U.S. Department of Homeland Security
Cybersecurity & Infrastructure Security Agency
Office of the Director
Washington, DC 20528

March 28, 2020

ADVISORY MEMORANDUM ON IDENTIFICATION OF ESSENTIAL CRITICAL INFRASTRUCTURE WORKERS DURING COVID-19 RESPONSE

FROM: Christopher C. Krebs
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As the Nation comes together to slow the spread of COVID-19, on March 16th the President issued updated Coronavirus Guidance for America that highlighted the importance of the critical infrastructure workforce.

The Cybersecurity and Infrastructure Security Agency (CISA) executes the Secretary of Homeland Security's authorities to secure critical infrastructure. Consistent with these authorities, CISA has developed, in collaboration with other federal agencies, State and local governments, and the private sector, an "Essential Critical Infrastructure Workforce" advisory list. This list is intended to help State, local, tribal and territorial officials as they work to protect their communities, while ensuring continuity of functions critical to public health and safety, as well as economic and national security. Decisions informed by this list should also take into consideration additional public health considerations based on the specific COVID-19-related concerns of particular jurisdictions.

This list is advisory in nature. It is not, nor should it be considered, a federal directive or standard. Additionally, this advisory list is not intended to be the exclusive list of critical infrastructure sectors, workers, and functions that should continue during the COVID-19 response across all jurisdictions. Individual jurisdictions should add or subtract essential workforce categories based on their own requirements and discretion.

The advisory list identifies workers who conduct a range of operations and services that are typically essential to continued critical infrastructure viability, including staffing operations centers, maintaining and repairing critical infrastructure, operating call centers, working construction, and performing operational functions, among others. It also includes workers who support crucial supply chains and enable functions for critical infrastructure. The industries they support represent, but are not limited to, medical and healthcare, telecommunications, information technology systems, defense, food and agriculture, transportation and logistics, energy, water and wastewater, law enforcement,

and public works.

State, local, tribal, and territorial governments are responsible for implementing and executing response activities, including decisions about access and reentry, in their communities, while the Federal Government is in a supporting role. Officials should use their own judgment in issuing implementation directives and guidance. Similarly, while adhering to relevant public health guidance, critical infrastructure owners and operators are expected to use their own judgement on issues of the prioritization of business processes and workforce allocation to best ensure continuity of the essential goods and services they support. All decisions should appropriately balance public safety, the health and safety of the workforce, and the continued delivery of essential critical infrastructure services and functions. While this advisory list is meant to help public officials and employers identify essential work functions, it allows for the reality that some workers engaged in activity determined to be essential may be unable to perform those functions because of health-related concerns.

CISA will continue to work with our partners in the critical infrastructure community to update this advisory list if necessary as the Nation's response to COVID-19 evolves.

Should you have questions about this list, please contact CISA at CISA.CAT@cisa.dhs.gov.

Attachment: "Guidance on the Essential Critical Infrastructure Workforce: Ensuring Community and National Resilience in COVID-19 Response Version 2.0"

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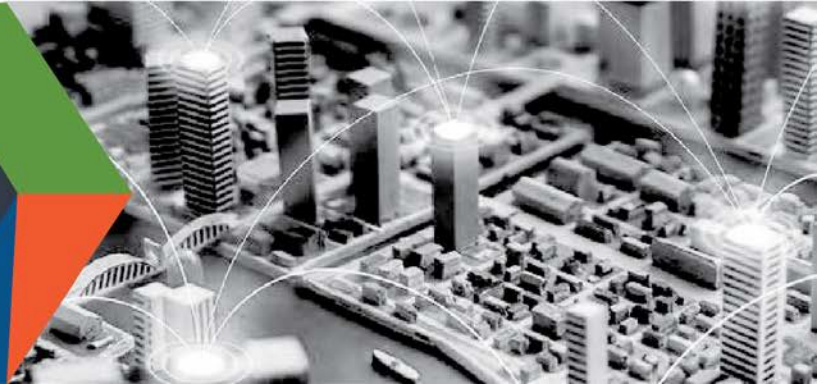
DEFEND TODAY, SECURE TOMORROW



Guidance on the Essential Critical Infrastructure Workforce: Ensuring Community and National Resilience in COVID-19 Response

Version 2.0 (March 28, 2020)

THE IMPORTANCE OF ESSENTIAL CRITICAL INFRASTRUCTURE WORKERS

Functioning critical infrastructure is imperative during the response to the COVID-19 emergency for both public health and safety as well as community well-being. Certain critical infrastructure industries have a special responsibility in these times to continue operations.

This advisory guidance and accompanying list are intended to support state, local, tribal, territorial and industry partners in identifying the critical infrastructure sectors and the essential workers needed to maintain the services and functions Americans depend on daily and that need to be able to operate resiliently during the COVID-19 pandemic response.

This document gives advisory guidance on defining essential critical infrastructure workers. Promoting the ability of such workers to continue to work during periods of community restriction, access management, social distancing, or closure orders/directives is crucial to community resilience and continuity of essential functions.

