



Draft

**Environmental Impact Statement
United States Postal Service**

**Next Generation Delivery Vehicle
Acquisitions**

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**United States Postal Service
Environmental Affairs and Corporate Sustainability
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Cover Sheet

Responsible Agency: U.S. Postal Service

Title: Draft Environmental Impact Statement for Purchase of Next Generation Delivery Vehicles

Contact: Mr. Davon Collins, Environmental Counsel, United States Postal Service, 475 L'Enfant Plaza SW, Washington, DC 20260-6201, NEPA@usps.gov

Draft Environmental Impact Statement

Abstract: This Draft Environmental Impact Statement (DEIS) analyzes the environmental impacts of a range of alternatives for the proposed purchase over ten years of 50,000 to 165,000 delivery vehicles to replace the same number of existing delivery vehicles. This DEIS was prepared pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA), its implementing procedures at 39 CFR 775, and the President's Council on Environmental Quality Regulations (40 CFR parts 1500-1508), to evaluate the environmental impacts of the proposed purpose-built Next Generation Delivery Vehicle (NGDV) alternative versus commercial-off-the-shelf (COTS) vehicle alternatives and a "No Action" alternative.

Timing of Agency Action: Comments must be received no later than 45 days from the date of publication in the Federal Register.

Summary: The U.S. Postal Service proposes to purchase over ten years 50,000 to 165,000 purpose-built, right-hand-drive (RHD) vehicles – the NGDV – to replace existing delivery vehicles nationwide that are approaching the end of their service life. While the Postal Service has not yet determined the precise mix of powertrains, under the Proposed Action, at least 10 percent of the new vehicles would have battery electric (BEV) powertrains with the remainder being internal combustion engine (ICE). In this DEIS, the Proposed Action is compared against Alternative 1.1 (100 percent RHD COTS ICE vehicles, Alternative 1.2 (100 percent left-hand-drive COTS BEVs), and the No Action Alternative.

In terms of potential environmental impacts, the Proposed Action, and Alternatives 1.1 and 1.2 would result in beneficial impacts on transportation safety, traffic noise, air pollutant and greenhouse gas emissions, community emergency services, and fuel (gasoline) consumption. The Proposed Action and Alternatives 1.1 and 1.2 would also result in no to negligible impact on economics, employment, environmental justice, traffic, accessibility, parking, public transportation, noise, community utility services, utility availability and demand capacity, energy consumption, and solid and hazardous waste treatment and disposal.

The Proposed Action is the preferred alternative because it fully meets the Purpose and Need by providing a purpose-built RHD vehicle capable of meeting performance, safety, and ergonomic requirements for efficient carrier deliveries to businesses and curb-line residential mailboxes over the entire nationwide system. Moreover, the Proposed Action is the most achievable given the Postal Service's financial condition as the BEV NGDV has a significantly higher total cost of ownership than the ICE NGDV, which is why the Proposed Action does not commit to more than 10 percent BEVs.

The COTS Alternatives 1.1 and 1.2 would not meet the Postal Service's Purpose and Need as neither would provide the same operational or ergonomic benefits as the purpose-built NGDV. Finally, the No-Action Alternative, in addition to having the highest potential environmental impacts of all the alternatives, would not satisfy the Purpose and Need as aged and end-of-life delivery vehicles with outdated safety features and poor performance characteristics would not be replaced leaving the Postal Service unable to fulfill its primary mission to deliver the nation's mail.

EXECUTIVE SUMMARY

This Environmental Impact Statement (EIS) assesses the existing environmental conditions and potential impacts of the proposed delivery vehicle replacement of existing aged and end-of-life vehicles for the Postal Service. The Postal Service proposes to purchase and deploy over a ten-year period 50,000 to 165,000 vehicles to replace, nationwide and on a one-to-one basis, existing delivery vehicles that are approaching the end of their service life. These replacement delivery vehicles would be purpose-built, right-hand drive (RHD) Next Generation Delivery Vehicles (NGDV) or commercial-off-the-shelf (COTS) vehicles. While the Postal Service has not yet determined the precise mix of the powertrains in the new vehicles to be purchased, the Postal Service proposes that the new vehicles consist of a mix of internal combustion engine (ICE) vehicles and battery electric vehicle (BEV) powertrains, with at least 10 percent BEVs. The actual timeline and quantities of NGDV or COTS vehicles purchased, and delivery vehicle types replaced, would be contingent upon the supplier's production and delivery capabilities and the Postal Service's operational needs, including individual carrier route needs, and the Postal Service's financial position.

Purpose and Need (Section 2): The purpose of the Proposed Action is to purchase and deploy purpose-built NGDV to replace the end-of-life and high-maintenance delivery long-life vehicles (LLVs) and flexible fuel vehicles (FFVs) with new vehicles that have more energy-efficient powertrains, updated technology, reduced emissions, increased cargo capacity and improved loading characteristics, improved ergonomics and carrier safety, and reduced maintenance costs. The timing, type, and number of new NGDV vehicles and their deployment are based on the best available current information for preparation of this EIS.

The current outdated delivery vehicles, many as much as 32 years in operation, are inefficient, increasingly unreliable, costly to maintain, and lack certain modern safety and operational features needed for mail carriers. The Postal Service plans to deploy a new generation of RHD vehicles that incorporates the latest advancements in automotive technologies and better serves operations, employees, and customers. Given the mail mix changes that have occurred and additional package growth expected as e-commerce sales continue to rise, new delivery vehicles would need a larger cargo area that also allows easier retrieval of packages than existing, outdated RHD vehicles. The Proposed Action is needed to replace these outdated delivery vehicles to improve safety and ergonomics for Postal Service carriers and to enable the Postal Service to meet its Congressional mandate to maintain efficient nationwide delivery of the mail and to provide prompt, reliable, and efficient services to patrons.

Alternatives Evaluated (Section 3): This EIS analyzes two NGDV Hypothetical Maximum scenarios and two COTS vehicle alternatives along with the No-Action Alternative to consider the full potential range of potential environmental impacts:

- Proposed Action Hypothetical Maximum scenario (Purchase and Deployment of 90 Percent ICE NGDV and 10 Percent BEV NGDV),
- Proposed Action Hypothetical Maximum scenario (Purchase and Deployment of 100 Percent BEV NGDV),
- Alternative 1.1 (Purchase and Deployment of 100 Percent RHD COTS ICE Vehicles), and
- Alternative 1.2 (Purchase and Deployment of 100 Percent Left-Hand Drive [LHD] COTS BEVs).

Environmental Consequences (Section 4): The Proposed Action scenarios and Alternative 1.1 would result in beneficial impacts on transportation safety, traffic noise, air pollutant and GHG

emissions, community emergency services, and fuel (gasoline) consumption. Alternative 1.2 would result in beneficial impacts on transportation safety, traffic noise, air pollutant and GHG emissions, community emergency services, but result in higher fuel consumption compared to that of the replaced vehicles. The 100 percent BEV NGDV and COTS BEV scenarios would provide greater benefit on traffic noise reduction than would the ICE NGDV and COTS ICE scenarios, since BEVs are quieter than ICE vehicles at low speeds. Additionally, the 100 percent BEV NGDV and COTS BEV scenarios would require less lubricants, oils, and greases compared to existing ICE vehicles. BEVs would have operational constraints for more than 12,500 delivery routes, and spent BEV batteries would be an additional source of hazardous waste. While much of this material would be reclaimed or recycled, BEV battery recycling methods in the U.S. are currently limited and vary in recovery capabilities.

The Proposed Action scenarios and Alternatives 1.1 and 1.2 would result in no to negligible impact on economics, employment, environmental justice, traffic, accessibility, parking, public transportation, engine noise from ICE vehicle operation, community utility services, utility availability and demand capacity, energy consumption, and solid and hazardous waste treatment and disposal.

The No-Action Alternative would not satisfy the Purpose and Need for the purchase of new delivery vehicles to replace aged delivery vehicles with outdated safety features and poor performance characteristics. Impacts would remain unchanged, and the benefits from replacing end-of-life delivery vehicles with modern vehicles would not be realized.

Cumulative Impacts (Section 5): Impacts from the Proposed Action NGDV Hypothetical Maximum and Alternative 1.1 and 1.2 scenarios would not have the potential for significant adverse cumulative impacts on nationwide environmental resources when considered in combination with other actions nationwide. Because existing delivery vehicles would be replaced with newer delivery vehicles, impacts on environmental resources generally are expected to be less than current impacts, including the No-Action Alternative. Therefore, the Proposed Action and Alternatives 1.1 and 1.2 scenarios would not result in a significant adverse cumulative impact on nationwide environmental resources.

Mitigation (Section 6): Implementation of the Proposed Action NGDV Hypothetical Maximum or Alternative 1.1 and 1.2 scenarios would serve to mitigate the existing impacts on environmental resources from the No-Action Alternative (continued operation of the high-maintenance and end-of-life delivery vehicles). No further mitigation measures would be necessary.

Preferred Alternative (Section 4-11.2): Presently, the Postal Service's preferred alternative is the Proposed Action - to purchase and deploy up to 90 percent ICE NGDV with at least 10 percent BEV NGDV. This Preferred Alternative provides a purpose-built RHD vehicle that would meet the Postal Service's Purpose and Need by providing the performance, safety, and ergonomic requirements for efficient Postal Service carrier deliveries to businesses and curb-line residential mailboxes over the entire nationwide system. This Preferred Alternative is also the most achievable given the Postal Service's financial condition, as the ICE NGDV is significantly less expensive than the BEV NGDV and does not have the same operational constraints the BEV vehicles have for more than 12,500 delivery routes. Finally, the 90 percent ICE NGDV Preferred Alternative would result in less fuel consumption and reduced direct and indirect greenhouse gas emissions as compared to the existing delivery vehicles being replaced.

Although the BEV NGDV alternative would result in about 200 percent fewer direct and indirect greenhouse gas emissions than the 90 percent ICE NGDV Preferred Alternative, committing to purchase more than 10 percent BEV NGDV as part of the Preferred Alternative would not meet the Postal Service's Purpose and Need for the following reasons. Operational constraints would preclude the BEV NGDV deployment for more than 12,500 delivery routes because of environmental conditions.

Alternative 1.1, to purchase and deploy 100 percent RHD COTS ICE vehicles, would also not meet the Postal Service's Purpose and Need. While RHD COTS ICE vehicles would have some of the modern safety and customized operational features available in the NGDV, the interior layout doors, and window arrangements are not optimized or ergonomically designed for postal operations nor for delivery to curb-line mailboxes.

COTS ICE vehicles would not provide the same operational or ergonomic benefits as the purpose-built NGDV. For example, they would not have body components designed for frequent and repetitive use, leading to expected higher maintenance and repair costs than the NGDV, and would have body components that need to be replaced more frequently than those purpose-built for the NGDV. In addition, this alternative would result in higher fuel consumption compared to that of the replaced vehicles, and higher than the ICE NGDV Preferred Alternative.

Alternative 1.2, to purchase and deploy 100 percent LHD COTS BEVs, also would not meet the Postal Service's Purpose and Need, as the COTS BEVs would have operational constraints that would not allow deployment of BEVs for more than 12,500 delivery routes. Also, being LHD, the COTS BEVs would not support curb-line deliveries. Although the COTS BEV market and technology is rapidly evolving, LHD BEVs are still in development and currently available only in small quantities. RHD COTS BEVs are not currently available or otherwise marketed by commercial manufacturers for future development.

The No-Action Alternative, or status quo, would not meet the Postal Service's Purpose and Need. It would not provide any replacement vehicles for accident-damaged, high-maintenance, and end-of-life delivery vehicles. It would not meet the Purpose and Need to provide more energy-efficient vehicles, updated technology, increased cargo capacity and improved loading characteristics, improved ergonomics and carrier safety, and reduced maintenance costs. Further, it would result in higher fuel (gasoline) usage than both the Proposed Action Hypothetical Maximum scenarios and Alternative 1.2, and greater air emissions than the Proposed Action and Alternative 1.1 and 1.2 scenarios.

Compliance Statement: This EIS has been developed in compliance with NEPA; the regulations implementing the National Environmental Policy Act (NEPA [Title 40 Code of Federal Regulations [CFR] Parts 1500–1508]); and the Postal Service's regulations for NEPA compliance set forth at 39 CFR Part 775.

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1 INTRODUCTION

The United States Postal Service (USPS), an independent establishment of the executive branch of the United States Government, has prepared this Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) to evaluate the potential environmental impacts of the Proposed Action - the purchase and deployment of up to 165,000 Next Generation Delivery Vehicles (NGDV) over a ten-year period. The EIS analyzes the potential environmental impacts associated with the Proposed Action and Alternatives, including the No-Action Alternative. The objectives of the Proposed Action are to replace high-maintenance and end-of-life delivery vehicles and ensure continuity of service.

1-1 National Environmental Policy Act Regulatory Background

The EIS has been developed in compliance with NEPA; the regulations implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500–1508); and the Postal Service's regulations for NEPA compliance set forth at 39 CFR Part 775.

1-2 Postal Service Delivery Fleet Management Evaluation and Decision-Making Process

The Postal Service owns and operates a delivery fleet of over 206,000 vehicles consisting of both purpose-built vehicles as well as commercial off-the-shelf (COTS) vehicles. Purpose-built vehicles were built specifically for the purpose of delivering mail. COTS vehicles are publicly available and purchased directly from the vehicle manufacturer with minor modifications.

The current delivery fleet is made up of four basic vehicle types:

- Purpose-built vehicle (Long-Life Vehicle [LLV] and Flexible Fuel Vehicle [FFV]) – which are Right Hand Drive (RHD) and optimally designed and built vehicles, specifically for the function of delivering mail on a curb-line route;
- Left Hand Drive (LHD) COTS vehicle (Ram ProMaster® and minivans) – suitable for when the route does not require mail to be delivered to a curb-line route;
- Mixed delivery and mail collection vehicle (2-ton) – similar in use and function to the LHD COTS ProMaster® but with approximately 150 percent more cargo capacity; and
- RHD COTS vehicle (Mercedes Metris) – includes cargo capacity between the two current LHD COTS vehicle models; vehicle can be used on routes to deliver to curb-line mailboxes; it does not provide the same operational or ergonomic benefits as the purpose-built vehicle.

The Postal Service determined the RHD purpose-built vehicles (LLV and FFV), which have far exceeded their planned life, need to be replaced to reduce their ever-escalating maintenance costs and to take advantage of current safety and technology advancements.

1-3 Overall Vehicle Acquisition Strategy

1-3.1 COTS & Purpose-Built Vehicles

The Postal Service is in a multi-year planning and acquisition process of replacing its aging fleet of mail delivery vehicles with a future class of delivery vehicles, and considered various options to meet the Postal Service's delivery vehicle needs. While the longer-term solution to its vehicle needs (the purpose-built NGDV) was in prototype development and testing, the Postal Service conducted a Programmatic Environmental Assessment (PEA) in 2017 (USPS 2017a), and Record of

Environmental Consideration (REC) in 2020 for the acquisition and deployment of new COTS delivery vehicles over a six-year period to stabilize its delivery fleet and in furtherance of its statutory Universal Service Obligation (39 United States Code [USC] 101). The new COTS vehicles are replacing accident-damaged, end-of-life and high-maintenance delivery vehicles and accommodate increases in delivery points and route growth.

1-3.2 NGDV Acquisition Strategy

The NGDV would incorporate new technologies to accommodate a changing and diverse mail mix, reduce maintenance costs, incorporate improved safety and ergonomic features, improve service, reduce emissions and the fleet's carbon footprint, and produce operational savings.

The Postal Service's NGDV acquisition strategy consists of three phases. Phase 1, completed in 2015, concentrated on identifying potential sources and evaluating supplier qualifications to establish a list of prequalified suppliers eligible to participate in Phase 2, the NGDV Prototype Program.

Phase 2 provided for the competitive development, delivery and testing of curb-line delivery prototype vehicles. Suppliers delivered prototype vehicles to the Postal Service starting in 2017, and the Postal Service completed all testing by March 2019. Following testing, the Postal Service developed a comprehensive Statement of Work (SOW) for the production of NGDV that included lessons learned from the prototype phase testing.

The NGDV Production Program, Phase 3, is for the purchase of 50,000 to 165,000 purpose-built vehicles to replace the LLVs and FFVs as part of the overall USPS mixed fleet strategy under a single contract. The Production Phase includes the requirement for domestic final assembly of all NGDV in the continental United States (U.S.) and incorporation of emerging vehicle technologies for alternative fuel capability.

Each phase of the NGDV acquisition strategy is further described in the following sub-sections.

1-3.2.1 NGDV Request for Information, Prototype Development, and Evaluation

On January 20, 2015, the Postal Service issued a Request for Information (RFI) and Prequalification/Sources Sought for its NGDV Acquisition Program via the Federal Business Opportunities website. The purpose of the RFI was to inform prospective suppliers of the Postal Service's preliminary/draft specification and plans for acquiring the fleet replacement NGDV. As part of the RFI issuance, the Postal Service included a prequalification component to narrow the field of prospective suppliers to those most qualified to meet the NGDV acquisition objectives. The Postal Service received 34 submissions in response to the RFI, and prequalified 15 suppliers. In October 2015, the Postal Service issued a Request for Proposal (RFP) to the 15 prequalified suppliers (determined from the RFI) to submit their prototype proposals. In September 2016, the Postal Service awarded contracts to six suppliers (one of the six suppliers subsequently withdrew from the prototype phase) for 44 prototype vehicles as part of the NGDV prototype phase, including internal combustion, mild hybrid, and plug-in hybrid electric vehicles.

In Fall 2017, the suppliers delivered their prototypes and the Postal Service began testing of the prototypes in various locations across the country. The testing included:

- Component testing of selected high-use components;
- Laboratory testing (for emissions and fuel economy in accordance with Environmental Protection Agency [EPA] and the Postal Service driving cycle);
- Field Testing (live operational testing at six Postal Service facilities across the nation with USPS carriers);
- 24,000-mile durability testing (durability obstacles and road course);
- Accelerated durability cycle (beyond that expected in a normal service environment); and
- Cold weather testing.

The Postal Service completed testing of the prototype vehicles in March 2019 and gained valuable information to consider regarding the composition of the future delivery vehicle fleet. Following testing, the Postal Service consulted with many stakeholders including members of Congress, federal agencies, the automotive industry, postal unions, and employees to develop a best-in-class RFP for the NGDV Production vehicles. The Postal Service issued the NGDV Production RFP on December 27, 2019 to the five NGDV prototype suppliers and notified other major vehicle suppliers in order to ensure wide notification within the vehicle industry and obtain any interest in potential participation or subcontract contribution.

1-3.2.2 Selection and Description of Production NGDV

The NGDV Production SOW provided to the five suppliers incorporated key features for NGDV design with carrier safety and ergonomics in mind, based on lessons learned from testing and continued stakeholder feedback. The features include:

- A walk-in cargo with large capacity designed to meet future package growth;
- RHD configuration to allow for curb-line delivery;
- Ergonomic design for ease of delivery; and
- Improved delivery efficiency.

Offerors provided NGDV Production proposals and pricing to the Postal Service in July 2020. The proposals included internal combustion engine (ICE) vehicles and battery electric vehicles (BEVs); the proposals did not include a hybrid production vehicle. The Postal Service then evaluated proposals to determine which offeror provided the Postal Service with the best value by weighing technical evaluation factors/risk and the Total Cost of Ownership (TCO). The evaluation team used the following criteria to evaluate the offerors' technical ability to develop, produce, deliver, and support production quality of the NGDV for the Postal Service:

- Design Quality and Technical Approach - Reliability, Maintainability, Fuel Economy and Emissions, and Safety and Ergonomics;
- Supplier Capability - Engineering Capability, Production and Delivery, Service and Parts, and Quality; and
- Past Performance - Prototype Performance and Supplier's Prior Performance.

The TCO calculation for each offeror incorporated purchase costs, maintenance costs, fuel costs and, if applicable, BEV charging infrastructure costs. Relevant cost data are presented in Appendix C.

On February 23, 2021 the Postal Service announced a contract award, contingent on the satisfactory completion of the NEPA process, to Oshkosh Defense, LLC (Oshkosh) for the future production of the NGDV. The Oshkosh production contract requires an NGDV production vehicle that can support two powertrain alternatives - a modern and efficient ICE or a more environmentally friendly BEV powertrain. At the time of awarding the contract, the Postal Service placed an order that funds the production design, assembly tooling, and factory start-up costs to support the production of both vehicle types in parallel, and either powertrain can be ordered under the contract in whatever ICE/BEV mix the Postal Service desires.

