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CLEAN TRANSPORTATION WORKS: AN ANALYSIS OF U.S. INVESTMENTS

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October 2025

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Cover Photo Source: Tina Hodges

Executive Summary

The Infrastructure Investment and Jobs Act of 2021 (IIJA) and Inflation Reduction Act of 2022 (IRA) provided unprecedented investments to expand clean transportation options, including investments in electric vehicle (EV) charging infrastructure, public transportation, clean freight, and active transportation (walking and biking).¹

To build a nationwide network of EV charging infrastructure, Congress established the five-year, \$5 billion National Electric Vehicle Infrastructure Program (NEVI). State agencies, most of which had never run an EV charging program, made significant progress on awarding contracts and getting chargers online. By February of 2025, states had obligated² \$526 million and awarded contracts for nearly 4,000 EV charging ports at 990 locations across the country. In addition, Congress provided \$2.5 billion for a competitive Charging and Fueling Infrastructure (CFI) program to fill network gaps and ensure communities were not left behind in access to EV charging. So far, the Department of Transportation (DOT) has awarded \$1.8 billion from the program to 147 projects across the country. The federal investment has also spurred private investment.

As an indicator of progress, nearly 60 percent of the most heavily trafficked highway corridors now have a direct current (DC) fast charging station every 50 miles. Fully implementing the EV charging infrastructure programs would have substantial benefits, including supporting over 17,000 jobs, enabling about \$4-5 million every year in health cost savings, and allowing consumers to save money on fuel and vehicle maintenance from the switch to EVs.

Equally critical to the goal of clean transportation is providing options for people to reach their destinations without having to drive long distances. IIJA expanded funding for public transportation and increased funding for zero- and low-emission transit buses by a factor of ten, enabling awards for over 4,600 transit buses across the country and over 200 bus facilities. DOT received applications for six times as much funding as was available for the Low- and No-Emissions Bus Grants, indicating the program's popularity. In addition, the Environmental Protection Agency (EPA) Clean School Bus Program was able to fund

¹ This report focuses on clean transportation programs under IIJA and a few IRA programs that are targeted at transportation. As such, broader programs such as the Climate Pollution Reduction Grants are not covered in detail but also contribute to clean transportation goals.

² Obligations are the Federal government's legal commitment to pay or reimburse the States or other entities for the Federal share of a project's eligible costs. DOT considers funding obligated when there is a formal funding agreement signed between the federal government and the recipient. Even though most states had awarded contracts at this time, many were not yet formally obligated in the federal system.

approximately 8,500 zero emission school buses, helping kids get to school without having to breathe harmful particulate matter from diesel emissions. The bus replacements are anticipated to result in \$15 to 20 million in annual health savings from cleaner air.

New programs under IIJA and IRA (including the DOT Reducing Truck Emissions at Ports Program, EPA Clean Ports Program, and EPA Clean Heavy-Duty Vehicle Program) have also accelerated clean freight deployment, providing funding for zero-emission vehicles and equipment, including over 2,000 freight trucks, 1,500 units of cargo handling equipment, ten locomotives, 20 vessels, associated charging and fueling infrastructure, and 15 shore power projects. These programs have substantial public benefits, including helping spur \$4.2 billion in private investment in medium- and heavy- duty vehicle manufacturing with 8,500 jobs announced, \$13 to \$17 million in annual health savings from cleaner air, and contributing to the 1,000 percent growth in zero-emission trucks from 2022 to 2024.

While states have long had the flexibility to spend federal transportation funds on walking and biking infrastructure, most states devote less than three percent of their federal funds to this purpose. The new Safe Streets and Roads for All (SS4A) Program and Active Transportation and Infrastructure Investment Program (ATIIP) provided a boost in funding for pedestrian safety projects. Additionally, the new Reconnecting Communities and Neighborhood Access and Equity programs provided funding to reconnect pedestrian networks severed by highways that divided neighborhoods. These investments reduce injuries and deaths, lower congestion and traffic delays, reduce air pollution, improve physical activity, provide better access to public transportation, save money, and support local businesses.

While the clean transportation programs are expected to result in significant benefits, they have not been without challenges. Deployment challenges under the programs included domestic sourcing issues, high upfront costs for some technologies, utility infrastructure upgrade needs, lengthy process requirements, and delays in formally obligating funds. Additionally, many programs were heavily oversubscribed. For example, DOT received applications for 40 times as much funding as was available for ATIIP.

In addition, changes in federal policy threaten the implementation of some of the clean transportation programs. In February 2025, just past the halfway point in the five-year NEVI program, the federal government halted further obligations under the program. Following a lawsuit, the federal government resumed obligating funds in July 2025 for fourteen states that were party to the suit, and for all states after issuing new guidance in August. In addition, Congress rescinded \$369 million in unobligated funds from the EPA Clean Heavy Duty Vehicle Program. Congress also rescinded \$2.7 billion in funding for the Neighborhood Access and Equity Program, which had been competitively awarded to communities but not

yet formally obligated, disappointing local governments that had spent considerable time and energy on proposals.

In sum, federal funding from IIJA and IRA boosted clean transportation deployment with wide ranging public benefits which will continue to accrue as more charging stations, zero-emission vehicles, and pedestrian safety projects come online. The impact on economic development has been particularly high, with these programs contributing to \$4.6 billion in domestic manufacturing investments and over 14,400 jobs in domestic manufacturing. Experiences with the IIJA and IRA programs provide lessons learned that can inform future efforts. These include lessons learned on program design, administration, and permitting (Table 1). Finally, capacity building is critical. The technical assistance that the federal Joint Office of Energy and Transportation (JOET) provided, and the partnerships built between state energy offices, transportation agencies, utilities, and the private sector have left key parties with much greater experience and expertise, laying the groundwork for future success.

Table 1: Lessons Learned from IIJA and IRA Clean Transportation Programs

Applicable Entity ● Federal Government ● State Government ● Local Government
● Utilities and Utility Commissions

Lesson Learned	
● ●	Ensure utilities provide maps to transportation agencies and the public on locations of existing high power electricity capacity for use in siting EV charging stations.
● ●	Provide model zoning ordinances for EV charging.
● ●	Streamline administrative processes, including reducing the number of decision points and requiring shorter deadlines for program deployment and contracting,
●	Expand eligibility for micromobility in federal transit grant programs.
●	Explore program design methods to improve efficiency, including capping subsidy amounts per vehicle and requiring purchase of base models to reduce costly customization.
●	Simplify solicitations and application requirements for competitive grants.
● ● ●	Allow for and encourage for programmatic approvals rather than project by project approvals in planning processes and environmental reviews.
●	Consider program design that better leverages private sector engagement, such as by allowing for grant funds to subsidize fleet charging depots rather than requiring that all charging be publicly available.
●	Dedicated funding programs for state DOTs to deploy clean transportation strategies resulted in greater deployment of these strategies, which had been eligible under broad programs, but not much deployed under those programs.

Electric Vehicle Charging Infrastructure



Ribbon cutting at NEVI-funded EV charging station in Kentucky.

Source: Kentucky Transportation Cabinet [1]

Key Takeaways

- In November 2021, Congress established two major federal funding programs to build a nationwide network for electric vehicle (EV) charging—the National Electric Vehicle Infrastructure Program (NEVI) and the Charging and Fueling Infrastructure (CFI) program, which collectively provide \$7.5 billion over five years.
- After developing EV charging infrastructure deployment plans, state agencies made significant progress on awarding contracts and getting chargers online (see Figure 1 and Figure 3), which required building significant new administrative and technical capacity. As of November 2024, 59 percent of the most heavily trafficked highway corridors have a direct current (DC) fast charging station at least every 50 miles, up from only 38 percent in 2020.
- Just past the halfway point in the program, when most states had selected contractors and chargers were rapidly coming online, the federal government

halted obligations³ under the programs, until August 2025 when it issued new guidance. This created uncertainty and slowed progress, just as these programs were gaining momentum.

- Fully implementing the programs would have substantial benefits, including ensuring nationwide availability of reliable and convenient chargers, supporting over 17,000 jobs, enabling about \$4-5 million every year in health cost savings, and allowing consumers to save money on fuel and vehicle maintenance from the switch to EVs (see Figure 2).
- Lessons learned from challenges in early deployment can help accelerate progress.

Figure 1: Federally Funded Charging Deployment Metrics (as of June 2025)

National Electric Vehicle Infrastructure (NEVI)	\$526 million Total Obligated	3,932 Fast Chargers Awarded	370 Fast Chargers Open
		990 Stations Awarded	84 Stations Open
Charging and Fueling Infrastructure (CFI)	\$215 Million Total Obligated	\$1.8 Billion Funding Awarded	96+ Chargers Open
		147 Projects Awarded	5+ Stations Open

Source: EV States Clearinghouse [2], Climate Program Portal [3], FHWA [4]

³ Obligations are the federal government’s legal commitment to pay or reimburse the States or other entities for the Federal share of a project’s eligible costs. The Department of Transportation (DOT) considers funding obligated when there is a formal funding agreement signed between the federal government and the recipient. Even though most states had awarded contracts at this time, many were not yet formally obligated in the federal system.

Figure 2: Potential Federal Charging Investment Benefits



Source: Various – see section on Progress Towards Key Outcomes

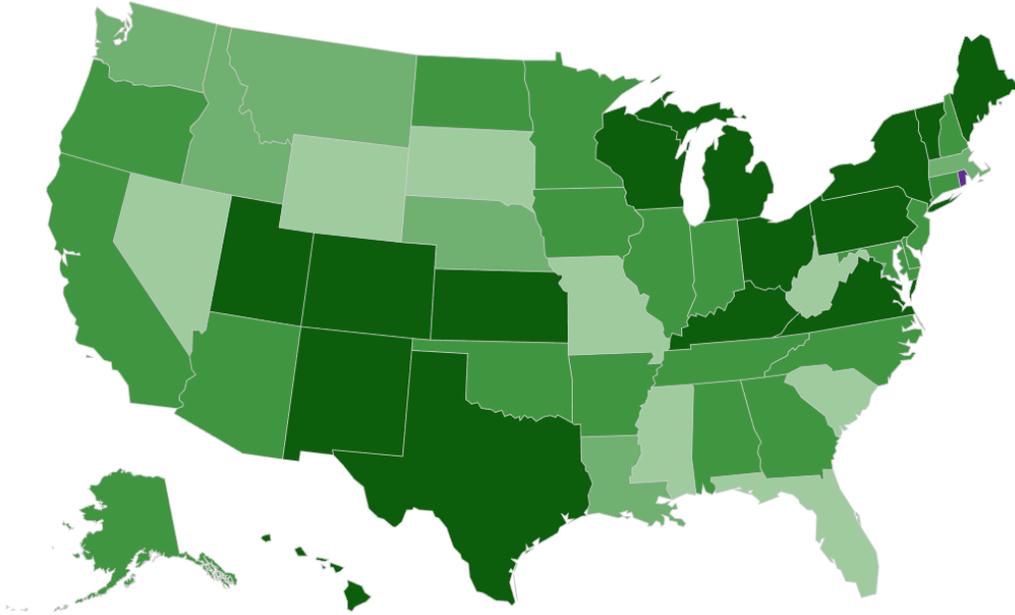
Program Implementation Status

The Infrastructure Investment and Jobs Act (IIJA) of 2021 established two major programs to build out a national network of EV chargers. NEVI is a \$5 billion program that provides formula funding to states to strategically deploy EV charging stations along priority highway corridors. The CFI program complements NEVI by providing \$2.5 billion in competitive funding for two categories of projects 1) community charging: to deploy public EV chargers within communities accessible to those without private chargers at home; and 2) corridor charging: to fill key gaps in national corridors. CFI also includes eligibility for fueling infrastructure for hydrogen, natural gas, and propane vehicles. Both of these programs target key geographic gaps in the U.S. charging network along key highways and in communities.

The NEVI program made substantial progress since its establishment by Congress in November 2021, considering most state departments of transportation (DOTs) did not have experience with electric vehicle charging programs. **All 50 states, the District of Columbia, and Puerto Rico developed state plans for EV charging deployment under the program. By January 2025, at least 44 states issued one or more solicitations for contractors to install charging stations** (Figure 3). NEVI funding is released to states on a yearly basis after their deployment plans are updated and approved by the Federal Highway Administration (FHWA), so many states structured their award process as multiple rounds of solicitations.

Figure 3: Progress Towards Implementing NEVI (as of June 2025)

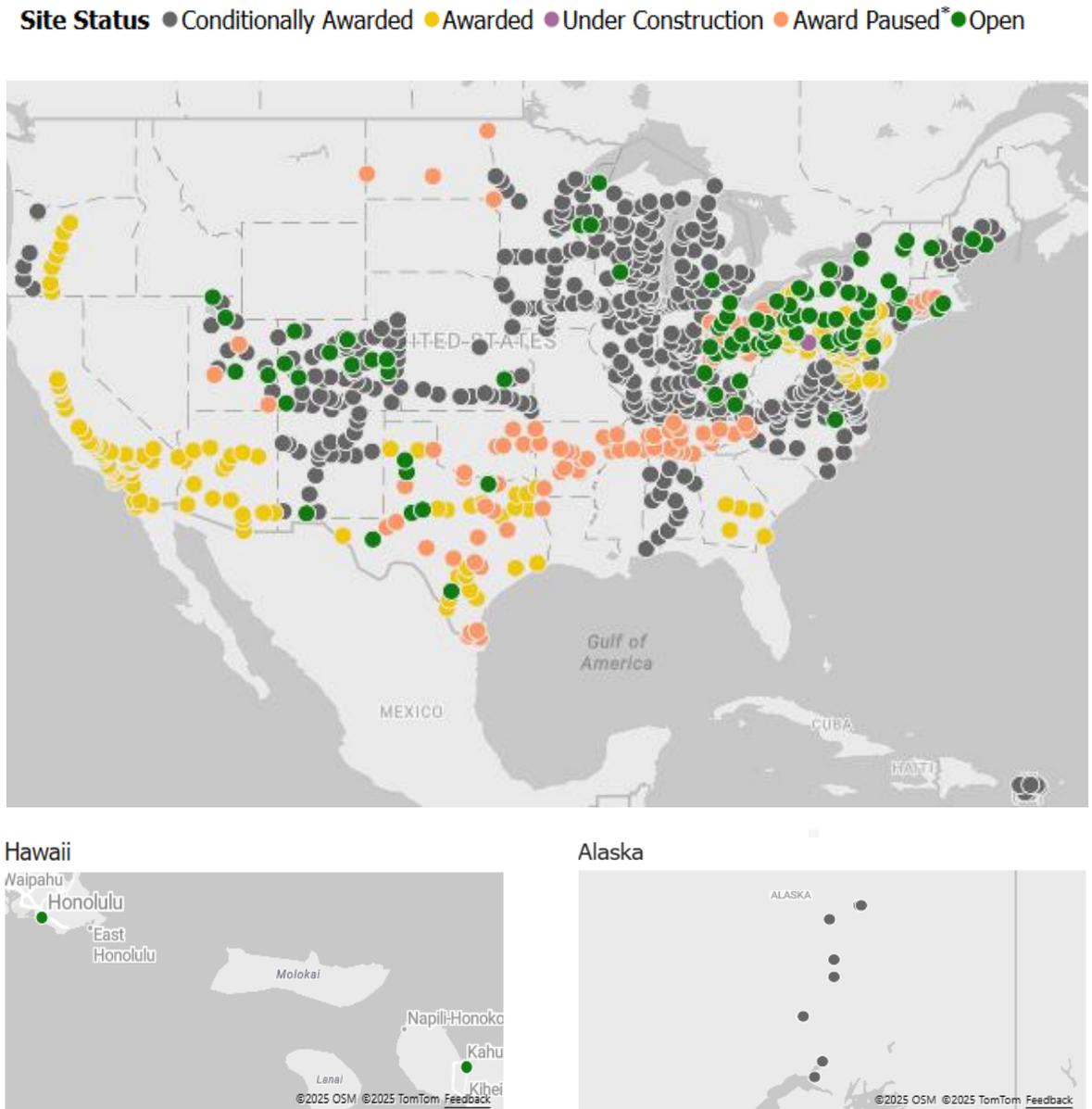
State Status ● FY25 Plan Approved* ● Solicitation Issued ● Awards Announced ● Some Stations Operational ● Fully Built Out



*All states had fiscal year 2025 plans approved. As of October 2025, all but four states (Florida, South Dakota, West Virginia, and Wyoming) had fiscal year 2026 plans approved under new FHWA guidance issued in August 2025. Source: EV States Clearinghouse [2]

As of June 2025, 48 states obligated funds totaling \$526 million [4]. **States have so far awarded contracts for 3,932 DC fast charger ports at 990 sites across the country. Already, 370 NEVI-funded fast chargers are now open and in operation at 84 locations across the country** according to the EV States Clearinghouse (see Figure 4). Average federal funding per charging port was \$137,000 and average total cost per charging port was \$188,000 [2]. NEVI funds require a 20 percent non-federal share, meaning federal funds can cover up to 80 percent of project costs [5].

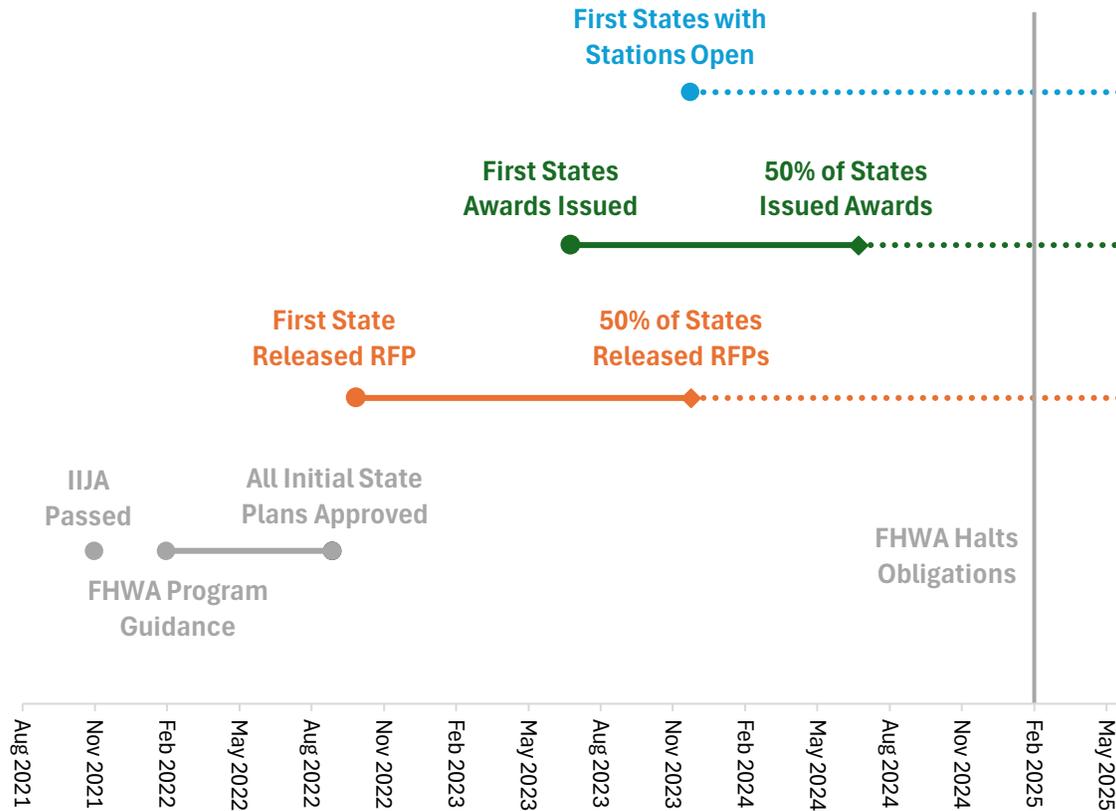
Figure 4: NEVI Funded Charging Sites (as of August 2025)



*Some states paused awards in 2025 to await new FHWA guidance.

Source: EV States Clearinghouse [2]

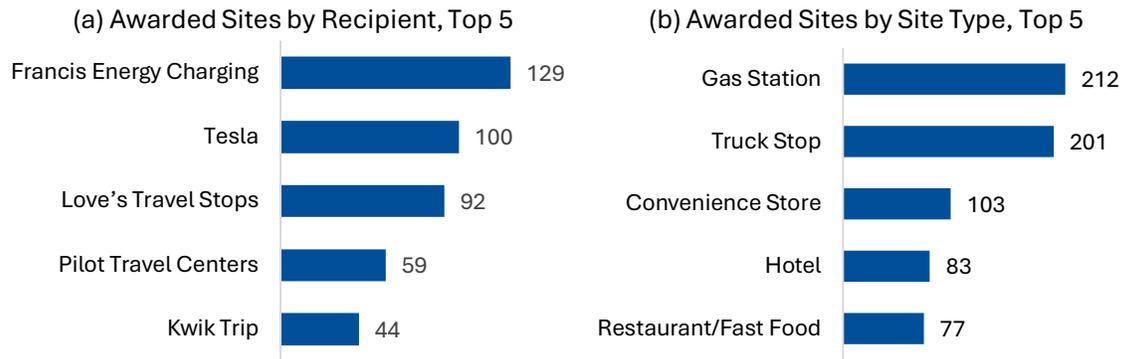
Figure 5: Federal and State NEVI Implementation Milestones (as of June 2025)



Source: Atlas analysis of EV States Clearinghouse [2] data

In most states, the state DOT receiving NEVI funding holds a competitive process to award contracts to builders. Among the top five award recipients so far, one is a company dedicated to EV charging, three are travel centers, and one is an automaker (Figure 6). These developers are building at a variety of sites—most of the awarded charging stations are at either gas stations, truck stops, or convenience stores, but hotels, restaurants, retail, and grocery stores also make up a significant number.

Figure 6: NEVI Awarded Sites by Recipient and Site Type (as of June 2025)



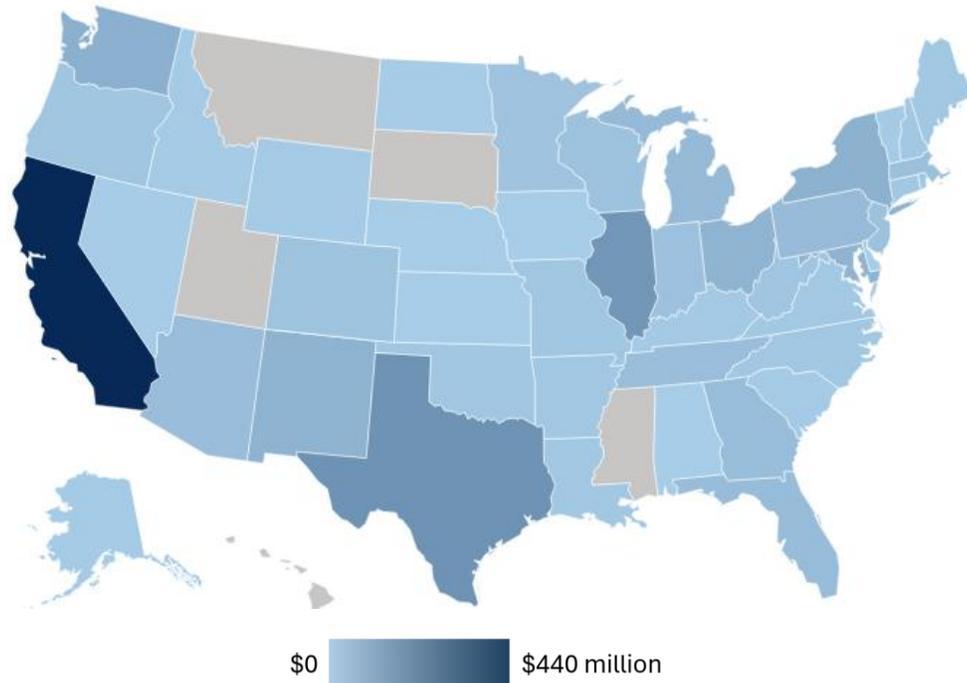
Source: EV States Clearinghouse [2]

In addition to NEVI, **the CFI program has awarded \$1.8 billion in competitive grants under three rounds of competition to 147 projects** (see Figure 7). \$1.3 billion and 126 projects are for community charging while \$500 million and 21 projects are for corridor charging [3]. **So far, at least 96 ports across five stations in Washington, Massachusetts, and Maine have opened with CFI funding** as of June 2025⁴ [6] [7] [8].

As of May 2025, **charging stations built from the NEVI and CFI programs combined have supported about 126,000 charging sessions and have powered about 14 million miles for U.S. EV drivers** [9].

⁴ Note that this is likely an undercount as JOET has not reported CFI funded station openings since January 2025.

Figure 7: CFI Funding Awarded by State



Source: Atlas Climate Program Portal [3], as of June 30, 2025

Several other federal programs include eligibility for EV chargers,⁵ including the large formula programs under which most federal highway funding is disbursed (\$148 billion National Highway Performance Program and Surface Transportation Block Grant Program) along with the smaller more focused programs such as the Carbon Reduction Program and Congestion Mitigation and Air Quality (CMAQ) program. About \$60 million of funding from CMAQ has gone to projects related to EV charging since 2021 (about one percent of the total).⁶ There are no data available on how much funding from the other programs has been dedicated to EV chargers. The number is likely low, based on interviews with state DOTs. As such, one of the benefits of having a dedicated funding program for state DOTs to deploy EV charging infrastructure is that it resulted in state DOTs actually deploying EV charging infrastructure, which they had not done much of before, even though they were eligible.

⁵ The full list of programs is available at from the Rural EV Toolkit [210].

⁶ Atlas calculations of data from the CMAQ Public Access System [213], including only approved projects.

Progress Towards Key Outcomes

The federal support for EV charging network deployment has filled geographic gaps, spurred private investment and job creation, and reduced pollution. The new regulations for federally funded chargers set a common set of expectations for convenient and reliable charging nationwide.

Nationwide Charging Network

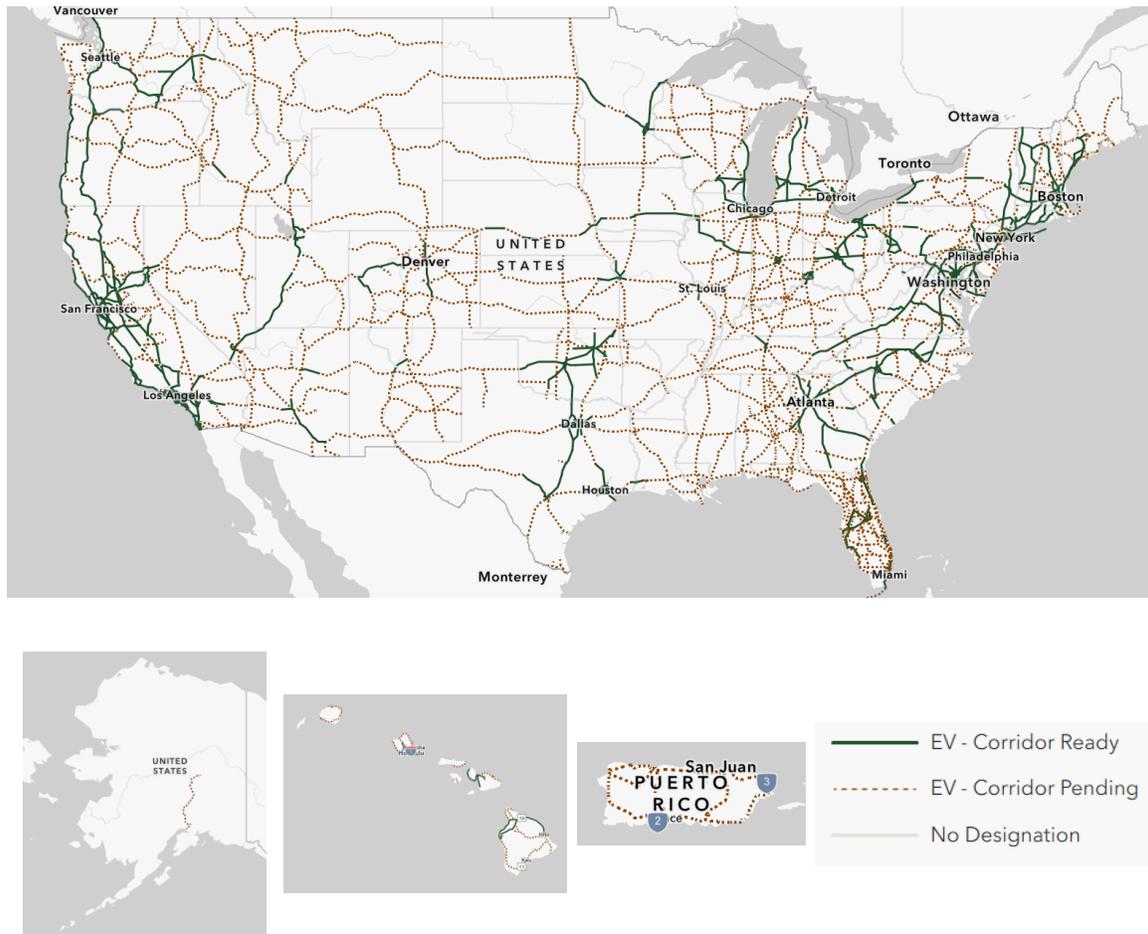
Filling geographic gaps in EV charging infrastructure, both along highways and in communities, is a central goal of federal charging programs. While private companies such as Walmart [10], Ionna [11] and Electrify America [12] have been ramping up deployment outside of federal programs, these investments are concentrated in commercial hubs that promise high returns on investment [13]. Apartment renters without access to private charging, rural areas, and low-income communities are often left unserved. As such, public investment is needed to fill these gaps and ensure drivers in every part of the country have access to a national charging network.