CISA will continually solicit and accept feedback on the list and will evolve the list in response to stakeholder feedback. We will also use our various stakeholder engagement mechanisms to work with partners on how they are using this list and share those lessons learned and best practices broadly. Feedback can be sent to CISA.CAT@CISA.DHS.GOV.

CONSIDERATIONS FOR GOVERNMENT AND BUSINESS

This list was developed in consultation with federal agency partners, industry experts, and State and local officials, and is based on several key principles:

1. Response efforts to the COVID-19 pandemic are locally executed, state managed, and federally supported.
2. Everyone should follow guidance from the CDC, as well as State and local government officials, regarding strategies to limit disease spread.
3. Workers should be encouraged to work remotely when possible and focus on core business activities. In-person, non-mandatory activities should be delayed until the resumption of normal operations.
4. When continuous remote work is not possible, businesses should enlist strategies to reduce the likelihood of spreading the disease. This includes, but is not necessarily limited to, separating staff by off-setting shift hours or days and/or social distancing. These steps can preserve the workforce and allow operations to continue.
5. All organizations should implement their business continuity and pandemic plans or put plans in place if they do not exist. Delaying implementation is not advised and puts at risk the viability of the business and the

health and safety of the employees.

6. Reliance on technology and just-in-time supply chains means that certain workers must be able to access certain sites, facilities, and assets to ensure continuity of functions.

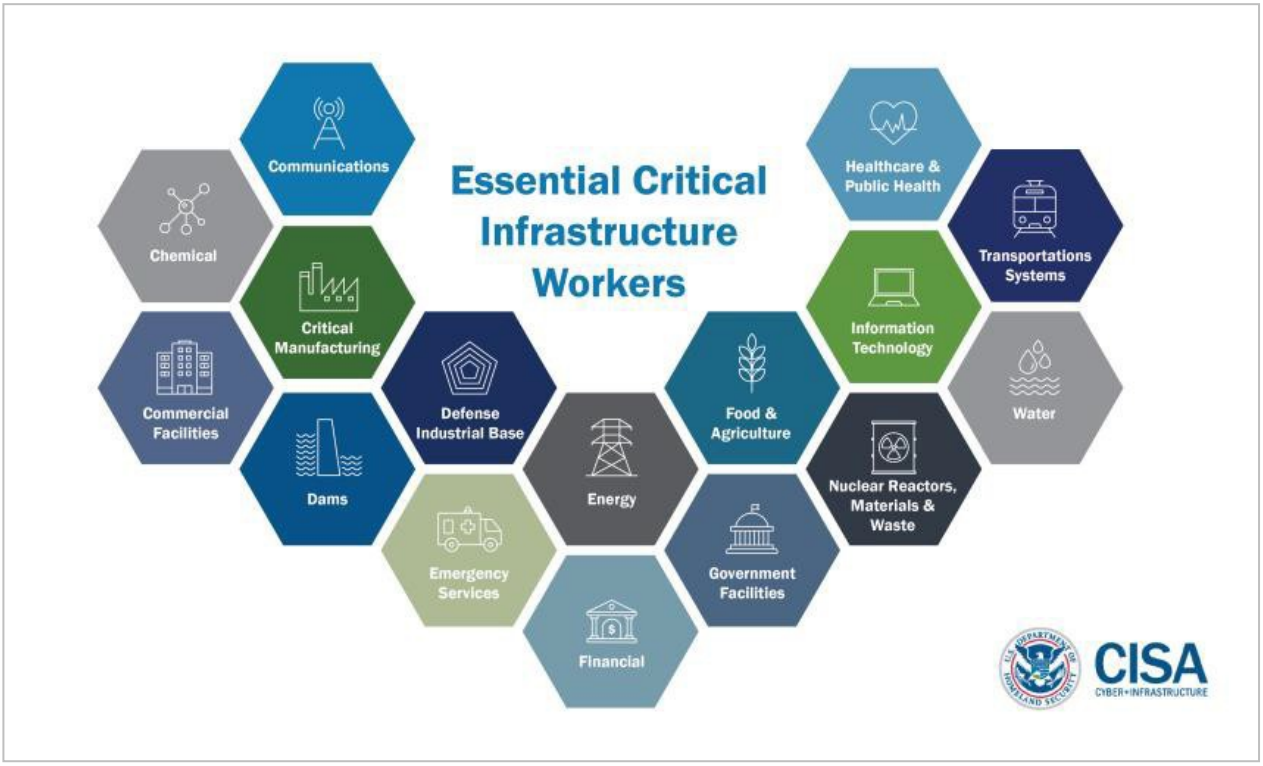
7. Government employees, such as emergency managers, and the business community need to establish and maintain lines of communication.

8. When government and businesses engage in discussions about essential critical infrastructure workers, they need to consider the implications of business operations beyond the jurisdiction where the asset or facility is located. Businesses can have sizeable economic and societal impacts as well as supply chain dependencies that are geographically distributed.