The NGDV production platform provides the latest safety systems to protect carriers, a flexible powertrain to demonstrate the Postal Service's commitment to sustainability, increased cargo capacity for more efficient delivery of packages, and is telematics compatible for predictive maintenance and operational benefits. The NGDV can also be retrofitted to keep pace with advances in BEV technologies.

The production NGDV platform and features are illustrated in Figure 1-3.1.

Figure 1-3.1

Production NGDV Platform and Features



1-3.2.3 Production Expectations

The production contract specifies assembly of the NGDV in the U.S. and, contingent on the satisfactory completion of this NEPA process, the Postal Service anticipates placing the first order of production quantity vehicles in 2022, with the resulting first NGDV ready for delivery in 2023.

The Postal Service has committed to a minimum quantity of 10 percent BEVs and is seeking additional funding to increase this quantity. The immediate imperative is to provide Postal Service carriers with a safe, reliable, efficient, and ergonomic delivery vehicle. A phased approach is being used to achieve this goal and roll out new vehicles as quickly and efficiently as possible.

1-3.3 Limits of Environmental Impact Assessment

This EIS analysis is limited to the actions and alternatives described in Section 3. The timing, type, and number of new NGDV vehicles and their deployment are based on the best available current information for preparation of this EIS. The ultimate number and timing of the NGDV procured would depend upon the final needs of the Postal Service and the supplier's production and delivery capabilities. Deviation from the analysis herein that is deemed to be significant by the Postal Service would be analyzed through the preparation of a Supplemental EIS as necessary and appropriate.

1-3.4 Actions Not Included in the Proposed Action

The Postal Service is continuously assessing its fleet of delivery vehicles in order to identify and replace vehicles that have reached or exceeded their scheduled life expectancy, as well as those that are too costly to maintain due to major accident repair or significant mechanical repair. As a result of this ongoing fleet management process the Postal Service has made other minor purchases for replacement of fleet vehicles. These vehicle replacements are regular, on-going activities that have continued over many years and are represented in the baseline conditions.

The Proposed Action and alternatives specifically address the purchase and deployment of the NGDV, or new COTS vehicles, needed to replace the aging fleet of RHD delivery vehicles. During the period while the production and procurement of the new NGDV and COTS vehicles is implemented, the Postal Service would continue to procure COTS vehicles as both replacements of the aging vehicles and to accommodate delivery route growth. The Postal Service previously addressed COTS vehicle procurement actions under NEPA; these purchases are separate from the Proposed Action herein and are therefore not addressed in this EIS. The EIS focuses only on Postal Service operations-related actions associated with the Proposed Action and alternatives, as defined in Section 3.

The Postal Service maintains its current fleet of delivery vehicles through Vehicle Maintenance Facilities (VMFs) located nationwide throughout its network of facilities. Replacing the aging vehicles on a one-for-one basis would not result in the need for additional VMFs to maintain the NGDV. Therefore, this EIS does not address new VMF construction. Expansions of Postal Service facilities are not currently anticipated. Interior and exterior alterations of some Postal Service facilities could be required as a result of the Proposed Action, for replacement of VMF bay doors and center-post vehicle lifts, and installation of charging stations for BEVs where needed. The Postal Service could also construct a new vehicle maintenance training facility in the future. The Postal Service would conduct appropriate environmental review at the local level per Postal Service Handbook RE-6 (2015) as needed. Postal Service environmental checklists, screening analyses, and stand-alone, project-level Environmental Assessments would be employed on a facility-specific basis to assess the extent of impacts from any facility-related actions.

1-4 Public and Stakeholder Involvement

The Postal Service's Notice of Intent (NOI) to prepare an EIS for purchase of the NGDV was published in the Federal Register (FR) on March 4, 2021 (86 FR 12715). The public and agency scoping and comment period extended through April 5, 2021. In addition, the Postal Service mailed the NOI directly to various stakeholders, including the United States Environmental Protection Agency (EPA), the Council on Environmental Quality (CEQ) and Postal Service union representatives. During this scoping and comment period, the Postal Service timely received 1,753 letters from interested parties, including the EPA, the New York University School of Law Institute for Policy Integrity, and the Elders Climate Action group. Copies of the NOI, an example NOI letter, a list of the NOI letter recipients, and responses to comments are included in Appendix B (B1 - Notice of Intent).

A copy of the Notice of Availability (NOA) for the draft EIS, an example of the NOA letters, and a list of NOA recipients are included in Appendix B (B2 - Notice of Availability).

2 PURPOSE OF THE PROPOSED ACTION

The Postal Service has “as its basic function the obligation to provide postal services to bind the Nation together through the personal, educational, literary and business correspondence of the people. It shall provide prompt, reliable, and efficient services to patrons in all areas and render postal services to all communities.” (Universal Service Obligation [39 USC 101]).

The Postal Service has been a self-supporting Independent Establishment of the Executive Branch of the United States Government since 1971 when Congress assigned the Postal Service the “general duty” to “maintain an efficient system of collection, sorting, and delivery of the mail nationwide” (39 USC 403(b)). In order to carry out this obligation, the Postal Service has the “specific powers” to:

- “provide for the collection, handling, transportation, delivery, forwarding, returning, and holding of mail, and for the disposition of undeliverable mail” (39 USC 404(a)(1)); and
- “determine the need for post offices, postal and training facilities and equipment, and ... provide such offices, facilities, and equipment as it determines are needed” (39 USC 404(a)(13)).

The purpose of the Proposed Action is to purchase and deploy purpose-built NGDV to replace the end-of-life and high-maintenance LLVs and FFVs with more energy-efficient powertrains, and updated technology, reduced emissions, increased cargo capacity and improved loading characteristics, improved ergonomics and carrier safety, and reduced maintenance costs. Once the Proposed Action is complete, the future delivery fleet is anticipated to include approximately 230,000 vehicles, of which up to 165,000 would be purpose-built NGDV with a mix of ICE and BEV powertrains. Ultimate quantities are dependent upon the Postal Service’s operational needs, including individual carrier route needs, and financial position.

2-1 Need for the Action

The Postal Service operates one of the world’s largest civilian government fleets consisting of more than 230,000 vehicles of various classes of purpose-built and COTS vehicles. The majority of these vehicles are on the road delivering mail at least six days per week in every community. Purpose-built vehicles are RHD and built specifically for the purpose of delivering mail, while COTS vehicles are commercially available and purchased directly from the vehicle manufacturer with minor modifications to accommodate mail deliveries.

Within the current Postal Service delivery vehicle fleet, approximately 159,000 are purpose-built RHD, light-duty delivery vehicles with a payload capacity of approximately 1,000 pounds and cargo stowage capacity of approximately 108 to 121 cubic feet. They use outdated powertrain and emission vehicle technologies, and do not include some safety-related features that are standard today. They consist of approximately 138,000 purpose-built LLVs, manufactured by Grumman Allied from 1987 to 1994, and 21,000 purpose-built FFVs manufactured by Ford/Utilimaster in 2000 and 2001. The FFVs are similar to the LLVs and have the ability to operate on gasoline or an ethanol fuel blend (E85). Examples of an RHD LLV and RHD FFV are shown in Figure 2-1.1 below.

Figure 2-1.1

Example of RHD LLV (on left) and RHD FFV (on right) (OIG 2020)

The current Postal Service purpose-built LLVs and FFVs are near or at the end of their useful life. The expected service life of LLVs is 24 years and these vehicles currently average 30 years in age.

The LLV consists of a modified General Motors chassis designed for the Chevrolet S10 with a custom aluminum body. While the all-aluminum body has resisted corrosion exceptionally well over the years, the main powertrain components have been replaced multiple times and now must be acquired through aftermarket manufacturing. This has significantly increased repair costs, while reducing vehicle performance and reliability. In fact, the Postal Service was required to contract with an alternative supplier to reverse engineer and manufacture the chassis frame to ensure that the LLV could still be kept in service. This has caused the average annual maintenance cost of the LLV to exceed \$5,000 annually and, for 7 percent of the LLVs, to exceed \$10,000 annually. In addition, they are less fuel efficient and do not support future delivery needs given projected changes in market demand, mail mix and an increasing number of delivery points.

The LLVs do not have certain modern safety features that are standard in vehicles today, such as airbags and anti-lock brakes. They also do not have air conditioning, back-up cameras, intermittent windshield wipers, blind-spot warning systems, daytime running lights, or seatbelt reminders.

The Postal Service replaces vehicles when it determines that replacement is less expensive than continued maintenance of the existing vehicles. This determination is based on a formula that accounts for maintenance cost, acquisition cost, and efficiency benefits. The goal is to maintain a mixed fleet of delivery vehicles that incorporates new technology to accommodate a diverse mail mix, enhance safety, improve service, reduce emissions, and produce operational savings.

The RHD LLVs and FFVs are designed to deliver to curb-line residential mailboxes from the driver's RHD seat and are used to deliver mail on city and rural routes across the country. When these vehicles were first deployed, the mail consisted primarily of letters and the cargo space was an upgrade from the prior Postal Service Jeeps. A fundamental shift has occurred over the last decade that has resulted in a large decrease in letter and flats volume and large increases in parcel volume and the total number of delivery points. Postal Service delivery vehicles now need an increased cargo capacity and better access to the parcels in the cargo area and need RHD configuration for optimal ergonomics and efficiencies for deliveries to curb-line residential mailboxes. Specific design requirements of the NGDV include RHD configuration, the ability to access the cargo area of the vehicle before exiting the vehicle, increased ceiling height, and increased cargo capacity.

In summary, current outdated delivery vehicles, many as much as 32 years in operation, are inefficient, increasingly unreliable, costly to maintain and lack certain modern safety and operational features needed for mail carriers. The Postal Service plans to deploy a new generation of RHD

vehicles that incorporates the latest advancements in automotive technologies and better serves operations, employees, and customers. Given the mail mix changes that have already occurred and additional package growth expected as e-commerce sales continue to rise, new delivery vehicles will need a larger cargo area that also allows easier retrieval of packages than existing, outdated RHD vehicles. Replacement of these outdated delivery vehicles will enable the Postal Service to meet its Congressional mandate to maintain efficient nationwide delivery of the mail and to provide prompt, reliable, and efficient services to patrons.

3 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

3-1 Proposed Action – Purchase and Deployment of up to 165,000 NGDV

The Postal Service's Proposed Action is the purchase over a ten-year period of 50,000 to 165,000 purpose-built, RHD NGDV to replace existing delivery vehicles nationwide that are approaching the end of their service life. While the Postal Service has not yet determined the precise mix of the powertrains in the new vehicles to be purchased, the Postal Service further proposes that the new vehicles consist of a mix of ICE and BEV powertrains, with at least 10 percent BEVs.

The planned NGDV acquisition ten-year period would begin in 2023 and would replace high-maintenance and end-of-life delivery vehicles, including LLVs and FFVs, over a ten-year period. The actual timeline and quantities of NGDV purchased and delivery vehicle types replaced would be contingent upon the Postal Service's operational needs, including individual carrier route needs, and financial position.

The production NGDV platform is shown in Figure 1-3.1. The NGDV would have RHD configuration to allow for curb-line deliveries, ergonomic design for easy entry and improved delivery efficiency, a walk-in with larger cargo capacity than current delivery vehicles, ability to access the cargo area without exiting the vehicle, increased ceiling height, and the capability for telematics data and information to enhance vehicle monitoring and predictive maintenance. Safety features would include backup and 360-degree cameras, blind spot warning, anti-lock braking system, automatic electronic parking brake, front/rear braking, and air bags. The NGDV would also include air-conditioning, which is not available in LLVs or FFVs.

3-1.1 NGDV Powertrains Available

The flexible NGDV design platform would allow the Postal Service to replace its high-maintenance cost and aging fleet, match technology to operational needs, control costs and avoid costly delays and setbacks. Current plans are for the new vehicle purchases to consist of a mix of ICE and BEV powertrains to support the environmentally sustainable technology goal for the Postal Service's fleet, with at least 10 percent BEVs. The Postal Service would accelerate its electric vehicle strategy by increasing the percentage of BEV powertrains if its financial condition changes or it receives additional funding for this purpose.

The 20-year estimated total costs for NGDV powertrains are presented in Table 3-1.1. The estimated cumulative total costs are based on costs for vehicle purchase, freight, training, manuals, technical data package, pre-delivery production costs, charging infrastructure, 20 years' estimated fuel and utility costs, and maintenance. Relevant cost data are presented in Appendix C.

Table 3-1.1

20-Year Cumulative Estimated Total Costs for NGDV Powertrains

NGDV Powertrain	ICE NGDV	BEV NGDV
Total Estimated Cost ¹	\$ 9.3 Billion	\$ 11.6 Billion

¹ Present value [rounded] based on purchase of 75,000 vehicles)

The production contract is flexible and allows the Postal Service to continue to evaluate opportunities for electrification for any order placed throughout its ten-year period. Powertrain and BEV technology will undoubtedly evolve and improve over the available 20-year life of the NGDV, so the Postal Service selected a flexible design platform that can accommodate advancements in powertrain technology, including emerging BEV and ICE powertrain alternatives. Vehicles purchased with ICE

powertrains will be capable of being retrofitted to alternative BEV powertrain technology if it is advantageous for the Postal Service to do so.

Current specifications for the ICE and BEV NGDV are provided Tables 3-1.2 and 3-1.3 below.

Table 3-1.2

ICE NGDV Specifications

Design Specification	Estimated Value
Curb Weight (pounds [lbs])	5,560
Gross Vehicle Weight Rating (GVWR) (lbs)	8,501
Payload (lbs)	2,941
Engine Size	2.0 liter, 4 cylinder (cyl)
Mileage	14.7 miles per gallon (mpg) (without air conditioning) 8.6 mpg (with air conditioning)

Table 3-1.3

BEV NGDV Specifications

Design Specification	Estimated Value
Curb Weight (lbs)	6,670
GVWR (lbs)	8,877
Payload (lbs)	2,207
Battery Type / Size	Nickel Manganese Cobalt Oxide / 94 kilowatt hour (kWh)
Range on Single Charge (miles)	70 (with and without air conditioning)

The Postal Service's BEV NGDV requirements also include the ability to charge to a minimum driving range of 70 miles within eight hours. The BEV NGDV would be expected to discharge around 20 percent of battery capacity under average conditions because of the low average delivery route mileage. This would limit battery degradation and may not require charging every day. The BEV NGDV could fully recharge during non-business hours.

Operational limitations and certain Postal Service delivery environments would limit the use of electric-only vehicles. These limitations include a lack of available infrastructure, and at least 12,500 delivery routes where route length, environmental conditions, or facility constraints make electric vehicles unfeasible or impractical. For example, BEV NGDV on routes that exceed 70 miles might not have sufficient power to complete the route, especially as the battery ages and has less capacity. Limitations also exist with extreme cold climates where the use of heaters could reduce the available mileage by up to 50 percent. Facility constraints include smaller and/or leased properties, such as strip mall locations, which may have limited space for charging infrastructure and/or require landlord approval for construction activities (e.g., utility drops, conduit runs, transformer installation, and updates to distribution panels/circuit breakers).

The Postal Service would evaluate ICE and BEV NGDV deployment based on existing nationwide delivery route characteristics and other established factors to prioritize potential placement of the two powertrains. Route characteristics for placement of BEV NGDV would include routes located in mild temperature ranges, routes with frequent and numerous curb-line stops as they better recapture the vehicle's motion (kinetic) energy via regenerative braking to recharge the battery, and routes in locations with compromised air quality and/or states with proactive BEV policies and regulations.

3-1.2 NGDV Maintenance and Support

The NGDV would replace existing high-maintenance and end-of-life delivery vehicles on a one-to-one basis. No new Postal Service VMFs would be required, as the Postal Service's more than 300 existing

VMFs, as well as commercial garages for unscheduled repairs throughout the country, would continue to conduct maintenance on all delivery vehicles, including the NGDV. The deployment of new NGDV would result in minimal to no changes to the total Postal Service vehicle maintenance workforce.

Depending on the overall final NGDV dimensions and weight, existing VMF bay doors could need replacement or modification to accommodate the NGDV's higher and wider dimensions as compared with existing Postal Service delivery vehicles. Most (approximately 90 percent) existing vehicle lifts in the Postal Service's VMFs would accommodate the ICE and BEV NGDV and not require modification or replacement. However, center-post lifts (approximately 10 percent) at VMFs servicing BEV NGDV would require modification or replacement because the center posts would interfere with underside access of the vehicles for access/replacement of the battery.

The Postal Service would assess VMFs, processing, delivery and retail facilities where BEV NGDV would be deployed to determine whether BEV charging or infrastructure capabilities can be accommodated. Interior and exterior alterations could be necessary to install charging stations. Interior alterations for BEV infrastructure would vary based on site size and the number of charging stations needed. Power upgrades (e.g., rewiring, the addition of an electrical distribution box with circuit breakers or multiple electrical power entrances and multiple main power distribution panels) would likely be required at these facilities. Construction of a special outbuilding could be necessary based on power requirements, as could installation of a substation with a large transformer. Power supply from the interior of a facility could be connected to an exterior wall-mounted charging station, placed in trenches for exterior ground-level charging stations, or attached to overhead structures (e.g., canopy, gantry, or telephone pole) for suspended charging stations in delivery vehicle parking lots.

Construction could include trenching and backfilling, pavement removal and replacement, relocating utilities and drains, etc. Construction equipment requirements could range from trenching equipment, concrete drills, and typical electrical installation equipment (e.g., meters, and electric and conduit-related tools) to excavators, concrete saws, heavy lifting equipment, parking lot grading and paving equipment, and landscaping- and drainage-related installation equipment, depending on Postal Service facility size and the quantity of charging stations needed. Exterior alterations are expected to be within existing facility footprints, such as delivery vehicle parking areas, which are previously disturbed areas. The timing, type, and duration of construction at each facility would be based on the number and types of NGDV to be maintained or deployed at a particular facility. Specific facility locations where new vehicles will be deployed and where alterations may be needed are not known at this time. Additionally, the extent and types of alterations necessary for each Postal Service facility location are not known at this time.

The Postal Service could also construct a new vehicle maintenance training facility in the future. As discussed in Sections 1-3.1 and 4-2, site-specific facility alterations and this potential new training facility are not included in the detailed evaluation of the action alternatives that specifically address the purchase and deployment of new Postal Service vehicles. Appropriate NEPA reviews at the local level would be conducted in the future, as needed.

The use of smart charging stations would permit options for charging to include management of individual charging station power levels, prioritization of vehicles to be charged, accommodation of demand charge periods, prioritization of charging hours, specification of hours desired for charging (late nights through early mornings), and the ability to override normal charging protocols to meet special needs. At Postal Service facilities where BEV NGDV are deployed, charging would take place and occur overnight from approximately 6:00 p.m. to 9:00 a.m.

3-1.3 NGDV Powertrain Mix

The Postal Service's Proposed Action, the purchase and deployment of up to 165,000 NGDV, would include a mix of vehicles with different powertrain systems (ICE and BEV), with at least 10 percent BEVs. The Postal Service has not yet determined the precise mix of the ICE and BEV powertrains in NGDV to be purchased. For the purposes of determining the range of environmental impacts associated with the Proposed Action, this EIS will present and analyze the two ends of the NGDV powertrain mix range. Therefore, for this EIS the Postal Service has included two Proposed Action hypothetical maximum scenarios, as described below, to consider the full potential range of environmental impacts.

3-1.3.1 Purchase and Deployment of 90% ICE NGDV and 10% BEV NGDV

The purchase and deployment of 90 percent ICE NGDV and 10 percent BEV NGDV in the total NGDV production orders over the ten-year period is one of the two hypothetical maximum scenarios evaluated in this EIS. The Postal Service is firmly committed to a future that includes electric vehicles in its delivery vehicle fleet and has committed to acquisition of at least 10 percent BEV NGDV.

3-1.3.2 Purchase and Deployment of 100% BEV NGDV

The purchase and deployment of 100 percent BEV NGDV in the total NGDV production orders over the ten-year period is the other hypothetical maximum scenario evaluated in this EIS, although, as discussed in Section 3-1.1, at this time BEVs are not feasible or practical at 100 percent of Postal Service routes.

3-2 Alternative 1 – Purchase and Deployment of up to 165,000 COTS Vehicles

Alternative 1 would involve the purchase and deployment of up to 165,000 COTS vehicles over the same ten-year period. COTS vehicles are commercially available and purchased directly from the vehicle manufacturer with minor modifications to meet Postal Service delivery requirements. In order to meet the Postal Service purpose and need, the COTS delivery vehicles would need to be RHD vehicles. The COTS vehicles would replace existing high-maintenance, and end-of-life RHD delivery vehicles on a one-to-one basis, the same as the NGDV Proposed Action.