Federal programs have made significant progress towards this goal. **As of November 2024, 59 percent of the most heavily trafficked highway corridors have a DC fast charging station at least every 50 miles, up from only 38 percent in 2020** (see Figure 8).⁷ Prior to the halting of NEVI and CFI funds [14], the Joint Office of Energy and Transportation (JOET) estimated that by the end of 2025, 70 percent of those corridors would be fully built out [6], but that milestone will likely occur later now.

NEVI program guidance specified that states should prioritize interstates, major highways, and corridors identified as electric vehicle corridors under FHWA's Alternative Fuel Corridors (AFC) Identification Program [15] [16]. Charging stations along EV corridors must have DC fast chargers with at least 150-kilowatt capacity, be spaced no more than 50 miles apart (located within one mile of the corridor), and have at least four charging ports. Once the FHWA certifies that all of a state's AFCs are fully built out – i.e., have coverage every 50 miles as described above – states are free to use NEVI funding for other locations.

⁷ “Heavily trafficked corridors” refers to designated electric AFCs for Round 1-7 [16], and percentage is based on the count of AFCs. Any data discrepancies that affect the Alternative Fuels Data Center (AFDC) station counts may also affect this analysis. Analysis includes existing stations further than one mile from the corridor but with approved discretionary exceptions to the 1-mile rule. All stations are required to have 4 CCS ports with 150kW+ but other requirements are not evaluated. Due to reduced staffing, the Joint Office was not able to provide updated analysis. Coverage will also change as more EVs support the J3400 charging standard.

Figure 8: Build-Out of FHWA Designated EV Alternative Fuel Corridors



Solid green lines indicate corridors with EV fast chargers every 50 miles. Dashed lines indicate priority corridors that do not yet meet that standard.

Source: FHWA Alternative Fuel Corridors HEPGIS [17]

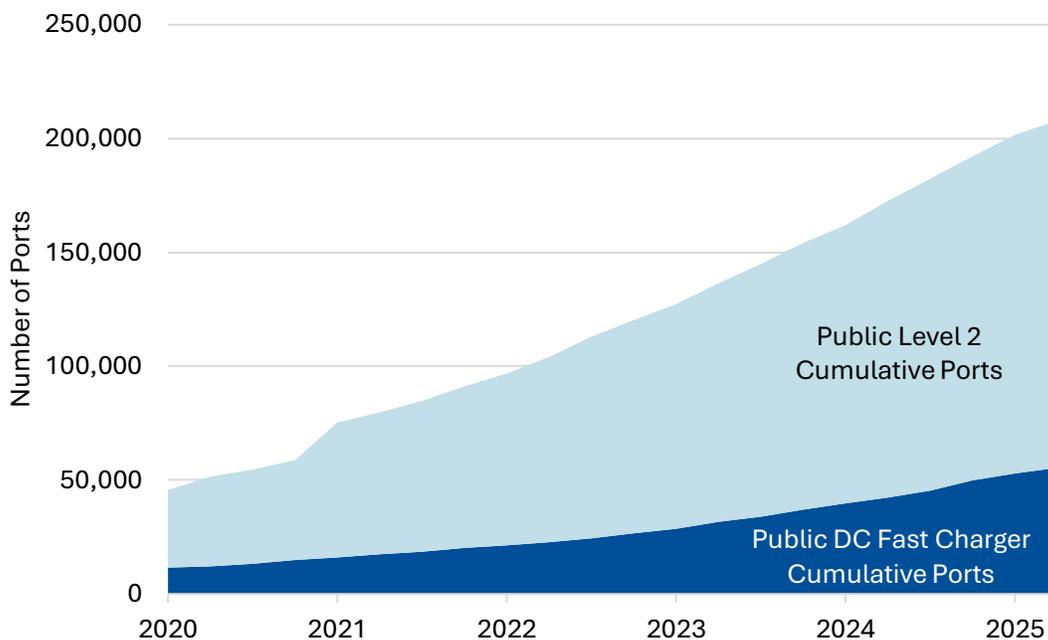
These standards are intended to create predictability for drivers, so they need not worry about running out of charge. The range for an average EV is 260 miles, while some higher end EVs have ranges of 400 miles or more [18]. As such, they could manage even some of the larger gaps in the network, such as the 206-mile gap in South Dakota from Chamberlain to Rapid City, but would need to plan charging stops carefully.

Reliable nationwide charging for freight trucking is also a goal for the federal programs. CFI awards include several truck charging stations to enable the build out of the electric freight corridors envisioned in the National Zero Emission Freight Corridor Strategy [19]. As an example, a \$102 million CFI project on the West Coast will support 34 charging stations and

five hydrogen fueling stations for zero-emission medium- and heavy-duty vehicles along 2,500 miles of key freight corridors in California, Oregon, and Washington.

The federal investment in EV charging is spurring additional EV sales and private investment in EVs and EV charging. The EV sales market share more than doubled from 4.2 percent in 2021 to 9.8 percent in 2024. **Between 2021 and the first quarter of 2025, the total number of public EV charging ports nearly tripled from 75,000 to 208,000 [20].**

Figure 9: Cumulative Number of Public EV Charging Ports in the United States (as of June 2025)



Source: Atlas EV Hub [20]

Charging deployment needs to continue accelerating, particularly for fast chargers. According to a National Renewable Energy Laboratory (NREL) analysis, in a mid-adoption scenario of 55 percent EV sales in 2030, about 182,000 public fast charging ports will be needed [21], compared to about 55,000 fast chargers in operation today [20]. While most charging will continue to take place at Level 2 chargers at homes and workplaces, the availability of public fast chargers is critical to allow Americans to travel long distances with the same vehicle that they use for daily, in-town use.

Box 1. Spotlight: New Mexico CFI Awards Provide Coverage in a Variety of Areas

New Mexico received a CFI award to develop a variety of charging projects. One award will create two medium- and heavy-duty vehicle charging stations to fuel the freight corridor from southern California to El Paso, Texas. The two other awards will be used for community charging projects, including sites in underserved communities, at multi-family housing, and at community buildings. Altogether, these projects support a robust New Mexico charging network and are injecting \$84 million of public and private investment throughout the state [22].

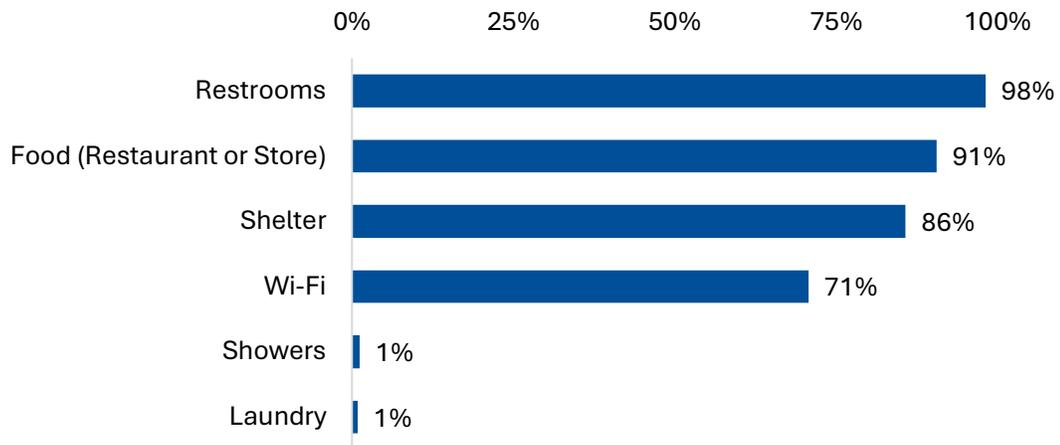
Convenience and Reliability

Federal charger funding aims to enable EV drivers to drive with the confidence that they can access EV chargers easily, safely, and conveniently, removing a major market barrier to EV deployment.

Towards these goals, FHWA issued regulations [23] requiring federally funded EV chargers to have a 97 percent uptime, offer standardized connectors, and accept common payment methods – all of which to make the refueling experience as predictable as possible. They are also required to share data in standardized formats to make it possible to create mobile applications that help drivers identify charger locations and availability. While these requirements created some additional upfront challenges for program implementation, there were previously no nationwide charging standards in the United States. Prior to these standards, there could be wide disparities in service between states and between individual charging stations.

Additionally, some state requests for proposals – including Colorado [24], Pennsylvania [25], Alaska [26], and others – included criteria to encourage siting of EV chargers near amenities to improve convenience and experience for drivers. Figure 10 shows the number of NEVI-awarded sites with amenities such as shelter, restrooms, food, and Wi-Fi where that data is available. Twenty-six sites also have battery storage which can further improve charger reliability and affordability.

Figure 10: Percent of NEVI Awarded Charging Stations with Each Site Amenity Available (as of June 2025)



Only includes stations where amenities are known.

Source: EV States Clearinghouse [2]

Box 2. Spotlight: Washington and Massachusetts Charging Projects Leverage Co-Location with Community Facilities and Amenities

One of the first completed charging stations using CFI funds opened in September 2024 in Mount Vernon, Washington. With 76 charging ports, it is the largest municipally owned charging station in the country. Leveraging a \$12.5 million CFI award along with state and city funding, the City of Mount Vernon was able to create a mixed-use hub with a library, conference center, electric bike charging, transit stop, and other amenities [7].

A CFI-funded charging station in Deerfield, Massachusetts, provides another example of siting and design to ensure convenience. The town's project, in a public parking lot near many amenities, installed four DC fast chargers to serve drivers who need a quick charge and four Level 2 chargers to serve those visiting nearby tourist attractions. Site design prioritized pedestrian access upgrades to encourage walkability and connectedness to local attractions [8].

Private Investment and Job Creation

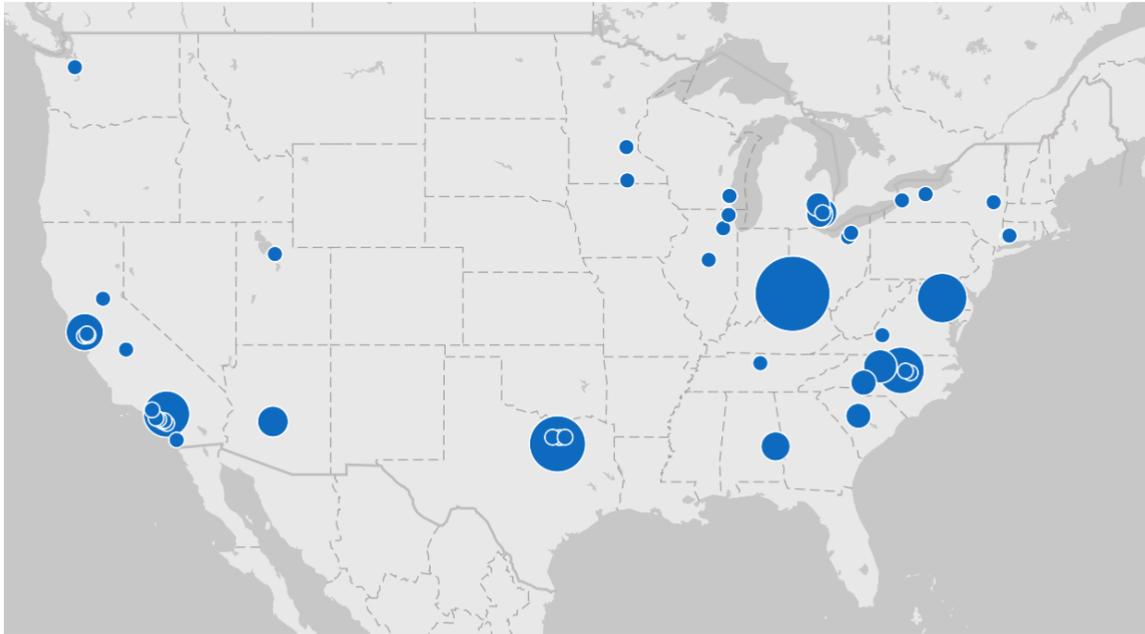
Deploying EV charging infrastructure creates new jobs in electrical installation, maintenance and repair, charger assembly, general construction, software, planning and design, and administration. **If all funding from the NEVI and CFI programs is spent, the construction and maintenance of the EV charging infrastructure could create an estimated 11,200 jobs.**⁸

In addition to the NEVI and CFI programs, the Alternative Fuel Vehicle Refueling Property Credit (30C) provided incentives for charging facilities in certain communities. This credit sunsets June 30, 2026. Under the credit, organizations could claim a significantly higher credit (defraying up to 30 percent of the investment) for projects that meet prevailing wage and apprenticeship requirements [27], ensuring that the projects create high-quality jobs.

Additionally, IIJA funding for charging infrastructure is spurring new investment and jobs in the domestic charging equipment supply chain. **As of June 2025, the private sector has announced about \$426 million in investment for U.S.-based charger manufacturing. These announcements could create an estimated 5,900 manufacturing jobs** (see Figure 11) [28].

⁸ This estimate was developed using analysis of average funding per charging port from EV States Clearinghouse [2] and analysis of jobs created per DC fast charger from the International Council on Clean Transportation (ICCT) [214], assuming that all NEVI funding spent on fast chargers and half of CFI funding goes to fast chargers while the other half goes to Level 2 chargers.

Figure 11: Domestic Manufacturing Investments for Electric Vehicle Charging Equipment (as of June 2025)



The size of the circle represents the relative size of the investment.

Source: Clean Economy Tracker [28]

These investments also provide opportunities for economic development around the new charging sites, including in rural areas along corridors that would not historically be a key waypoint for travelers.

Box 3. Spotlight: Local Business in Happy, Texas Takes Advantage of NEVI Opportunity

The first NEVI-funded charging station in Texas opened in the small town of Happy, TX, (population 600) on November 26, 2024. Happy, TX, is situated along Interstate 27 between Lubbock and Amarillo in a very rural area with few services. In issuing requests for proposals, most state DOTs provided bidders with maps showing broad geographic areas where chargers were needed. Applicants then found local partners in these areas such as gas stations, restaurants, and retail to host the charging stations. In the case of Happy, TX, Impower Connection, a company that installs EV charging stations, partnered with the Lunch Box Café [29]. According to the Texas DOT, the owner of the Lunch Box Café saw getting EV fast chargers as a good business opportunity to draw in visitors travelling between Lubbock and Amarillo who might like a bite to eat while they wait twenty minutes or so for their EV to charge.



Photo Source: Texas Department of Transportation [30]

Pollution Reduction and Health Benefits

Expanding the nationwide charging network makes it easier for Americans to make the switch to EVs, which in turn reduces air pollution in communities. If all the funding for NEVI and CFI is spent, it could support enough EVs to eliminate up to about two tons of particulate matter emissions, 29 tons of nitrogen oxides (NO_x) emissions, half of a ton of sulfur dioxide (SO₂) emissions, and 95 tons of volatile organic compounds every year. **These improvements in air quality could lead to between \$3.6 million and \$5.2 million in**

health cost savings per year across the country.⁹ Further, about one-third of the planned NEVI sites so far will be located in disadvantaged communities [2] many of which have been historically burdened by air pollution from transportation. **According to the American Lung Association, 100% passenger EV sales by 2035 (supported by a built-out national charging network) would lead to about \$978 billion in public health benefits, 89,300 premature deaths avoided, and 10.7 million lost work days avoided cumulatively through 2050**, when coupled with a clean grid [31]. Transitioning non-passenger vehicles to EVs as well will yield even greater health savings.

In particular, the CFI program is helping reduce concentrated air pollution in some of the communities suffering from the worst local air quality. For example, the Northwest Seaport Alliance received \$12 million to build out a charging network supporting the ports of Seattle and Tacoma [32]. This project is expected to reduce pollution from hundreds of diesel trucks operating near communities historically burdened by pollution from ports and freight corridors.

Cost Savings for Consumers

Even with the elimination of the federal tax credit for EVs, some EV models retain a total cost of ownership advantage over their gasoline equivalents, meaning that savings from lower fuel and maintenance costs outweigh the higher upfront purchase price over a typical seven-year ownership period [33]. A dependable nationwide charging network is a critical enabler for drivers to make the switch and realize these savings.

Deployment Challenges

Several challenges delayed or limited program implementation, some of which were due to the program structure and some due to broader market and policy factors. Understanding and proactively addressing these issues going forward can make future deployment faster and more cost-effective.

The following challenges are specific to deployment funded by the NEVI and/or CFI programs.

- **Lack of State Capacity:** NEVI was modeled after historical formula-based funding programs, but most state DOTs had little to no experience with an emerging technology like EV charging and lack of capacity at state agencies became a major

⁹ Atlas calculations, using the Argonne National Laboratory Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool [208] and the EPA's CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) [209].

roadblock early on. At most DOTs, there was a single point of contact working part time on the complex implementation process for NEVI. As a result, states that already had existing EV studies or plans—such as Ohio [34] and Pennsylvania [35]—were more successful early on. There was also limited capacity for states or localities to prepare applications for the discretionary CFI program—especially for bids they might not win for relatively small amounts of funding—so applicants with more resources or who could hire contractors were often more successful. Compared to a formula program, however, that upfront planning work for the application allowed those states that did apply to be more prepared for construction as soon as they got the funding.

- **Sourcing Challenges:** Both NEVI and CFI are subject to Build America Buy America (BABA) requirements, which require that federally funded projects have a certain percentage of content from domestic sources and be manufactured in the United States. The intent was to spur domestic manufacturing, but a side effect was supply chain bottlenecks for U.S.-manufactured chargers. In February 2023, FHWA issued a temporary waiver for BABA requirements for EV chargers, which then phased out starting July 1, 2024 [36]. A study by the National Cooperative Highway Research Program (NCHRP) found that many state agencies consider BABA requirements one of their biggest challenges to EV charging implementation [37].
- **Reporting and Compliance:** The NEVI program had specific, strict reporting requirements for charger uptime, energy dispensed, prices, and other metrics. Some states found that EV charging contractors and site hosts did not fully understand their compliance requirements at the start of the application process, which led to delays or awardees pulling out. Some states mitigated this by engaging with these stakeholders early on and providing contract terms up front with clear expectations [38]. This is especially true for Level 2 charging projects with smaller budgets—at least one state found that for Level 2 charging projects under CFI, some site hosts opted out because the small grant for a Level 2 charger was not worth the high level of requirements. As such, future funding could require a lower level of reporting requirements for Level 2 chargers than for DC fast chargers.
- **Lengthy Timeframes:** The structure of the NEVI program meant that several steps were required. First FHWA issued guidance, then states submitted plans which FHWA had to review and approve. Next, states issued requests for proposals, evaluated proposals, and awarded contracts. Afterwards, contractors began construction. Each step took time and arguably could have been completed faster. Figure 5 shows steady progress, but also opportunities for reducing timelines. For

instance, if shorter deadlines were set and plans focused only on the basics, perhaps the timeframe for plan development could have been reduced from six months to three, and the time for approvals could have been reduced from two months to one. Additionally, the proposal selection process at the state level could have been treated with more urgency and fewer layers of review. The average time from issuance of request for proposals to announcements of awarded contracts was 7.5 months for states under the NEVI program [2]. However, that timeframe ranged from 3.7 months for the fastest state (Kentucky) to 18.5 months [2] for the slowest state, indicating that some states could reduce the timeframe closer to those of the faster states. Some delays were likely because this was a new program and there was limited capacity at the state agencies.

- **Inclusion in Planning Documents:** Projects receiving federal funds must be in the state or metropolitan transportation improvement program (STIP/TIP). Most states included their entire NEVI allocation as one project in the STIP/TIP to speed delivery. One state shared that their FHWA division office did not allow them to take this approach. As such, they had to place each charging station as a separate project on the docket for inclusion in the TIP, requiring a separate hearing and delaying deployment for months.
- **Delays in CFI grant obligations:** After FHWA competitively selected projects under CFI and announced awards, it still took several months to develop and sign the grant agreements for each project. This pushed out the timeline for construction starting. FHWA does not consider funds obligated until the grant agreements are signed. While FHWA awarded \$1.8 million in CFI funds, only \$215 million worth of funds were obligated when the new Administration started and FHWA has not signed any CFI grant agreements since that date. The delays are a blow to communities such as Tualatin, Oregon, which partnered with 16 other cities on a \$15 million grant to install up to 500 Level 2 networked chargers at multifamily housing properties and public facilities. The grant agreement was nearing completion but did not receive final signatures before FHWA halted obligations.
- **Application process burdensome:** Applying for the competitive CFI grants was challenging for communities without access to staff or contract grant writers and without experience in EV charging infrastructure. Several non-profit organizations assisted under-resourced communities in applying for grants. They noted that the notice of funding opportunity could have been more concise and the required information for the application could have been streamlined. In addition, applicants

were not able to receive debriefs on failed applications before the next cycle of applications were due.

In addition to program-specific challenges, the following are challenges to deployment of EV charging infrastructure broadly, not necessarily tied to federal funding.

- **Utility Infrastructure:** Energizing new high-powered charging sites may require utility infrastructure upgrades, which can take up to two years [39]. Additionally, supply chain bottlenecks for transformers have intensified in recent years – if a site requires a transformer upgrade, the project could face a wait time of two years or longer for that equipment alone [40]. Some state agencies report that the delays and high costs associated with interconnection are some of the most persistent roadblocks to charger deployment [38]. Some states found that proactively engaging with utilities helped avoid downstream costs and delays [38]. For example, Hawai'i engaged utilities early on in its NEVI planning process to identify the most suitable locations from a grid perspective [41]. Ohio included access to Phase 3 power¹⁰ as a vetting factor for screening NEVI applications. A highly successful strategy for overcoming this challenge is ensuring utilities provide maps to transportation agencies (and to the broader public) on locations of existing high power electricity capacity for use in siting EV charging stations. Several state legislatures and utility commissions have instituted these requirements and some utilities have provided maps on their own volition. Fifty-eight utilities in 26 states now provide some form of hosting capacity map. Still, with approximately 3,000 distribution utility companies in the United States, the majority of the country remains without this resource [42].
- **Permitting:** Most permitting and all zoning requirements for charging stations are set at the local (and sometimes state) level rather than the federal level, which creates challenges for building out a national charging network. Local authorities may not have the capacity to handle a large influx of charging station applications, and a patchwork of different requirements means there is no one-size-fits-all approach for developers. Some states have already taken steps to help local governments adopt best practices and streamline their processes, including by providing model zoning ordinances clarifying that chargers are an accessory use and that charging spaces count towards minimum parking requirements [43]. At the federal level, the National Environmental Policy Act (NEPA) requires projects receiving federal funding to assess environmental impacts. DOT adopted the U.S.

¹⁰ The type of power needed to handle varied and heavy electricity demands.

Department of Energy (DOE) categorical exclusion for EV charging stations to allow these projects to advance more rapidly. A strategy that Maine employed to speed project delivery was to follow the conditions for the categorical exclusion in their NEVI plan, enabling them to obligate the full amount of funding for the fiscal year even before contracting for charging station construction.¹¹ In contrast, most other states did not obligate funding until after contract award.

Impacts to Program Implementation from Changing Federal Policy

Changes to federal policy since the January 21, 2025 change in Administration have caused considerable delays in and uncertainty with the implementation of federal EV charging deployment programs. New obligations of NEVI funds were frozen for six months, significantly disrupting and delaying progress. In addition, the new Administration has not obligated any CFI funds, including for projects that were competitively selected and announced but did not yet have formal grant agreements signed.

In February 2025, FHWA revoked the NEVI program guidance and rescinded approvals of all state NEVI plans [14]. FHWA halted further obligations¹² under the NEVI program, but allowed already obligated projects to proceed.

In May 7th, 2025, a coalition of 17 states¹³ sued the Trump Administration for halting NEVI funding [44]. On May 22, 2025, the Government Accountability Office (GAO), an investigative arm of the legislative branch, found that “DOT is not authorized to withhold these funds from expenditure and DOT must continue to carry out the statutory requirements of the program” [45]. On June 24, 2025, a federal judge issued a preliminary injunction ordering FHWA to unfreeze funding to 14 of the states. According to FHWA staff, the agency resumed obligating funds for those 14 states in response to the judge’s order. .

On August 11th, FHWA issued new guidance which took effect immediately. [46] The guidance requires states to submit plans within 30 days. After FHWA approves the plans,

¹¹ In many cases, a state DOT cannot obligate federal funds until NEPA is cleared. A project only qualifies for a categorical exclusion under NEPA if it meets all the criteria. As such, determining up front that Maine would only fund projects that met the categorical exclusion criteria enabled Maine to obligate all funding for the entire fiscal year even before contracts were awarded. In contrast, states that did not follow this approach waited until after contract award and were much more affected by the freeze on obligations.

¹² Obligated funds are those for which FHWA and the state have already signed a formal funding agreement.

¹³ Washington, Colorado, California, Arizona, Delaware, Hawaii, Illinois, Maryland, Minnesota, New Jersey, New Mexico, New York, Oregon, Rhode Island, Wisconsin, Vermont and the District of Columbia

states may resume obligating funds. The guidance pares down the requirements for NEVI plans and requires states to submit new plans within 30 days.

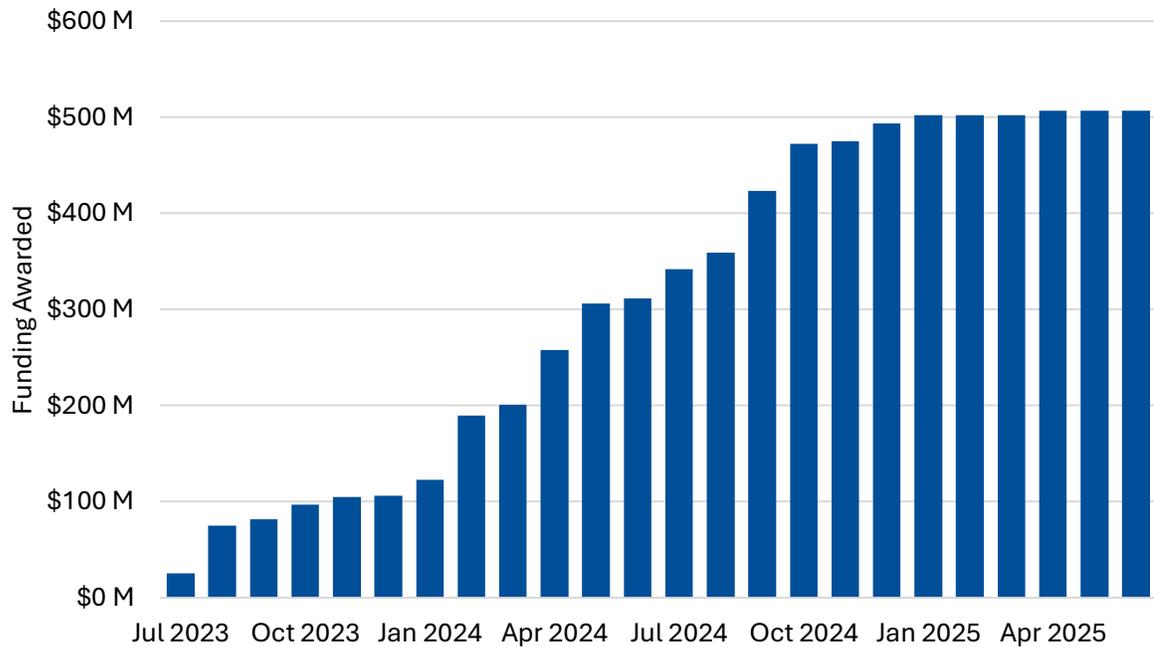
The guidance eliminates the rule requiring fast charging stations every 50 miles for a corridor to be considered “built out,” allowing states greater flexibility in defining fully built corridors.¹⁴ The reduced equity and consultation requirements may adversely affect some communities. Regulatory standards for interoperability, availability, and data reporting under 23 CFR 680 still apply.