9. Whenever possible, jurisdictions should align access and movement control policies related to critical infrastructure workers to lower the burden of workers crossing jurisdictional boundaries.

IDENTIFYING ESSENTIAL CRITICAL INFRASTRUCTURE WORKERS

The following list of identified essential critical infrastructure workers is intended to be overly inclusive reflecting the diversity of industries across the United States.



HEALTHCARE / PUBLIC HEALTH

- Workers who perform critical clinical research, development, and testing needed for COVID-19 response.
- Healthcare providers and Caregivers including physicians, dentists, psychologists, mid-level practitioners, nurses and assistants, infection control and quality assurance personnel, pharmacists, physical and occupational therapists and assistants, social workers, optometrists, speech pathologists, chiropractors, and diagnostic and therapeutic technicians and technologists.
- Hospital and laboratory personnel (including accounting, administrative, admitting and discharge, engineering, epidemiological, source plasma and blood donation, food service, housekeeping, medical records, information technology and operational technology, nutritionists, sanitarians, respiratory therapists, etc.).
- Workers in other medical and biomedical facilities (including Ambulatory Health and Surgical, Blood Banks, Clinics, Community Mental Health, Comprehensive Outpatient rehabilitation, End Stage Renal Disease, Health Departments, Home Health care, Hospices, Hospitals, Long Term Care, Nursing Care Facilities, Organ Pharmacies, Procurement Organizations, Psychiatric Residential, Rural Health Clinics and Federally Qualified Health Centers, and retail facilities specializing in medical good and supplies).
- Manufacturer workers for health manufacturing (including biotechnology companies), materials and parts suppliers, logistics and warehouse operators, distributors of medical equipment (including those who test and repair), personal protective equipment (PPE), isolation barriers, medical gases, pharmaceuticals (including materials used in radioactive drugs), dietary supplements, blood and blood products, vaccines, testing materials, laboratory supplies, cleaning, sanitizing, disinfecting or sterilization supplies, and tissue and paper towel products.
- Public health / community health workers, including those who compile, model, analyze and communicate public health information.
- Blood and plasma donors and the employees of the organizations that operate and manage related activities.
- Workers who manage health plans, billing, and health information, who cannot practically work remotely.
- Workers who conduct community-based public health functions, conducting epidemiologic surveillance, compiling, analyzing and communicating public health information, who cannot practically work remotely.
- Workers performing information technology and cybersecurity functions at healthcare and public health facilities, who cannot practically work remotely.
- Workers performing security, incident management, and emergency operations functions at or on behalf of healthcare entities including healthcare coalitions, who cannot practically work remotely.
- Pharmacy employees necessary to maintain uninterrupted prescription filling.
- Workers performing mortuary funeral, cremation, burial, cemetery, and related services, including funeral homes, crematoriums, cemetery workers, and coffin makers.
- Workers who coordinate with other organizations to ensure the proper recovery, handling, identification, transportation, tracking, storage, and disposal of human remains and personal effects; certify cause of death; and facilitate access to mental/behavioral health services to the family members, responders, and survivors of an incident.

LAW ENFORCEMENT, PUBLIC SAFETY, AND OTHER FIRST RESPONDERS

- Public, private, and voluntary personnel (front line and management) in emergency management, law enforcement, fire and rescue services, emergency medical services, and private security, to include public and private hazardous material responders, air medical service providers (pilots and supporting technicians), corrections, and search and rescue personnel.
- 911 call center employees and Public Safety Answering Points who can't perform their duties remotely.
- Fusion Center employees.
- Workers – including contracted vendors -- who maintain, manufacture, or supply equipment and services supporting law enforcement emergency service and response operations (to include electronic security and life safety security personnel).
- Workers supporting the manufacturing of safety equipment and uniforms for law enforcement, public safety personnel, and first responder.
- Workers supporting the operation of firearm or ammunition product manufacturers, retailers, importers, distributors, and shooting ranges.
- Public agency workers responding to abuse and neglect of children, elders, and dependent adults.
- Workers who support weather disaster / natural hazard mitigation and prevention activities.
- Security staff to maintain building access control and physical security measures.