The Postal Service currently has both LHD and RHD COTS ICE vehicles in its fleet, with RHD vehicles offering several operational and ergonomic benefits as compared with LHD vehicles. LHD vehicles do not meet the Postal Service's purpose and need because they are not configured for optimal ergonomics and efficiencies for deliveries to curb-line residential mailboxes. LHD COTS ICE or BEVs would not be as ergonomic or efficient for Postal Service delivery operations (particularly to curb-line residential mailboxes) when compared to RHD vehicles.

RHD COTS vehicles, which can be used on routes to deliver to curb-line mailboxes, do not provide the same operational or ergonomic benefits as the purpose-built NGDV. Existing RHD COTS vehicles do not provide a walk-in cargo compartment, hold fewer mail trays at the front of the vehicle, have window openings that limit ergonomic movements, and restrict internal access to cargo areas (i.e., they are accessible only from outside the vehicle). Also, existing RHD COTS vehicles do not have body components designed for frequent and repetitive use resulting in significantly higher maintenance and repair costs, and will need to be replaced more frequently than the NGDV (maximum expected life of a COTS body is 12 years compared to 20 for the NGDV). Additionally, RHD COTS vehicle models would have some, but not all, of the enhanced safety and customized operational features available in the NGDV that are optimal for Postal Service delivery operations.

Examples of current Postal Service COTS vehicles are shown in Figure 3-1.1.

Figure 3-1.1

Current COTS ICE Vehicles (Left – LHD Ram ProMaster®, Right – RHD Mercedes Metris)

3-2.1 COTS Vehicle Maintenance and Support

The new COTS vehicles would replace existing high-maintenance and end-of-life delivery vehicles on a one-to-one basis. No new Postal Service VMFs would be required. The more than 300 existing VMFs, as well as commercial garages for unscheduled repairs throughout the country, would continue to conduct maintenance on all delivery vehicles, including the new COTS vehicles. The deployment of new COTS vehicles would result in minimal to no changes to the total Postal Service vehicle maintenance workforce.

COTS vehicles would be maintained and serviced at existing Postal Service VMFs and unscheduled repairs would be done at commercial garages nationwide, the same as with NGDV. The COTS BEVs would require similar alterations to accommodate new charging infrastructure within affected existing VMFs and delivery units as for the BEV NGDV. Charging station installation and use is expected to be similar as for the BEV NGDV. Additionally, alterations (e.g., bay doors, lifts) at existing VMFs could be required, depending on the new COTS vehicle's overall dimensions and powertrains. As discussed in Sections 1-3.1 and 4-2, site-specific facility alterations are not included in the detailed evaluation of the action alternatives that specifically address the purchase and deployment of new Postal Service vehicles. Appropriate NEPA reviews at the local level would be conducted in the future, as needed.

3-2.2 COTS Vehicle Powertrain Mix

The Postal Service has not yet determined the precise mix of the ICE and BEV NGDV powertrains for the Proposed Action. Likewise, the precise mix of COTS ICE and BEV powertrains for Alternative 1 would depend on the Postal Service's operational needs and financial position, along with the COTS vehicle capabilities.

For the purposes of determining the range of environmental impacts associated with Alternative 1, this EIS will present and analyze two ends of the COTS powertrain mix range. Therefore, the Postal Service has included two Alternative hypothetical maximum scenarios, as described below, to consider the full potential range of environmental impacts associated with this Alternative.

3-2.2.1 Alternative 1.1 - Purchase and Deployment of 100% RHD COTS ICE Vehicles

The purchase and deployment of all RHD COTS ICE vehicles in the total production orders over the ten-year period is Alternative 1.1. Specifications and performance data for an in-use Postal Service COTS ICE vehicle model (the RHD Metris) are shown in Table 3-2.1.

Table 3-2.1

RHD COTS ICE Vehicle Specifications

Specifications	Metris
Curb Weight (lbs)	4,122
GVWR (lbs)	6,614
Payload (lbs)	2,425
Engine Size	2.0 liter, 4 cyl
Mileage (mpg)	6.3 ¹

¹ Actual Postal Service average mileage for RHD Metris vehicles.

For the analyses, this vehicle type with the above specifications and performance data will be evaluated, since a LHD COTS ICE vehicle would not meet the purpose and need.

3-2.2.2 Alternative 1.2 - Purchase and Deployment of 100% LHD COTS BEVs

The purchase and deployment of 100 percent LHD COTS BEVs in the total production orders over the ten-year period is Alternative 1.2, although at this time BEVs are not feasible or practical at 100 percent of Postal Service routes and there is no commercially available RHD COTS BEV.

The COTS BEV market and technology is rapidly evolving. These vehicles are still in development and currently available only in small quantities. There is no RHD COTS BEV currently available or otherwise marketed by commercial manufacturers for future development. As explained in detail in Section 2-2, a LHD delivery vehicle does not meet the Postal Service's purpose and need for curb-line delivery. However, in order to consider the full range of impacts and in response to public comments requesting such an analysis, the EIS will evaluate a 100 percent COTS BEV hypothetical maximum scenario using a LHD COTS BEV.

The COTS BEV evaluated in this EIS is a LHD delivery vehicle advertised as of the time of the draft EIS preparation and projected to be commercially available by 2023 in a comparable size configuration to the NGDV. This does not mean necessarily that a COTS BEV, whether LHD or RHD, is operationally feasible or practicable for the Postal Service. The LHD COTS BEV model selected for evaluation for environmental impacts, based on market research and manufacturer-advertised specifications as of the time of the draft EIS preparation is shown in Figure 3-2.1.

Figure 3-2.1

LHD COTS BEV

Source: Ford Media Center 2021.

Current manufacturer-advertised specifications for the LHD COTS BEV used in this analysis are shown in Table 3-2.2.

Table 3-2.2

LHD COTS BEV Specifications

Specifications	Ford E Transit (Extended High Model)
Curb Weight (lbs)	6,188
GVWR (lbs)	9,428
Payload (lbs)	3,240 (maximum)
Battery Type / Size	400 Volt Lithium-ion / 67 kWh
Range on Single Charge (miles)	108 (with and without air conditioning)

The Postal Service's COTS BEV charging and range requirements will be assumed to be the same as the BEV NGDV requirements (i.e., the ability to charge to a minimum driving range of 70 miles within eight hours on a single charge with all vehicle accessories operating).

3-3 No-Action Alternative

The Postal Service's delivery fleet would be maintained at the status quo under the No-Action Alternative; existing vehicles such as the examples shown in Figure 3-1.1 would continue to be used. The fleet would continue to operate at its current level, with no replacement vehicles for accident-damaged, high-maintenance, and end-of-life vehicles.

The Postal Service would incur increasingly higher maintenance costs by continuing to operate LLVs and FFVs and other delivery vehicles past their life expectancy and repairing, maintaining, and operating the existing vehicles. Vehicle breakdowns and increased maintenance could result in service failures that could erode the Postal Service's customer base. Larger cargo capacity would not be available to meet expected future package growth. Improved delivery efficiency from better ergonomic design and improved information for predictive maintenance through new telematics data would not be possible. The latest safety systems, such as cameras, blind side warning, and automatic parking brakes would not be available to better protect mail delivery personnel and the public.

Postal Service facilities would require no alterations associated with continued use of the existing vehicles.

3-4 Alternatives Considered but not Analyzed in Detail

3-4.1 Leasing and Deployment of up to 165,000 Vehicles

The existing RHD LLVs and FFVs purchased from commercial suppliers are purpose-built vehicles to meet Postal Service requirements and are currently not available for lease. It is not an option to replace the RHD LLVs and FFVs with a leased RHD vehicle of the same type that would meet Postal Service requirements. A new General Services Administration (GSA) solicitation to build and deliver a new purpose-built RHD vehicle for lease would not be cost- or time-effective and was dismissed. Likewise, leasing COTS delivery vehicles would not be cost-effective and was dismissed. In past COTS delivery procurement actions, the Postal Service determined that leasing costs associated with COTS delivery vehicles exceed a COTS vehicle acquisition scenario by more than three times, with no return on investment (see Appendix C). Lastly, leasing vehicles, whether purpose-built or COTS, removes any flexibility the Postal Service might have should it elect to maintain the vehicles over a longer period of time.

3-5 Resource Areas Affected

The Proposed Action and Alternatives 1.1 and 1.2 would affect the following resources and topics related to the replacement of high maintenance and end-of-life delivery vehicles with new delivery vehicles: socioeconomics, transportation, noise, air quality, community services, utilities and infrastructure, energy, solid and hazardous materials and waste. These resource areas and related topics are addressed for the action alternatives and the No-Action Alternative in the detailed analysis herein.

4 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4-1 Introduction

This section describes the affected (existing) environment for each resource and then describes the potential environmental consequences due to implementation of the Proposed Action or Alternatives 1.1 or 1.2, and the No-Action Alternative. It is important to note that the Proposed Action and Alternatives are national in scope, with vehicles to be distributed across the Postal Service's national delivery network.

As discussed in Section 3, the Proposed Action would be the purchase and deployment over a ten-year period of up to 165,000 purpose-built, RHD NGDV, at least ten percent of which would be BEVs. Two hypothetical maximum scenarios for the Proposed Action are evaluated herein: (1) the purchase and deployment of up to 90 percent ICE (ICE NGDV Hypothetical Maximum) with at least (10 percent) BEV NGDV, and (2) the purchase and deployment of 100 percent BEV NGDV (BEV NGDV Hypothetical Maximum). Alternative 1.1 is the purchase and deployment of 100 percent COTS ICE vehicles, and Alternative 1.2 is the purchase and deployment of 100 percent COTS BEVs. The hypothetical distribution by year for the purchase, deployment, and replacement of delivery vehicles (for both the Proposed Action and Alternatives 1.1 and 1.2) is presented in Appendix D. The No-Action Alternative represents the baseline condition or *status quo* in which high-maintenance and end-of-life delivery vehicles would not be replaced with new delivery vehicles.

Discussion of potential impacts focuses on direct and indirect impacts and whether the impacts are significant. Direct Impacts are caused by the action and occur at the same time and place. Indirect Impacts are caused by the action and are later in time or removed in distance, but are still reasonably foreseeable. Potential impacts are addressed for each resource in terms of the significance of potential impacts in relation to baseline conditions or the No-Action Alternative.

The Proposed Action, being national in scale and scope, has the potential to impact resources throughout the U.S. The specific actions that the Postal Service would take as part of the initiative are located in geographically diverse areas (urban, suburban, and rural). Because of the wide variety of natural and manmade environments and the complexity of resources potentially affected, this section characterizes resource impacts in general terms.

This EIS examined potential impacts in terms of the significance of the impact. To assess the significance of an impact, the Postal Service first identified the relevant context and whether the impact would be negligible, minor, moderate, or major. The Postal Service then determined whether the impact was significant, based on the requirements in 40 CFR 1501.3(b). Four types and levels of impact were considered during the analysis:

- Beneficial Impact – The impact would be beneficial in nature.
- No or Negligible Impact – No impact is anticipated, or the impact is barely perceptible or measurable.
- Moderately Adverse Impact – An impact is anticipated, but the impact does not meet the context/intensity significance criteria for the specified resource.
- Significant Impact – An impact is anticipated that meets the context/intensity significance criteria for the specified resource.

The Postal Service also used this approach to evaluate cumulative impacts, which focus on the combined, incremental effects of actions within a particular area and within a particular time frame.

4-1.1 Existing Vehicle Fleet

The Postal Service currently has a combined delivery fleet of approximately 218,000 vehicles comprised of approximately 138,000 RHD LLVs, 21,000 RHD FFVs, 51,000 COTS delivery vehicles and 8,000 COTS mixed delivery vehicles. The majority of the current delivery fleet has been in operation for as long as 30 years; the vehicles are inefficient, increasingly unreliable, costly to maintain and do not include certain modern safety features nor operational features needed by mail carriers. The Postal Service has been replacing existing delivery vehicles as they reach their end-of-life or begin to incur excessive maintenance costs with COTS vehicles, pending the development of a longer-term solution to its vehicle needs (i.e., the NGDV).

4-1.1.1 Delivery Vehicle Performance

RHD vehicles offer several operational and ergonomic benefits as compared with LHD vehicles. LHD vehicles are not configured for optimal safety, ergonomics and efficiencies for deliveries to curb-line residential mailboxes when compared to purpose-built RHD vehicles. The existing RHD COTS vehicles hold fewer mail trays at the front of the vehicle, have window openings that limit ergonomic movements, have less cargo space, and restrict internal access to cargo areas (i.e., they are accessible only from outside the vehicle).

The Postal Service's end-of-life purpose-built RHD delivery vehicles are inefficient, increasingly unreliable, costly to maintain, and not energy-efficient as compared to modern vehicles. Also, the Postal Service's COTS delivery vehicles do not have body components designed for frequent and repetitive use compared to the purpose-built RHD delivery vehicles, increasing vehicle downtime due to more frequent maintenance and repairs. Furthermore, the RHD COTS vehicles, which can be used on routes to deliver to curb-line mailboxes, do not provide the same operational or ergonomic benefits for the carrier as a purpose-built vehicle.

4-1.1.2 Safety and Carrier Conditions

The Postal Service's existing purpose-built delivery vehicles do not have certain modern features such as airbags, anti-lock brakes, air conditioning, back-up cameras, intermittent windshield wipers, blind-spot warning systems, daytime running lights, or seatbelt reminders found on more modern vehicles. The Postal Service's existing delivery vehicles also do not provide optimal conditions for carrier efficiency and comfort. Existing LLVs have a windowless cargo area, fewer mail trays at the front of the vehicle, and window openings that limit ergonomic movements, and restrict internal access to cargo areas (i.e., they are accessible only from outside the vehicle). They have circulating fans but no air conditioning, limiting carrier comfort during warmer outdoor temperatures.

RHD vehicles are safer for carriers than LHD vehicles, as LHD-configured vehicles require exiting the vehicle into the roadway when delivering to curb-line mailboxes on the right side of the vehicle.

4-1.1.3 Vehicle Life Expectancy

The RHD purpose-built vehicles (LLV and FFV) have far exceeded their planned life expectancy of 24 years. The NGDV would be designed to provide an effective minimum service life of 20 years. A COTS ICE delivery vehicle such as a well-maintained Ford Transit is expected to last from ten to 15 years before requiring extensive upgrades (Motor and Wheels 2021); however, this is expected to be far less for vehicles placed in delivery service due to frequent and repetitive delivery start/stops. For high mileage postal delivery routes, COTS vehicles have an expected life of six years, while lower mileage postal delivery routes have an eight- to ten-year expected life. COTS BEVs have a typical manufacturer's warranty of three years or 36,000 miles. Expected battery lifetime is up to ten to twelve years under normal vehicle operations, without frequent, repetitive starts and stops.

4-1.1.4 Maintenance

The Postal Service conducts ongoing regular and as-needed maintenance of the delivery fleet to ensure the fleet is available for operational needs. The age and maintenance costs of individual vehicles are tracked to support the decision-making process for a continuous vehicle replacement program. Vehicle replacement begins when the vehicle approaches end-of-life (which for the LLV fleet is 20 years or more).

LLVs have an estimated life of 24 years, and some are more than 30 years old. The LLV all-aluminum body has resisted corrosion exceptionally well over the years, although the main powertrain components have been replaced multiple times and now must be acquired through aftermarket manufacturing. This has significantly increased repair costs, while reducing vehicle performance and reliability. In fact, the Postal Service was required to contract with an alternative supplier to reverse engineer and manufacture the chassis frame to ensure that the LLV could still be kept in service. This has caused the average annual maintenance cost of the LLV to exceed \$5,000 and, for 7 percent of the LLVs, to exceed \$10,000 annually. Existing delivery vehicles, including LLVs as well as FFVs and COTS vehicles, require more maintenance on body components and drivetrains, and thus have higher maintenance costs than newer delivery vehicles.

The NGDV body, frame, and associated permanently attached structures are designed to maintain design function for 20 years. All vehicle components are repairable/replaceable, including parts availability for replacement over the service life of the vehicle.

COTS ICE vehicles require maintenance similar to existing ICE delivery vehicle routine maintenance requirements. They have, however, been shown to be less reliable in the long run compared to the purpose-built vehicles. BEVs are generally more mechanically reliable than ICE vehicles and would require less scheduled maintenance since BEVs have fewer moving parts (no engine or conventional transmission) and fluids to change (USDOE 2021).

4-1.1.5 Changing Mail Characteristics

In fiscal year (FY) 2020, the Postal Service processed 129.2 billion pieces of mail, 7.3 billion packages, and 64.1 billion pieces of marketing mail and delivered them to 161.4 million delivery points, six (and sometimes seven) days a week (USPS 2021a). When the LLVs and FFVs were first purchased in 1987, the mail consisted primarily of letters and flats. Over the last decade a fundamental shift has occurred, resulting in a large decrease in letter and flats volume and large increase in parcel volume as well as an increase in the total number of delivery points. By FY 2030, total mail volume is projected at approximately 75 billion pieces, a 55 percent decrease from FY 2011; and total parcel volume is projected at approximately 6.6 billion pieces, a 100 percent increase from FY 2011 (USPS 2021a). The LLVs do not support future delivery needs given these projected changes in market demand, parcel mix and an increasing number of delivery points. Postal Service delivery vehicles now need an increased cargo capacity and better access to the parcels in the cargo area.

4-1.2 Existing Postal Service Facilities

The Postal Service's last-mile delivery fleet operates nationwide from more than 17,000 Post Office locations, Stations and Branches. The Postal Service maintains its fleet of vehicles at Postal Service-owned or leased VMFs strategically located throughout the nation, and uses local commercial vehicle repair and maintenance shops when needed. Delivery vehicles are parked overnight at various Post Office locations. These facilities typically have designated parking lots, garages, and spaces for delivery fleet vehicles; however, some facilities must utilize street parking or shared parking with other buildings.

Existing Postal Service VMFs and commercial repair and maintenance shops responsible for maintaining the current vehicles, would continue to maintain the replacement vehicles. Due to the vehicle size difference between the existing vehicles and NGDV, incidental changes to existing facilities may be required. In the event that an existing facility cannot feasibly be modified, new facilities may need to be constructed on USPS property.

4-1.3 Existing Workforce

The Postal Service currently has approximately 240,000 delivery fleet mail carriers. Delivery vehicles include LLVs, FFVs, COTS delivery and mixed delivery vehicles. These vehicles are supported by more than 5,000 automotive technicians, mechanics, body repair personnel, and stockkeepers at more than 300 VMFs. Deployment and maintenance of new NGDV or COTS vehicles would result in minimal to no changes to the total Postal Service vehicle maintenance workforce. The workforce at the Postal Service's existing VMFs, as well as commercial garages for unscheduled repairs throughout the country, is adequate for conducting maintenance on all new delivery vehicles.

4-2 Resources Not Studied in Detail

The Proposed Action and Alternatives 1.1 and 1.2 involve the acquisition and deployment of NGDV or COTS delivery vehicles to replace end-of-life delivery vehicles. The ICE vehicles or BEVs could require interior and exterior alterations to existing VMFs such as bay doors, and/or lift replacement in a small percentage of existing facilities. Additionally, for BEVs, interior and exterior construction to accommodate charging infrastructure and charging stations would be needed. Specific Postal Service facility locations where new vehicles would be deployed and where alterations may be needed are not known at this time. The extent and types of alterations necessary for each Postal Service facility location are not known at this time.

Any alterations needed for the deployment and operation of the NGDV or COTS is expected to be made within the footprint of existing Postal Service property. As discussed in Section 1-3.1, site-specific facility alterations and a potential new training facility are not included in the detailed evaluation of the action alternatives that specifically address the purchase and deployment of new Postal Service vehicles.

Therefore, the following resources would not be affected by the nationwide action, and are not evaluated in detail herein: water, geology, soils, prime farmland, vegetation, wildlife, threatened and endangered species, wetlands and floodplains, cultural resources, land use, wild and scenic rivers and coastal zone. Facility impacts related to construction for needed alterations would comply with federal and state environmental requirements and regulations, and the Postal Service would complete appropriate NEPA reviews at the local level in the future, as needed.

- Prime farmland, vegetation, wildlife, threatened and endangered species, wetlands and floodplains, land use and wild and scenic rivers would not be impacted because the alterations would occur within existing facilities' footprints that have already been developed.
- Lift replacements could encounter contaminated soils and groundwater during removal of existing lifts and installation of new lifts. The Postal Service would follow applicable federal, state and local regulatory requirements to address any contamination present. Contaminated soils would be disposed of offsite per regulatory requirements.
- Construction for installation of charging stations would incorporate appropriate erosion and stormwater runoff control measures such as silt fencing around the disturbed areas until re-vegetated or restored after construction.