While issuing the new guidance essentially unfreezes the funds, the six-month freeze on new obligations had a significant, negative impact on NEVI implementation. States faced uncertainty about future program guidance and funding availability. As such, states paused awards for 162 stations totaling over 652 charging ports [2]. States issued no requests for proposals during the six-month freeze. And while 20 states issued contract awards for a total of 310 stations during the six months preceding the freeze, only one state issued awards while obligations were frozen.

As Figure 12 shows, after states started making awards in July 2023, grew steadily until flatlining in early 2025 when new obligations were frozen. California issued awards on July 23, 2025, after the June 24, 2025 court order lifted the obligations freeze for that state and 13 others.

¹⁴ States can only use NEVI funds outside Alternative Fuel Corridors after all corridors are complete.

Figure 12: Cumulative Funding Awarded by States Under the NEVI Program by Month (as of June 2025)



Source: EV States Clearinghouse [2]

Some states were more impacted by the freeze than others. According to interviews with state DOTs, states were in various stages of contract awards, obligations, and construction when the order to halt further obligations was issued. In addition, different states formally obligate projects at different stages in the award process. States that obligate projects later in the process were more impacted. Tennessee, for example, announced the selection of 30 competitively awarded projects in January of 2024, worked with selected awardees on multiple rounds of contract negotiations, and intended to start projects in early 2025. However, because the contracts were not fully executed prior to FHWA’s pause on the program, these projects were not formally obligated in the federal system. As such, all of the projects were put on hold, delaying construction by at least six months, potentially more if contract renegotiations are necessary due to the pause. In Ohio, at the time new obligations were frozen, 19 out of the 23 charging stations from the first round of procurement were operational and open to the public. Second round projects had signed contracts but were still in the design development phase and not yet obligated in the federal system. All projects that were pre-construction were placed on pause. In addition, Ohio cancelled the third-round solicitation since these projects had not yet been selected, and it made sense to await the new guidance before making selections. In Texas, the 29 stations awarded in their first phase are all fully obligated and proceeding. The 53 projects in their

second phase already had developers selected but were not yet obligated, so they were paused. Maine on the other hand, had already obligated four out of five fiscal years of funding, or \$15 million of the \$18 million allocated to the state. For the obligated funds that already had contracts, Maine proceeded. For the obligated funds that were not contracted yet, Maine paused use of those funds while waiting for new guidance.¹⁵

At a minimum, the six month freeze delays implementation by six months, but likely by much more, as several states paused awarded contracts due to uncertainty and now may need to renegotiate those contracts as prices and other factors may have changed.

An additional threat to the program is that federal government downsizing is limiting technical assistance to state agencies. IJIA established the Joint Office of Energy and Transportation (JOET) as a collaborative office with staff from both the U.S. DOT and U.S. DOE to ensure the cross-disciplinary expertise needed from infrastructure planning, electricity markets, and vehicle technology. The Joint Office provided technical assistance to state agency staff, most of whom had never written requests for proposals (RFPs) for EV charging infrastructure or analyzed needs for charging across their state. After federal staff downsizing initiatives—including hiring freezes, firing of probationary workers, and deferred resignation programs—there are no remaining full time, federal employees at the Joint Office as of April 2025 [47].

For the Charging and Fueling Infrastructure (CFI) program, FHWA is honoring current obligations but has not made any new obligations under the program since the start of the Trump Administration. FHWA had announced three rounds of selected projects under the competitive CFI program, but only a minority of those projects had signed grant agreements and were therefore considered obligated. As of June 2025, only \$215 million of awarded funds were obligated [3].

Case Studies

The following case studies give insight into early successes and challenges with federally funded charging programs across regions of the United States.

Alaska

Many factors make Alaska a challenging state to build out an EV charging network in, including low EV penetration, many remote areas, and construction challenges due to the cold climate. Despite this, the Alaska Energy Authority (AEA) received a diverse set of high-

¹⁵ Information based on interviews with Tennessee, Ohio, Texas, and Maine DOTs.

quality applications from its NEVI Request for Applications, covering nearly all its priority locations along its singular alternative fuel corridor from Anchorage to Fairbanks. This included coverage in more remote areas, even though they did not provide extra incentives or priority for remote areas. AEA expects that the initial round of nine awards will be sufficient to certify corridor buildout [26].

Ohio

Ohio has been an early leader on NEVI implementation. Even prior to the NEVI program's rollout, the Ohio Department of Transportation (ODOT) had already committed to becoming a national leader in EV charging, conducting an in-depth analysis of the existing infrastructure and siting opportunities in 2020 which gave them a jump-start on implementation [48].

As the NEVI program rollout began, ODOT anticipated that supply chains would be a major challenge and moved quickly to procure chargers before vendors were overwhelmed by other states. This early planning and action allowed Ohio to be the first state to release its request for proposals and the first to have an operational NEVI-funded charging site in December 2023. As of February 2025, 19 of Ohio's NEVI Round One sites were operational [48].

Ohio's NEVI implementation was not without challenges, though. Of their 27 original awards, four fell through due to challenges related to the site host agreement or infeasibility to conform to NEVI standards. Additionally, further progress stalled when FHWA halted obligations in February 2025 and ODOT made the decision to pause all awards not already under construction and cancel its open solicitation pending new program guidance [48].

Pennsylvania

Along with Ohio, Pennsylvania is also an early success story for NEVI program implementation. Following its Round One request for proposals, the Pennsylvania Department of Transportation (PennDOT) received 271 proposals and issued 61 awards. The first NEVI-funded charger site in the state became operational in December 2023, making it one of the first states to have an operating NEVI-funded site. PennDOT did encounter some challenges in the initial funding rounds that they hope to address in potential future rounds. For example, some site hosts fell through in the post award process, and PennDOT will require a site host letter of intent going forward. Additionally, PennDOT initially required a detailed utility engagement form as part of applications, but eventually lowered the obligation after they observed challenges with utility response times. Overall, PennDOT considered this first round a success but hopes to improve potential future funding rounds and build out remaining gaps in its corridor groups [25].

Hawai'i

The Hawai'i Department of Transportation (HDOT) took a different approach than most states for NEVI implementation. Prior to the NEVI program, HDOT had already contracted with a capital investment firm to build and maintain charging infrastructure for its own EV fleet. They chose to expand that existing contract to cover NEVI site development as well, which gave them a head start on planning and implementation [41].

Hawai'i faces some unique challenges to building out its charging network, including its mountainous geography, higher construction costs, limited grid capacity, and distance from the continental United States. HDOT identified suitable sites with engagement from the electric utility and plans to leverage state-owned properties. However, high costs remain a challenge—HDOT estimates that its NEVI funding falls significantly short of what is needed to build out all its NEVI-compliant sites and is searching for additional funding streams to fill the gap. Hawai'i's first site on Maui became operational in February 2024, and the remaining stations are expected to open in 2025 [41].

Colorado

For Colorado, filling gaps across the state, especially in rural areas, was a top priority. Most existing DCFC charging infrastructure is operational around the greater Denver metro area. Other parts of the state had much more significant gaps in fast charging, particularly the rest of the Front Range and the Eastern Plains. Prior to NEVI, Colorado struggled to start charging projects outside of the greater Denver metro area, but the infusion of funding through NEVI enabled them to make those projects more attractive to applicants. Colorado Energy Office (CEO) offered enhanced financial incentives for proposals in these critical areas [24].

CEO also prioritized proposals that demonstrated intent or ability to install onsite energy storage and renewable energy generation to help improve the reliability of power at a site, particularly in rural areas with difficult or more limited power capacity from utilities. Colorado's enhanced financial incentives for rural and region-specific site proposals yielded very successful results in Round One, with CEO successfully covering the entire Eastern Plains region and making good progress in the Front Range region as well. Other states may benefit from offering similar incentives to fill gaps or low utilization areas [24].

Public Transportation



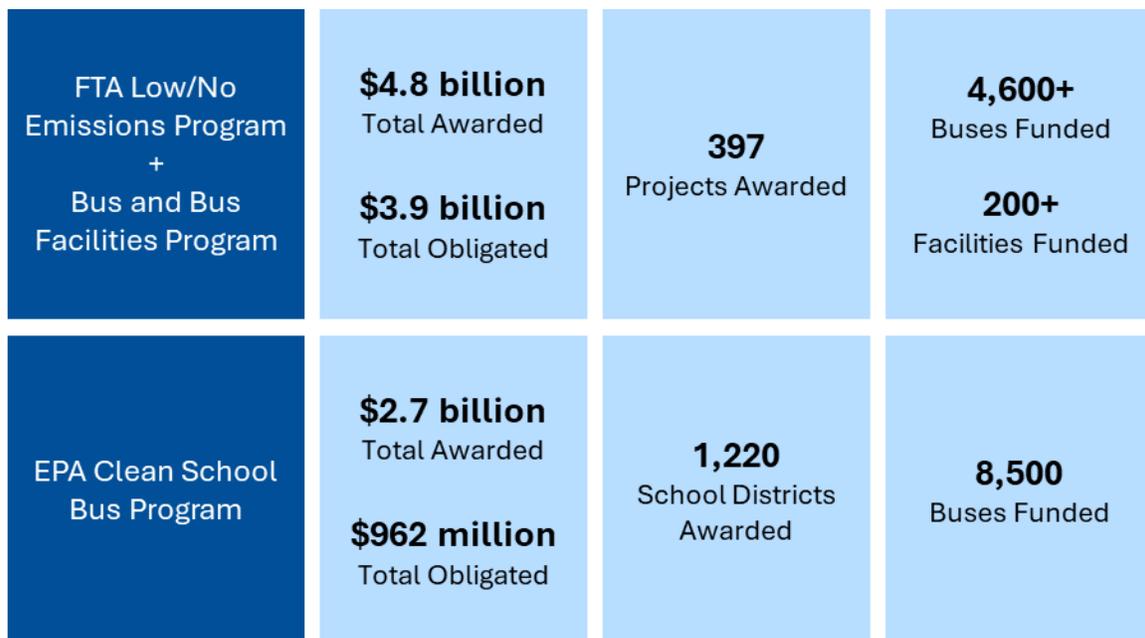
Photo Credit: Tina Hodges

Key Takeaways

- IIJA increased funding under the Federal Transit Administration’s (FTA’s) competitive grant program for funding zero- and low-emission buses by a factor of ten. Nonetheless, FTA received applications for six times as much funding as was available, indicating high demand.
- Funds from IIJA were awarded across the country, contributing to a doubling of the number of zero-emission full size transit buses funded or deployed in the United States between 2021 and 2024.
- The EPA Clean School Bus program has awarded \$2.7 billion of the total \$5 billion available under IIJA, funding approximately 8,500 zero-emission school buses.
- IIJA also increased funding for expanding public transportation through the FTA Capital Investments Grants Program from \$2.3 billion per year to \$3 billion per year.

- These programs have substantial public benefits, including expanding clean buses to new places, supporting new manufacturing jobs, and enabling millions of dollars in health cost savings every year, lowering traffic fatalities, and reducing traffic congestion (see Figure 14).
- Creating zero-emission bus transition plans, which were required for the Low/No Emission Program, allowed transit agencies to carefully plan for deployment challenges ranging from workforce development to coordination with utilities to optimizing routes for electric bus ranges and charging requirements.
- The decline in the number of U.S.-based bus manufacturers has been a major challenge slowing delivery of zero-emission buses. Factors leading to this decline include labor market changes, inflation, commodity shortages, increase in the cost of capital, and highly customized bus orders that increase expenses. Delays in obligations also strained manufacturers. Finally, prices for electric buses are roughly twice those of diesel buses, presenting a significant barrier to deployment.
- While the federal government has continued funding under the FTA Low/No Emission Program, the funding notice issued in May 2025 for fiscal year 2025 differs from prior notices by explicitly prioritizing low-emission buses over no-emission buses to the extent possible.

Figure 13: Federally Funded Clean Bus Deployment Metrics (as of August 2025)



Source: Climate Program Portal [3], FTA [51, 52, 53, 50], EPA [49]

Figure 14: Potential Federal Bus Investment Benefits



Source: Various – see section on Progress Towards Key Outcomes

Program Implementation Status

IIJA expanded multiple programs for achieving two clean transportation goals: 1) transitioning to clean buses, and 2) expanding public transportation as a low-emission alternative to driving. Expanding public transportation lowers emissions by providing an efficient alternative to driving. It further decreases emissions by enabling denser land development, with more destinations within easy walking distance and less space needed for parking and roadways [50]. This report includes sections on both goals but focuses primarily on the first.

FTA administers federal investment in public transportation through a variety of programs. FTA's Capital Investment Grants fund the construction of new or expanded public transportation and are highly competitive. FTA also administers formula grants and additional competitive grants which provide funding to urban and rural public transportation systems across the country. In addition, states can choose to use funds from multiple Federal Highway Administration (FHWA) formula programs for public transportation.

IIJA also established the Clean School Bus Program at the U.S. Environmental Protection Agency (EPA) to provide \$5 billion in new funding to replace diesel school buses with low- and no-emission school buses. The funding is open to public school districts, as well as private entities that provide bus service to public schools.

Table 2: IIJA Programs for Clean Public Transportation and School Buses

Type	Program	Description
Competitive Grant & Rebates	FTA Low- and No-Emissions Bus Grants	State and local government procurement of low- and no-emission transit buses and infrastructure.
	FTA Bus and Bus Facilities Competitive Grants	State and local government procurement of conventional and low- or no-emission buses and bus facilities.
	EPA Clean School Bus Program	Rebates and grants for procurement of low- or no-emission school buses.
FTA Formula Funding	FTA Capital Investment Grants (CIG)	Funds construction of new or expanded public transportation.
	FTA Urbanized Area Formula Grants	Capital and planning funding to public transit systems in urban areas.
	FTA Formula Grants for Rural Areas	Capital, planning, and operating assistance to states to support public transportation in rural areas.
FHWA Formula Funding	Surface Transportation Block Grant (STBG) Program	State formula funding that can be flexed to FTA for public transportation projects.
	FHWA Carbon Reduction Program	
	FHWA Congestion Mitigation and Air Quality (CMAQ) Program	

Programs in green above are the primary focus of this analysis, but several other programs also support these goals. For a complete list of FTA formula and competitive grant programs, see <https://www.transit.dot.gov/grants>.

Transitioning to Clean Buses

FTA's Low- or No-Emission Bus Grant Program (Low/No Emission Program) was created a decade ago but received twenty-two times more funding under IIJA [51, 52]. This program provides competitive funding to state and local governments to procure zero-emission and low-emission public transportation buses¹⁶ as well as supporting facilities, such as electric bus charging infrastructure. For efficiency, FTA issues the notices of funding availability for the Low/No Emission Program jointly with the FTA Bus and Bus Facilities Competitive Grant Program, which includes eligibility for both diesel and low- or zero-emission bus and bus facilities [53].

As of June 2025, FTA had awarded all of the fiscal year 2022 through 2024 funds under these two programs [53, 51]. **FTA has awarded \$3.4 billion for 245 projects under the Low/No Emission Program and \$1.4 billion for 152 projects under the Bus and Bus Facilities Program** [3]. There is high demand for the programs; FTA received requests for six times as much funding as was available [54].

Table 3: IIJA Funding for FTA Low or No Emissions Grants and Bus and Bus Facilities Program

Program	Available Funding in	
	IIJA (Fiscal Years 2022-2026)	Total Awarded as of June 2025
Low/No Emission Program	\$5.6 billion	\$3.4 billion
Buses and Bus Facilities Program (Competitive portion)	\$1.9 billion	\$1.4 billion

Source: FTA [51]

In fiscal year 2024 alone, the two programs funded at least 50 bus facilities, 466 no-emission buses, 454 low-emissions buses, and 229 conventional bus replacements [54]. **In total, across fiscal years 2022 through 2024, the two programs announced awards for more than 4,600 new buses, more than 2,200 of which are zero-emission** [55, 56, 57, 54].

¹⁶ According to the U.S. DOT's definitions, low-emissions buses include propane, compressed natural gas (CNG), and hybrid-electric buses, and zero-emissions buses include hydrogen fuel cell and fully electric buses [98].

For context, about 3,800 total transit buses were sold in the United States over the last three years [20].

The EPA Clean School Bus Program provides \$5 billion in IIJA funds over five years to replace existing school buses with zero- and low-emission buses. **EPA has awarded \$2.7 billion to 1,220 school districts in every state, which will replace nearly 8,500 buses** (an average award per bus of \$317,000) [49]. Ninety-three percent of awarded buses are electric, seven percent are fueled by propane, and 0.1 percent are fueled by compressed natural gas (CNG).

Box 4. Spotlight: Low/No Emission Grant Will Fund 20 New Clean Buses and Infrastructure in Columbus, Ohio

With a \$22.8 million grant from the Low/No Emissions Program, the Central Ohio Transit Authority (COTA) is well on its way to achieving its goal of a 100 percent zero-emission bus fleet by 2035. The grant will allow COTA to purchase ten new fuel cell buses and ten new electric buses, as well as support construction of a new hydrogen fueling station. With this grant announcement, COTA President Monica Tellez-Fowler celebrated the positive impact these investments will have on local neighborhoods, including lower air pollution [58].



A young passenger alights from an electric bus in Columbus, Ohio.
Photo Source: Central Ohio Transit Authority (COTA) [59]

Expanding Public Transportation

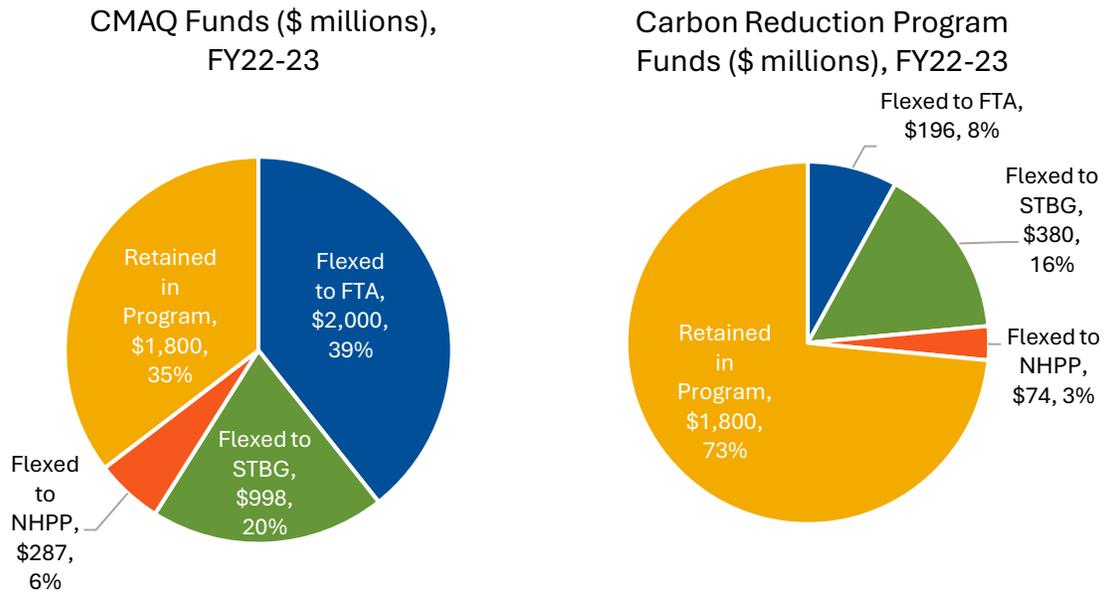
FTA Capital Investment Grants fund construction of new and expanded public transportation systems. Over the years, this program has funded the construction of major systems such as light rail in Dallas, Salt Lake City, Seattle, and Denver [60]. Current system expansions funded under this program include Chicago’s Red Line expansion, a new bus rapid transit line in Tucson, streetcar extension in Miami, and the Second Avenue Subway in New York City [61].

In addition to FTA funds, some FHWA funding is also used to expand public transportation. Investing in public transportation service rather than highway expansion is one strategy for reducing emissions. Most FHWA programs include broad eligibilities, including eligibility for public transportation. However, states can also transfer, or “flex” funds from FHWA programs to FTA public transportation programs. Because the FTA programs are specific to public transportation, transit agencies are more familiar with the program structure and requirements, so flexing the funds makes project administration easier.

For example, states flexed \$1.7 billion to FTA out of the \$28 billion available in fiscal years 2022 and 2023 under FHWA’s Surface Transportation Block Grant Program (STBG) [62]. States also flexed \$196 million from the FHWA Carbon Reduction Program and \$2 billion from the FHWA CMAQ program to FTA during this same time period [62].

On the other hand, states can also flex funding away from emissions reduction programs (like the Carbon Reduction Program and CMAQ) to programs with broad eligibility (like STBG or the National Highway Performance Program – NHPP) in order to fund highway expansion projects, which would generally increase carbon emissions [63]. For example, about 18.5 percent of fiscal year 2022 and 2023 funds were transferred from the Carbon Reduction Program to STBG and NHPP, as well as about 26 percent of CMAQ funds (Figure 15), some of which may have been used for highway expansion.

Figure 15: Shares of FHWA Emissions Reduction Funding Retained and Transferred



Source: FHWA flex funding data compiled [62]

Total federal funding for public transportation under IIJA is \$72 billion over five years, which is an increase over previous transportation reauthorization bills, but still about one quarter of the \$278 billion in IIJA for highways [64].

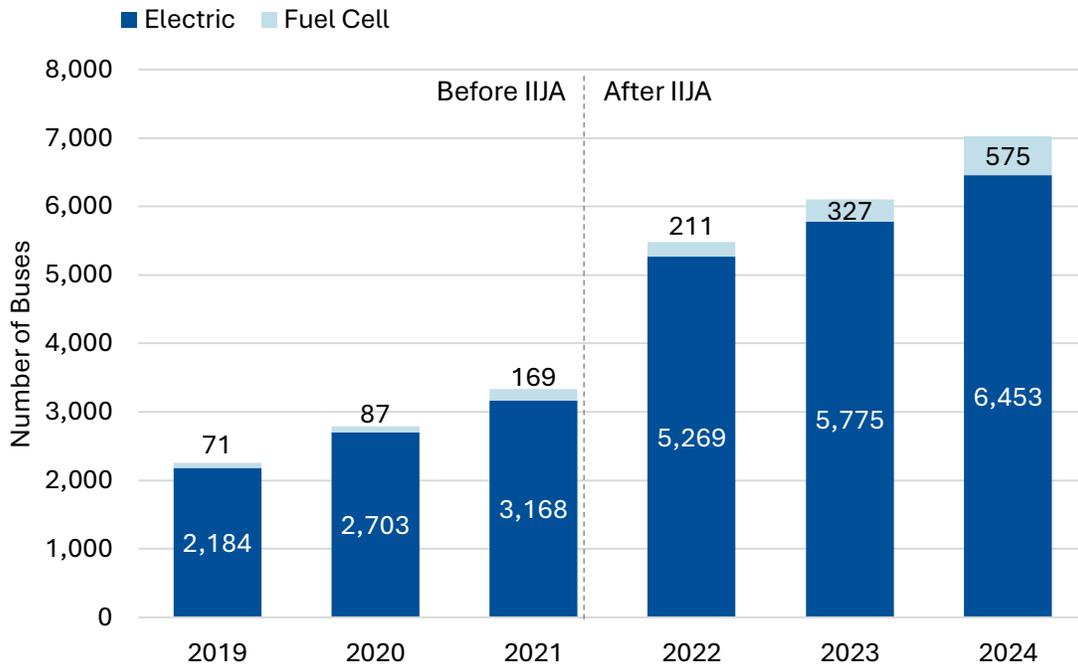
Progress Towards Key Outcomes

The federal support for clean public transportation is expected to help expand fleets around the country, spur private investment and job creation, reduce pollution, improve roadway safety and congestion, and save money.

Geographic and Fleet Coverage

Federal funding has supported the growth of the electric bus market. **The number of zero-emission transit buses in the United States has grown substantially over the last few years—more than doubling between 2021 and 2024—with a noticeable uptick after IIJA passage** (Figure 16).

Figure 16: Number of U.S. Full Size Transit Zero Emission Buses Funded, Ordered, Delivered, or Deployed (as of July 2024)

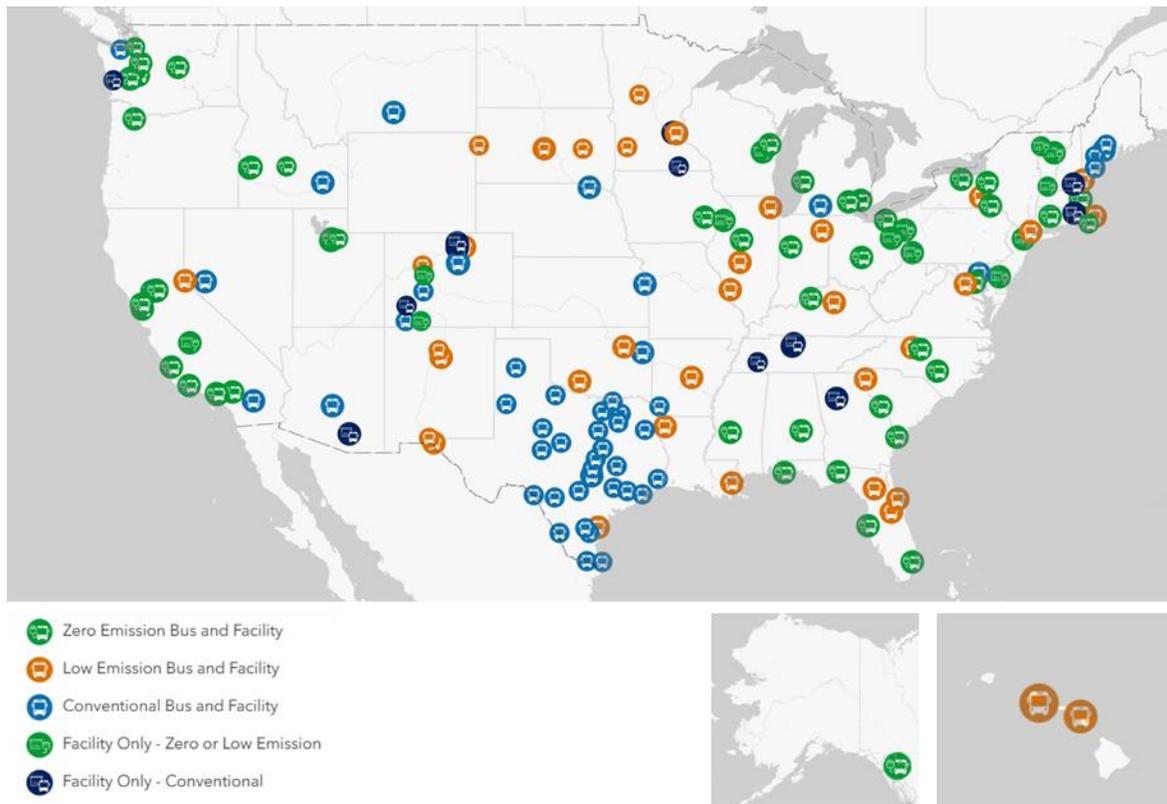


Source: CALSTART [65]

In addition to the over 7,000 full size zero-emission transit buses, there are also now nearly 1,200 small zero-emission transit buses in the United States. The vast majority of zero-emission buses in the United States are battery-electric buses, but hydrogen fuel cell buses are making up a growing portion [65].

This growth is supported by the Low/No Emissions Bus and Bus Facilities grants from FTA, among other programs. These competitive awards are geographically disbursed across the country, as shown by the map of fiscal year 2024 awards (Figure 17).