FOOD AND AGRICULTURE

- Workers supporting groceries, pharmacies, convenience stores, and other retail (including unattended and vending) that sells human food, animal/pet food and pet supply, and beverage products, including retail customer support service and information technology support staff necessary for online orders, pickup and delivery.
- Restaurant carry-out and quick serve food operations, including dark kitchen and food prep centers, and carry-out and delivery food employees.
- Food manufacturer employees and their supplier employees—to include those employed in food ingredient production and processing facilities; livestock, poultry, seafood slaughter facilities; pet and animal feed processing facilities; human food facilities producing by-products for animal food; beverage production facilities; and the production of food packaging.
- Farmers, farm workers, and agribusiness support services to include those employed in auction and sales: grain and oilseed handling, processing and distribution; animal food, feed, and ingredient production, packaging, and distribution; manufacturing, packaging, and distribution of veterinary drugs; truck delivery and transport; farm and fishery labor needed to produce our food supply domestically and for export.
- Farmers, farm workers, support service workers, and their supplier employees to include those engaged in producing and harvesting field crops; commodity inspection; fuel ethanol facilities; biodiesel and renewable diesel facilities; storage facilities; and other agricultural inputs.
- Employees and firms supporting the distribution of food, feed, and beverage and ingredients used in these products, including warehouse workers, vendor- managed inventory controllers and blockchain managers.
- Workers supporting the sanitation and pest control of all food manufacturing processes and operations from wholesale to retail.
- Employees in cafeterias used to feed employees, particularly employee populations sheltered against COVID-19.
- Workers in animal diagnostic and food testing laboratories in private industries and in institutions of higher education.

- Government, private, and non-governmental organizations' workers essential for food assistance programs (including school lunch programs) and government payments.
- Employees of companies engaged in the production, storage, transport, and distribution of chemicals, medicines, vaccines, and other substances used by the food and agriculture industry, including seeds, pesticides, herbicides, fertilizers, minerals, enrichments, and other agricultural production aids.
- Animal agriculture workers to include those employed in veterinary health (including those involved in supporting emergency veterinary or livestock services); raising of animals for food; animal production operations; livestock markets; slaughter and packing plants, manufacturers, renderers, and associated regulatory and government workforce.
- Transportation supporting animal agricultural industries, including movement of animal medical and reproductive supplies and materials, animal vaccines, animal drugs, feed ingredients, feed, and bedding, live animals, animal by-products, and deceased animals for disposal.
- Workers who support sawmills and the manufacture and distribution of fiber and forest products, including, but not limited to timber, paper, and other wood and fiber products.
- Employees engaged in the manufacture and maintenance of equipment and other infrastructure necessary for agricultural production and distribution.

ENERGY

- Workers supporting the energy sector, regardless of the energy source (including but not limited to nuclear, fossil, hydroelectric, or renewable), segment of the system, or infrastructure the worker is involved in, or who are needed to monitor, operate, engineer, and maintain the reliability, safety, environmental health, and physical and cyber security of the energy system.
- Energy/commodity trading/scheduling/marketing functions, who can't perform their duties remotely.
- IT and OT technology for essential energy sector operations including support workers, customer service operations; energy management systems, control systems, and Supervisory Control and Data Acquisition SCADA systems, and energy sector entity data centers; cybersecurity engineers; and cybersecurity risk management.
- Workers supporting the energy sector through renewable energy infrastructure (including, but not limited to wind, solar, biomass, hydrogen, ocean, geothermal, and/or hydroelectric), including those supporting construction, manufacturing, transportation, permitting, operation/maintenance, monitoring, and logistics.
- Workers and security staff involved in nuclear re-fueling operations.
- Providing services related to energy sector fuels (including, but not limited, petroleum (crude oil), natural gas, propane, natural gas liquids, other liquid fuels, nuclear, and coal), supporting the mining, processing, manufacturing, construction, logistics, transportation, permitting, operation/maintenance, security, waste disposal and storage, and monitoring of support for resources.
- Environmental remediation/monitoring, limited to immediate critical needs technicians.
- Manufacturing and distribution of equipment, supplies, and parts necessary to maintain production, maintenance, restoration, and service at energy sector facilities (across all energy sector segments).

Electricity industry:

- Workers who maintain, ensure, or restore, or are involved in the development, transportation, fuel procurement, expansion, or operation of the generation, transmission, and distribution of electric power, including call centers, utility workers, engineers, retail electricity, constraint maintenance, and fleet maintenance technicians-who cannot perform their duties remotely.
- Workers at coal mines, production facilities, and those involved in manufacturing, transportation, permitting, operation/maintenance and monitoring at coal sites which is critical to ensuring the reliability of the electrical system.

- Workers who produce, process, ship and handle coal used for power generation and manufacturing.
- Workers needed for safe and secure operations at nuclear generation to include but not limited to, the broader nuclear supply chain, parts to maintain nuclear equipment, fuel manufacturers and fuel components used in the manufacturing of fuel.
- Workers at renewable energy infrastructure (including, but not limited to wind, solar, biomass, hydrogen, geothermal, and/or hydroelectric), including those supporting construction, manufacturing, transportation, permitting, operation/maintenance, monitoring, and logistics.
- Workers at generation, transmission, and electric black start facilities.
- Workers at Reliability Coordinator, Balancing Authorities, and primary and backup Control Centers, including but not limited to independent system operators, regional transmission organizations, and local distribution control centers.
- Mutual assistance personnel which may include workers from outside of the state or local jurisdiction.
- Vegetation management and traffic control for supporting those crews.
- Environmental remediation/monitoring workers limited to immediate critical needs technicians.
- Instrumentation, protection, and control technicians.
- Essential support personnel for electricity operations.
- Generator set support workers such as diesel engineers used in power generation including those providing fuel.

