitment that could determine development or that could restrict alternatives.

The Department encourages innovators, project sponsors or proponents to engage in a dialogue with the NETT Council when the proponent anticipates seeking Federal financial assistance or an authorization. This will allow agency staff to become familiar with the proposed project and the expected content of any anticipated applications for funding or approvals. With early engagement, staff can determine whether the environmental portion of the proponent’s application is ripe for review, identify potential Federal, State and local agency partners, and point out

¹⁴ Compliance with NEPA does not obviate the need to satisfy requirements of any substantive environmental laws that may be applicable such as 4(f) and the Clean Water Act.



missing information or data necessary to the environmental review. This is especially important when a proponent is seeking Federal assistance for or approval of a transportation technology that is based on newly proposed or newly applied design standards. While the Department is unable to begin its environmental review until an action is pending before it, the Department can assist proponents by providing input that may allow the proponent to gather information that, if included in its application, may expedite the environmental review and permitting process.

III. Project Maturity and NETT Council Engagement

Establishing Project Maturity and Readiness

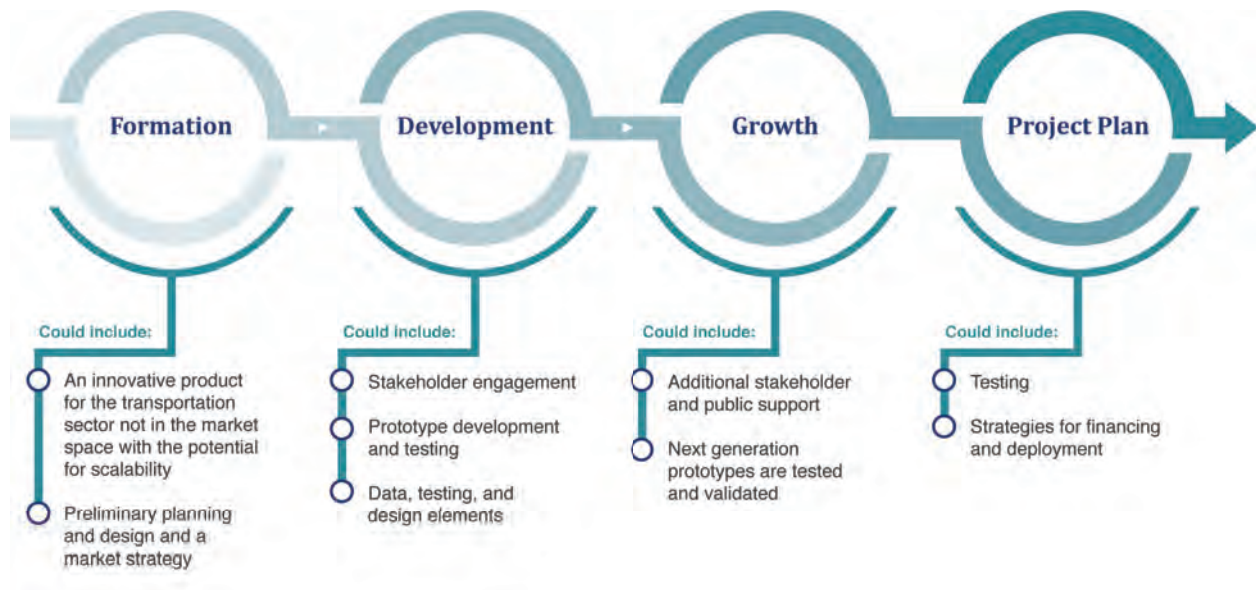
Different projects may be at vastly different stages in their development and readiness. The NETT Council’s aim is to establish a framework and set expectations so that public and private risks are managed while enabling innovation to thrive.

NETT Council’s Project Readiness Levels

Any innovator can approach the NETT Council with its ideas, but innovators and/or project sponsors should expect varying levels of NETT Council engagement, depending on the respective readiness level of their project. The diagram below introduces a framework for interacting with the NETT Council and how the Council views and thinks about the phases of project development.¹⁵ These phases are not meant in any way to prescribe how developers should consider their projects, nor do they affect any preexisting Federal processes for project development.

For example, during the formation stage, the NETT Council would likely be willing to have an informational meeting and establish a point of contact to maintain a level of awareness for Department staff regarding the new project. A project in development and growth may involve interacting with a NETT Council working group made up of subject matter experts from across the Department’s OAs that could focus on exploring technical and legal questions around a specific new technology or system.

When the project plan phase is reached, if not sooner, the NETT Council would likely be in a position to refer the innovator and/or project developer to the appropriate OA to provide a regulatory path forward upon review and evaluation of the project.