Figure 17: Locations of Fiscal Year 2024 Low/No Emission Bus and Facility Awards

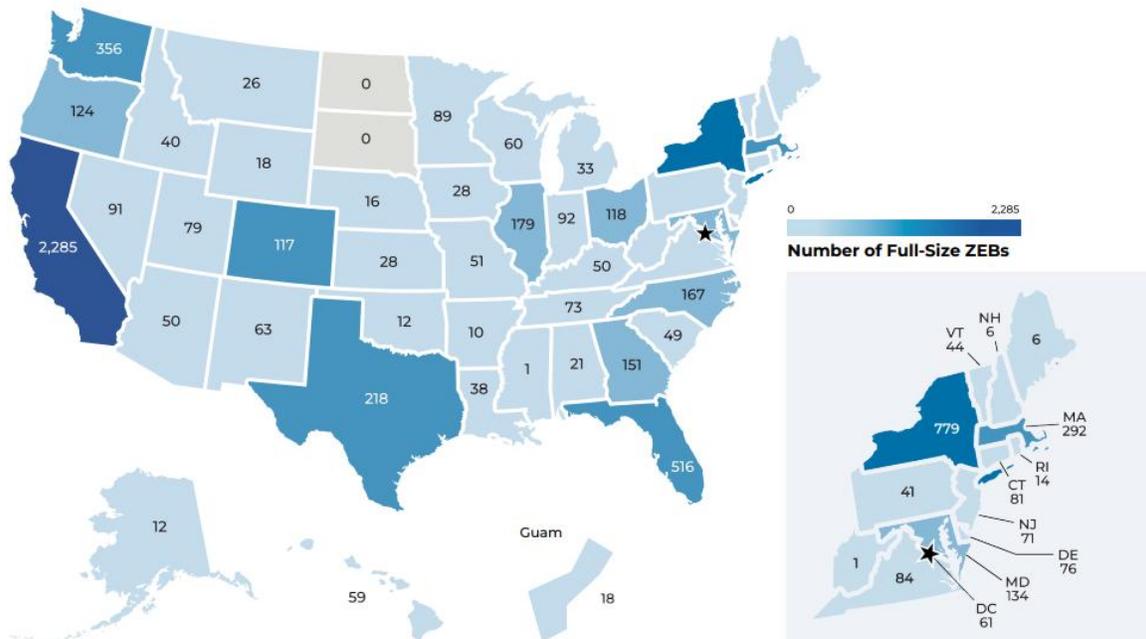


Source: FTA [54]

So far, there are 644 U.S. transit agencies that have at least one zero emission bus. Forty-one transit agencies have 50 or more zero emission buses, 185 transit agencies have 11-50, and 418 transit agencies have one to ten [65].

IIJA required transit agencies applying for funding for zero-emission buses under the Low and No Emissions Program and the Bus and Bus Facilities Program to include a Zero-Emission Transition Plan with their application [66] The plan was required to demonstrate a long-term fleet management plan, describe the partnership of the applicant with the utility or alternative fuel provider, and examine workforce needs. These requirements were intended to ensure successful transitions by addressing early on known challenges to fleet transitions. FTA provided technical assistance to help transit agencies transition their fleets, including a guidebook and access to experts through the Joint Office of Energy and Transportation. In addition, the American Public Transportation Association (APTA) is helping transit agencies learn from one another through its Zero Emission Fleet Committee [67].

Figure 18: Number of Zero Emission Buses per State



Source: CALSTART [65]

Private Investment and Job Creation

As of 2023, there were nearly 400,000 transit workers in the United States, including bus drivers, administrative workers, and maintenance workers [68], not to mention workers supported by schools and private bus fleets. Federal investments in clean buses provide new opportunities for these workers and ensure they can contribute to the 21st century clean economy. In particular, IIJA required that five percent of all Low/No Emissions and Bus and Bus Facilities grant funding be used for workforce development activities to ensure transit workers are trained to use and maintain clean vehicles and charging equipment [69]. In addition, FTA established the Transit Workforce Center in 2021 to provide technical assistance for workforce transition for zero-emission fleets [70].

Additionally, as of June 2025, **the private sector has announced over \$380 million in investment for U.S.-based bus manufacturing (including transit, school, and shuttle buses). These announcements could create at least 2,000 new manufacturing jobs.** IIJA funding and other federal and state policies are supported by (and in some cases, are spurring) new investment and jobs in the domestic bus supply chain. FTA-funded buses must be made in the United States, supporting the domestic workforce [71]. In fiscal year 2024, support for bus manufacturing was explicitly built into Low/No Emissions Program award selections, as FTA prioritized projects that committed to procuring standard models or joint procurements which provide much-needed stability for emerging American

manufacturers [72]. These federal programs also support investments in domestic charger manufacturing to support new electric fleets.

In addition to bus replacements and upgrades, investments in public transportation expansion are a boon for local economies, directly creating new jobs and increasing access to employment opportunities for a community. According to an APTA report on the Economic Impact of Public Transportation Investment [73], **every dollar of public transportation spending leads to an average of \$2.90 in additional business output (e.g., sales) and a \$1.80 increase in GDP. Further, an average of 17,900 jobs are generated per \$1 billion of investment**, including jobs in construction, manufacturing, services, and many other industries.

Box 5. Spotlight: Clean Transit Investments in Montgomery, Alabama will Improve Service and Provide Workforce Opportunities

The M Public Transit System in Montgomery, AL, received \$16.9 million from the FTA Low/No Emission Program to replace aging buses with new electric buses, purchase charging equipment, and implement a workforce training program. The older buses being replaced broke down often and sometimes had no air conditioning [74]. The new, American-made buses will improve service reliability, provide quiet rides, and improve air quality in the community. To enhance the resilience of the system, Montgomery also plans to deploy rooftop solar panels and battery energy storage [54].

Pollution Reduction and Health Benefits

Investments in electric buses reduce air pollution associated with conventional diesel buses. Cleaner air leads to significant health cost savings due to fewer deaths, asthma attacks, emergency room visits, and lost work or school days. **The transit bus replacements funded by the Low- and No-Emissions Bus Program so far could lead to air quality improvements worth between \$15 million and \$20 million in health cost savings per year across the country.**¹⁷ This air pollution is not equally distributed—those

¹⁷ Atlas calculations, using the CMAQ Emissions Calculator Toolkit (Transit Bus Upgrades and System Improvements module) [212] and the EPA CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) [209]. Assumes all new buses purchased are replacing an existing diesel bus with an average model year of 2017. Also assumes that bus technologies purchased with fiscal year 2022 and 2023 follow the same proportions as in 2024.

who live near transit hubs or bus depots may bear the brunt of the impacts of diesel bus emissions, and stand to gain the most from federal investment in clean buses. This is in addition to over 46,000 tons of climate pollution reduction (in carbon dioxide equivalent)¹⁸.

Replacing diesel school buses also has significant emissions and health benefits. One study estimates that the benefits could be about \$84,000 per electric school bus, due to fewer deaths, asthma cases, and climate impacts. The savings could be much higher in some locations, up to hundreds of thousands of dollars per bus [75]. Another study estimates that the benefits of a full transition to electric buses could be billions of dollars per year [76]. In particular, cleaner school buses have positive impacts on students. Studies show that reduced exposure to diesel exhaust can increase attendance [77] and even improve student performance in school [78].

Those savings are only considering one-to-one replacements of existing buses, but the programs considered in this report can also lead to the *expansion* of transit bus fleets and transit service, which further reduces air emissions regardless of the technology used by replacing some passenger car trips.

Safety and Congestion Reduction

Traffic fatalities are one of the top causes of death in the United States, accounting for nearly 41,000 deaths in 2023 [79]. **Transit buses are by far the safest form of road transportation in terms of traffic casualties, with over 30 times fewer traffic deaths per passenger-mile for buses than for passenger cars and trucks.** Communities that are more compact and transit-oriented also tend to see much lower traffic fatalities [80].

Additionally, as commute times [81] and traffic [82] are continuing to grow after a brief dip during the pandemic, expansion of transit systems can lead to reductions in congestion and traffic delays (for both drivers and riders). Reducing congestion and enhancing mobility through public transportation has benefits for individuals but also has a quantifiable economic impact. A study from Argonne National Laboratory found that without public transportation service in Chicago, travel speeds would decrease 31 percent (from 16 to 11 miles per hour) within the city and by 16 percent within the broader Chicago metropolitan region. It also found that removing public transportation service would result in an estimated \$35 billion annual loss in economic activity [83].

¹⁸ Atlas calculations, using the FTA Transit Bus Electrification Tool [211]. Assumes all new clean buses purchased are replacing an existing diesel bus. Diesel to diesel replacements are not included in this estimate.

Cost Savings for Fleets and Consumers

For many bus fleet operators, switching to electric buses may be attractive due to a lower total cost of ownership (including purchase of the vehicle, fuel, maintenance, and repairs) compared to conventional diesel buses. Electric buses offer lower fuel costs and maintenance costs than a similar diesel bus, although the total cost savings are still uncertain for some fleets due to high upfront costs for vehicles and chargers [84, 85]. Federal and state incentives, along with continuous innovation in battery and vehicle technology, lower the upfront costs and can ensure overall cost savings. Additionally, FTA grant programs and tax credits for charging equipment can further defray the cost of new bus charging infrastructure. A lower total cost of ownership for a transit or school bus fleet can free up budget for reinvestment in transit systems or school districts.

In addition to potential cost savings for fleet operators, expansion and improvements in transit systems can also save consumers money. **According to APTA, transit riders could save about \$13,000 on average per year compared to drivers, with savings even higher in some cities** [86].

Box 6. Spotlight: Cost Savings from Electric School Buses Enabled a Rural Kentucky School District to Increase Teacher Pay

The Fleming County School District, which serves 2,200 students in rural Kentucky, received funding from EPA's Clean School Bus Program to upgrade its diesel buses to brand-new electric buses. By defraying the upfront costs, the funding allowed the district to immediately start saving at least \$12,000 per month in diesel fuel costs, which it is reinvesting to increase teacher pay across the district. The district projects that they could save \$600,000 per year over the next decade from reduced fuel and maintenance costs. Drivers also reported that the new buses handle the hilly rural terrain much better than their previous buses, and eliminating diesel exhaust has made pickup lines safer and more comfortable for students, staff, and drivers [87].

Deployment Challenges

Several challenges delayed or limited federal bus program implementation, some of which were due to the program structures themselves and some due to broader market and policy factors. Understanding and proactively addressing these potential barriers going forward can make future deployment faster and more cost-effective. Many of these factors impact

both transit agencies and the bus manufacturing industry. By requiring transit agencies to create zero-emission bus transition plans for the Low/No Emission Program, FTA encouraged agencies to plan for and address many deployment challenges.

- **Delays in Obligation:** One of the challenges to implementation of the Low/No Emissions Program was delays in funding obligations. FTA grantees have four years to obligate funds, including the fiscal year in which the amount is made available [53]. After that, manufacturers build and deliver the buses, and only then receive payment. This puts a strain on domestic electric bus manufacturers in particular, which must fulfill orders quickly to get to scale. FTA data shows that as of September 30, 2024, 28 percent of 2022 funds, 82 percent of 2023 and 98 percent of 2024 funds remained unobligated [88]. Learning from the FTA experience, EPA’s Clean School Bus Program put a two-to-three-year period of performance limit on the grants [89].
- **Decline in U.S. Bus Manufacturing:** Over the past several years, the number of U.S.-based transit bus manufacturers has declined significantly, with three transit bus manufacturers departing the U.S. market in 2023 and 2024 and only two remaining in 2025 [90]. Proterra, a company focusing exclusively on electric buses, filed for Chapter 11 bankruptcy in 2023. The remaining two domestic transit bus manufacturers produce both diesel and electric buses. An APTA Task Force report found that the main factors for the decline in manufacturers were “labor market tumult, hyperinflation in material and component prices, commodity shortages, hardships by many parts suppliers, and the significant increase in the cost of capital” [91]. FTA-funded buses are subject to Buy America requirements that 70 percent of the cost of components must be from domestic sources and that final assembly occur in the United States [71]. Due to the limited supply of buses, some transit agencies are expecting a two-year lag for delivery of buses [90]. In addition, transit agencies are concerned that the prices of buses will increase, reducing the number of buses they can purchase with their grant [90]. Scaling manufacturing for electric buses is especially challenging given the relatively small size of the U.S. transit bus market. Additionally, transit agencies expect a high degree of customization for their bus orders, which has increased costs and inhibited new manufacturers from reaching adequate economies of scale to stay in business [92, 85]. In response, FTA’s funding notices starting in fiscal year 2023 prioritize applicants that commit to purchasing a base model bus without over-customization, as well as applicants that commit to a three-agency joint procurement with a shared technical specification [92]. FTA also issued a letter to transit agencies encouraging the use of advance and progress payments [93].

- **High Upfront Costs:** As described in the previous section, the total cost of ownership could be lower for an electric bus due to lower fuel and maintenance costs, but high upfront costs for vehicles and charging infrastructure remain a challenge for transit agencies. Today, electric buses can cost up to twice as much as an equivalent diesel transit bus (around \$1 million as opposed to around \$500,000), and prices have not fallen as quickly as some expected [85]. EPA capped the amount of grant funding allowed per school bus in an attempt to avoid incentives inflating the cost of the vehicle [89].
- **Charging Infrastructure:** Beyond the vehicles themselves, electric bus deployment also requires planning and building out charging infrastructure, which many transit agencies may not have experience with [94]. Energizing new high-powered charging sites may also require utility infrastructure upgrades, which requires close coordination with local utilities and can take up to two years [39]. These new challenges require building expertise at transit agencies and also incur additional costs.
- **Budget Shortfalls:** Prior to the COVID-19 pandemic, transit ridership was gradually declining across the country, while expenses continued to rise to address deferred maintenance, expand services, and adopt new innovations. Ridership then dramatically fell during the pandemic, widening the gulf between revenues and costs, and many transit systems have not yet returned to pre-pandemic levels. A one-time infusion of federal funding stabilized transit agencies temporarily, but the lack of long-term financial stability risks agencies' ability to continue operating or expand services [95]. In the United States, public transportation service does not turn a profit, and almost all U.S. public transportation service is subsidized by local governments. As such, when farebox revenues decline further, the transit agency either needs to cut service or receive an increased public subsidy. Even for the 50 largest transit agencies, farebox revenues covered only about 36 percent of operating costs prior to the pandemic [96]. Across all U.S. transit systems, farebox revenues covered only 17.2 percent of operating costs in 2023, from 32 percent of operating costs in 2019 [97].

Impacts to Program Implementation from Changing Federal Policy

In May 2025, FTA issued a notice of funding opportunity for fiscal year 2025 funds for the Low/No Emission Program. A noticeable difference between this opportunity and prior ones is that FTA explicitly states that it will “prioritize low-emission projects over zero-emission projects, to the maximum extent permitted by law” [98]. Low-emission buses include hybrid diesel buses and compressed natural gas (CNG) buses. Zero emission buses include electric buses and hydrogen fuel cell buses. FTA is required by law to devote at least 25 percent of funds to non-zero emission vehicles and facilities but has had challenges getting enough low-emissions applications to meet that threshold. For example, in fiscal year 2022, FTA did not receive enough low-emission applications to meet the 25 percent set-aside, so the remaining low-emission funds were rolled into fiscal year 2023 [99]. The statement that FTA intends to prioritize low-emission buses over zero-emission buses may signal that the agency intends to exceed the 25 percent set-aside going forward and reduce investment in zero-emissions buses.

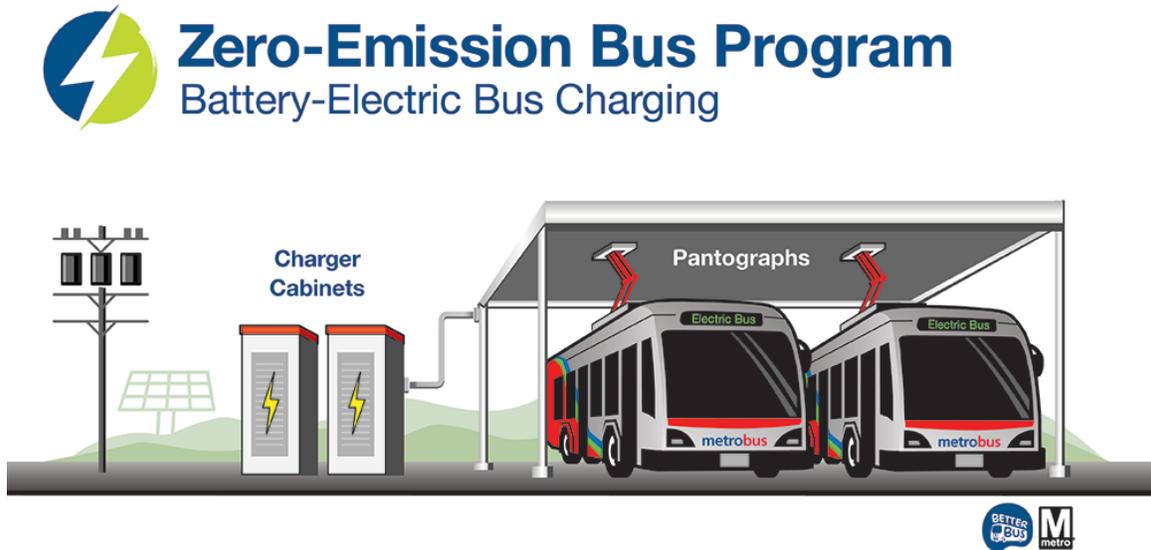
On July 25, 2025, DOT announced that grant recipients of FTA’s Low/No Emission Program will “have the flexibility to request to change their project proposals from ‘no emissions’ to ‘low emissions’ technology” by submitting a written request to their FTA Regional Office. Even though FTA received requests for six times as much funding as was available under the program [54], the DOT press release states that the “Biden-Buttigieg Administration pushed this massively unpopular program on transit agencies” [100]. The grants were competitively awarded based in part on the statutorily required criterion of level of emissions reduction, raising a fairness concern if awarded projects change proposed emissions reductions post selection.

For the Clean School Bus Program, the latest rounds of applications were submitted by January 2025. EPA originally estimated that selections would be made by May 2025, but none have been announced as of the writing of this report [101]. Uncertainty in these awards as well as new deadlines for commercial clean vehicle and charging tax credits could impact districts and bus manufacturers.

Case Studies

The following case studies highlight two awards from the fiscal year 2023 Low/No Emission Bus and Bus Facilities programs administered by FTA.

Washington Metropolitan Area Transit Authority



This graphic demonstrates the method of charging buses using an overhead pantograph charging system.

Source: WMATA [102]

The Washington Metropolitan Area Transit Authority (WMATA) received the largest fiscal year 2023 award from the FTA Low/No Emissions program, totaling \$104 million [103]. The award will fund the purchase of over 100 battery electric buses and convert the Cinder Bed Road bus facility in Northern Virginia to serve electric buses. The project is part of WMATA’s plan to transition 50 percent of its fleet of approximately 1,600 bus fleet to zero emission by 2033 and 100 percent by 2042 [104].

Unlike other electric bus facilities that WMATA has under development, which are being newly constructed with electric buses in mind, this award supports the retrofit of an existing facility’s infrastructure to accommodate charging operations—a key challenge other transit agencies will face in their zero-emissions initiatives. According to their Zero-Emission Bus Transition Plan published in March of 2023, the most common infrastructure retrofit to address across existing sites is subsurface infrastructure for stormwater drainage and other uses, which can impede energization development with local utilities. The plan succinctly highlights the challenges associated with such a transformation for any transit agency: “As compared to [conventional buses], [electric buses] have reduced ranges (miles), are

currently more expensive, and will require changes to training, maintenance, and standard operating procedures and protocols” [104]. To address these challenges, the project includes a workforce development training program for both WMATA staff and local first responders. In addition, once the station is live, WMATA will reconfigure its routes to ensure they work well for electric bus ranges as well as to ensure they provide equitable service for people of color, low income individuals, and those with disabilities that rely heavily on WMATA bus service [105]. Notably, transitioning to zero-emission buses is part of WMATA’s broader “Better Bus” initiative, which reconfigured routes [104].

WMATA serves Washington, DC and suburban Maryland and Virginia. This creates both opportunities and unique challenges for WMATA; they contend with multiple states’ and municipalities’ laws, rules, and regulations, as well as other local transit agencies’ efforts in their service area. Case in point, WMATA is partnering with the Fairfax County government on the Cinder Bed bus facility, which will house the county’s all-electric Bus Rapid Transit service in addition to the WMATA buses [106]. By partnering with Fairfax County, WMATA demonstrates how transit agencies can support other regional public transportation initiatives driving a zero-emissions transition.

San Francisco Municipal Transportation Agency

FTA granted the San Francisco Municipal Transportation Agency (SFMTA) just over \$30 million in fiscal year 2023 through the Bus and Bus Facilities grant program [107]. The award will fund the purchase and installation of 18 chargers to power SFMTA’s Zero Emission Bus Rollout Plan. The two bus yards that will receive these funds are located in or nearby low-income and disadvantaged communities—one is a pre-existing site that has negatively contributed to local air quality in the past. By moving to convert this facility to an all-electric bus yard, SFMTA will both support the city’s overall transition to a green fleet, as well as improve the quality of life in its surrounding community.

One of San Francisco’s biggest concerns about a full electric bus fleet was the city’s geography. The hilly terrain of the greater Bay Area has the potential to put a strain on electric bus performance and longevity. To address this, SFMTA started an 18-month pilot program in 2022 to test the performance of several electric bus models [108]. According to the results of the pilot evaluation, SFMTA determined that not only were the buses able to meet performance requirements on hilly streets, they could do so with less battery capacity than anticipated. SFMTA assessed that while first-generation electric buses had reliability concerns, this will improve over time as the manufacturers and technology continue to mature [109].

SFMTA also found that their bus drivers would require minimal training to adapt to all-electric operations, though they did note the need for a larger workforce to handle charging

operations and maintenance. Unsurprisingly, SFMTA reported that facility upgrades were more complex and time consuming than electric bus procurements—a challenge largely driven by regulatory complexity, cost, and utility lead times for hardware and construction. Despite these challenges, San Francisco already boasts one of the greenest transit fleets in the United States, and the FTA grant funding accelerates their goal to achieve an all-electric fleet by 2040 [110].

Clean Freight



An electric cargo truck.

Source: Tina Hodges

Key Takeaways

- Several new federal programs have accelerated clean freight deployment. The EPA Clean Ports and FHWA Reducing Truck Emissions at Ports Programs were exclusively focused on freight while the EPA Clean Heavy-Duty Vehicles (CHDV) and the FHWA CFI programs devoted 35 and 14 percent of awarded funds, respectively, to freight.
- These programs provided funding for zero-emission vehicles and equipment, including over 2,000 freight trucks, 1,500 units of cargo handling equipment, ten locomotives, 20 vessels, and associated charging and fueling infrastructure, accelerating deployment of these technologies across the country.
- The Clean Ports program also funded 15 shore power projects, significantly adding to the number of U.S. ports with this technology, which allows ships to plug in to electricity at the port rather than run their engines to power on-board systems, reducing up to 98 percent of local air pollution depending on the power sources.
- The number of zero-emission medium- and heavy-duty trucks on U.S. roads grew more than ten-fold between December 2022 and December 2024.
- Community engagement requirements in grants spurred collaboration between ports and surrounding communities.

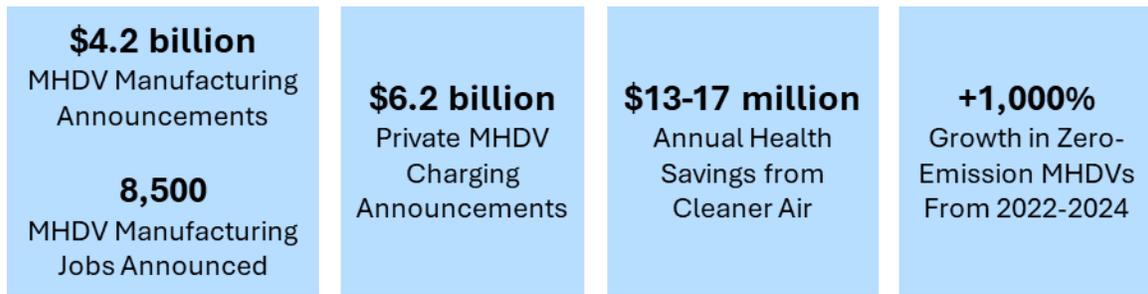
- Port emissions reductions plans funded through the grants lay the groundwork for future progress.
- These programs have substantial public benefits, including supporting private investment and jobs, enabling millions of dollars in health cost savings every year, and potentially saving money for fleet owners and consumers (see Figure 20).
- Deployment challenges under the programs included domestic sourcing issues, high upfront costs for some technologies, and utility infrastructure upgrade needs. In addition, the FHWA requirement that CFI-funded chargers be publicly accessible limited the program’s utility for fleet operators that rely on private depots while the EPA requirement that CHDV recipients be public agencies limited the scope of eligible projects.
- Changing federal policy threatens outcomes under the programs. Congress rescinded the 37 percent of funds under the EPA CHDV program that had not yet been obligated. FHWA has not obligated any awards under CFI since January 21, 2025. The Reduction of Truck Emissions at Port Facilities program has not issued the solicitation expected for 2024 or 2025 funds.

Figure 19: Federally Funded Clean Freight Deployment Metrics (as of August 2025)

FHWA Reduction of Truck Emissions at Ports (IIJA)	\$149 million Total Awarded	16 Projects Awarded	320+ Vehicles Funded
FHWA Charging and Fueling Infrastructure (IIJA)	\$215 Million Total Obligated	147 Projects Awarded	10 Heavy-Duty Projects Awarded
EPA Clean Ports (IRA)	\$2.9 billion Total Obligated	54 Projects Awarded	2,500+ Vehicles and Equipment Funded
EPA Clean Heavy-Duty Vehicles (IRA)	\$233 million Total Obligated (Excluding Buses)	27 Projects Awarded (Excluding Buses)	714 Vehicles Funded (Excluding Buses)

Source: Climate Program Portal [3], FHWA [111], EPA [112, 113]

Figure 20: Potential Federal Clean Freight Investment Benefits



Source: Various – see section on Progress Towards Key Outcomes

Program Implementation Status

Two new programs under IIJA included an emphasis on clean freight: the Reducing Truck Emissions at Ports program and the CFI program. Two new programs under the Inflation Reduction Act (IRA) also included a heavy emphasis on clean freight: the Clean Ports program and the Clean Heavy-Duty Vehicles program.

The Federal Highway Administration (FHWA) received \$400 million for the Reduction of Truck Emissions at Ports, of which it awarded \$149 million for 16 projects in 2024. Ports and private sector companies received funding to replace diesel trucks with low and no emission trucks, install heavy-duty vehicle charging stations, and improve operational efficiency. For example, the Port of New Orleans was awarded \$7 million to purchase 14 electric terminal trucks and five electric pickup trucks as well as upgrade electrical infrastructure [2].

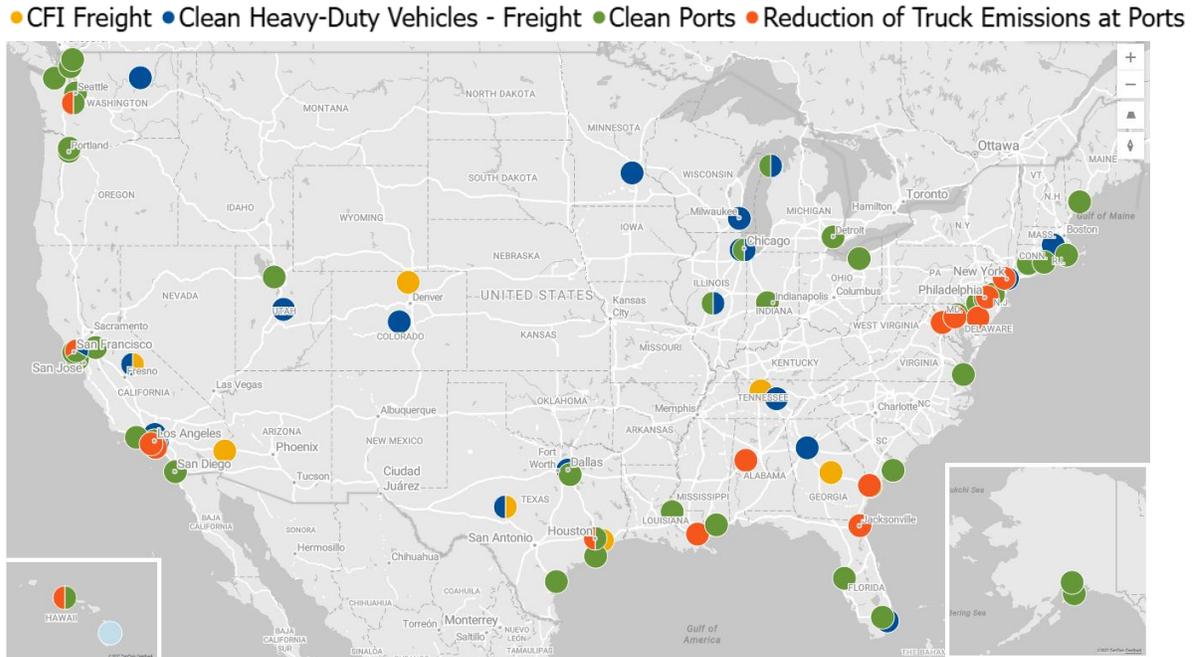
Under the CFI program, FHWA also made awards to ten projects totaling \$249 million to build electric charging stations or hydrogen fueling stations designed for medium- and heavy-duty vehicles (MHDVs). For example, the North Central Texas Council of Governments was awarded \$70 million to build up to five hydrogen fueling stations for medium- and heavy- duty trucks in the Texas Triangle, which includes Dallas-Fort Worth, Houston, Austin, and San Antonio. The California Energy Commission was awarded \$55.9 million to install 21 high-powered public EV charging stations and one hydrogen refueling station to support zero emission medium- and heavy-duty semi-trailer trucks across heavily trafficked routes [3]. The remainder of CFI awards (76 percent) went to projects primarily geared towards light-duty vehicles, though some projects may include parking and pull through configurations that enable MHDVs to use them as well.