Petroleum industry:

- Workers for onshore and offshore petroleum drilling operations; platform and drilling construction and maintenance; transportation (including helicopter operations), maritime transportation, supply, and dredging operations; maritime navigation; well stimulation, intervention, monitoring, automation and control, extraction, production; processing; waste disposal, and maintenance, construction, and operations.
- Workers for crude oil, petroleum and petroleum product storage and transportation, including pipeline, marine transport, terminals, rail transport, storage facilities and racks and roadtransport for use as end-use fuels such as gasoline, diesel fuel, jet fuel, and heating fuels or feedstocks for chemical manufacturing.
- Petroleum and petroleum product security operations center employees and workers who support maintenance and emergency response services.
- Petroleum and petroleum product operations control rooms/centers and refinery facilities.
- Retail fuel centers such as gas stations and truck stops, and the distribution systems that support them.
- Supporting new and existing construction projects, including, but not limited to, pipeline construction.

Natural Gas, Natural Gas Liquids (NGL), Propane, and other liquid fuels

- Workers who support onshore and offshore drilling operations, platform and drilling construction and maintenance; transportation (including helicopter operations); maritime transportation, supply, and dredging operations; maritime navigation; natural gas and natural gas liquid production, processing, extraction, storage and transportation; well intervention, monitoring, automation and control; waste disposal, and maintenance, construction, and operations.
- Transmission and distribution pipeline workers, including compressor stations and any other required, operations maintenance, construction, and support for natural gas, natural gas liquid, propane, and other liquid fuels.
- Natural gas, propane, natural gas liquids, and other liquid fuel processing plants, including construction, maintenance, and support operations.
- Natural gas processing plants workers, and those that deal with natural gas liquids.
- Workers who staff natural gas, propane, natural gas liquids, and other liquid fuel security operations centers, operations dispatch and control rooms/centers, and emergency response and customer emergencies (including leak calls) operations.
- Drilling, production, processing, refining, and transporting natural gas for use as end-use fuels, feedstocks for

chemical manufacturing, or use in electricity generation.

- Dispatch and control rooms and emergency response and customer emergencies, including propane leak calls.
- Propane gas service maintenance and restoration, including call centers.
- Propane, natural gas liquids, and other liquid fuel distribution centers.
- Propane gas storage, transmission, and distribution centers.
- Supporting new and existing construction projects, including, but not limited to, pipeline construction.
- Ethanol and biofuel production, refining, and distribution.
- Workers in fuel sectors (including, but not limited to nuclear, coal, and gas types and liquid fuels) supporting the mining, manufacturing, logistics, transportation, permitting, operation/maintenance, and monitoring of support for resources.

WATER AND WASTEWATER

Employees needed to operate and maintain drinking water and wastewater/drainage infrastructure, including:

- Operational staff at water authorities.
- Operational staff at community water systems.
- Operational staff at wastewater treatment facilities.
- Workers repairing water and wastewater conveyances and performing required sampling or monitoring, including field staff.
- Operational staff for water distribution and testing.
- Operational staff at wastewater collection facilities.
- Operational staff and technical support for SCADA Control systems.
- Chemical and equipment suppliers to water and wastewater systems and personnel protection.
- Workers who maintain digital systems infrastructure supporting water and wastewater operations.

TRANSPORTATION AND LOGISTICS

- Employees supporting or enabling transportation functions, including truck drivers, bus drivers, dispatchers, maintenance and repair technicians, warehouse workers, truck stop and rest area workers, Department of Motor Vehicle (DMV) employees, towing/recovery services, roadside assistance workers, intermodal transportation personnel, and workers who maintain and inspect infrastructure (including those that require cross-jurisdiction travel).
- Workers supporting the distribution of food, pharmaceuticals (including materials used in radioactive drugs) and other medical materials, fuels, chemicals needed for water or water treatment and energy Maintenance and operation of essential highway infrastructure, including roads, bridges, and tunnels (e.g., traffic operations centers and moveable bridge operators).
- Employees of firms providing services, supplies, and equipment that enable warehouse and operations, including cooling, storing, packaging, and distributing products for wholesale or retail sale or use. Includes cold- and frozen-chain logistics for food and critical biologic products.
- Mass transit workers and providing critical transit services and/or performing critical or routine maintenance to mass transit infrastructure or equipment.
- Employees supporting personal and commercial transportation services – including taxis, delivery services, vehicle rental services, bicycle maintenance and car-sharing services, and transportation network providers.
- Workers responsible for operating and dispatching passenger, commuter and freight trains and maintaining rail infrastructure and equipment.
- Maritime transportation workers, including dredgers, port workers, mariners, ship crewmembers, ship pilots and tug boat operators, equipment operators (to include maintenance and repair, and maritime-specific medical

providers), ship supply, chandler, and repair companies.