- Charging stations could be installed at National Register of Historic Places (NRHP)-eligible facilities. A site-specific NEPA evaluation, including Section 106 consultation, would be conducted as required to minimize impacts.
- Construction at facilities within the coastal zone would comply with coastal zone consistency requirements.

4-3 Socioeconomics

4-3.1 Socioeconomics – Background and Regulatory Setting

Socioeconomics encompasses the basic economic and social attributes associated with the human environment, particularly economic status, employment, and demographics. NEPA directs federal agencies to identify and address as appropriate the socioeconomic impacts of proposed actions and alternatives, prior to making a decision.

Environmental justice (EJ) addresses EJ issues as directed by Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and EO 14008, *Tackling the Climate Crisis at Home and Abroad*. EO 12898 directs agencies to address environmental and human health conditions in minority and low-income communities. The intent of EO 12898, EO 14008, and related directives and regulations is to ensure that low-income and minority populations do not bear a disproportionate burden of negative effects resulting from proposed federal actions.

As an Independent Establishment of the Executive Branch of the U.S. Government, certain EOs, including those mentioned above, do not apply to the Postal Service. However, the Postal Service endeavors to fulfill the spirit of those non-mandatory requirements and consider the impacts of its actions on EJ communities of concern. This includes locations with high concentrations of minority and low-income populations. (USPS 2017)

4-3.2 Socioeconomics – Affected Environment

The following sections describe the socioeconomic conditions within the nation with respect to Community Economics, Employment, and Minority and Low-Income Populations.

4-3.2.1 Community Economics

The Postal Service plays an essential role in commerce by providing basic, fundamental and affordable mail services to the U.S. population. American opinions of the Postal Service are very positive according to a Pew Research Center Survey released in 2020; approximately 91 percent of respondents had a favorable view of the Postal Service, higher than any other federal agency. (Pew Research Center, 2020a)

In 2020, the Postal Service had more than 34,000 Post Office locations, Stations, and Branches in the U.S., which made it the nation's largest retail network – larger than Walmart (approximately 4,700 U.S. locations) and Starbucks (more than 15,000 U.S. locations). (USPS 2021b) (Walmart 2021) (Starbucks, 2021). The Postal Service operates an extensive transportation, delivery, and distribution network to accomplish delivery of its services. In FY 2020, the Postal Service had approximately 644,000 employees (Table 4-3.1); delivered more than 129 billion pieces of mail to more than 161 million delivery points; 207,945 mixed collection vehicles (0.5 to 2.5 tons) comprising 89.8 percent of the total Postal Service fleet (231,541 vehicles). The number of delivery points increased to 161.3 million in FY 2020, an increase of 0.92 percent as compared to FY 2019; but the number of total routes decreased 0.10 percent as compared to the prior year. (USPS 2020a)

Table 4-3.1

2020 Key Postal Service Statistics

Fiscal Year Statistics (first 3 columns); % Change from Prior Year (last 2 columns)	FY 2020	FY 2019	FY 2018	FY 2020	FY 2019
Operating Revenue (in millions)	\$73,123	\$71,136	\$70,622	2.79%	0.73%
Total Mail and Package Volume (in millions of units)	129,171	142,562	146,402	-9.39%	-2.62%
Total Postal Service-managed Offices, Stations and Branches	31,330	31,322	31,324	0.03%	-0.01%
Total Employees (both Career and Non-Career)	644,033	633,108	634,447	1.73%	-0.21%
Total Delivery Points (in millions)	161,374	159,901	158,558	0.92%	0.85%
Total Number of Delivery Routes	231,579	231,807	231,843	-0.10%	-0.02%
Total Number of Delivery and Collection Vehicles (0.5 - 2.5 tons)	207,945	204,274	208,133	1.80%	-1.85%
Total Postal Vehicles	231,541	228,940	232,602	1.14%	-1.57%

Source: USPS, 2020a. Fiscal Year 2020 Annual Report to Congress, An Essential Public Service. Updated May 2021

The Postal Service positively and directly impacts communities by providing employment at local facilities throughout the nation and through expenditures to local service providers for utilities and supplies associated with the operations and maintenance of its vehicles and facilities. Indirect benefits to other sectors of the local economy occur as a result of direct expenditures by employees and to suppliers, such as increased purchases at retail gas stations and commercial garages.

The 165,000 delivery vehicles proposed for replacement (primarily LLVs and FFVs) consumed about 180 million gallons of fuel (gasoline) in FY 2020 for delivery operations, with the majority purchased at local retail outlets and the remainder purchased from bulk fuel suppliers.

4-3.2.2 Employment

As a major employer, the Postal Service expends approximately 2.1 billion dollars in salaries and benefits every two weeks providing employment in local communities across the nation (USPS, 2021b). U.S. total employment was approximately 203.8 million jobs in 2019; government and government enterprises represented approximately 12.1 percent of the workforce in FY 2019, less than FY 2010 (14.3 percent) and FY 2000 (13.9 percent) (Bureau of Economic Analysis 2021).

The Postal Service had 644,033 employees in FY 2020 of which 495,941 were career employees and 148,092 were non-career employees (Table 4-3.1). Approximately 0.12 percent of the total U.S. workforce, or 242,189, were career delivery carriers (USPS 2020a).

The Postal Service is a leading employer of women and minorities according to Pew Research. In May 2020, The Pew Research Center recognized USPS as “more racially and ethnically diverse than the U.S. labor force as a whole” (Pew Research Center 2020b). The overall U.S. workforce is approximately 78 percent white, while approximately 57 percent of the Postal Service workforce is white. Black Americans make up 13 percent of the national workforce; but comprise 23 percent of the Postal Service workforce (Pew Research Center, 2020b).

4-3.2.3 Minority and Low-Income Populations

The intent of EO 12898, EO 14008 and related directives and regulations is to ensure that minority and low-income populations do not bear a disproportionate burden of negative effects resulting from federal actions.

Minorities include individuals who identify themselves as members of the following population groups: American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, Black, Hispanic, or two or more races. For the purposes of EJ analyses, the minority population for a community consists of all non-white individuals as well as all Hispanic or Latino individuals (i.e., of both white and non-white racial origin). CEQ guidance states “minority populations should be identified where either (a) the minority population of the affected area exceeds 50%, or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis” (CEQ 1997).

Low-income populations are identified where individuals have incomes below the U.S. poverty guidelines, updated yearly by the U.S. Department of Health and Human Services. A low-income population is either a group of low-income individuals living in proximity to one another or a set of individuals who share common conditions of environmental exposure or effect (CEQ 1997).

The Postal Service delivery network serves delivery points in all communities across the nation, regardless of minority or income status. Minority populations in the U.S. are rising. In 2019, the U.S. had a minority population of 39.9 percent; an increase from 2018 (38.9 percent) and 2017 (38.5 percent) (Table 4-3.2) (USCB 2018a, 2019b, 2019a). The southern portion of the U.S. has a larger share of minorities than the northern portion (PRB.org 2021). As of 2019, the percentage of people with incomes below the U.S. poverty guidelines, fell to 13.4 percent of the population, from 14.1 percent (2018) and 14.6 percent (2017) (USCB 2017, 2018b, 2019c).

Table 4-3.2

Racial Composition and Poverty Status of the United States, 2017 - 2019

Racial Composition	2019	2018	2017
White	60.7%	61.1%	61.5%
Minority	<u>39.3%</u>	<u>38.9%</u>	<u>38.5%</u>
Black or African American	12.3%	12.3%	12.3%
American Indian and Alaska Native	0.7%	0.7%	0.7%
Asian	5.5%	5.4%	5.3%
Native Hawaiian and Other Pacific Islander	0.2%	0.2%	0.2%
Other Race	0.2%	0.2%	0.2%
Two or More Races	2.4%	2.4%	2.3%
Hispanic or Latino	18.0%	17.8%	17.6%
Percent Below Poverty Level	13.4%	14.1%	14.6%

Source: (USCB, 2017, 2018a, 2018b, 2019b, 2019c, 2019a)

4-3.3 Socioeconomics – Environmental Consequences**4-3.3.1 Proposed Action and Alternatives 1.1 and 1.2****Community Economics**

Under the Proposed Action ICE NGDV Hypothetical Maximum, the purchase and deployment over a ten-year period of ICE NGDV would be more fuel efficient (see Energy Requirements and Conservation, Section 4-9.3.1, below) than the existing end-of-life delivery vehicles, resulting in lower overall Postal Service fuel (gasoline) purchases and corresponding reductions in air emissions (see Air Emissions, Section 4-6.3.2). Additionally, replacing any of the current ICE vehicles with BEVs, such as under the BEV NGDV Hypothetical Maximum, would lower the Postal Service's total future

fuel purchases for its delivery fleet. Alternative 1.1 (COTS ICE vehicles) would increase fuel (gasoline) consumption due to lower average mpg than the average mpg of the existing delivery fleet (see Section 4-9.3.3), while replacement of the aged delivery vehicles would decrease air emissions (see Section 4-6.3.4). Local retail outlets and bulk fuel suppliers would experience a decrease in revenue under both Proposed Action Hypothetical Maxima and under Alternative 1.2 (COTS BEVs). Local utility providers would experience an increase in revenue due to the Postal Service's purchase of electricity to power BEVs at its facilities (see Section 4-6.3.1).

The economic impact due to a reduction in purchase of delivery vehicle replacement parts would be partially offset by the scrapping or resale for parts. (see Section 4-10.3.1). The need for commercial garage maintenance due to unscheduled repairs of vehicles is anticipated to decrease, as high-maintenance cost vehicles would be removed from the fleet, and maintenance time and money could be focused on preventive maintenance of newer vehicles.

The adverse impacts to commercial fuel retailers and bulk fuel suppliers from lower overall fuel sales; economic benefits from scrapping or resale of parts, waste management and disposal; and adverse economic impacts to commercial garages due to less need for unscheduled repairs would be insignificant compared to the nationwide economy.

Employment

Vehicle replacements would not change the number or location of delivery personnel or vehicle maintenance employees, the number of vehicles on a national basis, or the number of VMFs. Thus, employment would not be impacted.

Minority and Low-Income Populations

Since deliveries would continue to be made to the more than 161 million delivery points regardless of socioeconomic status, both the Proposed Action and Alternatives would result in no impact on minority or low-income populations in terms of mail service or disproportionately high adverse economic effect.

The Postal Service would evaluate ICE and BEV deployment based on existing nationwide delivery route characteristics and other established factors to prioritize potential placement of the two powertrains. Route characteristics for placement of BEVs would include routes located in mild temperature ranges, routes with frequent and numerous curb-line stops as electric motors are more efficient than ICE in this stop-and-go duty cycle, routes in locations with compromised air quality, and/or states with proactive BEV policies and regulations.

Both the Proposed Action and Alternatives would result in negligible beneficial impacts on air quality due to higher emission controls as compared to the high-maintenance and end-of-life delivery vehicles being replaced. Both the Proposed Action and Alternative 1.2 would result in negligible beneficial impacts on air quality due to better gas mileage of the newly purchased vehicles as compared to the high-maintenance and end-of-life delivery vehicles being replaced. Such beneficial impacts would occur regardless of race or socioeconomic status.

Both the Proposed Action and Alternatives would also result in safety and ergonomic improvements for delivery employees and the general public, and decrease the risk of accidents due to mechanical failure or fewer modern safety features associated with the existing delivery vehicles. These beneficial impacts would occur regardless of race or socioeconomic status.

4-3.3.2 No-Action Alternative

Community Economics

Revenues to local service providers for utilities and supplies associated with the operations and maintenance of the Postal Service's vehicles and facilities would not change. Indirect benefits to other sectors of the local economy occur as a result of direct expenditures by employees and to suppliers, such as increased purchases at retail gas stations and commercial garages.

Delivery vehicle breakdown incidents would increase over time as the vehicles continue to age. The need for unscheduled repairs would increase, and requests for maintenance, as well as maintenance costs would increase. Commercial garages would likely experience increased revenues.

Employment

Continued use of the existing delivery vehicles would result in no changes to the total Postal Service carrier or vehicle maintenance workforce. The workforce at the Postal Service's existing VMFs, as well as commercial garages for unscheduled repairs throughout the country, would continue to perform maintenance on all delivery vehicles.

Minority and Low-Income Populations

Unlike the Proposed Solution and Alternatives 1.1 and 1.2, the No-Action Alternative would not enhance the safety of delivery personnel or the general public, as the end-of-life delivery vehicles do not have certain modern safety or operational features and breakdowns could occur on roadways at inopportune times. All customers, regardless of race or socioeconomic status, could experience delays in mail delivery as individual delivery vehicles experience maintenance issues.

4-4 Transportation

4-4.1 Transportation – Background and Regulatory Setting

State Departments of Transportation (DOTs) are generally responsible for their state highway systems and the federal highways and interstates within their boundaries. Arterials, connectors, rural roads, and local roads are typically the responsibility of county or city governments. Local governments determine whether a noise impact analysis is required for proposed actions. The threshold used to determine whether a transportation impact analysis is needed and the definition of the threshold can vary by jurisdiction. The Postal Service is not subject to local requirements, but often follows those transportation regulations and thresholds. The Institute of Transportation Engineers (ITE) publication *Transportation Impact Analyses for Site Development* (ITE 2010) suggests that in lieu of a locally preferred or required determinant, an appropriate threshold is the addition of 100 or more new inbound or outbound vehicle trips during the surrounding area or adjacent roadway's peak hour of traffic.

4-4.2 Transportation – Affected Environment

Postal Service delivery routes are located in urban, suburban and rural areas. Urban areas are generally characterized by a complex and extensive system of roads, including major freeways, arterials, and surface streets. Urban roads typically support high levels of traffic, which often result in roadway segment and intersection congestion. Suburban environments can be characterized by fewer roads and a predominance of two-lane and four-lane roads. Generally, rural roads have lower traffic volumes with minimal congestion.

4-4.2.1 Overview of the Postal Service Transportation Network

The Postal Service transportation network is responsible for moving large volumes of mail and packages from a mailer or domestic point of entry to a receiver or domestic point of export. The transportation fleet is divided into two major categories: Logistics, which is responsible for moving mail and packages to and from processing facilities, and Delivery, or "Last Mile," which is responsible for moving mail and packages between Post Offices and delivery points in the community. This EIS is focused on the Delivery fleet of vehicles. This transport occurs primarily on city streets, county roads, and major highways.

4-4.2.2 Traffic

Over 122 million cars and almost 160 million trucks were registered in the U.S. in 2018 (USDOE 2021). The current Postal Service delivery fleet of more than 217,000 custom-built and COTS vehicles traveled approximately 1.2 billion miles in FY 2019. The delivery vehicles travel roads and highways in both city and rural environments with varying traffic densities and levels of congestion. Carriers typically pick up mail and leave on delivery routes in the morning primarily before 10:00 a.m., after morning rush hour. These carriers complete their routes and typically return to the facility in the mid-afternoon before evening rush hour.

4-4.2.3 Safety, Accessibility, and Parking

Site circulation, parking, and accessibility for most Postal Service facilities comply with the Postal Service Handbook RE-4, *Standards for Facility Accessibility* (USPS 2005). Parking areas for Postal Service vehicles are typically gated or otherwise access-controlled for authorized users. Any parking or vehicle safety-related issues identified are handled per Postal Service safety requirements. Designated public parking is available at most Post Offices, Branches, and Stations.

The Postal Service emphasizes safety for all aspects of the transportation network. Postal Service policy document Handbook EL-804, *Safe Driver Program* (USPS June 2013), provides driver safety guidance and policies and also addresses or references safety standards related to Postal Service vehicles. In addition, the Postal Service follows local standards for additional traffic safety at the facility level. Vehicle incidents are tracked and used to address safety issues and improve Postal Service safety performance.

The existing, end-of-life delivery fleet vehicles do not have certain modern safety features such as airbags, anti-lock brakes, air conditioning, back-up cameras, intermittent windshield wipers, blind-spot warning systems, daytime running lights, or seatbelt reminders found on more modern vehicles.

4-4.2.4 Public Transportation

The Postal Service works to minimize petroleum use by encouraging carpooling and public transportation, and expanding use of web-based technologies for meetings and training. Some Postal Service employees use public transportation to travel to and from work each day or periodically where available. This public transportation is typically located in metropolitan areas near the Postal Service's facilities. Where available, the Postal Service encourages employees to participate in ride-share and trip-reduction programs. In addition, the Postal Service maintains a Commuter Benefits Program that offers tax-free cost benefits that promote various commuting options, including public transit and vanpooling (USPS 2020).

4-4.3 Transportation – Environmental Consequences

4-4.3.1 Proposed Action

Traffic

Under either the ICE NGDV Hypothetical Maximum or the BEV NGDV Hypothetical Maximum, the Proposed Action would have no or negligible impact on traffic. As high-maintenance and end-of-life vehicles would be replaced at various postal locations on a one-for-one basis, there would be no increase in the number of delivery vehicles or routes or Postal Service employee commuter trips.

Safety, Accessibility, and Parking

The NGDV's modern safety features such as airbags, anti-lock brakes, air conditioning, back-up cameras, intermittent windshield wipers, blind-spot warning systems, daytime running lights, or seatbelt reminders would improve operational safety as compared to use of the existing delivery vehicles. Additionally, the RHD-configuration of the custom-built NGDV would be safer than LHD options for carriers and the public during deliveries to curbside mailboxes, as it would not require the carrier to exit the vehicle for deliveries.

Under both Hypothetical Maxima, the Proposed Action would have no or negligible impact on access to Postal Service facilities and parking. Parking areas for Postal Service delivery vehicles are dedicated, and there would be a one-for-one replacement of aged delivery vehicles. Thus, there would be no or negligible impact on access to Postal Service facilities and parking. BEV charging stations would be installed within dedicated Postal Service vehicle parking areas, and would not impact existing public parking available at Post Office locations, Branches, and Stations.

Public Transportation

The Proposed Action scenario would have no impact on Postal Service employee use of public transportation, or participation in ride-share and trip-reduction programs or the Postal Service's Commuter Benefits Program.

4-4.3.2 Alternative 1.1 – 100% RHD COTS ICE Vehicles

Traffic

Alternative 1.1 would have no or negligible impact on traffic. There would be no increase in the number of delivery vehicles or routes, or Postal Service employee commuter trips.

Safety, Accessibility, and Parking

The new RHD COTS ICE vehicles would have modern safety features such as airbags, anti-lock brakes, air conditioning, back-up cameras, intermittent windshield wipers, blind-spot warning systems, daytime running lights, or seatbelt reminders. Modern safety features would improve operational safety as compared to use of the existing delivery vehicles. Additionally, the RHD-configuration would be safer for carriers and the public during deliveries to curbside mailboxes, as it would not require the carrier to exit the vehicle for deliveries.

Alternative 1.1 would have no or negligible impact on access to Postal Service facilities or parking. Parking areas for Postal Service delivery vehicles are dedicated, and there would be a one-for-one replacement of aged delivery vehicles.

Public Transportation

Alternative 1.1 would have no impact on Postal Service employee use of public transportation, or participation in ride-share and trip-reduction programs or the Postal Service's Commuter Benefits Program.

4-4.3.3 Alternative 1.2 – 100% LHD COTS BEVs**Traffic**

Alternative 1.2 would have no or negligible impact on traffic. There would be no increase in the number of delivery vehicles or routes, or Postal Service employee commuter trips.

Safety, Accessibility, and Parking

The new LHD COTS BEVs would have modern safety features such as airbags, anti-lock brakes, air conditioning, back-up cameras, intermittent windshield wipers, blind-spot warning systems, daytime running lights, or seatbelt reminders. This would improve operational safety as compared to use of the existing delivery vehicles. However, LHD COTS vehicles would require carriers to exit the vehicle for curb-line deliveries. Thus, LHD COTS BEVs would not provide the operational and ergonomic benefits of RHD vehicles and therefore would not provide the same safety performance for mail carriers.

Alternative 1.2 would have no or negligible impact on access to Postal Service facilities and parking. Parking areas for Postal Service delivery vehicles are dedicated, and there would be a one-for-one replacement of delivery vehicles. BEV charging stations would be installed within dedicated Postal Service vehicle parking areas, and would not impact existing public parking available at Post Office locations, Branches, and Stations.

Public Transportation

Alternative 1.2 would have no impact on Postal Service employee use of public transportation, or participation in ride-share and trip-reduction programs or the Postal Service's Commuter Benefits Program.