EPA received \$3 billion under IRA for the Clean Ports program, which funds zero-emission port equipment and infrastructure as well as climate and air quality planning at ports. EPA

announced selected projects for nearly all the funding in October 2024. **Under the EPA Clean Ports Program, twenty-nine projects were awarded a total of \$58.4 million for planning and 25 projects were awarded a total of \$2.8 billion for implementation.** The implementation projects will support purchase of electric- and hydrogen- powered port equipment, including over 1,500 units of cargo handling equipment, 1,000 drayage trucks, ten locomotives, and 20 vessels. Fifteen projects also include shore power systems to enable vessels to plug into electricity to power lighting and other ship systems while at port rather than burning fuel. Eight projects include solar power generation [112]. All of the \$2.9 billion in awarded funding has been obligated, and \$334 million has been expended as of July 2025 [3].

Finally, EPA's Clean Heavy-Duty Vehicles (CHDV) grant program was established to accelerate the replacement of existing internal combustion engine heavy-duty vehicles with zero-emission vehicles. Eligibility was limited by law to Gross Vehicle Weight Rating (GVWR) class 6 and 7 vehicles (i.e., vehicles weighing over 26,000 pounds), which include cargo trucks, utility vehicles, garbage trucks, school buses, and transit buses. Refueling infrastructure and training for drivers and mechanics were also eligible. Applicants had to be state, local, or tribal governments or school districts. **Under the CHDV Program, EPA awarded \$735 million of the \$1 billion available in December 2024.** EPA awarded funds to two sub-programs: \$490 million for school buses and \$245 million for vocational vehicles [113]. Of those awards, \$631 million has been obligated as of July 2025 [3].

Figure 21: IJIA and IRA Clean Freight Grants by Location



The four clean freight related programs awarded grants to projects across the country. Map shows only freight-related projects. Includes CFI grants focused on MHDV and excludes grants focused on LDVs. Includes Clean Heavy-Duty Vehicles grants for trucks and excludes grants for school buses. Guam, Northern Mariana Islands, and Puerto Rico also received grants but are not pictured.

Source: Atlas analysis of Climate Program Portal [3] data

Progress Towards Key Outcomes

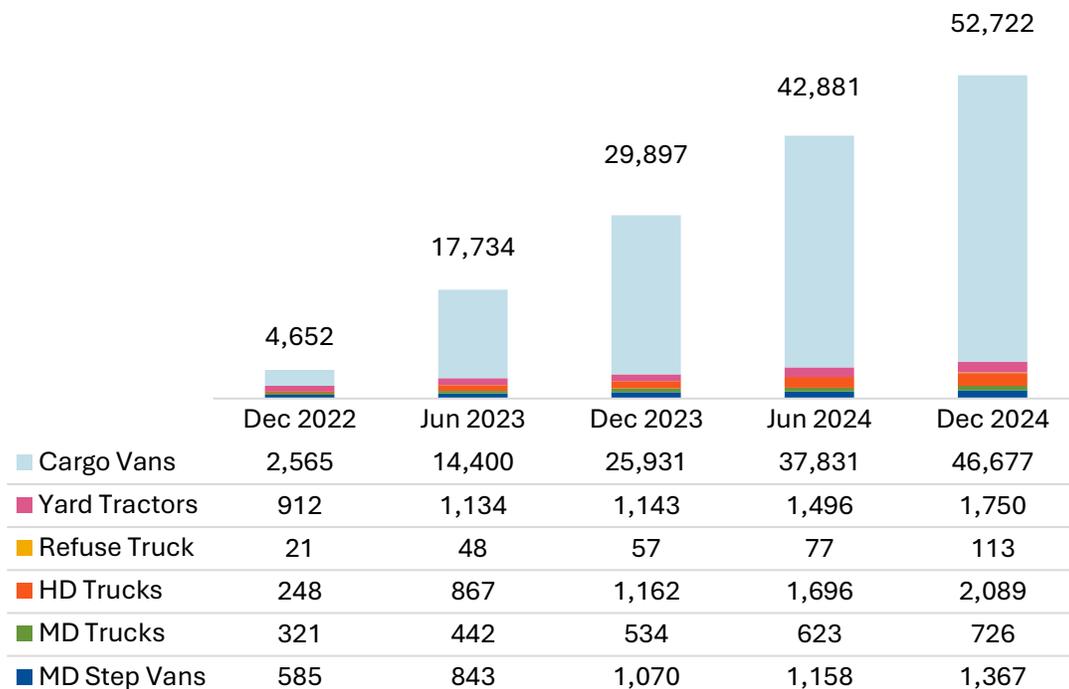
The transportation system for moving freight in the United States is a complex network allowing goods to flow overseas through our ports and over land through railways, highways and local roads, and between modes through intermodal and logistics centers. The National Zero Emission Freight Corridor Strategy [19] set priorities for strategically deploying charging infrastructure for zero-emission freight trucks while action plans for MHDVs, rail, and maritime sectors set strategies for reducing emissions from different parts of the freight system [114] [115], and an action plan for efficiency set strategies for improving efficiency throughout the freight system [116]. The federal grant programs for clean freight under IJIA and IRA are expected to help expand zero emission fleets around the country, enhance local engagement, spur private investment and job creation, reduce pollution, and save money.

Geographic and Fleet Coverage

Zero-emission heavy-duty vehicle deployments are growing across the country, and **the 107 awards under the four federal programs discussed here will replace about 3,500 vehicles¹⁹ with zero-emission vehicles in 35 states and territories [3].**

Beyond the program, **the number of zero-emission medium- and heavy-duty vehicles on U.S. roads grew more than ten-fold between December 2022 and December 2024,** reaching over 52,700 vehicles. Almost all of these vehicles are battery electric, while 155 are hydrogen fuel cell heavy duty trucks [117]. Eighty-nine percent of the total are electric cargo vans, about half of which are Amazon electric delivery vehicles [118]. Yet electric medium- and heavy-duty vehicles are not limited to large fleets. About 4,500 fleets across the country have at least one zero-emission truck.

Figure 22: Cumulative U.S. Zero-Emission Truck Deployments



Source: CALSTART [119]

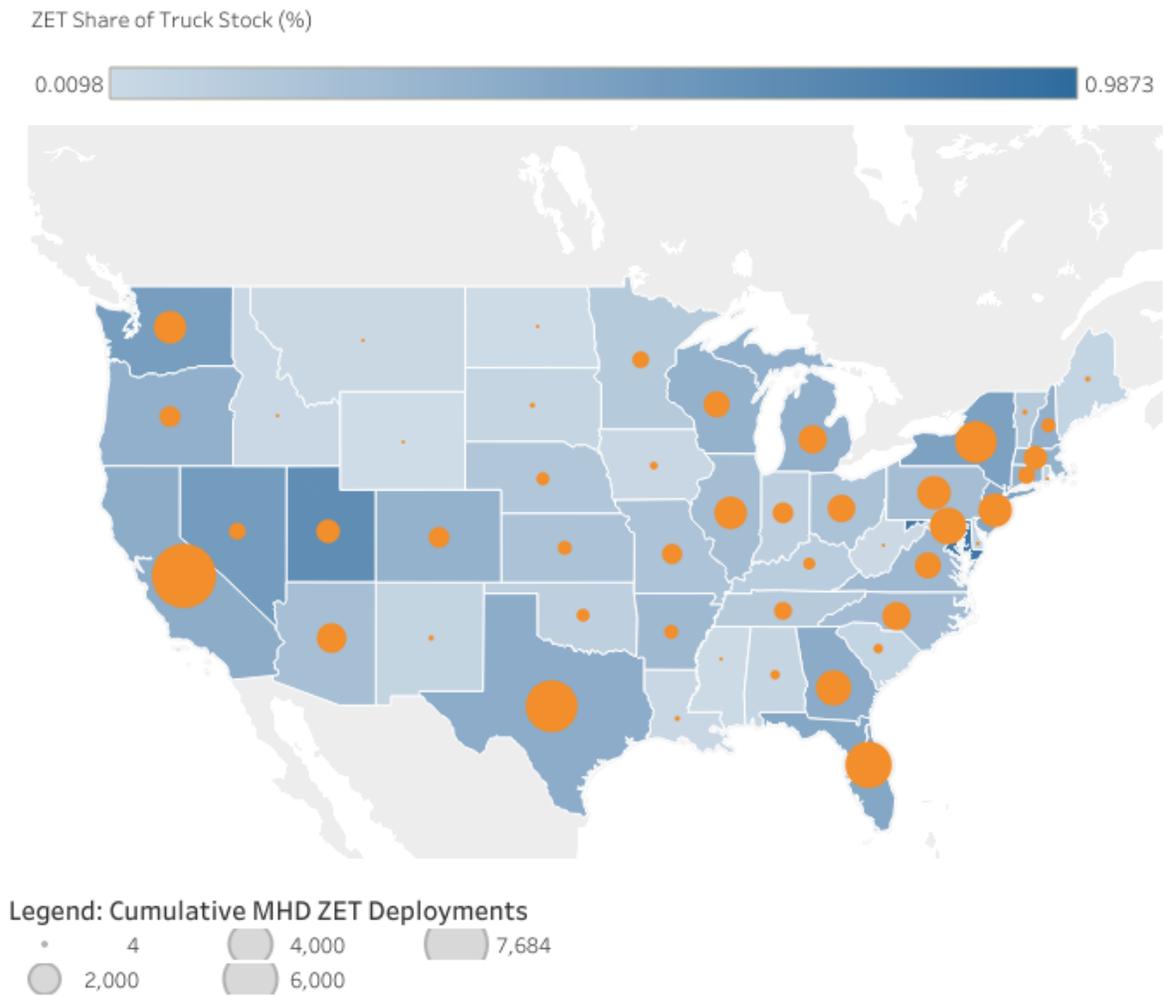
¹⁹ Total vehicles funded is based on Atlas analysis of award announcements from FHWA [111] and EPA [112, 113]. Many of the public award descriptions do not provide an estimate of vehicles funded and this is therefore an underestimate.

Cargo vans have a strong business case for electrifying due to short distances traveled, often under stop-and-go conditions, and return-to-base operations. Given these advantages, the EPA Clean Heavy Duty Vehicles program focused instead on class 6 and 7 vehicles, larger than cargo vans, but smaller than tractor trailers. There is a lot of potential in this market, which includes garbage trucks, regional delivery, and other vocational vehicles since these vehicles tend to also have return to base operations, though they are larger and require more power. While it is difficult to estimate the degree to which the EPA program spurred growth in the market beyond the EPA-funded vehicles, demonstrating more electric medium- and heavy-duty vehicle applications could spur other fleet owners to consider going electric. Model availability and production capacity have increased.

The last six months of 2024 saw a slowdown in zero emission truck purchases. Of the nearly 1 million total new truck registrations in 2024, zero emission trucks accounted for 2.3 percent in 2024, down from 3 percent in 2023 [117].

The states with the largest number of zero-emission truck deployments are California, Texas and Florida. The states with the highest growth rates in 2024 were Maryland, Georgia, and New Mexico, with impressive growth of 439, 247, and 141 percent, respectively [117].

Figure 23. Zero-Emission Truck Deployment by State



Source: CALSTART [119]

The percentage of total medium- and heavy-duty truck stock that is zero-emission varies from 0.01 percent in North Dakota to 0.99 percent in Maryland. Deployments rose faster in states that adopted the Advanced Clean Truck (ACT) standards²⁰. These states account for 39 percent of zero-emission truck deployments while they represent only 27 percent of the nation's total truck stock [117].

²⁰ In May 2025, Congress revoked California's Clean Air Act waiver [216] that allowed California (and subsequently other states) to adopt ACT standards that are more strict than federal standards. This creates new uncertainty for future clean truck production and adoption.

Box 7. Spotlight: New Electric Recycling Trucks Will Help Michigan Communities Reduce Pollution, Save Money, and Provide New Workforce Opportunities

With a \$4.4 million grant from the EPA Clean Heavy-Duty Vehicle Program, the Michigan state government will purchase 15 new electric recycling trucks (along with 15 charging stations) to replace polluting diesel trucks in overburdened communities across three counties. Not only will the replacements cut harmful pollution, but the state also points to lower operating costs which will save taxpayers money over time. This grant will also be used to train 30 drivers and mechanics on how to work with electric vehicles, giving them new skills and ensuring the Michigan workforce can lead in the clean economy [120].

In addition to the trucking sector, the federal programs are also advancing emissions reduction at ports. According to the American Association of Port Authorities (AAPA), “The two pieces of landmark legislation [IIJA and IRA] are allowing ports to pursue decarbonization projects they never thought feasible” [121].

Prior to the Clean Ports Program, there were 19 U.S ports with shore power, 13 of which had high voltage shore power for cruise, container, or refrigerated ships and nine with low voltage shore power for fishing, tug, or off-shore support vessels [122]. The 15 shore power projects funded through the Clean Ports Program represent a significant increase in U.S. shore power. According to AAPA, “Shore power installations are very expensive and require upgrades to the port and grid infrastructure. Public private partnerships and government grants play a crucial role” [121].

Table 4: Shore Power at U.S. Ports, Before and After the EPA Clean Ports Program

Ports with Shore Power Prior to IRA	EPA Clean Ports Program Shore Power Projects
Long Beach, CA	Anacortes, WA
Juneau, AK	Atlantic Highlands Municipal Harbor, NY, NJ
Tacoma, WA	Cleveland, OH
Los Angeles, CA	Corpus Christi, TX
New Bedford, MA	Illinois International Port District, IL
Boston, MA	New London, CT
Oakland, CA	Port Angeles, WA
Swinomish Tribal Community, WA	Port of New York and New Jersey, NY, NJ
Hueneme, CA	Savannah, GA
Brooklyn, NY	Seward, AK
Fourchon, LA	Stockton, CA
Port Lake Charles, LA	Vancouver, WA
Miami, FL	San Diego, CA*
Galveston, TX	San Francisco, CA*
Baltimore, MD	Los Angeles, CA*
Philadelphia, PA	
Seattle, WA	
San Diego, CA	
San Francisco, CA	
Los Angeles, CA	

*The Clean Ports Program shore power is not the port’s first shore power project.

Sources: EPA [122, 112]

Geographically, California ports are leading on shore power due to California regulations limiting emissions at ports [123]. At the Port of Los Angeles, 97 percent of container ship calls in 2024 connected to shore power systems, up from 68 percent in 2021 [124]. In addition, China requires the use of shore power, increasing the percent of ships operating in the Pacific that are equipped with shore power [122]. European Union regulations require E.U. ports to provide shore power starting in 2025, and as such there are likely to be more shore power-ready vessels in the Atlantic [122].

Continuous Improvement and Engagement with Port Communities

One of the goals for the Clean Ports Program was to support a broader transition to clean ports beyond the awards available, by demonstrating successful air quality improvement approaches with potential applications in every part of the country. The 29 planning projects funded, along with the experiences from the implementation projects, will go a long way towards meeting this goal, according to interviews with EPA managers. In addition, EPA worked hard to link the Clean Ports Program with relevant DOE and DOT programs to maximize impact. EPA, DOE, and DOT coordinated strategy and policy through the U.S National Blueprint for Transportation Decarbonization [125], the Maritime Action Plan [115], and the Medium and Heavy-Duty Vehicle Action Plan [114].

Another goal of the Clean Ports program was to help ensure that meaningful stakeholder engagement becomes a part of port industry standard practices. All of the grants required community engagement and applications received higher scores for including exceptional community engagement plans. EPA maintains a toolkit, primer, and roadmap as well as findings from earlier pilot projects on their website to help ports and communities collaborate [126].

Box 8. Spotlight: Clean Ports and Vehicles Grants to Oakland Offer Leap Forward to Electrification and Health

The Port of Oakland plays a critical role in national commerce but also has a major impact on the health of the adjacent West Oakland community, where one in five children has asthma and are seven times more likely to be hospitalized for it than children anywhere else in California [127]. Research has directly tied elevated rates of asthma and cancer in West Oakland to poor air quality from the port [128] [129]. The port has been working on reducing its emissions since the 2000s, with major milestones in 2012, when it installed a shore power system, and in 2019 with the release of the port's emissions reduction plan.

A \$322 million grant from the EPA Clean Ports Program will help the port leap forward in its efforts by funding 475 zero-emission drayage trucks, 188 pieces of zero-emissions cargo handling equipment, 213 charging stations, six battery energy storage systems, and a solar array to support the new electric powered equipment [130]. These upgrades could prevent 226,000 tons of greenhouse gases, the equivalent of taking 52,000 gasoline-powered cars off the road for a year, while also steeply reducing harmful particulate matter emissions. The grant includes funding for community groups to monitor air quality, helping the port to track the direct impact of the projects over the next few years [130]. Under the project, the port will open 300 new jobs, 87 of which will go to local residents, and the port is partnering with local organizations for workforce training [130].

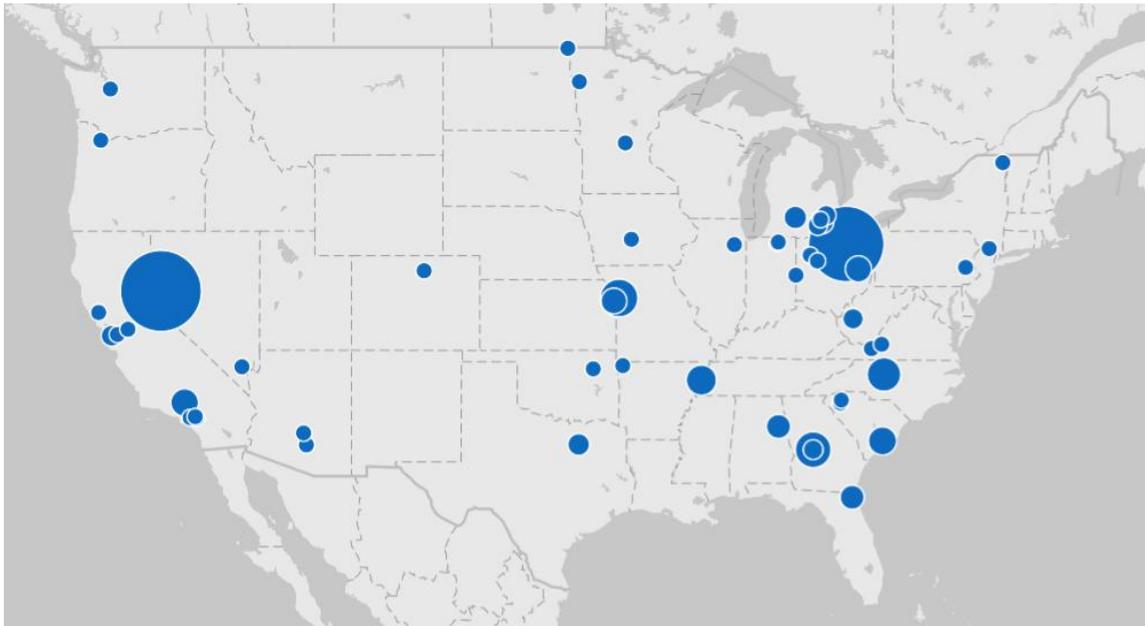
The port also received a \$10.5 million award from the EPA CHDV program in partnership with United Parcel Service (UPS), a major tenant at the port. The grant will fund 60 electric delivery trucks and new chargers at three logistics centers. UPS is providing \$5 million in matching funds [131].

The EPA grants require community engagement at every stage of the project. The port partnered with community groups, including the West Oakland Cultural Action Network, West Oakland Environmental Indicators Project, Rose Foundation for Communities and the Environment, and Black Cultural Zone. David Peters of the West Oakland Cultural Action Network noted: "It's a way to begin healing some of the generational neighborhood trauma from when we weren't able to affect these institutions" [130].

Private Investment and Job Creation

As of June 2025, **the private sector has announced over \$4.2 billion in investment for U.S.-based medium- and heavy-duty manufacturing. These announcements could create an estimated 8,500 new manufacturing jobs** [28]. This is in addition to investments in battery supply chains supporting demand for electric vehicles. IIJA funding and other federal and state policies are supported by (and in some cases, are spurring) new investment and jobs in the domestic supply chain. The EPA CHDV and Clean Ports programs are subject to domestic content requirements (with some exceptions) which support domestic manufacturing workers [113, 132].

Figure 24: Domestic Manufacturing Investments for Medium- and Heavy-Duty Electric Vehicle Assembly (as of June 2025)



The size of the circle represents the relative size of the investment.

Source: Clean Economy Tracker [28]

Increasing demand for electric heavy-duty vehicles is also creating economic opportunities to build out charging infrastructure. As of June 2025, **private sector companies and utilities have announced about \$6.2 billion in investments for medium- and heavy-duty vehicle charging infrastructure** [133], which will support new jobs in charger installation, maintenance, general construction, and other fields.

Pollution Reduction and Health Benefits

Heavy-duty vehicles represent a small portion of all vehicles in the United States, but they account for more than half of all nitrogen oxides (NO_x) and particulate matter emissions in the transportation sector [134]. Investments in electric trucks reduce emissions associated with conventional diesel trucks. Based on awards to date, **the more than 1,700 truck replacements funded by the EPA CHDV program and the EPA Clean Ports program could lead to air quality improvements worth between \$13 million and \$17 million in health cost savings per year across the country.**²¹ These replacements could also reduce about 71,000 tons of climate pollution reduction (in carbon dioxide equivalent). This is in addition to pollution reduction from electrifying non-truck port equipment or shore power projects under the EPA Clean Ports program, and from vehicles funded by the FHWA Reduction of Truck Emissions at Ports program. For example, according to EPA, shore power can reduce up to 98 percent of local air pollution depending on the power sources and can also save money if electricity costs are lower than fuel costs [135].

Additionally, air pollution disproportionately impacts communities living near high levels of freight traffic, such as neighborhoods adjacent to highways and ports, so the transition to electric trucks will have outsized impacts on these historically burdened communities. This is why the EPA CHDV program targeted communities with some of the worst air quality—**\$523 million of the \$735 million awarded under the CHDV program, or 71 percent, went to projects in areas that are in nonattainment for EPA air quality standards** [113].

²¹ Atlas calculations, using the CMAQ Emissions Calculator Toolkit (Electric Vehicles and Charging Infrastructure module) [212] and the EPA CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) [209]. For CHDV program awards that funded multiple vehicle types, the number of vehicles were distributed equally between each type.

Box 9. Spotlight: Award for Port of Los Angeles Will Reduce Pollution and Support Union Labor

The Port of Los Angeles, the busiest trade port in the United States, applied for EPA Clean Port Program funding to support its goal of 100 percent zero-emissions terminal operations by 2030, and was awarded \$412 million. This will be matched with \$236 million of private investment. The funding will go towards new electric trucks and equipment, charging ports, workforce development, and community engagement – providing end-to-end support for the port’s electric transformation. The project was endorsed by a variety of local leaders, environmental and community groups, and unions as a way to improve air quality and provide new economic opportunities [136].



Photo Source: Port of Los Angeles [137]

Cost Savings

For many heavy-duty fleet operators, switching to electric vehicles may be attractive if there is a lower total cost of ownership (including purchase of the vehicle, fuel, maintenance, and repairs). Typically, electric vehicles have higher upfront costs today but lower fueling and maintenance costs than conventional vehicles. Because the heavy-duty vehicle market is quite diverse, different types of vehicles and use cases have different balances of upfront

costs versus ongoing costs. Some electric heavy-duty vehicle segments have already been shown to have a lower total cost of ownership today [138], and others are expected to achieve cost parity over the next few years [139]. Federal and state incentives, along with continuous innovation in battery and vehicle technology, lower the upfront vehicle costs and can ensure overall cost savings [140]. Additionally, federal EV charging programs like the CFI Program and tax credits for charging equipment can further defray the cost of new charging infrastructure.

Fuel costs have been a significant driver of increasing trucking costs in recent years, which in turn puts pressure on prices of consumer goods. Switching to electric vehicles not only decreases overall energy consumption due to higher efficiency, but it also insulates companies and consumers from volatile diesel prices [141].

Deployment Challenges

Several challenges delayed or limited program implementation, some of which were due to the program structures themselves and some due to broader market and policy factors. Understanding and proactively addressing these potential barriers going forward can make future deployment faster and more cost-effective.

The following challenges are specific to deployment funded by federal programs (e.g., Reducing Truck Emissions at Ports, CFI, EPA Clean Ports, and EPA CHDV).

- **Public Access Requirements:** While federal funding for charging infrastructure can help reduce fueling costs for fleet operators, programs like CFI require that chargers be publicly accessible. In many heavy-duty vehicle segments, truck fleet operators rely on having their own private depots or stations with guaranteed access. This limits the pool of fleets that can benefit from federal charging investments.
- **Undersubscription for Some Technologies:** For the EPA CHDV program, the agency did not receive enough qualified applications to obligate the full funding available. The scope of eligible projects was limited to class 6 and 7 heavy duty vehicles (which include school buses, garbage trucks, regional delivery, and other vocational vehicles), and EPA set the expectation in the notice of funding opportunity that 70% of the funding would go towards school buses. The funding was also only open to public agencies. In addition, vehicles being replaced were required to have accumulated at least 7,000 miles/year during each of the two years prior to replacement. Broader eligibility for private fleet operators and more vehicle types may have generated more interest. Finally, there was a heavy stream of other related grants being announced around the same time, with applicants having limited capacity to field all of the funding opportunities.

- **Sourcing Equipment:** Build America Buy America (BABA) requirements require that federally funded infrastructure projects have a certain percentage of content from domestic sources and be manufactured in the United States. The intent is to spur domestic manufacturing, but it can also cause supply chain bottlenecks for U.S.-manufactured equipment. Many state transportation agencies [37] and port authorities [142] consider BABA requirements a major barrier to deployment of EV charging and port electrification infrastructure.

In addition to program-specific challenges, the following are challenges to deployment of clean freight vehicles, not necessarily tied to federal funding.

- **High Upfront Costs:** As described in the previous section, the total cost of ownership could be lower for electric heavy-duty vehicle fleets due to lower fuel and maintenance costs, but high upfront costs for vehicles and charging infrastructure remain a challenge for fleet operators. This is especially challenging for small fleets, which make up most passenger and freight carrier vehicles and typically have less access to information and financing [143]. The difference in upfront costs between zero-emission and conventional vehicles varies significantly by vehicle type—for example, the difference may be very small for some cargo vans but more than double the cost of the average Class 8 heavy-duty diesel truck [144]. Additionally, most port authorities report financial constraints as the top barrier to port electrification [142].
- **Utility Infrastructure:** Both electric heavy-duty vehicle charging and shore power projects often require significant utility infrastructure upgrades and planning. Charging needs can vary significantly for different heavy-duty segments – for example, depot charging for delivery trucks with fixed routes versus high-powered en-route charging for long-haul tractor-trailers [145]. New high-powered charging sites at depots, ports, or along corridors have large electricity demands and often require utility infrastructure upgrades, which requires close coordination with utilities and can take up to two years [39]. This is also a concern for shore power projects, which can have particularly high electricity requirements for large ships [121]. These new challenges require building expertise among fleet operators, and they incur additional costs.
- **Delays in Megawatt Charging System Standard:** Megawatt (MW) charging systems enable a power level of up to 3.75 MW, enough to allow a heavy-duty vehicle to charge within the mandated 45-minute break time for drivers. Industry members complained that delays in releasing a standard for megawatt charging systems were hindering deployment of charging infrastructure focused on MHDV.

[146] The Society of Automotive Engineers (SAE), a global association that establishes voluntary consensus standards, released a standard in March 2025 [147].

Impacts to Program Implementation from Changing Federal Policy

The “One Big Beautiful Bill Act” that Congress passed in July 2025 rescinds unobligated funds from many IRA programs, including the EPA Clean Heavy Duty Vehicles Program. According to Atlas analysis of USA Spending data, \$631 million was obligated [3], leaving \$369 million at risk of being rescinded.

For the FHWA Reduction of Truck Emissions at Port Facilities programs, awards were made for fiscal years 2022 and 2023. FHWA had planned to issue a solicitation for fiscal year 2024 and 2025 funds in early 2025. However, that solicitation has not yet been released.

For the FHWA CFI program, the agency had obligated \$215 million of the \$1.8 billion awarded (12 percent) prior to January 21, 2025. Since then, FHWA has been honoring those prior obligations under the CFI program but has not made any new obligations [3].

Case Studies

The following case studies highlight awards to two states from the CFI, EPA Clean Ports, and EPA CHDV programs.