- Workers including truck drivers, railroad employees and contractors, maintenance crew, and cleaners supporting transportation of chemicals, hazardous, medical, and waste materials to support critical infrastructure, capabilities, functions, and services, including specialized carriers, crane and rigging industry workers.
- Bus drivers and workers who provide or support intercity, commuter and charter bus service in support of other essential services or functions.
- Automotive repair, maintenance, and transportation equipment manufacturing and distribution facilities (including those who repair and maintain electric vehicle charging stations).
- Transportation safety inspectors, including hazardous material inspectors and accident investigator inspectors.
- Manufacturers and distributors (to include service centers and related operations) of packaging materials, pallets, crates, containers, and other supplies needed to support manufacturing, packaging staging and distribution operations.
- Postal, parcel, courier, last-mile delivery, and shipping and related workers, to include private companies.
- Employees who repair and maintain vehicles, aircraft, rail equipment, marine vessels, bicycles, and the equipment and infrastructure that enables operations that encompass movement of cargo and passengers.
- Air transportation employees, including air traffic controllers and maintenance personnel, ramp workers, aviation and aerospace safety, security, and operations personnel and accident investigations.
- Workers who support the operation, distribution, maintenance, and sanitation, of air transportation for cargo and passengers, including flight crews, maintenance, airport operations, those responsible for cleaning and disinfection, and other on- and off- airport facilities workers.
- Workers supporting transportation via inland waterways such as barge crew, dredging, river port workers for essential goods.
- Workers critical to rental and leasing of vehicles and equipment that facilitate continuity of operations for essential workforces and other essential travel.
- Warehouse operators, including vendors and support personnel critical for business continuity (including HVAC & electrical engineers; security personnel; and janitorial staff) and customer service for essential functions.

PUBLIC WORKS AND INFRASTRUCTURE SUPPORT SERVICES

- Workers who support the operation, inspection, and maintenance of essential public works facilities and operations, including bridges, water and sewer main breaks, fleet maintenance personnel, construction of critical or strategic infrastructure, traffic signal maintenance, emergency location services for buried utilities, maintenance of digital systems infrastructure supporting public works operations, and other emergent issues.
- Workers such as plumbers, electricians, exterminators, builders, contractors, HVAC Technicians, landscapers, and other service providers who provide services that are necessary to maintaining the safety, sanitation, and essential operation of residences, businesses and buildings such as hospitals, senior living facilities, any temporary construction required to support COVID-19 response.
- Workers who support, such as road and line clearing, to ensure the availability of and access to needed facilities, transportation, energy and communications.
- Support to ensure the effective removal, storage, and disposal of residential and commercial solid waste and hazardous waste, including landfill operations.
- Workers who support the operation, inspection, and maintenance of essential dams, locks and levees.
- Workers who support the inspection and maintenance of aids to navigation, and other government provided services that ensure continued maritime commerce.

COMMUNICATIONS AND INFORMATION TECHNOLOGY

Communications:

- Maintenance of communications infrastructure- including privately owned and maintained communication systems- supported by technicians, operators, call -centers, wireline and wireless providers, cable service providers, satellite operations, Internet Exchange Points, Points of Presence, Network Access Points, back haul and front haul facilities, and manufacturers and distributors of communications equipment.
- Government and private sector employees (including government contractors) with work related to undersea cable infrastructure and support facilities, including cable landing sites, beach manhole vaults and covers, submarine cable depots and submarine cable ship facilities.
- Government and private sector employees (including government contractors) supporting Department of Defense internet and communications facilities.
- Workers who support radio, television, and media service, including, but not limited to front-line news reporters, studio, and technicians for newsgathering, and reporting, and publishing news.
- Network Operations staff, engineers and/or technicians to include IT managers and staff, HVAC & electrical engineers, security personnel, software and hardware engineers, and database administrators that manage the network or operate facilities.
- Engineers, technicians and associated personnel responsible for infrastructure construction and restoration, including contractors for construction and engineering of fiber optic cables, buried conduit, small cells, other wireless facilities, and other communications sector-related infrastructure. This includes construction of new facilities and deployment of new technology as these are required to address congestion or customer usage due to unprecedented use of remote services.
- Installation, maintenance and repair technicians that establish, support or repair service as needed.
- Central office personnel to maintain and operate central office, data centers, and other network office facilities, critical support personnel assisting front line employees.
- Customer service and support staff, including managed and professional services as well as remote providers of support to transitioning employees to set up and maintain home offices, who interface with customers to manage or support service environments and security issues, including payroll, billing, fraud, logistics, and troubleshooting.
- Workers providing electronic security, fire, monitoring and life safety services, and to ensure physical security, cleanliness and safety of facilities and personnel, including temporary licensing waivers for security personnel to work in other States of Municipalities.
- Dispatchers involved with service repair and restoration.
- Retail customer service personnel at critical service center locations for onboarding customers, distributing and repairing equipment and addressing customer issues in order to support individuals' remote emergency communications needs, supply chain and logistics personnel to ensure goods and products are on-boarded to provision these front-line employees.
- External Affairs personnel to assist in coordinating with local, state and federal officials to address communications needs supporting COVID-19 response, public safety, and national security.