¹⁵The Project Readiness Levels are loosely aligned to the NASA Technology Readiness Level (TRL) spectrum: https://www.nasa.gov/directorates/heo/scan/engineering/technology/txt_accordion1.html

Models and Best Practices for Federal and Industry Cooperation

The Department seeks to work with the private sector to advance the safety and function of U.S. transportation systems and shares the following models and structure as a resource for technology and innovation and stakeholders to consider as they advance their technologies and look for ways to cooperate with the Department. Successful collaboration tends to be characterized by industry initiation and leadership with a limited and defined Federal role. The Department shares the following examples:

Crash Avoidance Metrics Partnership (CAMP)

The Crash Avoidance Metrics Partnership (CAMP) was formed by Ford and General Motors in 1995 to accelerate the implementation of crash avoidance countermeasures in passenger vehicles to improve traffic safety. The CAMP Light Vehicle Enabling Research Program brought together major vehicle original equipment manufacturers in four cooperative research projects with NHTSA to advance the safety research objectives of the Department's Intelligent Vehicle Initiative.

The objective of the partnership was to accelerate the implementation of crash avoidance countermeasures to improve traffic safety by defining and developing necessary pre-competitive enabling elements of future systems. CAMP provided a flexible mechanism to facilitate interaction among additional participants as well, such as the USDOT and other original equipment manufacturers (OEMs), to execute cooperative research projects.

Data and Research Exchanges

Data and research exchanges can help establish industry best practices, voluntary standards, and other useful tools. Industries should consider working with Federal, State, and local agencies as well as any relevant standards bodies to identify opportunities for voluntary data and research exchanges that can help enhance safety and promote transportation innovation. The Department has pioneered the use of data trusts, which are a means for collaborative, non-regulatory sharing of sensitive data through independent stewardship, and is expanding their use. USDOT is promoting the use of data trusts because they improve the collection, management, and integration of data; identify risks that contribute to fatalities and serious injuries; and collaborate with stakeholders to foster innovation in transportation while also safeguarding confidentiality, security, and privacy.

There is successful and ongoing work across the OAs with data and research exchanges. FAA's work with aviation stakeholders on the Aviation Safety Information Analysis and Sharing (ASIAS) program is a critical component of the achievements made in aviation safety. More recently, NHTSA announced the continuation of Partnership for Analytics Research in Traffic Safety (PARTS) program at the 2020 Transportation Research Board Annual Meeting, and FRA launched its Railroad Information Sharing Environment (RISE) in 2019.

Small Business Innovation Research (SBIR)

The USDOT SBIR program stimulates technological innovations in departmental programs utilizing, to the degree possible, the valuable resources and creative capabilities of the small business community in the United States. SBIR seeks to encourage the initiative of the private sector and to use small businesses as effectively as possible in meeting Federal research and development objectives. These initiatives are directed towards the high-priority transportation research and development requirements of the OAs.

IV. Request for Comment (Nov 2019)

On November 26, 2019, the Department published a Request for Comment (RFC) to gather information on the public's and stakeholder's opinions about how the USDOT's existing regulatory construct supports or hinders innovation, and how the NETT Council can be in a better position to support transportation innovation (84 FR 65214).¹⁶ The RFC consisted of 13 questions across various topics, and the Department received 32 comments. Commenters represented a diverse set of perspectives, and included individuals, trade associations, State DOTs, regional governing associations, non-profit organizations, and a range of transportation companies.

Overall, many of the comments highlighted the need for the NETT Council. Commenters shared a desire for a clear regulatory framework and suggested how the Department can exercise better oversight of emerging technologies moving forward. These comments do not have a simple response or answer, but they are the beginning of the conversation between the NETT Council and its stakeholders. To facilitate this conversation and to provide additional clarity, this section organizes the comments received

Four main themes were evident from the comments received in the RFC:

1) Innovators are concerned that regulatory uncertainty creates a barrier to innovation.

Commenters stated—and the Department agrees—that USDOT currently has the necessary authority to regulate hyperloop technology safely and effectively.

Several commenters contended that the current regulatory regime for potential hyperloop projects is highly uncertain, which could discourage investment in the new technology. Commenters also noted the need for regulatory flexibility to accommodate non-traditional and emerging transportation technologies, and the potential deterrent to innovation caused by attempting to “shoehorn” a particular technology into a regulatory regime that does not fit. As stated earlier in this document, FRA has the necessary authority to regulate hyperloop systems technologies that use maglev technology. Some commenters pointed to particular areas in which hyperloop and maglev systems differ significantly from traditional rail, and may require waivers of compliance from some FRA requirements (one example pointed to FRA regulations concerning highway-rail grade crossings, which may not be applicable to a hyperloop system).