4-4.3.4 No-Action Alternative**Traffic**

Existing traffic levels associated with current Postal Service operations would not change as a result of the No-Action Alternative. There would be no change in traffic levels associated with mail delivery or delivery carrier commuter trips under the No-Action Alternative. As a result of not replacing the existing end-of-life delivery vehicles, the vehicles could experience more frequent breakdowns, potentially resulting in safety concerns and traffic delays on roadways.

Safety, Accessibility, and Parking

Carriers would continue to drive the existing high-maintenance and end-of-life delivery vehicles that do not have certain modern safety features such as airbags, anti-lock brakes, air conditioning, back-up cameras, intermittent windshield wipers, blind-spot warning systems, daytime running lights, or seatbelt reminders. Improvement in operational safety would not be realized. The existing delivery vehicles could experience more frequent breakdowns, potentially resulting in safety concerns for carriers and the public. No change in existing accessibility to Postal Service facilities or parking would occur.

Public Transportation

There would be no change in use of public transportation as a result of the No-Action Alternative, nor would there be a change in Postal Service employee participation in ride-share and trip-reduction programs or the Postal Service's Commuter Benefits Program.

4-5 Noise

4-5.1 Noise – Background and Regulatory Setting

Noise can be an unwanted sound that interferes with or disrupts normal human activities. The principal human response to noise is annoyance. Inadequately controlled noise can present a danger to health and welfare, particularly in urban areas. Major sources of noise are traffic, machinery and equipment, and commercial noise sources (EPA 2021a). The Noise Control Act of 1972 (42 USC §4901 et seq., 1972) establishes a national policy to promote a noise environment free from noise that would jeopardize health and welfare. The primary responsibility for noise control lies with state and local governments. Noise pollution also is addressed in the Clean Air Act (Subchapter IV and Title IV – Noise Pollution). Additional background information is presented in Appendix E.

Many noise sources, such as vehicle traffic and construction, generate noise and contribute to the impact on the total noise environment. This noise is generally transitory and represents a negligible contribution to the overall noise environment. Response to noise varies, depending on the type and characteristics of the noise, distance between the noise source and receptor, receptor sensitivity, and time of day. A noise-sensitive receptor is defined as a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Noise-sensitive locations or facilities include residential dwellings, hospitals, nursing homes, educational facilities, and libraries.

Vehicle noise is comprised of three general sources: aerodynamic noise (air passing over vehicles), propulsion noise (engine, exhaust, and drivetrain), and tire-pavement noise (tires rolling on roadway surface). Primary noise from BEVs is caused by wind resistance and tire noise, while primary noise from ICE is caused by propulsion noise. Propulsion noise from a BEV is quieter than from an ICE vehicle at speeds less than 15 miles per hour because propulsion noise generated by the ICE vehicle dominates any aerodynamic and tire-pavement noise.

4-5.2 Noise – Affected Environment

Recommended noise levels in urban and suburban environments generally range from 45 dBA, (decibels [A-weighted scale]) (indoor) to 55 dBA (outdoor), depending on the time of day and location (residential or commercial land use) (King, et.al. 2012). Day-night sound levels measured at over 100 residential sites in urban and suburban areas across the U.S. ranged from approximately 50 to 75 dB (Bishop and Simpson 1977).

Postal Service facilities are located primarily in more urban or suburban settings. Noise levels in these environments vary continuously over a period of time depending on the contributing sound sources within the noise environment. Existing delivery vehicle maintenance operations contribute to ambient noise around VMFs; and traffic from delivery vehicles contributes to ambient noise around Postal Service facilities during vehicle arrivals and departures, primarily before 10:00 a.m., after morning rush hour, and return in the mid-afternoon before evening rush hour. The Postal Service follows an internal anti-idling policy that is supportive of local noise ordinances. Vehicle maintenance operations are primarily conducted inside VMFs, and each delivery event occurs at a specific destination over a very short duration. Therefore, Postal Service delivery vehicle-related operations have minimal effects

on the overall existing ambient noise conditions within affected neighborhoods, with noise levels dominated by other traffic and daily activities.

4-5.3 Noise – Environmental Consequences

4-5.3.1 Proposed Action

Under both the ICE NGDV Hypothetical Maximum and BEV NGDV Hypothetical Maximum, the Proposed Action would have no adverse impact on the noise environment. The number of delivery vehicles or routes would not increase. BEVs are expected to be 4 to 5 dB quieter than the ICE vehicles at low speed (6 to 12 miles per hour [mph]), while the difference in emitted noise from the two drivetrains would be similar at speeds above approximately 19 mph when tire/road noise would dominate (Danish Road Directorate 2015).

No change in existing noise levels from Postal Service delivery and delivery vehicle maintenance operations would occur under the Proposed Action. Nor would additional noise be emitted from charging batteries.

4-5.3.2 Alternatives 1.1 and 1.2 – COTS Vehicles

Alternatives 1.1 and 1.2 would have no adverse impact on the noise environment. There would be no increase in the number of delivery vehicles or routes. The COTS vehicles would be quieter than the aged delivery vehicles being replaced due to more modern technology, resulting in a beneficial reduction in emitted noise. The ICE vehicles are expected to be 4 to 5 dB louder than the BEVs at low speed (6 to 12 mph). However, the difference in emitted noise between the ICE and BEV powertrains would be similar at speeds above approximately 19 mph when tire/road noise would dominate (Danish Road Directorate 2015).

No change in existing noise levels from Postal Service delivery and delivery vehicle maintenance operations would occur under either Alternative 1.1 or 1.2. Nor would additional noise be emitted from charging batteries.

4-5.3.3 No-Action Alternative

Under the No-Action Alternative, new delivery vehicles would not be purchased and high-maintenance and end-of-life delivery vehicles would continue to be maintained until maintenance was no longer feasible. Emitted noise from the delivery fleet and Postal Service facilities would remain the same. The No-Action Alternative would have negligible impact on noise environment.

4-6 Air Quality

4-6.1 Air Quality – Background and Regulatory Setting

4-6.1.1 Clean Air Act and National Ambient Air Quality Standards

The Clean Air Act (CAA) directs the EPA to protect and improve air quality across the U.S. As a requirement of the CAA, EPA established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants in order to protect public health and welfare nationwide. These criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), sulfur dioxide (SO₂), lead (Pb), and particulate matter [measured as less than 10 microns in diameter (PM₁₀) and less than 2.5 microns in diameter (PM_{2.5})]. (see Appendix F)

Attainment areas are geographic areas that are and have historically been in compliance with the NAAQS; nonattainment areas violate a NAAQS for the applicable pollutant; and maintenance areas

have transitioned from nonattainment to attainment and are required to adhere to maintenance plans to ensure continued attainment. The CAA requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country and a specific plan known as a State Implementation Plan (SIP) to attain the NAAQS for each area designated nonattainment.

4-6.1.2 General Conformity

The purpose of the General Conformity rule is to ensure that federal activities do not cause or contribute to a violation of NAAQS or otherwise delay attainment of NAAQS. Therefore, federal entities are required to demonstrate that the total direct or indirect emissions from a federal action will conform to the SIP or not otherwise interfere with a state's ability to attain and maintain the NAAQS. The General Conformity rule applies to all federal actions that are taken in designated nonattainment or maintenance areas with some exceptions, including actions with associated emissions below specified de minimis levels.

The EPA established de minimis emission levels for each criteria pollutant to limit the need to conduct conformity determinations for federal projects with minimal emission increases. De minimis levels vary by pollutant and also depend on the severity of the nonattainment status for the areas of concern as presented in Table F-2 in Appendix F. When the total direct and indirect emissions from a proposed project are below the de minimis levels, the project would not be subject to a conformity determination.

4-6.1.3 Greenhouse Gas

Global climate change is a transformation in the average weather of the Earth, which can be measured by changes in temperature, wind patterns, and precipitation. Scientists have identified human-related greenhouse gas (GHG) emissions as a significant contributor to global climate change (NOAA 2021). GHGs effectively trap heat in the atmosphere and influence Earth's temperature, causing the greenhouse effects. The key GHGs emitted by human activities are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). GHGs differ in their ability to trap heat. To account for this, a weighting factor called the Global Warming Potential (GWP) is defined for a gas relative to the heat-trapping ability of the same mass of CO₂, and emissions are normally expressed in terms of CO₂ equivalents (CO₂e). For example, the GWP of CO₂ is 1, whereas the GWP of N₂O is 298.

The CEQ's NEPA Guidance on GHG and climate change impact assessment is currently under review. In the absence of updated guidance, GHG emissions and climate change impact were assessed based on the *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Review* (CEQ 2016). The 2016 guidance explains that the analysis should consider (1) the potential effects of a proposed action on climate change as indicated by assessing GHG emissions, and (2) the effects of climate change on a proposed action and its environmental impacts.

4-6.1.4 Social Cost of Greenhouse Gas (Carbon)

The Postal Service voluntarily complies with the requirements of various EOs. EO 13990 (86 FR 14 [January 25, 2021]) re-established the Interagency Working Group and directed it to ensure that Social Cost of GHG (also referred to as the Social Cost of Carbon or SCC) estimates reflect the best available science and work towards approaches that take into account, climate risk, environmental justice, and intergenerational equity (Interagency Working Group 2021).

The SCC is an assigned marginal cost used to facilitate a policy and decision-making assessment of the costs and benefits of increased GHG emissions. The SCC represents a monetization of the damages associated with the incremental changes in GHG (e.g., increased flood risk, disruption of energy systems, environmental damage) on society. The assessed cost would provide a benchmark

for the economic evaluation of a proposed action. The SCC is used to estimate in dollars all economic damage as to how much it is worth today to avoid the damage that is projected for the future.

4-6.2 Air Quality – Affected Environment

4-6.2.1 Air Emissions

Mobile Sources

Existing Postal Service mobile source air emissions include operation of more than 218,000 delivery fleet vehicles, including the 165,000 delivery vehicles that would be replaced, as well as other vehicles used in its air and surface transportation operations.

Stationary Sources

Stationary air pollution sources at Postal Service facilities can include boilers, emergency power generators, painting operations, parts washers, and fuel storage tanks. Replacing the high-maintenance and end-of-life delivery vehicles on a one-to-one basis would not result in the need for additional facilities to maintain the new vehicles, nor in changes in existing or additional stationary sources. Current Postal Service stationary sources minimally impact air quality; operations follow applicable regulatory requirements, and the Postal Service applies for and complies with applicable environmental permits where required. No air emissions are expected to be emitted from electric battery charging stations that would be installed at Postal Service facilities to support BEVs. Since stationary source air impacts are not anticipated, stationary emissions were not assessed in this EIS

4-6.2.2 General Conformity

Air quality conditions vary widely across the geographic area in which the Postal Service operates the vehicles planned for replacement. EPA has designated nonattainment area for criteria pollutants throughout the U.S. based on historical compliance data against NAAQS.

4-6.2.3 Greenhouse Gas

The Postal Service generates GHG emissions from facility energy use, transportation fuel use, waste generation, employee commuting, contracted transportation services, and other sources. The Postal Service's target is to reduce, by FY 2025, GHG emissions by 30 percent from its 2008 baseline, and through 2019, the USPS had achieved a 28.3 percent reduction toward its goal (USPS 2020).

Delivery fleet vehicles emit a variety of gases during their operations, some of which are GHGs, including CO₂, CH₄, and N₂O. The nationwide total GHG emissions, or "carbon dioxide equivalent (CO₂e)," currently generated by the Postal Service and calculated based on 2019 data are estimated to be 6,374,480 Metric Tons (MT) CO₂e (USPS 2020), which consist of:

- 2,199,409 MT CO₂e direct emissions including owned vehicles and building heating,
- 1,901,846 MT CO₂e of energy indirect emissions including purchased electricity and steam, and
- 2,273,225 MT CO₂e of other indirect emissions including transmission and distribution losses, employee air and ground business travel, employee commuting, contracted wastewater treatment, and contracted solid waste disposal.

4-6.3 Air Quality – Environmental Consequences

4-6.3.1 Analysis Methodology

Air Emissions

The estimate of nationwide air emissions from each of the Proposed Action Hypothetical Maxima and Alternatives was calculated based on the total number of vehicles, the mileage per year and the emission factors. Because of the one-to-one vehicle replacement and no planned increase in total route length, the miles associated with the new delivery vehicles would be the same as the replaced delivery vehicles on a nationwide basis. Given the ten-year timeframe, the overall net changes in combined emissions after the completion of the action were compared in lieu of year by year comparisons.

Air emission factors vary based on the type of vehicle. Emissions were estimated using the EPA MOtor Vehicle Emission Simulator (MOVES) model, a state-of-the-science emission modeling system that estimates emissions for mobile sources for criteria pollutants, GHGs, and air toxics.

The MOVES model does not account for emissions from generation of electricity for BEVs. It assumes fully electric vehicles have no tailpipe or evaporative emissions and that brake and tire wear emissions are identical to conventional vehicles. Therefore, only particulate matter emissions are associated with brake and tire wear from BEV operation, while all six criteria pollutants emissions are associated with ICE vehicle operation.

General Conformity

The applicability of the General Conformity rule was determined based on the net changes of the total emissions that could occur in any nonattainment or maintenance area as a result of the Proposed Action scenarios and Alternatives.

Greenhouse Gas

The potential effects of the Proposed Action and Alternatives on climate change were evaluated by estimating GHG emissions from several elements. The 2016 CEQ guidance does not establish any particular quantity of GHG emissions as “significantly” affecting the quality of the human environment or give greater consideration to the effects of GHG emissions and climate change over other effects on the human environment. Therefore, instead of comparing the estimated GHG emissions from each action to a certain threshold, the estimated GHG emissions from each of the Proposed Actions and Alternatives were compared. Each action’s emissions were calculated as a percentage of the total emissions generated by the Postal Service.

The indirect emissions were also quantified due to electricity consumption from the proposed BEVs and fuel (gasoline) consumption from the proposed ICE vehicles. Lastly, the aggregate direct and indirect Social Cost on the GHG emissions associated with each of the Proposed Actions and Alternatives were calculated as a combined impact analysis.

Direct Tailpipe GHG Emissions

The direct tailpipe nationwide GHG emission changes associated with each of the Proposed Action scenarios and Alternatives were calculated as emission change of CO₂e.

Energy Consumption GHG Emissions

The environmental “footprint” of fuel purchases were further evaluated to better understand the environmental impacts using different tools such as the Emissions & Generation Resource Integrated Database (eGRID) (EPA 2021d) and/or Greenhouse Gases, Emissions, and Energy use in Technologies (GREET) (Argonne National Laboratory). This aggregated analysis includes energy (e.g., indirect emissions associated with electricity consumption by BEVs) and operation (e.g., direct emissions from fuel consumption by ICE vehicles), but does not include a full life cycle cost (e.g., vehicle production, etc.).

The combined direct tailpipe GHG emissions and the indirect GHG emissions associated with energy consumption by vehicle fuel associated with the Proposed Action and Alternative scenarios were used to evaluate the total aggregated GHG emissions.

Effects of Climate Change

The EIS also evaluated whether climate change would impact the Proposed Action scenarios and Alternatives.

Social Cost of Greenhouse Gas (Carbon)

Based on the social costs of CO₂, CH₄, and N₂O provided in the U.S. Interagency Working Group (IWG) interim technical guidance (IWG 2021), the aggregate social cost on the GHG emissions was calculated in five-year increments based on a 20-year project life span after 2030. The estimates consider discount rates of 2.5 to 5 percent, with this range reflecting the current range of variability assessing the present value of future climate change damages. The higher discount rate results in a lower present value for future climate change damages.

4-6.3.2 Proposed Action – 90% ICE NGDV with at least 10% BEV NGDV

Air Emissions

Under this Hypothetical Maximum, the estimated operational emissions on an annual basis for the Proposed Action is presented in Table 4-6.1. Overall, there would be a net emissions decrease for all applicable pollutants. Therefore, under the ICE NGDV Hypothetical Maximum, the Proposed Action would have a beneficial effect on current air quality as compared to existing conditions or to the No-Action Alternative. Detailed calculations of direct air emissions using the MOVES model are presented in Appendix F.

Table 4-6.1

**Net Air Emission Changes from Nationwide Action (90% ICE NGDV and 10% BEV NGDV)
Calculated Based on MOVES Model**

Air Emissions	VOC (tpy)	NO_x (tpy)	CO (tpy)	PM_{2.5} (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	CO_{2e} (MT)
New 90% ICE NGDV	9.60	10.65	402.74	11.61	76.43	1.97	280,565
New 10% BEV NGDV	--	--	--	1.07	8.24	--	--
Replaced Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Net (Total)	-926.39	-2,253.67	-11,093	-46.47	-52.06	-1.75	-256,850

tpy = Tons per Year

MT = Metric Tons

General Conformity

On a national scale, the one-to-one delivery vehicle replacement under this Hypothetical Maximum is anticipated to affect operational emissions in certain nonattainment or maintenance areas. However, because no increase in travel route and/or vehicle travel miles would occur, there would be a net reduction in emissions for all criteria pollutants within all affected nonattainment or maintenance areas nationwide due to the use of new vehicles operating with less air emissions. Instead of assessing area-level net emission changes, this analysis assumed that the area-level net emission changes would follow the same trend on the nationwide scale. Accordingly, as shown in Table 4-6.1, the calculated potential emissions decrease for all pollutants in any nonattainment or maintenance area would be below any de minimis threshold for all applicable criteria pollutants; therefore, the General Conformity rule does not apply to the Proposed Action under this Hypothetical Maximum.

Greenhouse Gas

Direct Tailpipe GHG Emissions

Under this Hypothetical Maximum, the Proposed Action would result in an emission decrease of 256,850 MT of CO₂e (Table 4-6.1), thus having a beneficial effect on current GHG emissions. This action would result in less reduction in direct tailpipe GHG emissions by 280,565 MT of CO₂e as compared to the 100 percent BEV scenarios, and thus have less benefit than the BEV action scenarios; but it has a greater reduction in direct tailpipe GHG emissions by 31,174 MT of CO₂e as compared to Alternative 1.1.

Energy Consumption GHG Emissions

As shown in Table 4-6.2, the total net aggregated emissions for this Hypothetical Maximum indicate 290,306 MT decrease in CO₂e compared to the No-Action alternative, indicating a beneficial effect on current GHG emissions. Current Postal Service generated-GHG emissions would be reduced by approximately 5 percent.

Table 4-6.2

Net Aggregated (Direct and Indirect) Air Emission Changes (90% ICE NGDV and 10% BEV NGDV) Calculated Based on MOVES, eGRID, and GREET Models

Air Emissions	VOC (tpy)	NOx (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO ₂ e (MT)
New 90% ICE NGDV	880.29	1,186.20	929.60	91.75	294.00	822.14	995,643
New 10% BEV NGDV	NA ¹	41.27	NA ¹	5.59	NA ¹	38.10	46,748
Replaced Vehicles (LLVs/FFVs/Metris)	-1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698
Net (Total)	NA¹	-2,343	NA¹	-51	NA¹	-55	-290,306

tpy = Tons per Year

MT = Metric Tons

Notes:

¹ NA = not available, as eGRID does not provide VOC, CO, and PM₁₀ emissions factor data for the upstream sources. Therefore, the aggregated net emissions for VOC, CO and PM₁₀ were not calculated.

² The emissions increase associated with New 90% ICE NGDV is a summation of direct tailpipe emissions based on the MOVES model and indirect emissions estimated based on the GREET model. The indirect emissions represent air emissions associated with the fuel (e.g., gasoline) cycle from well pad to fuel pump that corresponds to the fuel purchases (e.g., energy consumption) by ICE.

³ The emission increase associated with New 10% BEV NGDV is a summation of direct tailpipe emissions based on the MOVES model and indirect emissions estimated based on eGRID. The indirect emissions represent air emissions associated with electricity generation from U.S. electric power sector that corresponds to the electricity purchases (e.g., energy consumption) by BEV.

⁴ The emission decrease associated with Replaced Vehicles (LLVs/FFVs/Metris) is a summation of direct tailpipe emissions based on the MOVES model and indirect emissions estimated based on the GREET model.

Effects of Climate Change

No effects of climate change are expected.

Social Cost of Greenhouse Gas (Carbon)

Table 4.6-3 provides the estimated total social costs of carbon from the Proposed Action under this Hypothetical Maximum, starting from 2030 as the Proposed Action is near completion. The social costs of carbon are based on operational emissions per year in five-year increments over the estimated 20-year project lifespan.