Information Technology:

- Workers who support command centers, including, but not limited to Network Operations Command Centers, Broadcast Operations Control Centers and Security Operations Command Centers.
- Data center operators, including system administrators, HVAC & electrical engineers, security personnel, IT managers and purchasers, data transfer solutions engineers, software and hardware engineers, and database administrators, for all industries (including financial services).

- Workers who support client service centers, field engineers, and other technicians and workers supporting critical infrastructure, as well as manufacturers and supply chain vendors that provide hardware and software, support services, research and development, and information technology equipment (to include microelectronics and semiconductors), and HVAC and electrical equipment for critical infrastructure, and test labs and certification agencies that qualify such equipment(to include microelectronics, optoelectronics, and semiconductors) for critical infrastructure, including data centers.
- Workers needed to preempt and respond to cyber incidents involving critical infrastructure, including medical facilities, SLTT governments and federal facilities, energy and utilities, and banks and financial institutions, securities/other exchanges, other entities that support the functioning of capital markets, public works, critical manufacturing, food & agricultural production, transportation, and other critical infrastructure categories and personnel, in addition to all cyber defense workers (who can't perform their duties remotely).
- Suppliers, designers, transporters and other workers supporting the manufacture, distribution and provision and construction of essential global, national and local infrastructure for computing services (including cloud computing services and telework capabilities), business infrastructure, financial transactions/services, web-based services, and critical manufacturing.
- Workers supporting communications systems and information technology- and work from home solutions- used by law enforcement, public safety, medical, energy, public works, critical manufacturing, food & agricultural production, financial services, education, and other critical industries and businesses.
- Employees required in person to support Software as a Service businesses that enable remote working, performance of business operations, distance learning, media services, and digital health offerings, or required for technical support crucial for business continuity and connectivity.

OTHER COMMUNITY- OR GOVERNMENT-BASED OPERATIONS AND ESSENTIAL FUNCTIONS

- Workers to ensure continuity of building functions, including but not limited to security and environmental controls (e.g., HVAC), the manufacturing and distribution of the products required for these functions, and the permits and inspections for construction supporting essential infrastructure.
- Elections personnel to include both public and private sector elections support.
- Workers supporting the operations of the judicial system.
- Federal, State, and Local, Tribal, and Territorial employees who support Mission Essential Functions and communications networks.
- Trade Officials (FTA negotiators; international data flow administrators).
- Employees necessary to maintain news and media operations across various media.
- Employees supporting Census 2020.
- Weather forecasters.
- Clergy for essential support.
- Workers who maintain digital systems infrastructure supporting other critical government operations.
- Workers who support necessary credentialing, vetting and licensing operations for critical infrastructure workers.
- Customs and immigration workers who are critical to facilitating trade in support of the national emergency response supply chain.
- Educators supporting public and private K-12 schools, colleges, and universities for purposes of facilitating distance learning or performing other essential functions.
- Staff at government offices who perform title search, notary, and recording services in support of mortgage and real estate services and transactions.

- Residential and commercial real estate services, including settlement services.
- Workers supporting essential maintenance, manufacturing, design, operation, inspection, security, and construction for essential products, services, and supply chain and COVID 19 relief efforts.

CRITICAL MANUFACTURING

- Workers necessary for the manufacturing of metals (including steel and aluminum), industrial minerals, semiconductors, materials and products needed for medical supply chains, and for supply chains associated with transportation, energy, communications, information technology, food and agriculture, chemical manufacturing, nuclear facilities, wood products, commodities used as fuel for power generation facilities, the operation of dams, water and wastewater treatment, processing and reprocessing of solid waste, emergency services, and the defense industrial base. Additionally, workers needed to maintain the continuity of these manufacturing functions and associated supply chains, and workers necessary to maintain a manufacturing operation in warm standby.
- Workers necessary for the manufacturing of materials and products needed to manufacture medical equipment and personal protective equipment (PPE).
- Workers necessary for mining and production of critical minerals, materials and associated essential supply chains, and workers engaged in the manufacture and maintenance of equipment and other infrastructure necessary for mining production and distribution.
- Workers who produce or manufacture parts or equipment that supports continued operations for any essential services and increase in remote workforce (including computing and communication devices, semiconductors, and equipment such as security tools for Security Operations Centers (SOCs) or datacenters).

HAZARDOUS MATERIALS

- Workers who manage hazardous materials associated with any other essential activity, including but not limited to healthcare waste (medical, pharmaceuticals, medical material production), testing operations (laboratories processing test kits), and energy (nuclear facilities) Workers at nuclear facilities, workers managing medical waste, workers managing waste from pharmaceuticals and medical material production, and workers at laboratories processing tests Workers who support hazardous materials response and cleanup.
- Workers who maintain digital systems infrastructure supporting hazardous materials management operations.