California South Coast AQMD's ELECTRIC Program

California's South Coast Air Quality Management District (AQMD) is responsible for improving air quality in Los Angeles, Orange, Riverside and San Bernardino counties. The region is a major hub of freight traffic, with the port of Los Angeles being the largest container port in the United States. That freight activity has major impacts on the local air quality in the South Coast AQMD's jurisdiction. To address this, South Coast AQMD applied for a grant through EPA's Clean Heavy-Duty Vehicles Program to fund the replacement of high-mileage heavy-duty internal combustion vehicles. EPA awarded South Coast AQMD nearly \$34 million in December 2024 [148].

South Coast AQMD's program that received EPA's award, called the Empowering Local Environmental Change Through Replacing Internal Combustion with Battery Electric Class 6 or 7 Vehicles (ELECTRIC) program, aims to replace 126 older Class 6 and 7 internal combustion freight delivery vehicles with new battery-electric trucks [149]. The vehicles

being targeted by the program include box trucks, transportation refrigeration unit trucks, and step vans. It will also fund 84 new chargers to support the electric vehicles.

According to South Coast AQMD and EPA, the ELECTRIC program “will significantly reduce emissions of nitrogen oxide, particulate matter, and greenhouse gasses, improving air quality for those who live and breathe nearby and reducing climate pollution” [150]. South Coast AQMD also plans to engage with local communities, ensuring they can equitably benefit from workforce training programs that will upskill the community to directly support deployment of new zero-emission technologies.

Illinois’ E-FREIGHT and Port Electrification Projects

Illinois received \$100 million from FHWA’s CFI Program and \$92 million from U.S. EPA’s Clean Ports Program [151]. This nearly \$200 million in 2024 alone is a major milestone for medium- and heavy-duty electrification in Illinois. Both awards will fund new EV charging infrastructure throughout the state for EV freight vehicles. Illinois’ state environmental protection agency led both of the grant proposals on behalf of a coalition of partners.

The CFI award, called the Equitable Future-Ready Electrification Infrastructure for Green Heavy-duty Transportation (E-FREIGHT) Project, was an ambitious partnership between Illinois environmental protection agency, Prologis, Tesla, Gage Zero, and Pilot Flying J [152]. The multilateral partnership received the largest individual award issued by FHWA in CFI’s second round, nearly doubling the second largest award (\$55 million to CA for freight charging). The E-FREIGHT Project will deploy 14 charging stations with 345 chargers. Many of the locations will include both DCFC chargers and Megawatt Charging Systems (MCS), which is a crucial technology to ensure fast charging for heavy-duty freight vehicles [153]. Not only will these charging stations advance electric freight travel, they will also be publicly accessible, with most located in or nearby disadvantaged communities [154].

In addition to charging infrastructure, the Clean Ports award will fund the transition to electric drayage trucks, locomotives, and freight handling equipment—as well as on-site solar generation and battery energy storage systems in several Illinois ports [155]. The state partnered with the Illinois International Port District, the Kaskaskia Regional Port District, the Rock Island County Metropolitan Mass Transit District, the Shawneetown Regional Port District, and the Upper Mississippi River International Port District to receive funding from the U.S. EPA’s Clean Ports Program. The Illinois International Port District, which comprises the port of Chicago, is a hub for major freight shipping across the Midwest. E-FREIGHT aims to set up a statewide electrified freight network, connecting the port of Chicago to the other partners in this award that are strategically located along the Mississippi River, the Illinois Waterway, and major freight routes through the state [153].

Active Transportation and Micromobility



Roadway design to support pedestrian safety near a school.

Source: LADOT and NACTO [156]

Key Takeaways

- The Safe Streets and Roads for All (SS4A) program, established under the IIJA, provided an infusion of funding to address high fatality levels across thousands of local communities in the United States, while also enabling clean active transportation options. The program helped agencies focus on safety outcomes, especially for pedestrians, and provided resources for ambitious plans to eliminate traffic fatalities.
- Congress also provided funding to reconnect communities harmed by past transportation infrastructure decisions by, for instance, building pedestrian connections across highways that divided neighborhoods. The Neighborhood Access and Equity Program under IRA provided \$3.2 billion in funding.

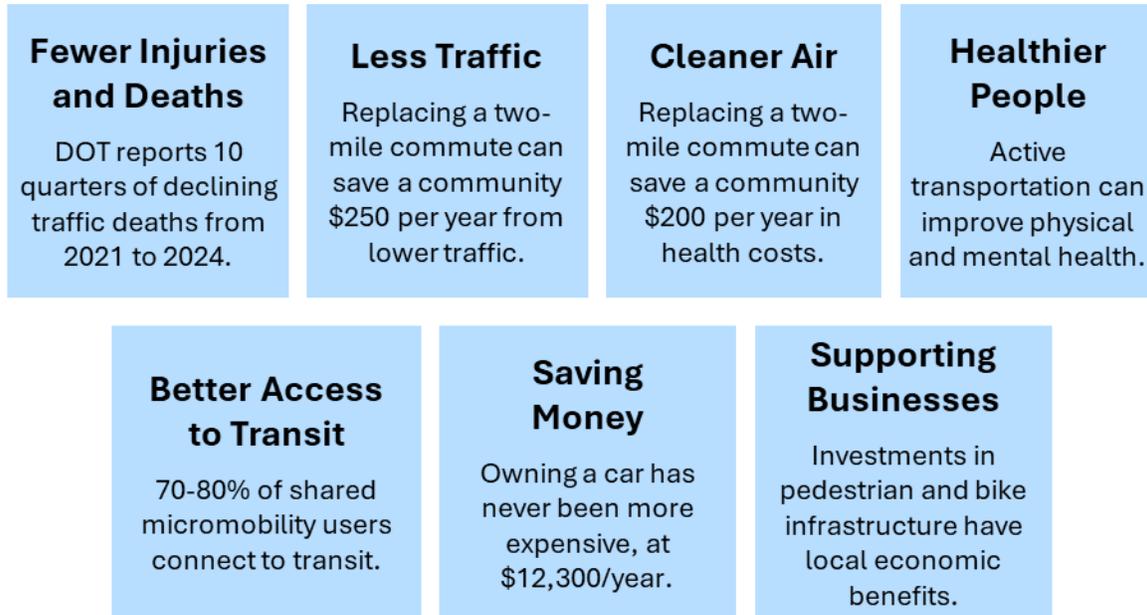
- FHWA formula funds can be used for pedestrian and bicycle projects, but most states devote less than three percent of their FHWA funds to that purpose.
- FHWA programs focused on emissions reduction, such as CMAQ and the Carbon Reduction Program funded pedestrian and bicycle projects. States devoted 16 percent and five percent of funds, respectively, from these programs to pedestrian and bicycle projects.
- Investments in pedestrian and bicycle infrastructure can reduce injuries and deaths, lower congestion and traffic delays, reduce air pollution, improve physical activity, provide better access to public transportation, save money, and support local businesses.
- Deployment challenges for IIJA active transportation programs include significant oversubscription, an imbalance in planning versus implementation funding, and limited eligibility for micromobility projects such as shared bicycles.
- Congress rescinded \$2.7 billion in funding for the Neighborhood Access and Equity Program which had been competitively awarded to communities but not yet formally obligated, disappointing applicants who had spent substantial time and energy on proposals.

Figure 25: Federally Funded Active Transportation and Micromobility Deployment Metrics (as of August 2025)

<p>Safe Streets and Roads for All (SS4A)</p>	<p>\$527 million Total Obligated</p>	<p>1,839 Projects Awarded</p>	<p>1,600 Communities</p>
<p>Active Transportation Infrastructure Investment Program (ATIIP)</p>	<p>\$45 Million Total Awarded</p>	<p>14 Projects Awarded</p>	<p>14 States and Territories</p>

Source: Climate Program Portal [3], U.S. DOT [157, 158, 159]

Figure 26: Potential Federal Active Transportation and Micromobility Investment Benefits



Source: Various – see section on Progress Towards Key Outcomes

Program Implementation Status

Several U.S. Department of Transportation (DOT) programs support the deployment of safe active transportation infrastructure networks, such as sidewalks, bike lanes, and street designs, that provide convenient transportation options while reducing emissions. Active transportation projects are eligible under multiple general purpose and safety-related DOT formula programs. In addition, the IIJA created and expanded programs focused specifically on active transportation and safety. This section focuses on programs targeted to active transportation and then provides information on the percentage of funds from other programs that go to active transportation to provide a more comprehensive picture.

Table 5: IIJA Programs for Active Transportation

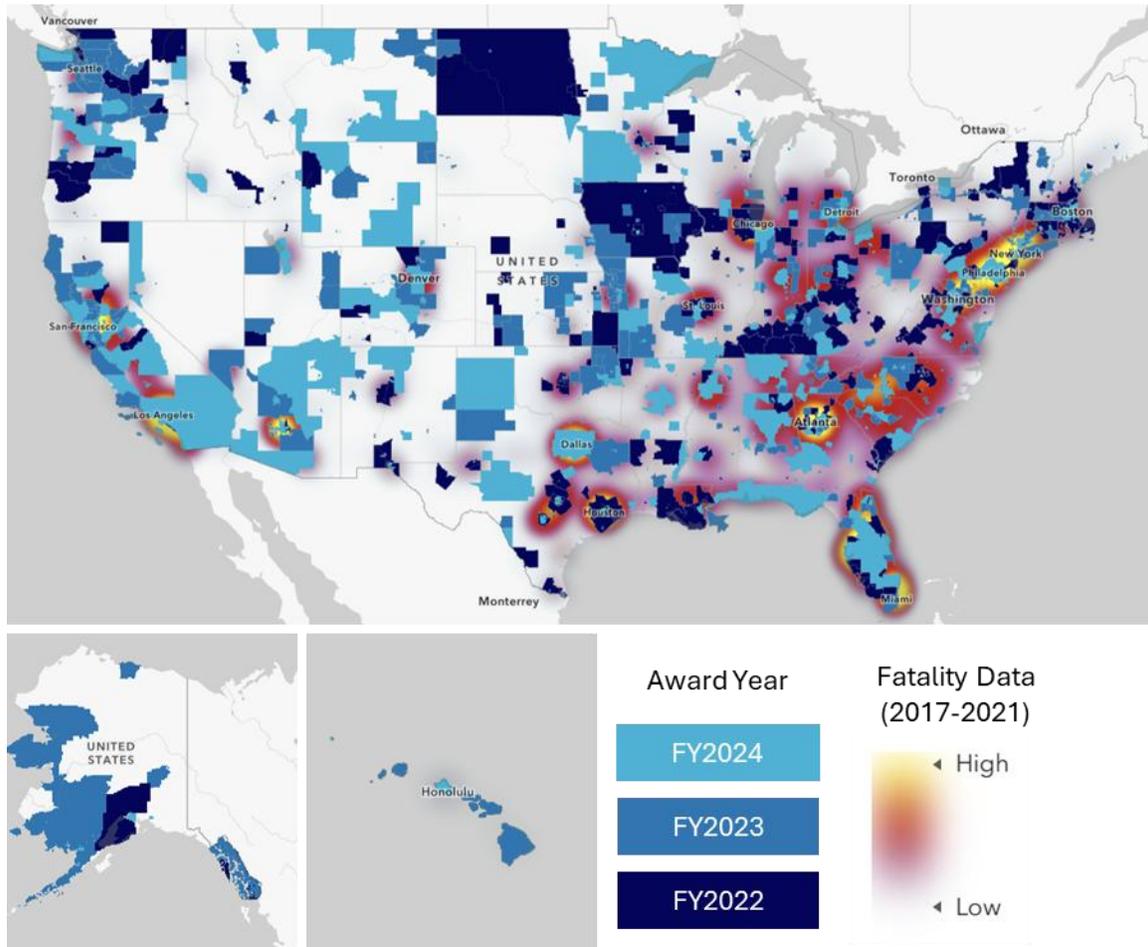
Type	Program	Description
Competitive Grant	DOT Safe Streets and Roads for All (SS4A)	Funds local initiatives to prevent roadway deaths and injuries, with an emphasis on protecting pedestrians and cyclists.
	FHWA Active Transportation Infrastructure Investment Program (ATIIP)	Funds local projects to expand and connect active transportation networks.
	DOT Better Utilizing Investments to Leverage Development (BUILD)	
	DOT Reconnecting Communities Pilot	Multimodal competitive grant programs.
	DOT Neighborhood Access and Equity	
Formula Funding	FHWA Surface Transportation Block Grant (STBG) Transportation Alternatives	State formula funding that can be used for active transportation or micromobility projects.
	FHWA Carbon Reduction Program	
	FHWA Congestion Mitigation and Air Quality (CMAQ)	

IIJA established the Safe Streets and Roads for All (SS4A) discretionary grant program with \$5 billion in funding over five years (fiscal years 2022-2026). SS4A funds local initiatives at both the planning and implementation phases to prevent roadway deaths and serious injuries. There is an emphasis on pedestrian and bicyclist safety, with 94 percent of awards going to provide significant safety benefits to pedestrians and bicyclists and over half to people taking public transportation [160]. Lack of safety is a key barrier towards more people walking or biking, as illustrated by a study in Milwaukee [161].

DOT has so far completed three rounds of competitions for grants, for fiscal years 2022, 2023, and 2024. As of June 2025, **SS4A had awarded \$2.9 billion to 1,839 projects [3] in 1,600 communities in all 50 states and Puerto Rico [157]**. As of November 2025, 97 percent of the 511 fiscal year 2022 award recipients and 57 percent of the 620 fiscal year

2023 award recipients “have executed grant agreements in place and initial funding amounts obligated” [162]. Grants were evaluated based on their impact on improving safety; Figure 27 shows grant locations overlaid on areas of high road fatalities.

Figure 27: SS4A Grant Awards Overlaid on Areas with High Road Fatalities



Source: U.S. DOT [163]

IIJA also established the Active Transportation Infrastructure Investment Program (ATIIP), a competitive grant program that supports projects to fill gaps in active transportation networks within and between communities. The program received \$45 million in funding for fiscal year 2023 [158]. **ATIIP was highly competitive, with a total of 352 applications worth \$1.8 billion for that first round of funding, from which DOT made 14 awards in January 2025** [159].

As far as formula funding programs, IIJA increased the set-aside for Transportation Alternatives (pedestrian and bicycle infrastructure projects) under the Surface Transportation Block Grant (STBG) program. The Transportation Alternatives set-aside is now 10 percent of STBG funds, or \$7.2 billion for the five years of IIJA, rather than the fixed amount previously. This represents a 60 to 70 percent increase [164]. Program changes also increase local control of project selection by allowing states to suballocate up to 100 percent of the funding to municipalities rather than hold funding competitions at the state level. IIJA also added flexibility in cost share requirements by allowing Highway Safety Improvement Program (HSIP) funds to cover non-federal match. Despite the increase in resources, the Transportation Alternatives program is still oversubscribed. In fiscal year 2022, states received applications for seven times the amount of funding available [165].

Additionally, most FHWA formula funds can be used for bicycle and pedestrian infrastructure; however, states devote relatively small percentages of their total federal funds to these uses. Analysis of FHWA financial management system data from 2018 to 2023 shows that 40 states spent less than three percent of their federal highway apportionments on bike and pedestrian projects, while 10 spent three to six percent and one (Utah) spent 14 percent [166].²²

The Carbon Reduction Program and the CMAQ program are also often used to fund active transportation and micromobility projects, though they have broader eligibilities.

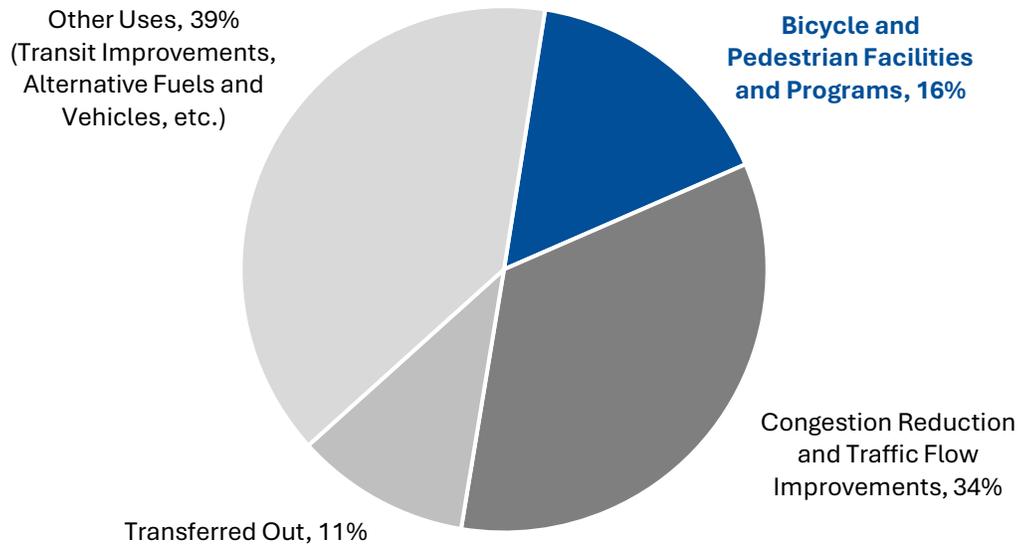
Under the Carbon Reduction Program, states were required to develop Carbon Reduction Strategies (CRS), which offer insights into how states intend to use Carbon Reduction Program and other funds on emission reducing projects, including active transportation projects. Active transportation was the most common emission reduction strategy discussed in CRSs, with 49 out of 51 CRSs²³ discussing active transportation [167]. FHWA tracking of bike and pedestrian related obligations shows that of the \$1.6 billion in Carbon Reduction Program funds states obligated in fiscal years 2022 and 2023, \$76 million [168], or 4.7 percent, was coded for bike and pedestrian projects.

Under the CMAQ program, 16 percent of fiscal year 2022-2024 funding went to active transportation, calculating from data made available in the CMAQ Public Access System (Figure 28) [169]. This percentage has been relatively stable over time, indicating that active transportation projects are a common but not predominant use of CMAQ funds.

²² FHWA cautions though that states code their spending in the financial management system differently and these numbers may not be capturing bike and pedestrian projects that are a part of larger highway projects or ones that are coded with general terms such as “construction” [168].

²³ The 50 states, the District of Columbia, and Puerto Rico were required to develop CRSs. All did so except for Florida.

Figure 28: Use of CMAQ Funding, Fiscal Years 2022-2024



Source: CMAQ Public Access System [169]

Finally, DOT’s multimodal competitive grant programs also include active transportation and micromobility projects. The BUILD program (formerly known as RAISE) received \$7.5 billion over five years from IIJA and includes statutorily required criteria on environmental sustainability and quality of life.²⁴ The Reconnecting Communities Pilot program received \$1 billion from IRA over five years to reconnect communities harmed by past transportation infrastructure decisions by, for instance, building pedestrian connections across highways that divided neighborhoods. The Neighborhood Access and Equity Program under IRA provided \$3.2 billion for affordable transportation strategies to improve community connectivity. DOT issued a combined notice of funding opportunity for both programs and awarded a total of over \$4 billion in grants for 257 projects for fiscal years 2022-2024, with significant oversubscription in every round [170, 171, 172].

²⁴ 49 USC 6702

Box 10. Spotlight: Safe Access for Electric Micromobility, New York, NY

New York City received a \$25 million RAISE grant to fund the engineering and installation of 173 electric bike charging stations at 53 outdoor New York City Housing Authority sites. The project includes electrical supply, utilities, drainage, fire safety requirements, security, safety, lighting, and accessibility. It improves safety by providing safe, outdoor charging access to residents as an alternative to fire risks from charging lithium-ion batteries indoors [173]. Electric bikes and scooters provide convenient, low-cost transportation for food delivery workers, residents, and visitors.



Protected bike lane on 9th Avenue.
Photo Source: NYC DOT [174]

Progress Towards Key Outcomes

The federal support for active transportation is expected to help improve roadway safety and congestion, reduce pollution and improve health, and save money. It also can support access to transit which further improves these outcomes.

Pedestrian Safety

Traffic fatalities are one of the top causes of death in the United States, accounting for nearly 41,000 deaths in 2023 [79]. Rural communities, low-income communities, and people of color are disproportionately impacted [175]. Reducing traffic fatalities is a key goal of DOT's active transportation program implementation. In particular, the SS4A program is intended to raise awareness of (and provide dedicated funding and technical assistance for) pedestrian safety issues, shifting focus from only vehicle safety to safety solutions for all road users.

Often, actions to make walking and biking safer are simple and cost-effective – such as upgrading streetlights, completing sidewalk networks, and adding raised crosswalks [176]. **The SS4A program is supporting widespread deployment of these proven solutions in over 1,600 communities.** In its 2025 progress update for the National Roadway Safety Strategy (NRSS), **DOT reported ten consecutive quarters of declining traffic fatalities following a peak in 2021 and lists SS4A as the top action under activities for achieving NRSS milestones** [79].

Box 11. Spotlight: White Earth Nation in Minnesota Will Improve Safety with Shared-Use Pathway

In the community of Naytahwaush, the White Earth Nation received a \$1.1 million SS4A grant to create a new shared-use pathway to connect residents to key facilities. Many households have only one or no vehicles, and residents often must walk or bike on the shoulders of a highway. The grant will support planning and construction of the pathway, as well as lighting improvements [177].

Congestion Reduction

As commute times [81] and traffic [82] are continuing to grow after a brief dip during the pandemic, switching out some car trips for walking, biking, or scootering can lead to lower congestion and traffic delays. More than half of all transportation trips in 2021 (including all

modes) were less than three miles, and many were less than one mile, making it feasible to opt for active transportation in many cases [178]. For example, studies show that micromobility often replaces car trips, and in some cases allows users to avoid owning a car altogether [179, 180, 181]. This benefits all types of travelers, including walkers and bikers, drivers, and transit riders. Reducing congestion has benefits for individuals but also has a quantifiable economic impact. For example, a case study of the Los Angeles transit system found that the economic benefits of congestion reduction are on the order of billions of dollars per year [182]. **If even a single person can switch out a two-mile daily drive to and from work for walking or biking, it would have a benefit of about \$240 per year for the community from reduced traffic delays.**²⁵

Pollution Reduction and Health Benefits

Active transportation and micromobility have significant health benefits. By reducing total car trips, these projects reduce air pollution such as nitrogen oxides (NOx) and particulate matter which cause asthma attacks, heart attacks, cancer, and other conditions. According to the EPA, 140 million Americans live in counties with air pollution levels above EPA standards [183]. By enabling cleaner air and reducing poor health conditions, Federal investments in active transportation and micromobility will provide significant health cost savings. For example, **if a single person can switch out a two-mile daily drive to and from work for walking or biking, it could save the community an estimated \$200 per year in health costs.**²⁶ Additionally, replacing some car trips with walking or biking promotes physical activity, which is well-documented to improve an individual's physical health and may also improve mental health at the same time [184].

While it is challenging to comprehensively track the climate impact of bike and pedestrian projects, there are many examples of potential benefits. For instance, one study shows that expanding sidewalks can cut local vehicle-related emissions by up to 6.4 percent [185], while another shows bikeshare programs can reduce between 40 and 5,400 tons of greenhouse gas emissions annually in major cities [186]. Additionally, mode shifts to e-bikes for trips under five miles across major metro areas could avoid up to 1.8 million metric tons of emissions annually, equivalent to saving more than 4 million barrels of oil [187].

²⁵ Atlas analysis using the RMI Smarter MODES Calculator [215]. Assumes an individual drives to and from work 20 days per month. The monetary benefit represents additional time available for work or recreation for the individuals affected by the delay.

²⁶ Atlas analysis using the RMI Smarter MODES Calculator [215]. Assumes an individual drives to and from work 20 days per month.

Access to Transit

Federal investments in active transportation and micromobility can help solve the “first/last mile” challenge for public transportation. That is, if people live more than about a half a mile from transit, they are much less likely to use it. Surveys show that about 70-80 percent of shared bike or scooter users report using it to connect to transit [179, 180]. Access to shared micromobility, along with investments in safer walking and biking routes, can greatly expand the reach of transit systems without more costly investments in transit expansion. Increasing access to transit also magnifies the safety, air quality, and congestion reduction benefits of active transportation and micromobility investments.

Box 12. Spotlight: SS4A Investments in California Will Connect Walkers and Bikers to Transit

Sonoma-Marín Area Rail Transit (SMART) in northern California maintains over 28 miles of pathways to provide first/last mile connections to their stations and allow for longer bicycle commutes along the train right-of-way. A \$7 million grant from the SS4A program will help SMART close a nearly five-mile gap in their network that leads to the Sonoma County Airport. SMART reports that the pathway system enables hundreds of thousands of walking and biking trips in a year, not only for connecting to the train but also for commuting, recreation, and generally connecting to destinations in the area [188].

Cost Savings and Economic Impact

The average cost of owning a personal vehicle is at an all-time high, at about \$12,300 per year [189]. Federal investments that enable Americans to safely walk, bike, or take transit to more destinations can save them money on gas, car maintenance, and parking or can make a car unnecessary.

In addition to saving money for individuals, there are also benefits to the whole community. For example, swapping out car trips with active transportation can reduce road maintenance costs [190]. Making it easier for Americans to walk or bike can also spur more business for local stores and restaurants. Studies show that investments in infrastructure like bike lanes, bike parking, sidewalks, plazas, and crosswalks often have a positive economic impact on nearby businesses [191].

Deployment Challenges

For new federal funding programs, understanding and proactively addressing challenges from early implementation can make future deployment faster and more cost-effective. The following challenges are specific to deployment of the SS4A and ATIIIP programs.

- **More Funding Needed:** Both the SS4A and ATIIIP programs, which were newly created by IIJA, were significantly oversubscribed. In the first fiscal year of the SS4A program for example, the agency received about \$3 billion in applications, or three times the funding available [92]. For the first round of funding for ATIIIP, the agency received \$1.8 billion in applications, or about 40 times the funding available, and the program currently does not have appropriations for future funding rounds [159]. This demonstrates that there is a high demand for these projects that this funding cannot sufficiently meet. Further, with so much competition for a small bucket of funding, these early awards could be skewed towards locales with more grant-writing capacity.
- **Imbalance of Planning and Implementation Funding:** Additionally, for SS4A funding, IIJA required that 40 percent go toward planning grants and 60 percent go towards capital projects (i.e., implementation). Among applicants in the first funding round, implementation funds were oversubscribed, and planning funds were undersubscribed. Forty percent is a high set aside for planning, given that planning projects cost orders of magnitude less than implementation projects. For comparison, while the EPA Clean Ports program funded 29 planning projects and 25 implementation projects, the planning projects only comprised 2 percent of spending. To at least partially alleviate the imbalance in SS4A, with subsequent funding rounds the agency expanded planning grants to encompass both planning and demonstration activities and engaged in outreach to boost awareness.
- **Limited Eligibility for Micromobility:** While SS4A provided significant new funding to support active transportation, only projects focused on safety improvements were eligible. This can exclude some micromobility or multi-modal projects that do not cleanly fit into the scope of safety improvements. Other programs that could be used for those projects either had very little funding available or were larger formula funds that were not solely dedicated to active transportation. Further, FTA public transportation grant programs could be another source of funding for micromobility projects that benefit transit, but current law does not allow FTA to fund the purchase of shared use bicycles or scooters [192]. FTA grants can fund construction of bike stations, but not the bicycles themselves. Allowing transit agencies to fund micromobility projects would help communities build integrated

public transit and micromobility systems, enhancing the reach and utility of both systems [193]. In addition, making operating expenses for shared micromobility explicitly eligible under the CMAQ program would help in funding these projects.

- **Build America Buy America Requirements:** While there is some flexibility for small projects under \$1 million [194], these requirements have been a challenge for state and local governments seeking to fund shared micromobility with federal funds.

Impacts to Program Implementation from Changing Federal Policy

SS4A projects that were awarded but not obligated at the start of the Trump Administration received additional review before being able to proceed to obligation. After this initial pause, obligations are resuming. In addition, DOT issued a notice of funding availability for fiscal year 2025 in March 2025, with proposals due at the end of June. The criteria on economic competitiveness, equity, workforce, and climate present in prior funding notices are no longer included. Current criteria are safety, under-served communities, and additional safety context. Projects that reduce lane capacity for vehicles will be “viewed less favorably.” Transit agencies not created by a state authority are no longer eligible recipients [195].

The “One Big Beautiful Bill Act” that Congress passed in July 2025 rescinded unobligated funds under the Neighborhood Access and Equity Program. Although awards were announced for all \$3.2 billion in funding under the program, \$2.7 billion remained unobligated [3] and as such will be rescinded.