Commenters also requested that the NETT Council consider hydrogen fuel highway vehicles and related infrastructure. It is the Department's view that these can be managed using NHTSA and FHWA authorities.

2) Projects that have engaged with the NETT Council are interested in Federal funding opportunities that are available for their technologies.

Commenters requested that hyperloop projects be eligible for Federal funding. Hyperloop may be eligible for Federal financial assistance under certain Departmental programs in the same way that maglev projects may be eligible for such projects, if the specific project meet the requirements outlined in the Notice of Funding Opportunity.

Additionally, the Department has some opportunities for research and development funding. A non-traditional and emerging transportation technology could be eligible for this funding if it meets statutory requirements and requirements outlined in the appropriate Notice of Funding Opportunity.

¹⁶ The full RFC can be accessed here: <https://www.Federalregister.gov/documents/2019/11/26/2019-25638/non-traditional-and-emerging-transportation-technology-nett-council>

3) NETT Council involvement at the appropriate time would aid project development.

Commenters were near-unanimous in their support for NETT Council involvement in the development process for emerging cross-modal transportation technology projects, although the comments received were split on when the most appropriate time for Federal involvement should be. Some commenters suggested that NETT Council involvement should begin during the research and development phase of an emerging transportation technology and should include a funding component. Although non-traditional and emerging transportation technologies may be eligible for existing USDOT research and development grant programs, the USDOT has a limited role in conducting research on innovative transportation projects, and instead tends to focus on removing regulatory barriers, evaluating impacts of technology, particularly regarding safety, and addressing market failures and other compelling public needs.

The Department tends to award funds to projects that are further along in technical readiness, have substantially addressed NEPA requirements or are in the process of doing so, are economically sustainable, and would not be solely reliant upon Federal funding. Federal funding should support, not supplant early stage research and investments that the private sector engages in to develop innovative transportation technologies.

Accordingly, the Department believes that the NETT Council's appropriate role is to monitor and remove barriers to innovation, while coordinating communication with the necessary OAs.

4) USDOT should consider international/private sector standards.

Commenters noted that many foreign transportation authorities are assessing how best to regulate hyperloop technology; the NETT Council plans to research the applicability of existing standards to hyperloop systems in the United States. One comment stated that while international consensus is important, the United States should not cede to other nations leadership in creating a safe and effective regulatory regime for hyperloop technology.

Several of the comments received provided specific recommended standards for hyperloop systems, maglev systems, and hydrogen fueled vehicles.

Other comments

Comments concerned with automated vehicles, short narrow track vehicles, and other transportation methods which already fall under the clear jurisdiction of a USDOT OA are not being considered under the purview of the Council. In addition, several comments were received requesting an update to the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) which falls under FHWA's existing authority; the FHWA anticipates that an NPRM will be published at a later date to update the technical provisions of the MUTCD and invites any interested parties to comment on that rulemaking when it is published.

A number of comments included suggestions for ways USDOT can collaborate with its non-Federal partners. These include providing Federal guidance documents for agencies to follow, engaging in information exchanges, and allowing impacted entities to review the Department's regulatory actions before they are taken.



V. Next Steps

Congress appropriated \$2 million in funds for the NETT Council to conduct a study on new and emerging cross-modal transportation technologies, including hyperloop, and requested that DOT provide a report to Congress by December 20, 2020. The NETT Council will begin researching existing standards and best practices in the U.S. and internationally, including the standards suggested for maglev and hyperloop by commenters to the RFC published on November 26, 2019. As a part of this research, the NETT Council will look for opportunities for regulatory relief from existing rules that were created for traditional transportation platforms and that may not be applicable for certain emerging transportation technologies.

The NETT Council will also work to develop material, programs, and recommended practices for OAs to be prepared to assess non-traditional and emerging transportation technology projects. The Department envisions sharing these resources with State and local entities so they are equipped to assess new ideas.

These two efforts will help ensure the Congressionally appropriated funding is used to complete the required study, conduct research on the safety and regulatory needs of non-traditional and emerging transportation technologies, and provide technical assistance to local and State governments.

Appendix. Additional Resources

Examples of Other Potential Federal Requirements

Many other requirements apply to programs receiving Federal financial assistance. The requirements for each program vary; however, some examples are provided below.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

Project construction may displace current residents or businesses. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. 4601-4655 (Uniform Act), established a program, which includes the payment of moving and related expenses, to assist persons who move because of Federal or Federally assisted projects. Governmentwide implementing regulations are at 49 CFR part 24.