FINANCIAL SERVICES

- Workers who are needed to provide, process and maintain systems for processing, verification, and recording of financial transactions and services, including payment, clearing, and settlement; wholesale funding; insurance services; consumer and commercial lending; and capital markets activities).
- Workers who are needed to maintain orderly market operations to ensure the continuity of financial transactions and services.
- Workers who are needed to provide business, commercial, and consumer access to bank and non-bank financial services and lending services, including ATMs, lending and money transmission, and to move currency, checks, securities, and payments (e.g., armored cash carriers).
- Workers who support financial operations and those staffing call centers, such as those staffing data and security operations centers, managing physical security, or providing accounting services.
- Workers supporting production and distribution of debit and credit cards.
- Workers providing electronic point of sale support personnel for essential businesses and workers.

CHEMICAL

- Workers supporting the chemical and industrial gas supply chains, including workers at chemical manufacturing plants, workers in laboratories, workers at distribution facilities, workers who transport basic raw chemical materials to the producers of industrial and consumer goods, including hand sanitizers, food and food additives, pharmaceuticals, paintings and coatings, textiles, building materials, plumbing, electrical, and paper products.
- Workers supporting the safe transportation of chemicals, including those supporting tank truck cleaning facilities and workers who manufacture packaging items.
- Workers supporting the production of protective cleaning and medical solutions, personal protective equipment, disinfectants, fragrances, and packaging that prevents the contamination of food, water, medicine, among others essential.
- Workers supporting the operation and maintenance of facilities (particularly those with high risk chemicals and/ or sites that cannot be shut down) whose work cannot be done remotely and requires the presence of highly trained personnel to ensure safe operations, including plant contract workers who provide inspections.
- Workers who support the production and transportation of chlorine and alkali manufacturing, single-use plastics, and packaging that prevents the contamination or supports the continued manufacture of food, water, medicine, and other essential products, including glass container manufacturing.

DEFENSE INDUSTRIAL BASE

- Workers who support the essential services required to meet national security commitments to the federal government and U.S. Military. These individuals include, but are not limited to, space and aerospace; mechanical and software engineers (various disciplines), manufacturing/production workers; IT support; security staff; security personnel; intelligence support, aircraft and weapon system mechanics and maintainers; and sanitary workers who maintain the hygienic viability of necessary facilities.
- Personnel working for companies, and their subcontractors, who perform under contract or sub-contract to the Department of Defense, as well as personnel at government-owned/contractor- operated and government-owned/government-operated facilities, and who provide materials and services to the Department of Defense, including support for weapon systems, software systems and cybersecurity, defense and intelligence communications and surveillance, space systems and other activities in support of our military, intelligence and space forces.

COMMERCIAL FACILITIES

- Workers who support the supply chain of building materials from production through application/installation, including cabinetry, fixtures, doors, cement, hardware, plumbing, electrical, heating/cooling, refrigeration, appliances, paint/coatings, and employees who provide services that enable repair materials and equipment for essential functions.
- Workers supporting ecommerce through distribution, warehouse, call center facilities, and other essential operational support functions.
- Workers in hardware and building materials stores, consumer electronics, technology and appliances retail, and related merchant wholesalers and distributors - with reduced staff to ensure continued operations.
- Workers distributing, servicing, repairing, installing residential and commercial HVAC systems, boilers, furnaces and other heating, cooling, refrigeration, and ventilation equipment.

RESIDENTIAL/SHELTER FACILITIES AND SERVICES

- Workers in dependent care services, in support of workers in other essential products and services.

- Workers who support food, shelter, and social services, and other necessities of life for needy groups and individuals, including in-need populations and COVID-19 responders (including travelling medical staff).
- Workers in animal shelters.
- Workers responsible for the leasing of residential properties to provide individuals and families with ready access to available housing.
- Workers responsible for handling property management, maintenance, and related service calls who can coordinate the response to emergency "at-home" situations requiring immediate attention, as well as facilitate the reception of deliveries, mail, and other necessary services.
- Workers performing housing construction related activities to ensure additional units can be made available to combat the nation's existing housing supply shortage.
- Workers performing services in support of the elderly and disabled populations who coordinate a variety of services, including health care appointments and activities of daily living.
- Workers supporting the construction of housing, including those supporting government functions related to the building and development process, such as inspections, permitting and plan review services that can be modified to protect the public health, but fundamentally should continue and serve the construction of housing (e.g., allow qualified private third-party inspections in case of government shutdown).

HYGIENE PRODUCTS AND SERVICES

- Workers who produce hygiene products.
- Workers in laundromats, laundry services, and dry cleaners.
- Workers providing personal and household goods repair and maintenance.
- Workers providing disinfection services, for all essential facilities and modes of transportation, and supporting the sanitation of all food manufacturing processes and operations from wholesale to retail.
- Workers necessary for the installation, maintenance, distribution, and manufacturing of water and space heating equipment and its components.
- Support required for continuity of services, including commercial disinfectant services, janitorial/cleaning personnel, and support personnel functions that need freedom of movement to access facilities in support of front-line employees.