Table 4-6.3

Calculated Social Cost of Carbon (90% ICE NGDV and 10% BEV NGDV)

Operational Year	5% Discount Rate (\$, US Dollars)	3% Discount Rate (\$, US Dollars)	2.5% Discount Rate (\$, US Dollars)
2030	-5,498,055	-17,618,744	-25,236,314
2035	-6,365,706	-19,055,123	-27,263,765
2040	-7,225,573	-20,828,337	-29,291,215
2045	-8,153,479	-22,533,511	-31,333,225
2050	-9,267,583	-24,306,725	-33,106,439

Under this Hypothetical Maximum, the Proposed Action would result in a positive investment impact in terms of social cost, as calculations indicated a decrease in cost values. Detailed itemized social cost calculations are presented in Appendix F.

4-6.3.3 Proposed Action – 100% BEV NGDV**Air Emissions**

Under the 100 percent BEV NGDV Hypothetical Maximum, the estimated operational emissions on an annual basis for the Proposed Action (calculated using the MOVES model) are presented in Table 4-6.4. Overall, this action would result in a net emissions decrease for all applicable pollutants. Therefore, this action would have a beneficial effect on current air quality as compared to existing conditions or to the No-Action Alternative.

This Proposed Action would result in a greater reduction in the direct (tailpipe) operational emissions by 9.60 tpy of VOC, 10.65 tpy of NO_x, 403 tpy of CO, 2.02 tpy of PM_{2.5}, 2.28 tpy of PM₁₀ and 1.97 tpy of SO₂ as compared to the Proposed Action's 90% ICE NGDV Hypothetical Maximum. The Proposed Action would result in a greater reduction in the direct operational emissions by 10.67 tpy of VOC, 11.83 tpy of NO_x, 447 tpy of CO, 2.24 tpy of PM_{2.5}, 2.54 tpy of PM₁₀ and 2.19 tpy of SO₂ as compared to Alternative 1.1. The Proposed Action would result in a greater reduction in the direct operational emissions by 935.99 tpy of VOC, 2,264.31 tpy of NO_x, 11,496 tpy of CO, 48.49 tpy of PM_{2.5}, 54.34 tpy of PM₁₀ and 3.72 tpy of SO₂ as compared to the No-Action Alternative. Detailed calculations of direct air emissions using the MOVES model are presented in Appendix F.

Table 4-6.4

Net Air Emission Changes from Nationwide Action (100% BEV NGDV) Calculated Based on MOVES Model

Air Emissions	VOC (tpy)	NO_x (tpy)	CO (tpy)	PM_{2.5} (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	CO₂e (MT)
New NGDV (100% BEV NGDV)	--	--	--	10.65	82.38	--	--
Replaced Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Net (Total)	-935.99	-2,264.31	-11,496	-48.49	-54.34	-3.72	-537,415

tpy = Tons per Year
MT = Metric Tons

General Conformity

On a national scale, the one-to-one delivery vehicle replacement under this Proposed Action Hypothetical Maximum is anticipated to affect operational emissions in certain nonattainment or maintenance areas. However, because no increase in travel route and/or vehicle travel miles would occur, there would be a net reduction in emissions for all criteria pollutants within all affected nonattainment or maintenance areas nationwide due to the use of new vehicles operating with less air emissions. Instead of assessing area-level net emission changes, this analysis assumed that the area-level net emission changes would follow the same trend on the nationwide scale. Accordingly, as shown in Table 4-6.4, the calculated potential emissions decrease for all pollutants in any nonattainment or maintenance area would be below any de minimis threshold for all applicable criteria pollutants; therefore, the General Conformity rule does not apply to the Proposed Action under this Hypothetical Maximum.

Greenhouse GasDirect Tailpipe GHG Emissions

This would result in an emission decrease of 537,415 MT of CO₂e (Table 4-6.4), thus having a beneficial effect on current GHG emissions. This action would result in more reduction in direct tailpipe GHG emissions by 280,565 MT of CO₂e as compared to the 90 Percent ICE NGDV Hypothetical Maximum of the Proposed Action, by 311,739 MT of CO₂e as compared to Alternative 1.1, or 537,415 MT of CO₂e as compared to the No-Action Alternative, and thus be the most beneficial.

Energy Consumption GHG Emissions

As shown in Table 4-6.5, the Proposed Action's total net aggregated emissions under the 100 percent BEV NGDV Hypothetical Maximum result in 865,213 MT decrease in CO₂e compared to the No-Action alternative, indicating a beneficial effect on current GHG emissions. Current Postal Service generated-GHG emissions would be reduced by approximately 14 percent under this Proposed Action, more of a reduction in aggregated GHG emissions as compared to the Proposed Action's 90 percent ICE NGDV Hypothetical Maximum or Alternative 1.1.

Table 4-6.5

Net Aggregated (Direct and Indirect) Air Emission Changes (100% BEV NGDV) Calculated Based on MOVES, eGRID, and GREET Models

Air Emissions	VOC (tpy)	NO_x (tpy)	CO (tpy)	PM_{2.5} (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	CO₂e (MT)
New 100% BEV NGDV	NA ¹	412.71	NA ¹	55.94	NA ¹	381.01	467,485
Replaced Vehicles (LLVs/FFVs/Metris)	-1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698
Net (Total)	NA¹	-3,158	NA¹	-92	NA¹	-534.01	-865,213

tpy = Tons per Year

MT = Metric Tons

Notes:

¹ NA = not available, as eGRID does not provide VOC, CO, and PM₁₀ emissions factor data for the upstream sources. Therefore, the aggregated net emissions for VOC, CO and PM₁₀ were not calculated.

² The emission increase associated with New 100% BEV NGDV is a summation of direct tailpipe emissions based on the MOVES model and indirect emissions estimated based on eGRID. The indirect emissions represent air emissions associated with electricity generation from U.S. electric power sector that corresponds to the electricity purchases (e.g., energy consumption) by BEV.

³ The emission decrease associated with Replaced Vehicles (LLVs/FFVs/Metris) is a summation of direct tailpipe emissions based on the MOVES model and indirect emissions estimated based on the GREET model. The indirect emissions represent air emissions associated with fuel (e.g., gasoline) cycle from well pad to fuel pump that corresponds to the fuel purchases (e.g., energy consumption) by ICE.

Effects of Climate Change

No effects of climate change are expected.

Social Cost of Greenhouse Gas (Carbon)

Table 4.6-6 presents the estimated total social costs of carbon from this Hypothetical Maximum of the Proposed Action, starting from 2030 as the Proposed Action is near its completion. The social costs of carbon are based on operational emissions per year in five-year increments over the estimated 20-year project lifespan.

Table 4-6.6

Calculated Social Cost of Carbon (100% BEV NGDV)

Operational Year	5% Discount Rate (\$, US Dollars)	3% Discount Rate (\$, US Dollars)	2.5% Discount Rate (\$, US Dollars)
2030	-16,063,638	-49,867,888	-71,065,575
2035	-18,602,106	-54,006,677	-76,975,339
2040	-21,107,907	-59,319,603	-82,885,104
2045	-24,053,019	-64,193,218	-88,932,855
2050	-27,155,659	-69,506,143	-94,245,781

This would result in a positive investment impact in terms of social cost, as calculations indicated a decrease in cost values, and approximately three times greater social cost benefit as compared to the Proposed Action under its 90 percent ICE NGDV Hypothetical Maximum. Detailed itemized social cost calculations are presented in Appendix F.

4-6.3.4 Alternative 1.1 – 100% RHD COTS ICE Vehicles**Air Emissions**

The estimated operational emissions on an annual basis for Alternative 1.1 (calculated using the MOVES model) are presented in Table 4-6.7. Overall, Alternative 1.1 would result in a net emissions

decrease for all applicable pollutants. Therefore, this action would have a beneficial effect on current air quality as compared to existing conditions or to the No-Action Alternative.

Alternative 1.1 would result in the least reduction in the direct (tailpipe) operational emissions for most criteria pollutants as compared to Alternative 1.2 or either Hypothetical Maximum of the Proposed Action and therefore be the least beneficial on air quality. Alternative 1.1 would result in less reduction in the direct operational emissions by 1.07 tpy of VOC, 1.18 tpy of NO_x, 45 tpy of CO, 0.22 tpy of PM_{2.5}, 0.25 tpy of PM₁₀ and 0.22 tpy of SO₂ as compared to the Proposed Action's 90 percent ICE NGDV Hypothetical Maximum. Alternative 1.1 would result in a lesser reduction in the direct operational emissions by 10.67 tpy of VOC, 11.83 tpy of NO_x, 447 tpy of CO, 2.24 tpy of PM_{2.5}, 2.54 tpy of PM₁₀ and 2.19 tpy of SO₂ as compared to the Proposed Action's 100 percent BEV NGDV Hypothetical Maximum and Alternative 1.2. Alternative 1.1 would result in a greater reduction in the direct operational emissions by 925.32 tpy of VOC, 2,252.48 tpy of NO_x, 11,048 tpy of CO, 46.25 tpy of PM_{2.5}, 51.80 tpy of PM₁₀ and 1.54 tpy of SO₂ as compared to the No-Action Alternative. Detailed calculations of direct air emissions using the MOVES model are presented in Appendix F.

Table 4-6.7

Net Air Emission Changes from Nationwide Action (Alternative 1.1 - 100% RHD COTS ICE Vehicles) Calculated Based on MOVES Model

Air Emissions	VOC (tpy)	NO_x (tpy)	CO (tpy)	PM_{2.5} (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	CO_{2e} (MT)
New 100% COTS ICE	10.67	11.83	447	12.89	84.92	2.19	311,739
Replaced Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Net (Total)	-925.32	-2,252.48	-11,048	-46.25	-51.80	-1.54	-225,676

tpy = Tons per Year
MT = Metric Tons

General Conformity

On a national scale, the one-to-one delivery vehicle replacement under this Alternative is anticipated to affect operational emissions in certain nonattainment or maintenance areas. However, because no increase in travel route and/or vehicle travel miles would occur, this Alternative would result in a net reduction in emissions for all criteria pollutants within all affected nonattainment or maintenance areas nationwide due to the use of new vehicles operating with less air emissions. Instead of assessing area-level net emission changes, this analysis assumed that the area-level net emission changes would follow the same trend on the nationwide scale. Accordingly, as shown in Table 4-6.7, the calculated potential emissions decrease for all pollutants in any nonattainment or maintenance area would be below any de minimis threshold for all applicable criteria pollutants; therefore, the General Conformity rule does not apply to this Alternative 1.1.

Greenhouse Gas

Direct Tailpipe GHG Emissions

Alternative 1.1 would result in an emission decrease of -225,676 MT of CO_{2e} (Table 4-6.7) as compared with the No Action Alternative, thus having a beneficial effect on current GHG emissions. Alternative 1.1 would result, however, in the least reduction in direct tailpipe GHG emissions as compared to Alternative 1.2 or the Hypothetical Maximum of the Proposed Action, and thus be the least beneficial of the action alternatives. Alternative 1.1 would result in less reduction in direct tailpipe GHG emissions by 31,174 MT of CO_{2e} as compared to the 90 percent ICE NGDV Hypothetical

Maximum of the Proposed Action, and result in a lesser reduction in direction emissions by 311,739 MT of CO₂e as compared to Proposed Action's 100 percent BEV NGDV Hypothetical Maximum and Alternative 1.2. Alternative 1.1 would result in a greater reduction in direct GHG emissions by 225,676 MT of CO₂e as compared to the No-Action Alternative.

Energy Consumption GHG Emissions

As shown in Table 4-6.8, Alternative 1.1's total net aggregated emissions would result in by 226,427 MT decrease in CO₂e compared to the No-Action Alternative, indicating a beneficial effect on current GHG emissions. Current Postal Service generated-GHG emissions would be reduced by approximately 4 percent under this Alternative, the least reduction in aggregated GHG emissions as compared to Alternative 1.2 or either Hypothetical Maximum of the Proposed Action.

Table 4-6.8

Net Aggregated (Direct and Indirect) Air Emission Changes (Alternative 1.1 - 100% RHD COTS ICE Vehicles) Calculated Based on MOVES and GREET Models

Air Emissions	VOC (tpy)	NO_x (tpy)	CO (tpy)	PM_{2.5} (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	CO₂e (MT)
New 100% COTS ICE Vehicles	978.10	1,317.99	1,032.88	101.94	326.67	913.49	1,106,270
Replaced Vehicles (LLVs/FFVs/Metris)	-1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698
Net (Total)	-925	-2,252	-11,048	-46	-52	-1.54	-226,427

tpy = Tons per Year

MT = Metric Tons

Notes:

¹ The emissions increase associated with 100% COTS ICE is a summation of direct tailpipe emissions based on the MOVES model and indirect emissions estimated based on the GREET model. The indirect emissions represent air emission associated with fuel (e.g., gasoline) cycle from well pad to fuel pump that corresponds to the fuel purchases (e.g., energy consumption) by ICE.

² The emission decrease associated with Replaced Vehicles (LLVs/FFVs/Metris) is a summation of direct tailpipe emissions based on the MOVES model and indirect emission estimated based on the GREET model.

Effects of Climate Change

No effects of climate change are expected on Alternative 1.1.

Social Cost of Greenhouse Gas (Carbon)

Table 4-6.9 presents the estimated total social costs of carbon from Alternative 1.1, starting from 2030 as Alternative 1.1 is near its completion. The social costs of carbon are based on operational emissions per year in five-year increments over the estimated 20-year project lifespan.

Table 4-6.9

Calculated Social Cost of Carbon (Alternative 1.1 - 100% RHD COTS ICE Vehicles)

Operational Year	5% Discount Rate (\$, US Dollars)	3% Discount Rate (\$, US Dollars)	2.5% Discount Rate (\$, US Dollars)
2030	-4,324,102	-14,035,507	-20,144,176
2035	-5,006,107	-15,171,618	-21,740,259
2040	-5,683,092	-16,551,531	-23,336,341
2045	-6,386,865	-17,904,657	-24,933,268
2050	-7,280,020	-19,284,570	-26,313,181

Alternative 1.1 would result in the least social cost benefit as compared to Alternative 1.2 or either Hypothetical Maximum of the Proposed Action. Detailed itemized social cost calculations are presented in Appendix F.

4-6.3.5 Alternative 1.2 – 100% LHD COTS BEVs

Air Emissions

The estimated operational emissions on an annual basis for Alternative 1.2 (calculated using the MOVES model) are presented in Table 4-6.10. Overall, Alternative 1.2 would result in a net emission decrease for all applicable pollutants. Therefore, Alternative 1.2 would have a beneficial effect on current air quality as compared to existing conditions or to the No-Action Alternative.

Alternative 1.2 would have the same direct (tailpipe) air emissions as the Proposed Action's 100 percent BEV NGDV Hypothetical Maximum, yet have a greater beneficial air quality impact as compared to the Proposed Action's 90 percent ICE NGDV Hypothetical Maximum and Alternative 1.1. Alternative 1.2 would result in a greater reduction in the direct operational emissions by 9.60 tpy of VOC, 10.65 tpy of NO_x, 403 tpy of CO, 2.02 tpy of PM_{2.5}, 2.28 tpy of PM₁₀ and 1.97 tpy of SO₂ as compared to the Proposed Action's 90 percent ICE NGDV Hypothetical Maximum. The Alternative 1.2 would result in a greater reduction in the direct operational emissions by 10.67 tpy of VOC, 11.83 tpy of NO_x, 447 tpy of CO, 2.24 tpy of PM_{2.5}, 2.54 tpy of PM₁₀ and 2.19 tpy of SO₂ as compared to Alternative 1.1. Alternative 1.2 would result in a greater reduction in the direct operational emissions by 935.99 tpy of VOC, 2,264.31 tpy of NO_x, 11,496 tpy of CO, 48.49 tpy of PM_{2.5}, 54.34 tpy of PM₁₀ and 3.72 tpy of SO₂ as compared to the No-Action Alternative. Detailed calculations of direct air emissions using the MOVES model are presented in Appendix F.

Table 4-6.10

Net Air Emission Changes from Nationwide Action (Alternative 1.2 - 100% LHD COTS BEVs) Calculated Based on MOVES Model

Air Emissions	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO _{2e} (MT)
New 100% COTS BEV	--	--	--	10.65	82.38	--	--
Replaced Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Net (Total)	-935.99	-2,264.31	-11,496	-48.49	-54.34	-3.72	-537,415

tpy = Tons per Year

MT = Metric Tons

General Conformity

On a national scale, the one-to-one delivery vehicle replacement under this Alternative is anticipated to affect operational emissions in certain nonattainment or maintenance areas. However, because no increase in travel route and/or vehicle travel miles would occur, this Alternative would result in a net reduction in emissions for all criteria pollutants within all affected nonattainment or maintenance areas nationwide due to the use of new vehicles operating with less air emissions. Instead of assessing area-level net emission changes, this analysis assumed that the area-level net emission changes would follow the same trend on the nationwide scale. Accordingly, as shown in Table 4-6.10, the calculated potential emissions decrease for all pollutants in any nonattainment or maintenance area would be below any de minimis threshold for all applicable criteria pollutants; therefore, the General Conformity rule does not apply to Alternative 1.2.

Greenhouse Gas

Direct Tailpipe GHG Emissions

Alternative 1.2 would result in an emission decrease of -537,415 MT of CO₂e (Table 4-6.10), thus having a beneficial effect on current GHG emissions. This Alternative would result in the greatest reduction in direct tailpipe GHG emissions as compared to the Proposed Action (both Hypothetical Maxima), Alternative 1.1, or the No-Action Alternative, and thus be the most beneficial.

Energy Consumption GHG Emissions

As shown in Table 4-6.11, total net aggregated emissions from Alternative 1.2 would result in decreases of 1,116,730 MT in CO₂e compared to the No-Action alternative, indicating a beneficial effect on current GHG emissions. Current Postal Service generated-GHG emissions would be reduced by approximately 18 percent under Alternative 1.2 as compared with No Action Alternative, the greatest reduction in aggregated GHG emissions as compared to the Proposed Action (both Hypothetical Maxima), Alternative 1.1, and the No-Action Alternative. The reduction as compared to Alternative 1.1 would be almost five times greater.

Table 4-6.11

Net Aggregated (Direct and Indirect) Air Emission Changes (Alternative 1.2 – 100% LHD COTS BEVs) Calculated Based on MOVES, eGRID, and GREET Models

Air Emissions	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO ₂ e (MT)
100% BEV NGDV	NA ¹	190.66	NA ¹	31.57	NA ¹	176.02	215,968
Replaced LLVs/FFVs/ Metris	- 1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698
Net (Total)	NA¹	-3,380	NA¹	-117	NA¹	-739.01	-1,116,730

tpy = Tons per Year

MT = Metric Tons

Note:

¹ NA = not available, as eGRID does not provide VOC, CO, and PM₁₀ emissions factor data for the upstream sources. Therefore, the aggregated net emissions for VOC, CO and PM₁₀ were not calculated.

Effects of Climate Change

No effects of climate change are expected on Alternative 1.2.

Social Cost of Greenhouse Gas (Carbon)

Table 4-6.12 presents the estimated total social costs of carbon from Alternative 1.2, starting from 2030 as Alternative 1.2 is near its completion. The social costs of carbon are based on operational emissions per year in five-year increments over the estimated 20-year project lifespan.

Table 4-6.12

Calculated Social Cost of Carbon (Alternative 1.2 - 100% LHD COTS BEVs)

Operational Year	5% Discount Rate (\$, US Dollars)	3% Discount Rate (\$, US Dollars)	2.5% Discount Rate (\$, US Dollars)
2030	-20,859,908	-65,488,599	-93,480,934
2035	-24,155,829	-70,888,396	-101,157,155
2040	-27,419,310	-77,717,670	-108,833,377
2045	-31,125,212	-84,104,523	-116,649,707
2050	-35,235,640	-90,933,797	-123,478,982

This Alternative would result in the maximum investment benefit in terms of social cost of carbon amongst all studied Alternatives, with almost five times greater benefit compared to Alternative 1.1 and almost four times greater benefit compared to the Proposed Action under its 90 percent ICE NGDV Hypothetical Maximum.

4-6.3.6 No-Action Alternative

Air Emissions

Under No-Action Alternative, the Postal Service would operate its delivery vehicles as they are currently operated without any changes in vehicle miles and routes. Air emissions associated with the 165,000 vehicles within the existing Postal Service delivery fleet would not change. Table 4-6.13 presents estimated air emissions over a ten-year period from existing delivery vehicles that would not be replaced.

Table 4-6.13

Air Emissions from 165,000 Existing Delivery Vehicles Over a Ten-Year Period Calculated Based on MOVES Model

Air Emissions	No. of Vehicles	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO ₂ e (MT)
LLVs	125,988	900.87	2,167.60	10,439	51.69	111.73	2.90	419,583
FFVs	21,070	33.90	94.21	1,004	6.09	15.79	0.54	77,454
Metris	17,942	1.23	2.50	53	1.37	9.20	0.28	40,378
Total	165,000	935.99	2,264.31	11,496	59.14	136.72	3.72	537,415

tpy = Tons per Year

MT = Metric Tons

General Conformity

The No-Action Alternative would not be subject to the General Conformity rule because no emission changes are expected.