Case Studies

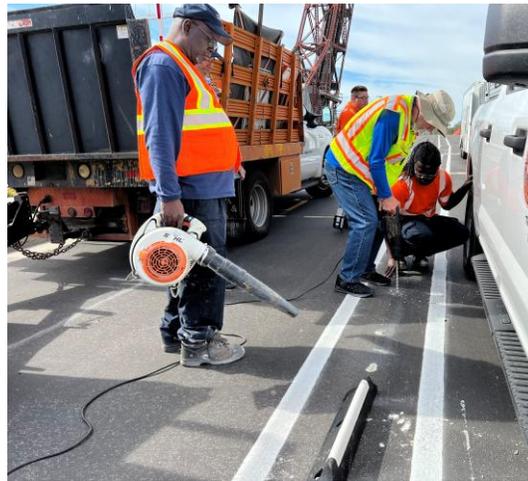
The following case studies highlight the impacts of SS4A awards on two communities working towards their own safe street goals.

Improving Safety in Tampa, Florida

Multiple SS4A grants are helping the Tampa metropolitan area improve safety for pedestrians in a concerted effort to save lives. Tampa ranks as one of the most dangerous metropolitan areas for pedestrians, with an average of 3.75 pedestrian deaths per 100,000 people, a rate four times deadlier than several of the metropolitan areas on the other end of the spectrum such as Pittsburgh, Boston, and Des Moines [196].

Recognizing the severity of the problem, Tampa’s mayor signed the Vision Zero pledge, which is a commitment to eliminate all traffic fatalities, and completed an action plan towards that goal in December 2021. Tampa identified 84 miles of roadway that account for 73 percent of fatalities despite comprising only 24 percent of total road miles within the city [197]. The city, county, and metropolitan planning organization (MPO) are now working together to implement the plan, with critical funding for implementation coming from federal SS4A grants.

The City of Tampa’s \$20 million SS4A grant is funding a “Quick Build” program of 17 safety projects within the high fatality corridors. The projects can be deployed quickly because they are within existing right-of-way and use relatively simple, low-cost measures that are proven to save lives [198]. Safety measures include installing crosswalks, sidewalks, rapid flashing beacons, street lighting, separated bike lanes, and narrowed lanes. The SS4A grant is also funding projects along targeted routes to key destinations: six schools, four parks, and four transit routes identified in partnership with the public transportation agency. As of July 2025, the City of Tampa website shows four SS4A funded projects completed, including the Cass Street Project shown below, and five in progress [199].



City of Tampa workers install cycle lane buffer strips. The completed project includes a high visibility crosswalk and a cycle track spanning the bridge over the Hillsborough River, safely connecting residents from West Tampa with downtown offices, the art museum, and sports arenas.

Source: City of Tampa [200, 201]

Complementing the grant to the city, Hillsborough County received a \$19.7 million SS4A grant for safety interventions at 22 high priority locations across the county [202]. The city, county, and MPO also received planning and demonstration grants under SS4A to further advance Vision Zero plans, including:

- \$2.6 million to the city for speed management interventions in and around the city's high fatality corridors;
- \$9.8 million to the county for demonstration and testing of safety approaches in priority areas including safe routes to schools, transit stop safety and access, pedestrian corridor safety, and bicycle safety; and,
- \$2 million to the MPO to conduct safety analysis of speeds on the high fatality corridors and pilot signal retiming and signage [197].

The Vision Zero strategy and planning efforts were the basis for all the grant awards, which are now providing the needed funding to implement the plans. The Tampa area will be able to measure its progress over time using Florida's traffic safety dashboard showing trends in pedestrian and bicyclist fatalities and serious injuries by county [203]. The city, county, and MPO meet bi-weekly to coordinate and are collaborating closely to provide safer transportation in the Tampa metropolitan area. The federal funding provided the ability to rapidly roll out safety interventions that were unlikely to have otherwise happened.

High-Impact Safety Improvements in Missoula, Montana

A \$9.3 million SS4A grant is helping the City of Missoula, Montana, implement proven safety solutions rooted in years of planning. Following a single zero-fatality year in 2019, fatalities have steadily risen, prompting the state, MPO, and city to all adopt Vision Zero policies. Missoula's SS4A Safety Action Plan builds on existing transportation plans and was shaped by a Transportation Safety Advisory Committee including first responders, planners, engineers, and highway patrol [204].

The City identified early on that their approach should be evidence-based and outcome-oriented. They combined qualitative and quantitative data on crashes, injuries, and fatalities to inform their plan and investments. For example, pedestrians were a small portion of crashes but large number of fatalities. They also focused on intersections and areas with the highest crashes. There were often mismatches between public perceptions and the data, highlighting the importance of evidence and education [204].

Through its analysis, Missoula identified over 100 potential safety projects and prioritized near- and long-term projects with the highest impact on safety, equity, and other outcomes. The City credits this systematic, evidence-based approach for its successful SS4A application [204].

The grant will support the South Avenue Safe Streets project, which will add separated bicycle lanes and sidewalks and extend a shared-use path in an area that saw 113 crashes

between 2016 and 2020. It will improve biking and walking connections to multiple schools, businesses, neighborhoods, and Fort Missoula Regional Park [205].

The City of Missoula highlights the need for continual re-evaluation of trends and projects over time. The City has seen multiple changing trends in safety and fatalities over the last decade, and they've continuously adapted their plans based on the best available data [204].



Protected bike lane on Higgins Avenue in Missoula, MT.

Source: Missoula in Motion and City of Missoula [206]

Conclusion

IIJA and IRA provided unprecedented investments in clean transportation, including in EV charging, public transportation, clean freight, and active transportation. These investments are providing benefits such as cleaner air, more transportation options, and economic development. Case studies from urban and rural communities across the United States illustrate the benefits and what they mean to individuals and their communities.

Program implementation faces several obstacles: domestic sourcing problems, high initial technology costs, needed utility upgrades, complex procedures, fund obligation delays, and disruptions from federal policy changes.

The experience with IIJA and IRA clean transportation programs provides lessons learned that will be helpful to states and communities across the country as they aim to bring benefits to the public (see Table 1). These findings are also valuable at the national level as federal agencies continue to implement programs and as Congress debates the shape of the next transportation authorization bill.

Appendix A

Table 6: Funding Information for Clean Transportation Programs (All Values in Millions of Dollars)

Bill	Agency	Program	IIJA / IRA Provided	Awarded	Obligated	Outlayed
IIJA	DOT	National Electric Vehicle Infrastructure Program (NEVI)*	\$5,000	\$2,700	\$526	\$44
IIJA	DOT	Charging and Fueling Infrastructure (CFI)	\$2,500	\$1,800	\$215	\$16
IIJA	DOT	Carbon Reduction Program	\$6,400	\$5,100	\$1,740	\$801
IIJA	DOT	Congestion Mitigation and Air Quality (CMAQ)	\$13,204	\$15,500**	\$6,558	\$3,986
IIJA	DOT	Bus and Bus Facilities combined with Low or No Emission Bus	\$7,593	\$4,800	\$3,899	\$5,292**
IIJA	DOT	Reduction of Truck Emissions at Ports	\$400	\$149	***	***
IIJA	DOT	Safe Streets and Roads for All	\$5,000	\$2,900	\$578	\$122
IIJA	EPA	Clean School Bus	\$5,000	\$2,688	\$963	\$318
IRA	EPA	Clean Ports	\$3,000	\$2,938	\$2,938	\$10
IRA	EPA	Clean Heavy-Duty Vehicles	\$1,000	\$700	\$630	\$8.8

*NEVI data is from FHWA [4].

**USA Spending shows outlays higher than obligations for these programs, which predate IIJA. This may be because USA Spending is showing total outlays during the fiscal year 2022 to present time frame, including outlays of funds obligated prior to fiscal year 2022.

***A search of USA Spending data did not find any records for obligations under the Reduction of Truck Emissions at Ports program.

Sources: Climate Program Portal Outcomes Dashboard [3] and Project Status Tracker [207].

References

- [1] Kentucky Transportation Cabinet, Kentucky Energy and Environment Cabinet, "Kentucky's Electric Vehicle Infrastructure Deployment Plan," [Online]. Available: <https://www.kyevcharging.com/ev-plan>. [Accessed August 2025].
- [2] Atlas Public Policy, "EV States Clearinghouse: National Electric Vehicle Infrastructure (NEVI) Awards Dashboard," [Online]. Available: <https://evstates.org/awards-dashboard/>. [Accessed June 2025].
- [3] Atlas Public Policy, "Climate Program Portal: Outcomes Dashboard," [Online]. Available: <https://climateprogramportal.org/dashboards/>. [Accessed June 2025].
- [4] Federal Highway Administration, "National Electric Vehicle Infrastructure (NEVI) Formula Program Status of Funds," 6 February 2025. [Online]. Available: <https://www.fhwa.dot.gov/environment/nevi/resources/nevi-formula-program-status-funds-feb-6-24.pdf>.
- [5] Federal Highway Administration, "Fact Sheet: National Electric Vehicle Infrastructure Formula Program," [Online]. Available: https://www.fhwa.dot.gov/infrastructure-investment-and-jobs-act/nevi_formula_program.cfm. [Accessed July 2025].
- [6] Joint Office of Energy and Transportation, "Q4 2024 NEVI quarterly update," 26 November 2024. [Online]. Available: <https://driveelectric.gov/news/q4-2024-nevi-quarterly-update>.
- [7] Joint Office of Energy and Transportation, "Nation's Largest Municipally Owned EV Charging Station Opens Thanks to CFI Grants," 30 September 2024. [Online]. Available: <https://driveelectric.gov/news/cfi-mount-vernon>.
- [8] Joint Office of Energy and Transportation, "Deerfield, MA, Opens EV Charging Station Funded by Charging and Fueling Infrastructure (CFI) Grants," 15 November 2024. [Online]. Available: <https://driveelectric.gov/news/deerfield-ma-cfi-charging-station>.
- [9] Joint Office of Energy and Transportation, "Electric Vehicle Charging Analytics and Reporting Tool (EV-ChART)," [Online]. Available: <https://driveelectric.gov/evchart>. [Accessed July 2025].
- [10] Walmart, "Leading the Charge: Walmart Announces Plan To Expand Electric Vehicle Charging Network," 6 April 2023. [Online]. Available:

<https://corporate.walmart.com/news/2023/04/06/leading-the-charge-walmart-announces-plan-to-expand-electric-vehicle-charging-network?blaid=4388750>.

- [11] IONNA, "IONNA Begins Operations in North America ," 9 February 2024. [Online]. Available: <https://www.ionna.com/news/ionna-begins-operations-in-north-america/>.
- [12] Electrify America, "Our Investment Plan," 2025. [Online]. Available: <https://www.electrifyamerica.com/our-plan/>.
- [13] I. Blanco, "Electrifying Uncertainty: The NEVI Program at a Policy Crossroads," Environmental Law Institute, 24 April 2025. [Online]. Available: <https://www.eli.org/vibrant-environment-blog/electrifying-uncertainty-nevi-program-policy-crossroads>.
- [14] Federal Highway Administration, "Letter on Suspending Approval of State Electric Vehicle Infrastructure Deployment Plans," 6 February 2025. [Online]. Available: <https://www.fhwa.dot.gov/environment/nevi/resources/state-plan-approval-suspension.pdf>.
- [15] Federal Highway Administration, "National Electric Vehicle Infrastructure Formula Program Guidance (Update)," 2 June 2023. [Online]. Available: https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf.
- [16] Federal Highway Administration, "Alternative Fuel Corridors," 25 February 2025. [Online]. Available: https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/.
- [17] Federal Highway Administration, "Alternative Fuel Corridors HEPGIS," [Online]. Available: <https://hepgis-usdot.hub.arcgis.com/pages/alternative-fuel-corridors>. [Accessed 30 May 2025].
- [18] U.S. Department of Energy, "At a Glance: Electric Vehicles," 2021. [Online]. Available: <https://docs.nrel.gov/docs/fy21osti/80618.pdf>.
- [19] K.-C. Chu, K. George Miller, A. Schroeder, A. Gilde and M. Laughlin, "National Zero-Emission Freight Corridor Strategy," Joint Office of Energy and Transportation, Washington, DC, 2024.
- [20] Atlas Public Policy, "Atlas EV Hub," [Online]. Available: <https://www.atlasevhub.com>. [Accessed June 2025].

- [21] E. Wood, B. Borlaug, D.-Y. Lee, Y. Ge, F. Yang and Z. Liu, "The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure," National Renewable Energy Laboratory, 2023.
- [22] New Mexico Department of Transportation, "New Mexico Receives \$67.7 Million in Grants from Biden-Harris Administration for First of Its Kind Infrastructure in the Southwest," 15 January 2024. [Online]. Available: <https://www.dot.nm.gov/blog/2024/01/15/new-mexico-receives-67-7-million-in-grants-from-biden-harris-administration-for-first-of-its-kind-infrastructure-in-the-southwest/>.
- [23] *National Electric Vehicle Infrastructure Standards and Requirements, 23 CFR Part 680*, 2023.
- [24] National Association of State Energy Officials, American Association of State Highway and Transportation Officials, Atlas Public Policy, "NEVI Implementation in Colorado: Case Study," 2024. [Online]. Available: https://atlaspolicy.com/wp-content/uploads/2025/03/NEVI-Implementation-in-Colorado_FINAL.pdf.
- [25] National Association of State Energy Officials, American Association of State Highway and Transportation Officials, Atlas Public Policy, "NEVI Implementation in Pennsylvania: Case Study," 2024. [Online]. Available: https://naseo.org/data/sites/1/documents/publications/NEVI%20Implementation%20in%20PA_v3.pdf.
- [26] National Association of State Energy Officials, American Association of State Highway and Transportation Officials, Atlas Public Policy, "NEVI Implementation in Alaska: Case Study," 2024. [Online]. Available: https://www.naseo.org/data/sites/1/documents/publications/NEVI%20Implementation%20in%20Alaska_v5.pdf.
- [27] Internal Revenue Service, "Alternative Fuel Vehicle Refueling Property Credit," 3 April 2025. [Online]. Available: <https://www.irs.gov/credits-deductions/alternative-fuel-vehicle-refueling-property-credit>.
- [28] Atlas Public Policy, "Clean Economy Tracker," [Online]. Available: <https://cleaneconomytracker.org/>. [Accessed June 2025].
- [29] ABB E-Mobility, "Texas Opens First NEVI-funded EV Charging Location in Happy," 5 December 2024. [Online]. Available: <https://e-mobility.abb.com/en/news/texas-opens-first-nevi-funded-ev-charging-location-happy>.

- [30] Texas Department of Transportation, "Texas electric vehicle planning," [Online]. Available: <https://www.txdot.gov/projects/projects-studies/statewide/texas-electric-vehicle-planning-03-22-22.html>. [Accessed August 2025].
- [31] American Lung Association, "Driving to Clean Air: Health Benefits of Zero-Emission Cars and Electricity," 2023. [Online]. Available: <https://www.lung.org/getmedia/9e9947ea-d4a6-476c-9c78-ccc7d49ffe2/ala-driving-to-clean-air-report.pdf>.
- [32] Office of Senator Maria Cantwell, "Western WA Communities Get \$41.19M for New Electric Vehicle Charging Infrastructure," 9 January 2024. [Online]. Available: <https://www.cantwell.senate.gov/news/press-releases/western-wa-communities-get-4119m-for-new-electric-vehicle-charging-infrastructure>.
- [33] Atlas Public Policy, "Comparing the Total Cost of Ownership of the Most Popular Vehicles in the United States," July 2025. [Online]. Available: <https://atlaspolicy.com/wp-content/uploads/2025/07/Comparing-the-Cost-of-Owning-the-Most-Popular-Vehicles-in-the-United-States-2025-Update.pdf>.
- [34] DriveOhio, Ohio Department of Transportation, "Electric Vehicle Charging Study," 2020. [Online]. Available: https://drive.ohio.gov/wps/wcm/connect/gov/4a58a392-917f-4735-8438-bfdbb3f0b7bd/2020-06-26_EV_Charging_Study.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_K9I401S01H7F40QBNJU3SO1F56-4a58a392-917f-4735-8438-bfdbb3f0b7bd-nc08aJ2.
- [35] Pennsylvania Department of Environmental Protection, "Pennsylvania Electric Vehicle Roadmap," 2019. [Online]. Available: <https://files.dep.state.pa.us/Energy/OfficeofPollutionPrevention/StateEnergyProgram/P AEVRoadmap.pdf>.
- [36] Federal Highway Administration, "Waiver of Buy America Requirements for Electric Vehicle Chargers," 21 February 2023. [Online]. Available: <https://www.transportation.gov/bipartisan-infrastructure-law/regulations/2023-03498>.
- [37] National Academies of Sciences, Engineering, and Medicine, "Electric Vehicle Charging: Strategies and Programs," 2023. [Online]. Available: <https://doi.org/10.17226/27134>.
- [38] The Eastern Transportation Coalition, "Overcoming Challenges Implementing EV Charging Programs," 2024. [Online]. Available: https://tetcoalition.org/wp-content/uploads/2023/07/TETC-INEVITABLE-Report-_-FINAL.pdf.
- [39] D. Anand, F. Salcedo, S. Shah and F. Tuffner, "EV Charging Infrastructure Energization An Overview of Approaches for Simplifying and Accelerating Timelines to Processing EV

Charging Load Service Requests," Pacific Northwest National Laboratory, Idaho National Laboratory, 2025.

- [40] Alliance for Transportation Electrification, "Energizing EV Charging Stations: Supply Chain Delays and Utility Best Practices," 2023.
- [41] National Association of State Energy Officials, American Association of State Highway and Transportation Officials, Atlas Public Policy, "NEVI Implementation in Hawaii: Case Study," 2024. [Online]. Available: https://atlaspolicy.com/wp-content/uploads/2025/01/NEVI-Implementation-in-Hawaii_v6.pdf.
- [42] Atlas Public Policy, "Hosting Capacity Maps for EV Charging," December 2024. [Online]. Available: <https://atlaspolicy.com/hosting-capacity-maps-for-ev-charging/>.
- [43] Northeast States for Coordinated Air Use Management (NESCAUM), "Improving Permitting and Zoning for EV Fast Charging Stations: Strategies for State and Local Action," 2023.
- [44] K. Zraick and S. Hubler, "States Sue Over Freeze on Funding for Electric-Vehicle Charging," *The New York Times*, 7 May 2025.
- [45] U.S. Government Accountability Office, "U.S. Department of Transportation, Federal Highway Administration—Application of the Impoundment Control Act to Memorandum Suspending Approval of State Electric Vehicle Infrastructure Deployment Plans," 22 May 2025. [Online]. Available: <https://www.gao.gov/products/b-337137>.
- [46] Federal Highway Administration, "National Electric Vehicle Infrastructure Formula Program Interim Final Guidance," 11 August 2025. [Online]. Available: <https://www.fhwa.dot.gov/environment/nevi/resources/NEVI-Interim-Final-Program-Guidance-8-11-2025.pdf>.
- [47] C. Domonoske, "This office was meant to bridge divides in government. Now it's empty.," *NPR*, 30 April 2025.
- [48] National Association of State Energy Officials, American Association of State Highway and Transportation Officials, Atlas Public Policy, "NEVI Implementation in Ohio: Case Study," 2024. [Online]. Available: https://www.naseo.org/data/sites/1/documents/publications/NEVI%20Implementation%20in%20Ohio_v3.pdf.

- [49] U.S. Environmental Protection Agency, "Clean School Bus Program Awards," 2024. [Online]. Available: <https://www.epa.gov/cleanschoolbus/clean-school-bus-program-awards#total-awards>.
- [50] T. Hodges, "Public Transportation's Role in Responding to Climate Change," Federal Transit Administration, 2010. <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/PublicTransportationsRoleInRespondingToClimateChange2010.pdf>.
- [51] Federal Transit Administration, "Fact Sheet: Buses and Bus Facilities Program," [Online]. Available: <https://www.transit.dot.gov/funding/grants/fact-sheet-buses-and-bus-facilities-program>. [Accessed July 2025].
- [52] Federal Transit Administration, "FAST Act Fact Sheet: Grants for Bus and Bus Facilities," [Online]. Available: <https://www.transit.dot.gov/sites/fta.dot.gov/files/5339%20Bus%20and%20Bus%20Facilities%20Fact%20Sheet.pdf>. [Accessed July 2025].
- [53] Federal Transit Administration, "Low or No Emission Program," 2025. <https://www.transit.dot.gov/lowno>.
- [54] Federal Transit Administration, "2024 Grants to Support Buses, Facilities & New Technology," 2024. [Online]. Available: <https://storymaps.arcgis.com/stories/aa81196a78d1497b9c4dc728c905de70>. [Accessed July 2025].
- [55] Federal Transit Administration, "Biden-Harris Administration Announces Over \$1.6 Billion in Bipartisan Infrastructure Law Funding to Nearly Double the Number of Clean Transit Buses on America's Roads," 16 August 2022. [Online]. Available: <https://www.transportation.gov/briefing-room/biden-harris-administration-announces-over-16-billion-bipartisan-infrastructure-law>.
- [56] Federal Transit Administration, "Biden-Harris Administration Announces Nearly \$1.7 Billion to Help Put Better, Cleaner Buses on the Roads in Communities Across the Country," 26 June 2023. [Online]. Available: <https://www.transit.dot.gov/about/news/biden-harris-administration-announces-nearly-17-billion-help-put-better-cleaner-buses>.
- [57] Federal Transit Administration, "Biden-Harris Administration Announces Availability of \$1.5 Billion in Federal Funding to Modernize Bus Fleets and Deploy Clean Transit Buses Across America," 8 February 2024. [Online]. Available:

<https://www.transportation.gov/briefing-room/investing-america-biden-harris-administration-strengthens-transit-manufacturing>.

- [58] Central Ohio Transit Authority, "FTA Awards COTA with \$22.8 Million Federal Grant for Initial Investment in New Clean Hydrogen Fuel Cell Electric Buses," 10 July 2024. [Online]. Available: <https://www.cota.com/blog/fta-awards-cota-with-22-8-million-federal-grant-for-initial-investment-in-new-clean-hydrogen-fuel-cell-electric-buses/>.
- [59] Central Ohio Transit Authority (COTA), "Reimagining Sustainability: COTA Sustainability Plan 2022," 2022. [Online]. Available: <https://www.cota.com/static/144003608087d56b030b75ba82b1556d/cota-sustainability-report-2022.pdf>.
- [60] Federal Transit Administration, "The Federal Transit Program Turns 60," [Online]. Available: <https://www.transit.dot.gov/FTA60>. [Accessed July 2025].
- [61] "Current Capital Investment Grants Program and Expedited Project Delivery Pilot Program Projects," [Online]. Available: <https://www.transit.dot.gov/funding/grant-programs/capital-investments/current-capital-investment-grant-cig-projects>. [Accessed July 2025].
- [62] Climate and Community Institute, "How are transportation dollars flowing in your state?," Accessed June 25, 2025. <https://socio-spatial-climate.shinyapps.io/fhap-flexes/>.
- [63] Sightline Institute, "Increases in greenhouse-gas emissions from highway widening projects," October 2007. [Online]. Available: <https://sightline.org/download/48206/?tmstv=1755671115>.
- [64] U.S. Department of Transportation, "Financial Summary as of April 30, 2025," 2025. <https://www.transportation.gov/sites/dot.gov/files/2025-05/IIJA%20Draft%20SOF%20Report%204-30-25%20%28IIJA%20Only%29%20Combined.pdf>.
- [65] CALSTART, "Zeroing in on Zero Emission Buses," 2025. <https://calstart.org/zio-zeb/>.
- [66] Federal Transit Administration, "Zero-Emission Fleet Transition Plan," [Online]. Available: <https://www.transit.dot.gov/funding/grants/zero-emission-fleet-transition-plan>. [Accessed July 2025].
- [67] American Public Transportation Association, "Zero Emission Bus," [Online]. Available: <https://www.apta.com/research-technical-resources/zero-emission-bus/>.

- [68] Federal Transit Administration, "National Transit Summaries and Trends: 2023 Edition," 2024. [Online]. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/2024-12/2023%20National%20Transit%20Summaries%20and%20Trends_1.2.pdf.
- [69] Federal Transit Administration, "Fact Sheet: Bus and Bus Facilities Program," 2025. <https://www.transit.dot.gov/funding/grants/fact-sheet-buses-and-bus-facilities-program>.
- [70] U.S. Government Accountability Office, "Transit Workforce Development: Actions to Support Transition to Zero-Emission Buses," 2024. [Online]. Available: <https://www.gao.gov/products/gao-25-106921>.
- [71] Federal Transit Administration, "Buy America," [Online]. Available: <https://www.transit.dot.gov/buyamerica>. [Accessed July 2025].
- [72] Federal Transit Administration, "INVESTING IN AMERICA: Biden-Harris Administration Strengthens Transit Manufacturing Industry with \$1.5 Billion from Bipartisan Infrastructure Law to Put More American-Made Buses on the Road," 9 July 2024. [Online]. Available: <https://www.transit.dot.gov/about/news/investing-america-biden-harris-administration-strengthens-transit-manufacturing-industry>.
- [73] American Public Transportation Association, "Economic Impact of Public Transportation Investment," 2020. [Online]. Available: <https://www.apta.com/wp-content/uploads/APTA-Economic-Impact-Public-Transit-2020.pdf>.
- [74] J. Avant, "Federal grant to bring electric buses to Montgomery's transit system," *WSFA*, 2024.
- [75] E. F. Choma, L. A. Robinson and K. C. Nadeau, "Adopting electric school buses in the United States: Health and climate benefits," *Proc. Natl. Acad. Sci.*, vol. 121, no. 22, 2024.
- [76] Electric School Bus Initiative, "Using Electric School Buses Nationally Could Provide \$1.6 Billion in Health and Climate Benefits Each Year," 27 August 2025. [Online]. Available: <https://electricschoolbusinitiative.org/using-electric-school-buses-nationally-could-provide-16-billion-health-and-climate-benefits-each>.
- [77] M. Pedde, A. Szpiro, R. Hirth and S. D. Adar, "Randomized design evidence of the attendance benefits of the EPA School Bus Rebate Program," *Nature Sustainability*, vol. 6, pp. 838-844, 2023.

- [78] W. Austin, G. Heutel and D. Kreisman, "School bus emissions, student health and academic performance," *Economics of Education Review*, vol. 70, pp. 109-126, June 2019.
- [79] U.S. Department of Transportation, "2025 Progress Report on the National Roadway Safety Strategy," 2025. [Online]. Available: <https://www.transportation.gov/sites/dot.gov/files/2025-01/2025-NRSS-Progress-Report.pdf>.
- [80] American Public Transit Association, "The Hidden Traffic Safety Solution: Public Transportation," 2016. [Online]. Available: <https://www.apta.com/wp-content/uploads/Resources/resources/reportsandpublications/Documents/APTA-Hidden-Traffic-Safety-Solution-Public-Transportation.pdf>.
- [81] U.S. Census Bureau, "United States Commuting At A Glance: American Community Survey 1-Year Estimates," [Online]. Available: <https://www.census.gov/topics/employment/commuting/guidance/acs-1yr.html>. [Accessed July 2025].
- [82] Texas A&M Transportation Institute, "TTI Publishes 2023 Urban Mobility Report," 11 June 2024. [Online]. Available: <https://tti.tamu.edu/2024/06/tti-publishes-2023-urban-mobility-report/>.
- [83] Argonne National Laboratory, "Argonne-led study highlights public transit's critical role across Chicago," 6 June 2024. [Online]. Available: <https://www.anl.gov/article/argonneled-study-highlights-public-transits-critical-role-across-chicago>.
- [84] C. Smith, "Electric Trucks and Buses Overview: The State of Electrification in the Medium- and Heavy-Duty Vehicle Industry," Atlas Public Policy, 2019.
- [85] L. Foecke, Z. Karson and T. Tiberghien, "Zero-Emission Buses in the US: Understanding and Addressing Market and Policy Challenges," Mineta Transportation Institute, 2025.
- [86] American Public Transportation Association, "Policy Brief: Transit Savings Grow as Auto Costs and Gas Prices Increase," 2023. [Online]. Available: <https://www.apta.com/wp-content/uploads/APTA-POLICY-BRIEF-Transit-Savings-09.27.2023.pdf>.
- [87] American Energy Stories, "How Cost Savings from Electric School Buses Enabled a Rural Kentucky School District to Increase Teacher Pay," [Online]. Available: <https://americanenergystories.org/2025/06/06/how-cost-savings-from-electric-school-buses-enabled-a-rural-kentucky-school-district-to-increase-teacher-pay/>.