Nondiscrimination Provisions

Title VI of the Civil Rights Act of 1964 is a contractual obligation in exchange for the voluntary receipt of Federal funds. It states that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the recipient receives Federal assistance. (42 U.S.C. 2000(d)). As applied to transportation programs, regulations to implement this statute appear at 49 CFR part 21.

In addition to the requirements under Title VI, recipients of Federal funding must comply with Section 504 (29 U.S.C. 794) of the Rehabilitation Act of 1973, which prohibits discrimination against qualified individuals with disabilities, and the Age Discrimination Act (29 U.S.C. 6101), which prohibits discrimination on the basis of age.

Prevailing Wage and Employee Protection Requirements

Projects receiving Federal financial assistance may be subject to compliance with specific prevailing wage and employee protection requirements. Many Federal financial assistance programs require prevailing wages for construction contracts not less than those determined by the Department of Labor under the Davis-Bacon Act. Examples of these requirements can be found at 23 U.S.C. 113 for highway projects, 49 U.S.C. 5333(a) for transit projects, and 49 U.S.C. 24312 for Railroad Rehabilitation & Improvement Financing projects.

- **Employee Protection:**

- Many projects receiving Federal financial assistance also have employee protection statutes. For a few examples see Section 504 of the Railroad Revitalization and Regulatory Reform Act of 1976 for certain rail projects and 49 U.S.C. 5333(b) for transit projects.

Federal Resources

A list of Federal resources (non-exhaustive) that may be helpful for innovators and project sponsors is included as a resource.

Small Business Innovation Research (SBIR)

- For general inquiries, call the USDOT SBIR hotline at 617-494-2051 or email us at dotsbir@dot.gov.
- The USDOT SBIR program's purpose is to stimulate technological innovations in departmental programs utilizing, to the degree possible, the valuable resources and creative capabilities of the small business community in the United States.
- SBIR seeks to encourage the initiative of the private sector and to use small businesses as effectively as possible in meeting Federal research and development objectives. In the U.S. Department of Transportation (USDOT), these initiatives are directed towards high-priority transportation research and development requirements of the OAs.
- All proposals must respond to a specific topic in an open solicitation in order to be considered for an award through USDOT's SBIR program. You can also suggest a topic for consideration. All submissions will be reviewed; however, not all topics will be included in future solicitations. If your topic is included in a future solicitation, then all qualified small businesses will have the opportunity to submit a proposal for that topic.

Office of Small and Disadvantaged Business Utilization

- USDOT's Office of Small and Disadvantaged Business Utilization's (OSDBU) mission is to ensure Small Business policies and goals of the Secretary of Transportation are implemented in a fair, efficient and effective manner.
- The Office of Small and Disadvantaged Business Utilization (OSDBU) established the Small Business Transportation Resource Centers (SBTRCs) through a network of grantees across the country. The SBTRCs work closely with the transportation contracting community and other technical assistance providers to serve small disadvantaged transportation businesses.
- SBTRCs provide an array of technical assistance to build the capacity of Small and Disadvantaged Businesses, making the businesses more competitive when bidding on USDOT procurement opportunities and Federally-funded contracts.

Federal Business Opportunities (FedBizOpps)

- Search for contract opportunities which match your idea and/or your capabilities. FedBizOpps is the primary location to learn about USDOT contract opportunities. Information about additional Federal government funding opportunities can be found on the Additional Resources page.

Grants.gov

- Provides a common website for Federal agencies to post discretionary funding opportunities and for grantees to find and apply to them.

GSA's System for Award Management (SAM)

- The beta.SAM.gov domains contain data that has been migrated from legacy systems. The domains support two distinct types of Federal awards: acquisition and Federal assistance.
 - Acquisition awards are contracts awarded under the Federal Acquisition Regulation (FAR).
 - Federal assistance awards are grant, cooperative, loan, insurance, service, and other agreements covered by the Code of Federal Regulations, specifically 2 CFR part 200.

Transportation Research Board's Research in Progress (RiP) Database

- The Transportation Research Board's Research in Progress Database contains information on more than 13,000 current or recently completed transportation research projects. RIP records primarily are projects funded by the U.S. Department of Transportation and State Departments of Transportation. University transportation research also is included in the database.

USDOT Research Hub

- The USDOT Research Hub is a web-based, searchable database of USDOT-sponsored research, development, and technology project records. The database acts as a central repository for information on active and recently completed projects from USDOT's OAs, providing a comprehensive account of the Department's research portfolio at the project level.

Pathways to the Future of Transportation

*A Non-Traditional and Emerging Transportation Technology (NETT)
Council Guidance Document*

July 2020

www.transportation.gov/nettcouncil



U.S. Department of Transportation