Greenhouse Gas

GHG emissions for the No-Action Alternative would be the same as the existing condition. The No-Action Alternative would have the same impacts to GHG and climate change as the current condition as shown in Table 4-6.14.

Table 4-6.14

Direct and Indirect Air Emissions from Existing Delivery Vehicles Over a Ten-Year Period Calculated Based on MOVES and GREET Models

Air Emissions	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO ₂ e (MT)
Replaced LLVs/FFVs/Metris	1,903.42	3,570.48	12,081.32	148.19	378.47	915.03	1,332,698

tpy = Tons per Year

MT = Metric Tons

Social Cost of Greenhouse Gas (Carbon)

Table 4-6.15 presents the estimated total social costs of carbon from the No-Action Alternative, starting in 2020 and based on operational emissions per year in five-year increments over the estimated next ten-year period, and to 2050 for comparison with the action alternatives.

Table 4-6.15

Social Cost of Carbon (165,000 Existing Delivery Vehicles Over a Ten-Year Period)

Operational Year	5% Discount Rate (\$, US Dollars)	3% Discount Rate (\$, US Dollars)	2.5% Discount Rate (\$, US Dollars)
2020	18,396,348	64,287,602	95,545,725
2025	22,211,066	71,215,269	104,596,802
2030	24,978,272	78,901,478	112,728,105
2035	28,924,588	85,384,051	121,921,112
2040	32,838,658	93,515,354	131,114,120
2045	37,197,821	101,201,563	140,449,058
2050	42,173,596	109,332,865	148,580,360

4-7 Community Services**4-7.1 Community Services – Background Information and Regulatory Setting**

Local municipalities or county governments provide emergency fire and police services to Postal Service processing facilities to treat minor injuries. The Postal Service in turn provides a community service by delivering and collecting mail to and from residential and business addresses. The Postal Service follows certain service standards related to mail delivery and maintains its fleet of delivery vehicles to meet these delivery standards.

4-7.2 Community Services – Affected Environment

Postal Service facilities are located nationwide in every state of the U.S. and in U.S. Territories. Local municipalities or county governments provide public safety and utility services to the delivery facilities. Community service providers are equipped to adequately handle community services required by current Postal Service operations.

4-7.3 Community Services – Environmental Consequences

The type of community services and demand for community services would not change under any scenario for the Proposed Action or Alternatives due to there being no increase in the number of delivery vehicles or routes. Operation of newly acquired vehicles with modern safety features, whether NGDV or COTS, would provide an increase in safety on the road resulting in less demand for emergency services.

VMFs would maintain NGDV or COTS according to Postal Service requirements and maintenance schedules. Demand for utility services for maintenance at VMFs would not be expected to increase (see Utilities and Infrastructure, Section 4-8).

Current Postal Service operations do not result in adverse impacts on emergency and utility services and delivery operations do not result in adverse impacts on community services or emergency preparedness of local municipalities, county governments, or the nation. The Proposed Action and Alternatives 1.1 and 1.2 would have no adverse impact on community services and would be expected to result in a beneficial effect due to modern vehicle safety features. Under the No-Action Alternative, the Postal Service would continue to maintain and operate aged delivery vehicles with outdated safety features and poor performance characteristics. Continuing to operate the aged delivery vehicles could lead to increased vehicle breakdowns, and increase and therefore negatively impact demand for emergency services. There would be negligible impact on community services.

4-8 Utilities and Infrastructure

4-8.1 Utilities and Infrastructure – Background and Regulatory Setting

Postal Service delivery operations are supported by existing utility and infrastructure systems that provide power, communications, water, wastewater, stormwater, and transportation services sufficient for the facilities' needs. Private companies normally provide power and communication services, while municipalities usually own and maintain water, wastewater and transportation systems; privately-owned well systems provide a limited number of facilities with water. Postal Service facilities are generally located within large utility networks and use a relatively small portion of the systems' total capacity.

4-8.2 Utilities and Infrastructure – Affected Environment

Some Postal Service locations have on-site fueling operations, storage tanks, emergency generators, wastewater pretreatment systems, septic systems, and/or vehicle maintenance and washing facilities. The Postal Service monitors these facilities and their functions to manage potential pollution sources and to ensure compliance with spill prevention requirements and stormwater permit regulations. The Postal Service has removed approximately 180 aging underground storage tank (UST) systems, reducing the number of federally-regulated USTs by almost 45 percent. Replacement tank systems are installed only when necessary and centrally monitored to quickly detect and prevent leaks to avoid soil and groundwater contamination (USPS 2020).

4-8.3 Utilities and Infrastructure – Environmental Consequences

Utility service and infrastructure in place at Postal Service facilities presently are meeting service demands. The one exception would be the need for electrical charging stations at locations where BEVs would be deployed. Modifications to electrical infrastructure and construction of new infrastructure at existing facilities would depend on the number of BEVs deployed. As discussed in Section 1-3.1, the Postal Service would conduct appropriate environmental reviews at the local level per Postal Service Handbook RE-6 (2015) as needed. Postal Service environmental checklists, screening analyses, and stand-alone, project-level Environmental Assessments would be employed on a facility-specific basis to assess the extent of impacts from any facility-related actions.

Section 4-9.3 discusses the potential impact on the electrical grid.

4-8.3.1 Proposed Action ICE Hypothetical Maximum and Alternative 1.1

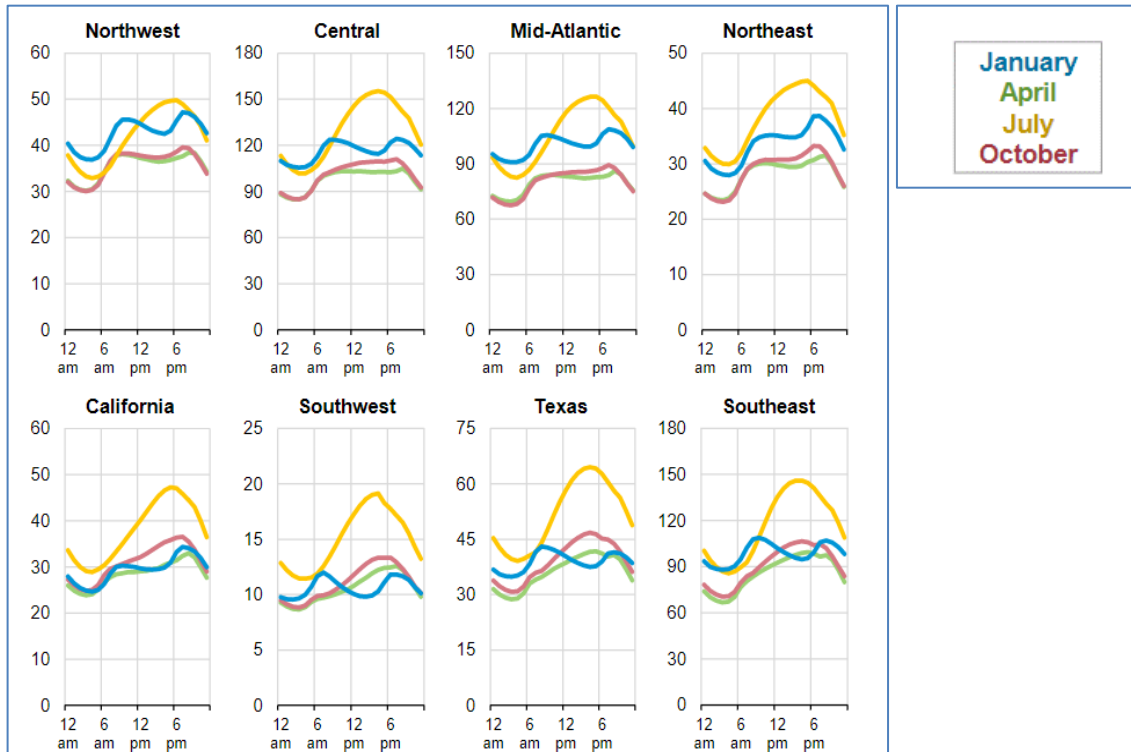
Under the Proposed Action ICE Hypothetical Maximum and Alternative 1.1, there would be no impact on demand for existing utilities except for electrical infrastructure for charging of the 10 percent NGDV BEVs. Modifications needed to accommodate charging stations for BEV NGDV would be evaluated on a facility-specific basis and environmental reviews would be conducted as appropriate. Sites with BEVs would impact the grid, but the impact would be less than under the 100 percent BEV scenarios. Additional discussion regarding the effect of BEVs on the electrical grid is presented in the subsections below. There would be no increased demands for infrastructure services for ICE vehicles.

4-8.3.2 Proposed Action BEV Hypothetical Maximum and Alternative 1.2

No impact on demand for existing utilities would occur under the Proposed Action BEV Hypothetical Maximum or Alternative 1.2 except for electrical infrastructure for BEV charging. Modifications needed to accommodate charging stations for BEV NGDV or COTS BEVs would be evaluated on a facility-specific basis and environmental reviews would be conducted as appropriate. Additional discussion regarding the effect of BEVs on the electrical grid is presented in the subsections below. Nationally, the electric infrastructure needs of BEVs would be minor in the context of the U.S. electric grid

systems and no significant, national investment in generation, transmission, or distribution would be required in order implement either Alternative. This is due to the relatively low total electric demand required to support each BEV NGDV or COTS BEVs and the proposed plan to charge each BEV nightly when national grid loads are at their minimum. Peak times for electric consumption generally occur between 3:00 p.m. and 9:00 p.m. local time, with some variation seasonally and geographically due to climatic patterns or availability of other energy utilities, such as natural gas (Figure 4-8.1). Late evening and early morning hours are consistently times of low load across seasons and geographies.

Figure 4-8.1
Electrical Loads (million kWh) Across U.S. Geographies



Source: USEIA 2020
kWh = kilowatt hours

Charging during off-peak periods, as intended under for all alternatives, when capacity is available nationally, would not require additional infrastructure, as the capacity between afternoon summer peak and nighttime lows is available to serve these charging needs on a national scale. The Postal Service would evaluate each individual Postal Service location for localized need for increased service on the distribution system serving a particular Postal Service charging site.

4-8.3.3 No Action Alternative

New delivery vehicles to replace high-maintenance and end-of-life delivery vehicles would not be purchased or deployed under the No-Action Alternative. Existing delivery vehicles would continue to be maintained until maintenance was no longer feasible. Utility service and infrastructure in place at Postal Service facilities currently are meeting service demands.

4-9 Energy Requirements and Conservation

4-9.1 Energy Requirements and Conservation – Background and Regulatory Setting

Federal agencies are required to meet energy management and conservation goals through EOs and legislative measures. Postal Service facility operations incorporate energy conservation measures that comply with the Energy Independence and Security Act (EISA) of 2007, the National Energy Conservation Policy Act, the Energy Policy Act (EPAct) of 1992 and 2005, National Energy Conservation Policy Act (NECPA) of 1978.

4-9.2 Energy Requirements and Conservation – Affected Environment

The Postal Service operates a combined delivery fleet of approximately 218,000 vehicles. The existing fleet is comprised of 21,000 alternative fuel-capable vehicles, most of which are equipped to use ethanol. The fleet also has electric, hybrid, compressed natural gas, liquid propane gas vehicles; and 100 hybrid 2-ton vehicles, of which 50 percent are electric hybrid and hydraulic hybrid, respectively. The Postal Service emphasizes preventive, rather than corrective, management to maximize existing vehicle performance. Aged delivery vehicles are being replaced when necessary with COTS vehicles that have improved fuel mileage, reduced maintenance costs, and lower air emissions. Postal Service career employees are offered a Commuter Benefits Program, which enables them to allocate pretax money for eligible commuter expenses. This incentivizes alternative modes of transportation (i.e., walking, cycling, public transportation) to reduce single employee vehicle commute trips to mail delivery and other facilities.

The Postal Service seeks to optimize its transportation operations, including pursuing fuel-efficiency initiatives. Energy management systems are used to evaluate, track and manage fuel usage. Further, the Postal Service works to make sure that all operating vehicles are performing at maximum possible efficiency.

Table G-1 (Appendix G) shows the current fuel efficiency and fuel consumption of the 165,000 aged and high-maintenance cost delivery vehicles to be replaced, and estimated annual fuel (gasoline) usage of about 135 million gallons, based on FY 2020 consumption for these vehicles.

4-9.3 Energy Requirements and Conservation – Environmental Consequences

Estimated annual fuel usage of the ICE NGDV and COTS ICE vehicles is shown in Table G-2 (Appendix G).

4-9.3.1 Proposed Action – ICE NGDV Hypothetical Maximum

The Proposed Action, under this Hypothetical Maximum, would have a beneficial impact on energy use through reduction in fuel consumption. Table G-2 (Appendix G) shows that the 148,000 ICE NGDV (90 percent of 165,000 total NGDV) would have an estimated annual fuel usage of about 110 million gallons. The ICE NGDV would be more fuel-efficient than the end-of-life delivery vehicles being replaced. The 10 percent BEV NGDV (16,500 vehicles) would further reduce fuel consumption associated with this Proposed Action because the BEVs are powered by batteries and do not require gasoline. This Proposed Action would therefore result in an annual reduction of over 25 million gallons of fuel use (19 percent less) (see Table G-3 in Appendix G). Additionally, the newer vehicles would require less frequent oil changes and other maintenance. The Proposed Action ICE NGDV Hypothetical Maximum would have an overall beneficial effect on energy requirements and conservation.

The impact of BEV charging is discussed in Section 4-8.3. The BEV NGDV specifications used for analysis are provided in Table 3-3 and the analysis is based on anticipated Level 2 charging that uses

a higher-output 240-volt power source that reduces charging time as compared to a Level 1, 120-volt power source. The annual electricity required to support 10 percent BEV NGDV purchased over the ten-year period would be approximately 140,855 megawatt hours (MWh) (see Table F-5.a in Appendix F). BEV NGDV would be expected to discharge around 20 percent of battery capacity under average conditions because of the low average delivery route mileage. This would limit battery degradation and may not require charging every day. The BEV NGDV could fully recharge during non-business hours.

Under full electrification of the 16,500 BEV NGDV, annual energy usage and load requirements would be less than one percent of the total annual energy generation for the U.S., which was 4,127 billion kWh in 2020 with a peak load of 1,118 billion kilowatt (kW) (USEIA 2020). Thus, existing bulk power systems are adequate for supplying electricity for 16,500 BEV NGDV. The Proposed Action, under this Hypothetical Maximum, would have an overall beneficial effect on energy requirements and conservation.

4-9.3.2 Proposed Action – NGDV BEV Hypothetical Maximum

The Proposed Action, under the BEV Hypothetical Maximum, would have a beneficial impact on energy use through reduction in fuel consumption as the BEV NGDV would not require gasoline, saving about 135 million gallons of fuel annually (see Table G-1 in Appendix G). The newer vehicles also would require less frequent maintenance.

Deployment of 165,000 BEV NGDV would have a minor impact on the electrical grid. The annual electricity required to support this number of BEV NGDV purchased over the ten-year period would be approximately 1,408,552 MWh (see Table F-5.a in Appendix F). This impact is expected to be negligible on a nationwide scale since approximately 240,000 BEVs were sold in 2020, and about 251 million vehicles (cars and light trucks) were registered nationwide as of April 2021 (USDOE 2021). Further, public charging stations would not be used to recharge BEV NGDV delivery vehicles. This Proposed Action would therefore have no significant adverse impact on energy requirements.

The impact of BEV charging is discussed in Section 4-8.3. The BEV NGDV specifications for analysis are provided in Table 3-3, and the analysis is based on anticipated Level 2 charging that uses a higher-output 240-volt power source that reduces charging time as compared to a Level 1, 120-volt power source. BEV NGDV would be expected to discharge around 20 percent of battery capacity under average conditions because of the low average delivery route mileage. This would limit battery degradation and may not require charging all vehicles every day. The BEV NGDV could fully recharge during non-business hours.

Under full electrification of the 165,000 BEV NGDV, annual energy usage and load requirements would be less than one percent of the total annual energy generation for the U.S., which was 4,127 billion kWh in 2020 with a peak load of 1,118 billion kW (USEIA 2020). Thus, existing bulk power systems are adequate for supplying electricity to 165,000 BEV NGDV. The Proposed Action, under the BEV Hypothetical Maximum, would have no significant adverse impact and an overall beneficial effect on energy requirements and conservation greater than the Proposed Action ICE NGDV Hypothetical Maximum, as well as Alternatives 1.1 and 1.2.

4-9.3.3 Alternative 1.1 – 100% RHD COTS ICE Vehicles

Alternative 1.1 would increase fuel (gasoline) consumption. Postal Service performance data shows the Metris currently in use averages only 6.3 mpg, less than the existing LLVs, which are custom-built and do not have air conditioning. Based on the 6.3 mpg, the 165,000 COTS ICE vehicles would have an estimated annual fuel usage of about 166 million gallons (see Table G-4 in Appendix G), an annual increase of about 31 million gallons of fuel use (23 percent more) as compared to the existing 165,000

delivery vehicles. The newer vehicles also would require less frequent oil changes and other maintenance.

The expected fuel efficiency of the RHD COTS ICE (6.3 mpg) would be less than the ICE NGDV (8.6 mpg with air conditioning), and Alternative 1.1 would result in more annual fuel consumption as compared to the Proposed Action under either Hypothetical Maximum. As shown in Table G-2 (Appendix G), Alternative 1.1 would result in about 56 million gallons more annual fuel usage than the ICE NGDV Hypothetical Maximum Proposed Action because of lower fuel efficiency of the COTS ICE vehicles, and the Proposed Action's 10 percent minimum of BEV NGDV. This Alternative would result in a negligible adverse impact on fuel resources on a nationwide scale.

4-9.3.4 Alternative 1.2 – 100% LHD COTS BEVs

Alternative 1.2 would have a beneficial impact on energy use through reduction in fuel (gasoline) consumption, as the COTS BEVs would not require gasoline, saving about 135 million gallons of fuel (gasoline) annually (see Table G-1 in Appendix G). The newer vehicles also would require less frequent maintenance.

Alternative 1.2 would have a minor impact on the electrical grid. The annual electricity required to support the 165,000 COTS BEVs purchased over the ten-year period would be approximately 650,720 MWh (see Table F-5.a in Appendix F). This impact would be negligible on a nationwide scale since approximately 240,000 BEVs were sold in 2020, and about 251 million vehicles (cars and light trucks) were registered nationwide as of April 2021 (USDOE 2021). Further, public charging stations would not be used to recharge USPS delivery vehicles. The manufacturer currently rates the 2020 Ford E Transit at 108 miles on a single charge. However, the actual mileage is expected to be significantly less because of the frequent and repetitive starts and stops required for business and residential delivery.

The impact of BEV charging is discussed in Section 4-8.3. For the COTS BEV analysis, this EIS uses the manufacturer's currently advertised specifications for the Ford E Transit (see Table 3-6 for specifications). The analysis is based on anticipated Level 2 charging that uses a higher-output 240-volt power source that reduces charging time as compared to a Level 1, 120-volt power source. COTS BEVs would be expected to discharge around 20 percent of battery capacity under average conditions because of the low average delivery route mileage. This would limit battery degradation and may not require charging all vehicles every day. The COTS BEVs could fully recharge during non-business hours.

Under full electrification of the 165,000 COTS BEVs, annual energy usage and load requirements would be less than one percent of the total annual energy generation for the U.S., which was 4,127 billion kWh in 2020 with a peak load of 1,118 billion kW (USEIA 2020). Thus, existing bulk power systems are adequate for supplying electricity for the 165,000 COTS BEVs. Alternative 1.2 would have no significant adverse impact and an overall beneficial effect on energy requirements and conservation.

4-9.3.5 No-Action Alternative

Under the No-Action Alternative, the existing delivery vehicles would continue to be operated, and the benefits of newer vehicles with better fuel usage would not be realized. Continuing to operate these high-maintenance and end-of-life delivery vehicles would negatively impact energy requirements and conservation and Postal Service's sustainability policies and goals for energy consumption and conservation. Based on the current annual delivery vehicle fuel use data (see Table G-1 in Appendix G), almost 1.35 trillion gallons of fuel (gasoline) would be used by the existing vehicles over a ten-year

period. This is far more than under the Proposed Action ICE NGDV Hypothetical Maximum but less than under Alternative 1.1.