- [88] Federal Transit Administration, "Table 18. FY 2025 Prior Year Unobligated Section 5339(c) Low or No Emission Program Allocations," May 2025. [Online]. Available: <https://www.transit.dot.gov/funding/apportionments/table-18-fy-2025-prior-year-unobligated-section-5339c-low-or-no-emission>.
- [89] Environmental Protection Agency, "2023 Clean School Bus (CSB) Grant Program," April 2023. [Online]. Available: <https://www.epa.gov/system/files/documents/2023-04/2023-csb-grant-nofo-4-20-23.pdf>.
- [90] Government Accountability Office, "Transit Workforce Development," 2025. [Online]. Available: <https://www.gao.gov/assets/gao-25-106921.pdf>.
- [91] American Public Transportation Association, "Bus Manufacturing Task Force Recommendations," 2024. [Online]. Available: <https://www.apta.com/wp-content/uploads/APTA-Bus-Manufacturing-Task-Force-Recommendations.pdf>.
- [92] U.S. Department of Transportation, "DOT Report to Congress: Decarbonizing U.S. Transportation," 2024. [Online]. Available: <https://rosap.ntl.bts.gov/view/dot/75677>.
- [93] Federal Transit Administration, "FTA Bus Manufacturing Dear Colleague Letter," February 2024. [Online]. Available: <https://www.transit.dot.gov/sites/fta.dot.gov/files/2024-02/FTA-Bus%20Manufacturing-Dear%20Colleague-2024.pdf>.
- [94] A. Aamodt, K. Cory and K. Coney, "Electrifying Transit: A Guidebook for Implementing Battery Electric Buses," 2021. [Online]. Available: <https://docs.nrel.gov/docs/fy21osti/76932.pdf>.
- [95] Y. Freemark and L. Rennert, "Surmounting the Fiscal Cliff: Identifying Stable Funding Solutions for Public Transportation Systems," 2023. [Online]. Available: <https://www.urban.org/sites/default/files/2023-11/Surmounting%20the%20Fiscal%20Cliff.pdf>.
- [96] Eno Center for Transportation, "The Mass Transit Fiscal Cliff: Estimating the Size and Scope of the Problem," September 2022. [Online]. Available: <https://enotrans.org/article/the-mass-transit-fiscal-cliff-estimating-the-size-and-scope-of-the-problem/>.
- [97] Federal Transit Administration, "2023 National Transit Summaries & Trends," December 2024. [Online]. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/2024-12/2023%20National%20Transit%20Summaries%20and%20Trends_1.2.pdf.
- [98] Federal Transit Administration, "FY25 Notice of Funding Opportunity: Grants for Buses and Bus Facilities and Low or No Emission Program.," 2025. [Online]. Available:

<https://www.transit.dot.gov/notices-funding/fy-2025-notice-funding-opportunity-low-or-no-emission-grant-program-and-grants>.

- [99] Federal Transit Administration, "Announcement of Fiscal Year 2022 Low or No Emission Program and Grants for Buses and Bus Facilities Program and Project Selections," 2022. [Online]. Available: <https://www.federalregister.gov/documents/2022/08/18/2022-17751/announcement-of-fiscal-year-2022-low-or-no-emission-program-and-grants-for-buses-and-bus-facilities>.
- [100] U.S. Department of Transportation, "U.S. Transportation Secretary Duffy Unleashes American Energy, Saves American Public Transit Riders from Biden-Buttigieg's Green New Deal Agenda," 25 July 2025. [Online]. Available: <https://www.transportation.gov/briefing-room/us-transportation-secretary-duffy-unleashes-american-energy-saves-american-public>.
- [101] Environmental Protection Agency, "Clean School Bus Program Rebates," [Online]. Available: <https://www.epa.gov/cleanschoolbus/clean-school-bus-program-rebates#overview>. [Accessed September 2025].
- [102] Washington Metropolitan Area Transit Authority (WMATA), "Zero-Emission Buses," [Online]. Available: <https://www.wmata.com/initiatives/plans/zero-emission-buses.cfm>. [Accessed August 2025].
- [103] Washington Metropolitan Area Transit Authority (WMATA), "Metro awarded \$104M federal grant to support transition to zero-emission buses at Cinder Bed Road Bus Division," 26 June 2023. [Online]. Available: <https://www.wmata.com/about/news/Cinder-Bed-Zero-Emission-Bus-Grant.cfm>.
- [104] Washington Metropolitan Area Transit Authority (WMATA), "Zero-Emission Bus Transition Plan," March 2023. [Online]. Available: https://www.wmata.com/initiatives/plans/upload/WMATA-ZEB-Transition-Plan_March2023.pdf.
- [105] "FY2024 Dedicated Funding Report | WMATA," 2023. [Online]. Available: <https://www.wmata.com/about/records/upload/FY2024-Dedicated-Funding-Report.pdf>.
- [106] Washington Metropolitan Area Transit Authority (WMATA), "FY2026 Budget | WMATA," 1 July 2025. [Online]. Available: <https://www.wmata.com/initiatives/budget/upload/Remediation-FINAL-FY2026-Approved-Budget-051625.pdf>.
- [107] Office of Former Mayor London Breed, "Mayor Breed Announces \$30 Million in Federal Funds Secured for Buses and Bus Facilities," 27 June 2023. [Online]. Available:

<https://www.sf.gov/news--mayor-breed-announces-30-million-federal-funds-secured-buses-and-bus-facilities>.

- [108] San Francisco Municipal Transportation Agency (SFTMA), "Battery-Electric Bus Program," [Online]. Available: <https://www.sfmta.com/projects/battery-electric-bus-program>. [Accessed July 2025].
- [109] San Francisco Municipal Transportation Agency (SFTMA) , "Zero Emission Transition Plan," 26 February 2025. [Online]. Available: https://www.sfcta.org/sites/default/files/2025-02/Item 7b - PRESENTATION SFMTA Zero Emission Transition Plan - SFCTA CAC Updated_0.pdf.
- [110] Bay City News, "\$30M Federal Grant Awarded To SF," 28 June 2023. [Online]. Available: <https://patch.com/california/san-francisco/30m-federal-grant-awarded-sf>.
- [111] Federal Highway Administration, "Reduction of Truck Emissions at Port Facilities Grant Program for FY 2022-23 – Project Award Descriptions (Archived on January 7, 2025)," [Online].
- [112] U.S. Environmental Protection Agency, "Clean Ports Program Awards," [Online]. Available: <https://www.epa.gov/ports-initiative/clean-ports-program-awards>. [Accessed July 2025].
- [113] Environmental Protection Agency, "Clean Heavy-Duty Vehicles Grant Program," [Online]. Available: <https://www.epa.gov/clean-heavy-duty-vehicles-program/clean-heavy-duty-vehicles-grant-program>. [Accessed July 2025].
- [114] U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Transportation, U.S. Department of Housing and Urban Development, "A Report on Actions for Medium- and Heavy-Duty Vehicle Energy and Emissions Innovation," December 2024. [Online]. Available: <https://rosap.ntl.bts.gov/view/dot/79304>.
- [115] U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Transportation, U.S. Department of Housing and Urban Development, "An Action Plan for Maritime Energy and Emissions Innovation," December 2024. [Online]. Available: <https://rosap.ntl.bts.gov/view/dot/79306>.
- [116] U.S. Department of Transportation, U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Housing and Urban Development, "Efficient Transportation: An Action Plan for Energy and Emissions Innovation," December 2024. [Online]. Available: <https://rosap.ntl.bts.gov/view/dot/79310>.

- [117] CALSTART, "Zeroing in on Zero-Emission Trucks," June 2025. [Online]. Available: <https://calstart.org/zio-zets/>.
- [118] CSA, "Amazon deploys more than 20,000 electric delivery vans in U.S.," 20 December 2024. [Online]. Available: <https://chainstoreage.com/amazon-deploys-more-20000-electric-delivery-vans-us>.
- [119] CALSTART, "Zeroing In on Zero-Emission Trucks Dashboard," June 2025. [Online]. Available: <https://calstart.org/zio-zets/#zet-dashboard>. [Accessed July 2025].
- [120] Michigan Department of Environment, Great Lakes, and Energy (EGLE), "Electric recycling trucks to replace diesel fleet in Southeast Michigan, delivering cleaner air, lowering costs and supporting communities," 2024.
- [121] American Association of Port Authorities, "Port Decarbonization Survey: Trends and Lessons Learned," [Online]. Available: <https://aapa.cms-plus.com/files/appa-port-decarb-survey-publication.pdf>.
- [122] U.S. Environmental Protection Agency, "Shore Power Technology Assessment at U.S. Ports," December 2022. [Online]. Available: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1016C86.pdf>.
- [123] California Air Resources Board, "Ocean-Going Vessels At Berth Regulation," [Online]. Available: <https://ww2.arb.ca.gov/our-work/programs/ocean-going-vessels-berth-regulation>. [Accessed August 2025].
- [124] Port of Los Angeles, "Alternative Maritime Power," [Online]. Available: [https://www.portoflosangeles.org/environment/air-quality/alternative-maritime-power-\(amp\)](https://www.portoflosangeles.org/environment/air-quality/alternative-maritime-power-(amp)). [Accessed July 2025].
- [125] U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Transportation, U.S. Department of Housing and Urban Development, "U.S. National Blueprint for Transportation Decarbonization: A Joint Strategy to Transform Transportation," January 2023. [Online]. Available: <https://doi.org/10.21949/7ddb-kt28>.
- [126] U.S. Environmental Protection Agency, "Community-Port Collaboration Toolkit," [Online]. Available: <https://www.epa.gov/ports-initiative/community-port-collaboration-toolkit>. [Accessed July 2025].
- [127] Eric M. Roberts, et al., "Progress in Pediatric Asthma Surveillance II: Geospatial Patterns of Asthma in Alameda County, California," *Preventing Chronic Disease: Public Health*

Research, Practice, and Policy, vol. 3, no.
https://www.cdc.gov/pcd/issues/2006/jul/05_0187.htm, 2006.

- [128] "Diesel Particulate Matter Health Risk Assessment for the West Oakland Community," 19 March 2008. [Online]. Available: <https://ww2.arb.ca.gov/sites/default/files/classic/ch/communities/ra/westoakland/documents/draftsummary031908.pdf>. [Accessed July 2025].
- [129] Bay Area Air Quality Management District, "Owning Our Air: The West Oakland Community Action Plan," October 2019. [Online]. Available: <https://woeip.org/wp-content/uploads/2020/11/WOEIP-research-Owning-Our-Air-full.pdf>.
- [130] J. P. Pérez-Burgos, "The Port of Oakland Goes Electric in Uncertain Times," 16 April 2025. [Online]. Available: <https://www.kneedeepetimes.org/in-uncertain-times-the-port-of-oakland-goes-electric/>. [Accessed July 2025].
- [131] Port of Oakland, "Port of Oakland set to receive \$10.5M vehicle electrification grant from U.S. Environmental Protection Agency - Port of Oakland," 17 December 2024. [Online]. Available: <https://www.portofoakland.com/port-of-oakland-set-to-receive-10-5m-vehicle-electrification-grant-from-u-s-environmental-protection-agency>.
- [132] U.S. Environmental Protection Agency, "Clean Ports Program," [Online]. Available: <https://www.epa.gov/ports-initiative/cleanports>. [Accessed July 2025].
- [133] R. Reolfi, "U.S. Market & Policy Update: Medium- and Heavy-Duty Electric Vehicles," 7 July 2025. [Online]. Available: <https://www.atlasevhub.com/data-stories/u-s-market-policy-update-medium-and-heavy-duty-electric-vehicles/>.
- [134] American Lung Association, "Delivering Clean Air: Health Benefits of Zero-Emission Trucks and Electricity," 2022.
- [135] U.S. Environmental Protection Agency, "Ocean-Going Vessel (OGV) Best Practices to Improve Air Quality," [Online]. Available: <https://www.epa.gov/ports-initiative/ocean-going-vessel-ogv-best-practices-improve-air-quality>. [Accessed July 2025].
- [136] Port of Los Angeles, "Port of Los Angeles Awarded \$412 Million Grant from U.S. EPA for Zero-Emission Transformation," 2024.
- [137] Port of Los Angeles, "Ocean-Going Vessel Emission Reduction," [Online]. Available: <https://www.portoflosangeles.org/environment/air-quality/ocean-going-vessel-emission-reduction>. [Accessed August 2025].

- [138] A. Phadke, A. Khandekar, N. Abhyankar, D. Wooley and D. Rajagopal, "Why Regional and Long-Haul Trucks are Primed for Electrification Now," 2021.
- [139] C. Ledna, M. Muratori, A. Yip, P. Jadun, C. Hoehne and K. Podkaminer, "Assessing total cost of driving competitiveness of zero-emissions trucks," 2024.
- [140] S. Wilson, "Ready for Work 2.0: On the Road to Clean Trucks," 18 February 2025. [Online]. Available: https://www.ucs.org/sites/default/files/2025-08/ready-for-work-2-executive-summary_0.pdf.
- [141] G. A. Ortiz, "Electrifying Trucks: Tackling Inflation and Saving Americans Money," 2023. [Online]. Available: <https://www.nrdc.org/bio/guillermo-ortiz/electrifying-trucks-tackling-inflation-and-saving-americans-money>.
- [142] American Bureau of Shipping; American Association of Port Authorities, "Port Decarbonization Survey: Trends and Lessons Learned," 2024. [Online]. Available: <https://www.aapa-ports.org/files/appa-port-decarb-survey-publication.pdf>.
- [143] U.S. Department of Energy and U.S. Environmental Protection Agency, "A Report on Actions for Medium- and Heavy-Duty Vehicle Energy and Emissions Innovation," 2024.
- [144] J. Richard, "Zeroing in on Zero-Emission Trucks: January 2025 Market Update," CALSTART, January 2025. [Online]. Available: https://calstart.org/wp-content/uploads/2025/01/January2025_ZIO-ZET_MarketUpdate_Final.pdf.
- [145] L. McKenzie, J. Di Filippo, J. Rosenberg and N. Nigro, "U.S. Medium- and Heavy-Duty Truck Electrification Infrastructure Assessment," 2021.
- [146] C. Morris, "Frustration with delays in implementing the Megawatt Charging System standard," 20 September 2023. [Online]. Available: <https://chargedevs.com/newswire/frustration-with-delays-in-implementing-the-megawatt-charging-system-standard/>.
- [147] SAE, "SAE Megawatt Charging System for Electric Vehicles," 5 March 2025. [Online]. Available: https://www.sae.org/standards/content/j3271_202503/.
- [148] "EPA Delivers Over \$135 Million to California for Clean Heavy-Duty Vehicles as Part of Nationwide Inflation Reduction Act Investment," 11 December 2024. [Online]. Available: <https://www.epa.gov/newsreleases/epa-delivers-over-135-million-california-clean-heavy-duty-vehicles-part-nationwide>.

- [149] "Governing Board Meeting Agenda: January 10, 2025," South Coast AQMD, 10 January 2025. [Online]. Available: <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-january-10-2025>.
- [150] "PROPOSAL: Recognize Revenue for Implementation of Programs for Replacement of Class 6 and 7 Vehicles and School Buses with Zero-Emission Vehicles and Reimburse General Fund," 10 January 2025. [Online]. Available: <https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2025/2025-jan10-006.pdf?sfvrsn=2>.
- [151] "EV Communities," Illinois Drives Electric, [Online]. Available: <https://ev.illinois.gov/communities.html>.
- [152] S. O'Kane, "Tesla to split \$100M award for electric truck charging corridor in Illinois," TechCrunch, 15 January 2025. [Online]. Available: <https://techcrunch.com/2025/01/15/tesla-to-split-100m-award-for-electric-truck-charging-corridor-in-illinois/>.
- [153] "Gov. Pritzker Announces New Electric Vehicle Charging Wins for Illinois," 10 January 2025. [Online]. Available: <https://gov-pritzker-newsroom.prezly.com/gov-pritzker-announces-new-electric-vehicle-charging-wins-for-illinois>.
- [154] "Charging and Fueling Infrastructure Program Round 2 Grant Award Recipients," 2025 Federal Highway Administration. [Online]. Available: https://www.fhwa.dot.gov/environment/cfi/grant_recipients/round_2/cfi-awardees-round2.pdf.
- [155] "EPA Announces More Than \$95 Million in Clean Ports Investments to Illinois Environmental Protection Agency as Part of the Biden-Harris Administration's Investing in America Agenda," Environmental Protection Agency, 29 October 2024. [Online]. Available: <https://www.epa.gov/newsreleases/epa-announces-more-95-million-clean-ports-investments-illinois-environmental>.
- [156] NACTO; LADOT, "New Federal Program Takes a Major Step to Help Cities Combat America's Escalating Traffic Safety Crisis," 16 May 2022. [Online]. Available: <https://nacto.org/latest/safe-streets-for-all/>.
- [157] U.S. Department of Transportation, "Safe Streets and Roads for All (SS4A) Grant Program," Accessed June 12, 2025. <https://www.transportation.gov/grants/SS4A>.
- [158] U.S. Department of Transportation, "Active Transportation Infrastructure Investment Program (ATIIP)," [Online]. Available: <https://www.transportation.gov/rural/grant->

toolkit/active-transportation-infrastructure-investment-program-atiip. [Accessed July 2025].

- [159] U.S. Department of Transportation, "INVESTING IN AMERICA: Biden-Harris Administration Announces Nearly \$45 Million in Grant Awards for Connected, Active Transportation Infrastructure Projects," 2025.
- [160] U.S. Department of Transportation, "https://www.transportation.gov/grants/ss4a/2024-awards," Accessed June 12, 2025 <https://www.transportation.gov/grants/ss4a/2024-awards>.
- [161] R. J. Schneider, H. Wiers and A. Schmitz, "Perceived Safety and Security Barriers to Walking and Bicycling: Insights from Milwaukee," *Transportation Research Record*, vol. 2676, no. 9, pp. 325-338, 2022.
- [162] U.S. Department of Transportation, "Safe Streets and Roads for All Program Facts," November 2025. https://www.transportation.gov/sites/dot.gov/files/2024-11/SS4A-Fact-Sheet_FY-2024.pdf.
- [163] U.S. Department of Transportation, "Safe Streets and Roads for All (SS4A) Grant Awards," [Online]. Available: <https://experience.arcgis.com/experience/cabfbdfc113d442387f0307723b67ec9/>. [Accessed July 2025].
- [164] Safe Routes Partnership, "Changes to the Transportation Alternatives Program in the Bipartisan Infrastructure Law," https://www.saferoutespartnership.org/sites/default/files/changes_to_tap_in_bil_chart_final.pdf.
- [165] Federal Highway Administration, "Transportation Alternatives Annual Report," [Online]. Available: https://www.fhwa.dot.gov/environment/transportation_alternatives/annual_reports/. [Accessed July 2025].
- [166] Transportation for America, "Multimodal Spending Data," [Online]. Available: <https://t4america.org/data-hub/investment-and-spending-data/>. [Accessed July 2025].
- [167] U.S. Department of Transportation, "State Carbon Reduction Strategies: A View from Across the Country," 2025.
- [168] Federal Highway Administration, "Federal-Aid Highway Program Funding for Pedestrian and Bicycle Facilities and Programs," [Online]. Available:

https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/bipedfund.cfm.
[Accessed July 2025].

[169] Federal Highway Administration, "CMAQ Public Access System," [Online]. Available:
<https://fhwaapps.fhwa.dot.gov/cmaq2p/CMAQ-Reports>. [Accessed August 2025].

[170] U.S. Department of Transportation, "Reconnecting Communities FY22 Awards," [Online].
Available: <https://www.transportation.gov/grants/reconnecting/rcp-fy22-awards>.
[Accessed July 2025].

[171] U.S. Department of Transportation, "Reconnecting Communities FY23 Awards," [Online].
Available: <https://www.transportation.gov/grants/reconnecting/rcn-fy23-awards>.
[Accessed July 2025].

[172] U.S. Department of Transportation, "Reconnecting Communities Pilot (RCP) Program
FY24 Awards," [Online]. Available:
<https://www.transportation.gov/grants/reconnecting/rcp-fy24-awards>. [Accessed July
2025].

[173] U.S. Department of Transportation, "RAISE 2023 Fact Sheets," 2023.
[https://www.transportation.gov/sites/dot.gov/files/2023-
06/RAISE%202023%20Fact%20Sheets_2.pdf](https://www.transportation.gov/sites/dot.gov/files/2023-06/RAISE%202023%20Fact%20Sheets_2.pdf).

[174] NYC DOT, "NYC DOT Facebook," 17 October 2023. [Online]. Available:
[https://www.facebook.com/photo/?fbid=698943682266382&set=a.220579416769480&
_rdr](https://www.facebook.com/photo/?fbid=698943682266382&set=a.220579416769480&_rdr).

[175] U.S. Department of Transportation, "National Roadway Safety Strategy," 2022.

[176] National Association of City Transportation Officials, "New Federal Program Takes a
Major Step to Help Cities Combat America's Escalating Traffic Safety Crisis," 2022.

[177] U.S. Department of Transportation, "SS4A Awards: FY 2024 Implementation Grant
Project Summaries," 2024.

[178] U.S. Department of Energy, "FOTW #1230, March 21, 2022: More than Half of all Daily
Trips Were Less than Three Miles in 2021," 21 March 2022. [Online]. Available:
[https://www.energy.gov/eere/vehicles/articles/fotw-1230-march-21-2022-more-half-all-
daily-trips-were-less-three-miles-2021](https://www.energy.gov/eere/vehicles/articles/fotw-1230-march-21-2022-more-half-all-daily-trips-were-less-three-miles-2021).

[179] Lyft, "2025 Lyft Multimodal Report," 2025.

- [180] North American Bikeshare & Scootershare Association (NABSA), "2023 Shared Micromobility State of the Industry Report," 2024.
- [181] National Center for Applied Transit Technology (N-CATT), "Micromobility and Transit," 2023.
- [182] M. L. Anderson, "Subways, Strikes, and Slowdowns: The Impacts of Public Transit on Traffic Congestion," *American Economic Review*, 2014.
- [183] U.S. Environmental Protection Agency, "Air Quality - National Summary," [Online]. Available: <https://www.epa.gov/air-trends/air-quality-national-summary>. [Accessed August 2025].
- [184] L. Scrivano, A. Tessari, S. M. Marcora and D. N. Manners, "Active mobility and mental health: A scoping review towards a healthier world," *Glob Ment Health (Camb)*, 21 November 2023.
- [185] California Air Pollution Control Officers Association, "Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity," 2021.
- [186] Z. Kou, X. Wang, S. F. Chiu and H. Cai, "Quantifying greenhouse gas emissions reduction from bike share systems: a model considering real-world trips and transportation mode choice patterns," *Resources, Conservation and Recycling*, vol. 153, 2020.
- [187] B. Grunwald, H. House, J. Korn and E. Kennedy, "This E-Bike Impact Calculator Can Help Cities Accelerate E-Bike Adoption," 12 October 2023. [Online]. Available: <https://rmi.org/this-e-bike-impact-calculator-can-help-cities-accelerate-e-bike-adoption/>.
- [188] Sonoma-Marín Area Rail Transit (SMART), "Smart Receives \$7M to Enhance Bicycle and Pedestrian Connectivity with New Pathway Segment," 11 September 2024. [Online]. Available: <https://www.sonomamarintrain.org/node/592>.
- [189] Clean RIDES Network, "Reducing Costs, Commutes, and Climate Pollutions: State Solutions for Better Transportation," 2025.
- [190] L. Del Rosario, H. Wu, J. Lee, L. Roberts, T. Arnold, S. Mathur and C. Pettit, "Assessing the monetary value of active transport and e-micromobility: A systematic review," *Transportation Research Interdisciplinary Perspectives*, 2024.

- [191] J. Volker and S. Handy, "Economic impacts on local businesses of investments in bicycle and pedestrian infrastructure: a review of the evidence," *Transport Reviews*, 2021.
- [192] Federal Transit Administration, "Shared Mobility FAQs: Eligibility Under FTA grant programs," [Online]. Available: <https://www.transit.dot.gov/regulations-and-guidance/shared-mobility-faqs-eligibility-under-fta-grant-programs>. [Accessed July 2025].
- [193] American Public Transportation Association, "DEFINITION OF ASSOCIATED TRANSIT IMPROVEMENT (SHARED MICROMOBILITY)," 29 May 2024. [Online]. Available: <https://www.apta.com/wp-content/uploads/APTA-FACT-SHEET-Pres.-FY-2025-Budget-Def.-of-Assoc.-Transit-Improv.-Shared-Micromobility-05.29.2024.pdf>.
- [194] Federal Highway Administration, "Q&As for the Waiver of Buy America Requirements for De Minimis Costs and Small Grants," May 2024. [Online]. Available: https://www.fhwa.dot.gov/construction/contracts/buyam_qa_deminimis.cfm.
- [195] U.S. Department of Transportation, "FY25 Safe Streets and Roads for All Funding," March 2025. <https://www.transportation.gov/sites/dot.gov/files/2025-03/SS4A-FY25-NOFO.pdf>.
- [196] Smart Growth America, "Dangerous by Design," 2024. [Online]. Available: <https://www.smartgrowthamerica.org/signature-reports/dangerous-by-design/>.
- [197] Local Infrastructure Hub, "Safe Streets for All in Tampa," [Online]. Available: <https://localinfrastructure.org/resources/safe-streets-for-all-in-tampa/>. [Accessed July 2025].
- [198] Federal Highway Administration, "Proven Safety Countermeasures," [Online]. Available: <https://highways.dot.gov/safety/proven-safety-countermeasures>. [Accessed July 2025].
- [199] City of Tampa, "Quick Build Projects," [Online]. Available: <https://www.tampa.gov/mobility/transportation/projects/quickbuild>. [Accessed July 2025].
- [200] City of Tampa, "Cass Street Redesign Fills Critical Gap in Tampa's Green Spine, Connecting Downtown with the University of Tampa, Neighborhoods," 24 January 2023. [Online]. Available: <https://www.tampa.gov/news/cass-street-redesign-fills-critical-gap-tampa-s-green-spine-connecting-downtown-university>.

- [201] City of Tampa, "Cass Street: N Boulevard to W of Tyler Street," [Online]. Available: https://www.tampa.gov/mobility/transportation/projects/quickbuild/cass_st. [Accessed August 2025].
- [202] Hillsborough County, "Hillsborough County is paving the way to a safer community with the Safe Streets and Roads for All Grant Program.," [Online]. Available: <https://hcfl.gov/residents/public-safety/safe-travels/safe-streets-and-roads-for-all-grant-program>. [Accessed July 2025].
- [203] Signal Four Analytics, "Florida Traffic Safety Dashboard," [Online]. Available: <https://signal4analytics.com/>. [Accessed July 2025].
- [204] A. Wilson, "SS4A June Peer Exchange Presentation (Recording)," June 2024. [Online]. Available: <https://www.ss4aclearinghouse.org/themes/SS4A/library-assets/SS4A%20CoP%20June%20Peer%20Exchange%20Takeaways.pdf>.
- [205] M. C. Voice, "South Avenue Safe Streets," 2023. <https://missoulacountyvoice.com/south-avenue-safe-streets>.
- [206] City of Missoula, "Biking in Missoula," [Online]. Available: <https://www.ci.missoula.mt.us/1990/Biking-in-Missoula>. [Accessed August 2025].
- [207] Atlas Public Policy, "Climate Program Portal: Project Status Tracker," [Online]. Available: <https://climateprogramportal.org/project-status/>. [Accessed September 2025].
- [208] Argonne National Laboratory, "Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool," [Online]. Available: <https://afleet.esia.anl.gov/home/>.
- [209] U.S. Environmental Protection Agency, "CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA)," [Online]. Available: <https://cobra.epa.gov/>.
- [210] U.S. Department of Transportation, "Rural EV Toolkit: Rural EV Infrastructure Funding Table," [Online]. Available: <https://www.transportation.gov/rural/ev/toolkit/ev-infrastructure-funding-and-financing/funding-matrix>. [Accessed June 2025].
- [211] Federal Transit Administration, "FTA Transit Bus Electrification Tool v1.1," 2024.
- [212] Federal Highway Administration, "CMAQ Emissions Calculator Toolkit".
- [213] Federal Highway Administration, "CMAQ Public Access System," [Online]. Available: <https://fhwaapps.fhwa.dot.gov/cmaq2p>. [Accessed July 2025].

[214] A. Bui, L. Pierce, P.-L. Ragon, A. Sen, P. Slowik and T. Waites, "CHARGING UP AMERICA: The growth of United States electric vehicle charging infrastructure jobs," International Council on Clean Transportation (ICCT), 2024.

[215] RMI, "Smarter MODES Calculator: Smarter Mobility Options for Decarbonization, Equity, and Safety," 2024. [Online]. Available: <https://rmi.org/insight/smarter-modes-calculator-smarter-mobility-options-for-decarbonization-equity-and-safety/>. [Accessed August 2025].

[216] 119th Congress, "Public Law 119-15," 2025.



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