4-10 Solid and Hazardous Materials and Wastes

4-10.1 Solid and Hazardous Materials and Wastes – Background and Affected Environment

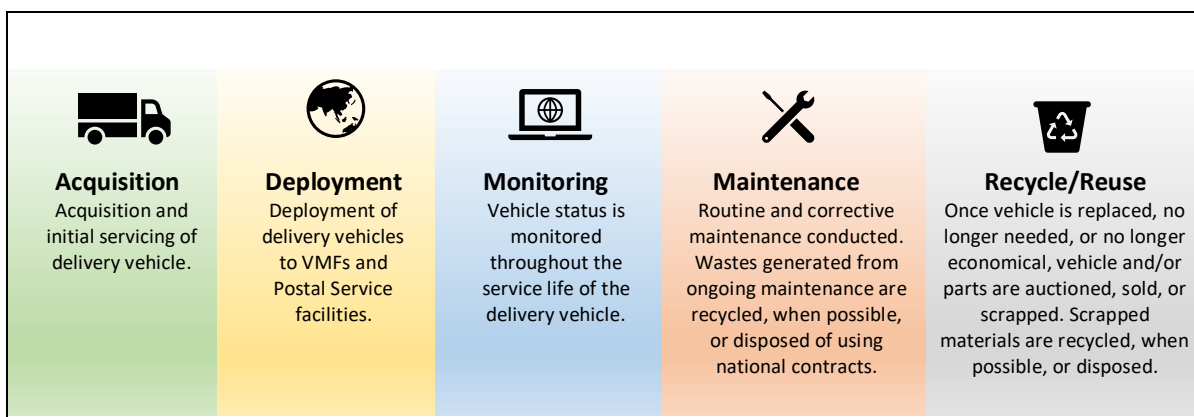
Solid waste includes garbage or refuse, and other discarded material as defined under the Resource Conservation and Recovery Act (RCRA) and 40 CFR 260 - 262. Materials that do not meet the RCRA definition are not solid wastes and are not subject to RCRA regulation.

The RCRA defines hazardous wastes as solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR 273. Hazardous waste batteries are one of the four types of waste currently covered under the universal waste regulations.

Postal Service delivery vehicle maintenance and delivery operations generate solid waste, regulated waste and limited quantities of hazardous wastes. Recycling and disposal are managed in accordance with all applicable environmental and safety regulations. State and local environmental regulations vary from jurisdiction-to-jurisdiction nationwide. The Postal Service has programs and national contracts in place to ensure these wastes are properly recycled or, if necessary, disposed in accordance with regulatory requirements. Many waste streams generated through ongoing vehicle maintenance, including used oil and oil filters, antifreeze, tires, batteries, and scrap metal are recycled. Additionally, employees with hazardous waste management responsibilities are required to take waste management training annually in order to ensure proper procedures are followed.

With regards to vehicle disposal, the Postal Service has standard procedures in place to manage surplus vehicles and vehicle-related parts. The Postal Service's delivery vehicle life cycle is shown in Figure 4-10.1.

Figure 4-10.1
USPS Delivery Vehicle Life Cycle



Currently, almost 100 percent of automobiles get recycled in the U.S. The reusable parts of a vehicle, including wheels, windows, trunk lids, hoods, seats, and doors are removed. At the same time, for environmentally responsible recycling, mercury switches are removed, and cars are drained of fluids (LeBlanc 2019). The remaining hulk of the car enters the shredder to recover non-ferrous metals. Postal Service procedures, including the Postal Service's Vehicle Disposal Strategy, support this national trend. The Postal Service manages its surplus vehicle fleet, vehicle-related parts and equipment through online auctions, live auctions, fixed-price sales and vehicle cannibalization/scraping processes. If scrapped, vehicle components such as metal, batteries, oil, coolant, and tires are removed and reused or recycled to the extent possible. The remainder of surplus parts are disposed in accordance with environmental laws and regulations.

4-10.2 Solid and Hazardous Materials and Waste – Environmental Consequences

4-10.2.1 Proposed Action and Alternatives 1.1 and 1.2

The Proposed Action and Alternatives 1.1 and 1.2 would have a negligible adverse impact on solid and hazardous waste. Disposal of the existing delivery vehicles would take place over a ten-year period, and the Postal Service vehicle disposal strategy and contracts in place for recycling and disposal would minimize the adverse impacts to the extent possible. Recycling and disposal of the wastes and materials from the replaced vehicles would have no significant adverse impact on commercial treatment capacity and landfill capacity over the ten-year period.

Operation and maintenance of new vehicles would use less hazardous materials and generate less solid and hazardous waste (e.g., used engine oil) than the existing aged delivery vehicles. Since BEVs do not require engine oil, used engine oil would not be generated at all for BEV procurement scenarios. Minor amounts of other lubricant types, including bearing grease, coolants, and windshield wiper fluid would be required for both BEV and ICE vehicles, whether NGDV or COTS, but much of this material would be reclaimed or recycled. Spent nickel-manganese-cobalt-oxide and lithium-ion BEV batteries would be an additional source of hazardous waste for the BEV procurement scenarios. Recycling methods in the U.S. are currently limited and vary in recovery capabilities. Under normal operating conditions, not including frequent starts and stops, the BEV batteries are expected to last up to ten to twelve years, at which time they would be recycled.

4-10.2.2 No-Action Alternative

Under the No-Action Alternative, aged delivery vehicles with outdated safety features and poor performance characteristics would continue to be maintained until maintenance was no longer feasible. These vehicles would then be disposed according to the Postal Service's Vehicle Disposal Strategy for Fleet Management. The Postal Service would not be able to carry out its mission as end-of-life delivery vehicles are disposed and not replaced. The No-Action Alternative would have no significant adverse impact on solid and hazardous waste management and disposal capacity.

4-11 Summary of Potential Environmental Impacts

Implementation of the Proposed Action, under either Hypothetical Maximum, or Alternatives 1.1 and 1.2 would result in no or negligible environmental impact to the environmental resources that were not evaluated in detailed impact analysis: topography, geology and soils, and prime farmland; historical and archaeological resources; hydrology, water resources, floodplains, and wetlands; vegetation and wildlife; land use and planning; and coastal zone.

The Proposed Action and Alternatives 1.1 and 1.2 could require interior alterations within affected existing Postal Service facilities and exterior alterations within existing delivery vehicle parking areas to accommodate construction of necessary electrical charging infrastructure for BEVs. These

alterations are expected to be inside existing facilities or within existing facility footprints that are previously disturbed areas. No expansion requiring real property leasing or acquisition, or real property disposal as part of these action alternatives would occur, and no expansion outside the footprint of existing facilities or vehicle parking areas is anticipated. As discussed in Section 1-3.1, the Postal Service would conduct appropriate environmental reviews at the local level per Postal Service Handbook RE-6 (2015) as needed. Postal Service environmental checklists, screening analyses, and stand-alone, project-level Environmental Assessments would be employed on a facility-specific basis to assess the extent of impacts from any facility-related actions.

The Proposed Action, under either Hypothetical Maximum, and Alternatives 1.1 and 1.2 would have either beneficial or no to negligible adverse impacts on the environmental resources summarized below (Table 4-11.1). This is because the actions are nationwide in scope; involve a one-to-one replacement of existing vehicles with more efficient, technologically advanced, ergonomic and safer vehicles; and purchase and deployment would occur over a ten-year period.

4-11.1 Comparison of Potential Impacts for Alternatives

The potential environmental impacts from the Proposed Action and Alternatives 1.1 and 1.2 are summarized in Table 4-11.1.

The Proposed Action, under either Hypothetical Maximum, and Alternatives 1.1 and 1.2 would result in beneficial impacts on transportation safety, traffic noise, air pollutant and GHG emissions, community emergency services, and fuel (gasoline) consumption. The Proposed Action's BEV Hypothetical Maximum and COTS BEV Alternative (1.2) would provide greater benefit on traffic noise reduction than would the ICE NGDV Hypothetical Maximum or COTS ICE Alternative (1.1), since BEVs are quieter than ICE vehicles at low speeds. Additionally, alternatives using BEVs would generate less lubricants, oils, and greases as compared to existing ICE vehicles. BEVs do not use engine oil for operation, but spent BEV batteries would be an additional source of hazardous waste for the BEV procurement alternatives. Recycling methods in the U.S. are currently limited and vary in recovery capabilities. Under normal operating conditions, not including frequent starts and stops, the BEV batteries are expected to last up to ten to twelve years, at which time they would be recycled.

The Proposed Action, under either Hypothetical Maximum, and Alternatives 1.1 and 1.2 would result in no to negligible impact on economics, employment, environmental justice, traffic, accessibility, parking, public transportation, engine noise from ICE vehicle operation, community utility services, utility availability and demand capacity, energy consumption, and solid and hazardous waste treatment and disposal.

The No-Action Alternative would not satisfy the Purpose and Need for the purchase of new delivery vehicles to replace aged delivery vehicles with outdated safety features and poor performance characteristics. Impacts would remain unchanged, and the benefits from replacing end-of-life delivery vehicles with modern vehicles would not be realized.

4-11.2 Selection of Preferred Alternative

At this time, the Postal Service selects as its preferred alternative the Proposed Action, which is the purchase and deployment of up to 90 percent ICE NGDV with at least 10 percent BEV NGDV. This Preferred Alternative provides a purpose-built RHD vehicle that would meet the Postal Service's Purpose and Need by providing the performance, safety, and ergonomic requirements for efficient Postal Service carrier deliveries to businesses and curb-line residential mailboxes over the entire nationwide system. This Preferred Alternative is also the most achievable given the Postal Service's financial condition, as the ICE NGDV is significantly less expensive than the BEV NGDV (see Table 3-1.1).

Although the BEV NGDV Alternative would result in about 200 percent fewer direct and indirect GHG (CO₂e) emissions than under the 90 percent ICE NGDV Preferred Alternative (see Sections 4-6.3.3 and 4-6.3.2, respectively), committing to purchase more than 10 percent BEV NGDV as part of the Preferred Alternative would not meet the Postal Service's Purpose and Need for the following reasons. Operational constraints would preclude the BEV NGDV deployment for more than 12,500 delivery routes (see Section 3-1.1).

The BEV NGDV Alternative is significantly more expensive, \$2.3 billion, than the ICE NGDV Preferred Alternative (see Table 3-1.1). The most favorable SCC calculations for the BEV NGDV (20 years, at 2.5 percent discount rate) result in an approximately \$61 million SCC benefit (operational year 2050) and approximately \$46 million SCC (operational year 2030) of the BEV NGDV Alternative as compared to the ICE NGDV Preferred Alternative (see Tables 4-6.3, 4-6.6, F-8.b & F-8.c).

Alternative 1.1, to purchase and deploy 100 percent RHD COTS ICE vehicles, would also not meet the Postal Service's Purpose and Need. While RHD COTS ICE vehicles would have some, but not all, of the enhanced safety and customized operational features available in the NGDV that are optimal for postal operations and be capable of delivering to curb-line mailboxes, they would not provide the same operational or ergonomic benefits as the purpose-built NGDV (see Section 3-2). For example, they do not have body components designed for frequent and repetitive use, leading to expected higher maintenance and repair costs, and body components that need to be replaced more frequently than those purpose-built for the NGDV.

Alternative 1.2, to purchase and deploy 100 percent LHD COTS BEVs, also would not meet the Postal Service's Purpose and Need, as the COTS BEVs would have operational constraints that would not allow deployment of BEVs for more than 12,500 delivery routes. Also, being LHD, the COTS BEVs would not support curb-line deliveries (see Section 4-4.3.3). Although the COTS BEV market and technology is rapidly evolving, LHD BEVs are still in development and currently available only in small quantities. RHD COTS BEVs are not currently available or otherwise marketed by commercial manufacturers for future development.

The No-Action Alternative, or status quo, would not meet the Postal Service's Purpose and Need. It would not involve the purchase and deployment of any replacement vehicles for accident-damaged, high-maintenance, and end-of-life vehicles. It would not meet the Purpose and Need to provide more energy-efficient vehicles, and updated technology, increased cargo capacity and improved loading characteristics, improved ergonomics and carrier safety, and reduced maintenance costs. Further, it would result in higher fuel (gasoline) usage than both Proposed Action Hypothetical Maxima and Alternative 1.2, and greater direct and indirect GHG emissions than both Hypothetical Maxima of the Proposed Action and Alternatives 1.1 and 1.2.

Table 4-11.1

Potential Environmental Impacts Summary Matrix**Key:**

Impact symbols: B = beneficial effect; N = no effect or negligible effect; M = moderately adverse effect; and S = significant effect

Duration symbols: P = permanent effect; T = temporary effect; and N/A = not applicable

Mitigation symbols: Y = can be mitigated; N = cannot be mitigated; NR = not required; and N/A = not applicable

Environmental Resource Area	NGDV Proposed Action (90% ICE/10% BEV) Impact - Duration - Mitigation	NGDV Proposed Action (100% BEV) Impact - Duration - Mitigation	COTS Alternative 1.1 (100% ICE) Impact - Duration - Mitigation	COTS Alternative 1.2 (100% BEV) Impact - Duration - Mitigation	No-Action Alternative Impact - Duration - Mitigation
Socioeconomics					
Economics	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - NR
Employment	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - NR
Environmental Justice	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - NR
Transportation					
Traffic	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - NR
Safety	B - P - NR	B - P - NR	B - P - NR	B - P - NR	M - P - N
Accessibility	N - T - NR	N - T - NR	N - T - NR	N - T - NR	N - P - NR
Parking	N - T - NR	N - T - NR	N - T - NR	N - T - NR	N - P - NR
Public Transportation	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - NR
Noise					
Traffic	N - P - NR	B - P - NR	N - P - NR	B - P - NR	N - P - NR
VMF Operations & BEV Charging	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - NR
Air Quality					
Air Emissions	B - P - NR	B - P - NR	B - P - NR	B - P - NR	N - P - N
General Conformity	N/A - N/A - N/A	N/A - N/A - N/A	N/A - N/A - N/A	N/A - N/A - N/A	N/A - N/A - N/A
Greenhouse Gas	B - P - NR	B - P - NR	B - P - NR	B - P - NR	N - P - NR
Community Services					
Utilities	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - N
Emergency Services	B - P - NR	B - P - NR	B - P - NR	B - P - NR	N - P - N
Utilities and Infrastructure					
Availability	N - P - NR	N - P - Y	N - P - NR	N - P - Y	N - P - NR
Capacity	N - P - NR	N - P - Y	N - P - NR	N - P - Y	N - P - NR
Energy Requirements and Conservation					
Fuel Consumption	B - P - NR	B - P - Y	N - P - NR	B - P - Y	N - P - N
Electrical Grid	N - P - NR	N - P - Y	N - P - NR	N - P - Y	N - P - N/A
Solid/Hazardous Materials/Waste Generation					
Solid Waste	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - NR
Hazardous Waste	N - P - NR	B - P - NR	N - P - NR	B - P - NR	N - P - NR
Recycling	N - P - NR	N - P - NR	N - P - NR	N - P - NR	N - P - NR

5 OTHER IMPACTS

5-1 Unavoidable Adverse Impacts

The Proposed Action and Alternatives 1.1 and 1.2 would involve the purchase and deployment of up to 165,000 NGDV or COTS vehicles in total production orders over a ten-year period. High-maintenance and end-of-life delivery vehicles would be replaced at various Postal Service facility locations throughout the U.S. on a one-for-one basis, resulting in no additional delivery vehicles (Appendix D). This number of new delivery vehicles represents a negligible percentage of the over 122 million cars and almost 160 million trucks registered in the U.S. in 2018 (USDOE 2021).

5-1.1 Proposed Action – ICE NGDV Hypothetical Maximum

Under the ICE NGDV Hypothetical Maximum, the Proposed Action would generate solid and hazardous wastes from continued maintenance of delivery vehicles, but to a lesser degree than the No-Action Alternative. Less fuel would be purchased from retailers and bulk suppliers because of better gas mileage by the ICE NGDV, and up to 16,500 BEV NGDV not requiring fuel for operation. New NGDV would require less maintenance than the high-maintenance and end-of-life delivery vehicles. The need for commercial garage maintenance due to unscheduled repairs of vehicles is anticipated to decrease. This would result in adverse impacts to commercial fuel retailers from lower overall fuel sales and less maintenance needed by commercial garages for unscheduled repairs because the new vehicles would be more fuel efficient and would not need as much maintenance as the high-maintenance and end-of-life delivery vehicles being replaced.

Although there would be an increase in the number of vehicles and/or parts that would need to be sold, recycled to the extent possible, or disposed in accordance with the Postal Service's protocols, there is adequate nationwide treatment and disposal capacity, with the exception of nickel-manganese-cobalt-oxide BEV batteries. Spent BEV batteries would be an additional source of hazardous waste. Spent batteries could be collected under streamlined universal waste collection standards to make it easier to send them for recycling or proper treatment and disposal. Recycling methods in the U.S. are limited at this time and vary in recovery capabilities for spent BEV batteries; however, it is expected that recycling capacity over the effective life of the BEV NGDV would increase with the increasing nationwide adoption of BEVs.

This Proposed Action would not impact short-term uses of environmental resources that would affect the maintenance of long-term productivity.

Delivery vehicle operation contributes to ambient noise around Postal Service facilities and along delivery routes. Vehicle noise sources include air passing over vehicles, engine, exhaust and drivetrain, and tires rolling on roadway surfaces. ICE vehicles are expected to generate less noise than the high-maintenance and end-of-life delivery vehicles being replaced, and BEVs are expected to generate even less noise than ICE vehicles at low speeds where tire noise does not predominate. There would be negligible to minimal impact on the overall ambient noise environment since each delivery event occurs over a short duration at generally low speeds and during daytime hours.

The ICE NGDV would continue to produce air emissions during operations, but to a lesser extent than vehicles being replaced, due to advances in new technologies in engine and transmission designs and in emission controls. Replacing the high-maintenance and end-of-life

delivery vehicles with ICE NGDV would result in a beneficial net reduction in air pollutant and GHG emissions. There would be a positive (beneficial) impact on social cost of carbon emissions.

5-1.2 Proposed Action – NGDV BEV Hypothetical Maximum

The Proposed Action, under this Hypothetical Maximum, would generate solid and hazardous wastes from continued maintenance of delivery vehicles, but to a lesser degree than under the No-Action Alternative. Less fuel would be purchased from retailers and bulk suppliers because the BEV NGDV would not require fuel for operation. New NGDV would require less maintenance than the high-maintenance and end-of-life delivery vehicles. The need for commercial garage maintenance due to unscheduled repairs of vehicles is anticipated to decrease. This would result in adverse impacts to commercial fuel retailers from lower overall fuel sales and less maintenance needed by commercial garages for unscheduled repairs because the new vehicles would be more fuel-efficient and would not need as much maintenance as the delivery vehicles being replaced.

Although there would be an increased demand for disposal of vehicles or parts that would need to be sold, recycled to the extent possible, or disposed in accordance with the Postal Service's fleet disposal strategy, there is adequate nationwide treatment and disposal capacity with the exception of spent nickel-manganese-cobalt-oxide BEV batteries. Spent BEV batteries would be an additional source of hazardous waste, but the Proposed Action would generate more battery waste under this Hypothetical Maximum than the 90 percent ICE NGDV and 10 percent BEV NGDV Hypothetical Maximum. However, spent batteries could be collected under streamlined universal waste collection standards to make it easier to send them for recycling or proper treatment and disposal. Recycling methods in the U.S. are limited and vary in recovery capabilities for spent BEV batteries; however, it is expected that recycling capacity over the effective life of the BEV NGDV would increase with the increasing nationwide adoption of BEVs.

This Proposed Action therefore would not impact short-term uses of environmental resources that would affect the maintenance of long-term productivity.

Delivery vehicle operation would contribute to ambient noise around Postal Service facilities and along delivery routes. Vehicle noise sources include air passing over vehicles, engine, exhaust and drivetrain, and tires rolling on roadway surfaces. BEVs are expected to be quieter than ICE vehicles at low speeds where tire noise does not predominate. There would be negligible to minimal impact on the overall ambient noise environment since each delivery event occurs over a short duration at generally low speeds and during daytime hours.

The BEV NGDV would produce fewer air emissions than the ICE NGDV during operations. Replacing the high-maintenance and end-of-life delivery vehicles with BEV NGDV would result in a greater beneficial net reduction in air pollutant and GHG emissions, and there would be approximately 1.5 times greater social cost benefit as compared to the 90 percent ICE NGDV and 10 percent BEV NGDV Hypothetical Maximum.

5-1.3 Alternative 1.1 – 100% RHD COTS ICE Vehicles

Alternative 1.1 would generate solid and hazardous wastes from continued maintenance of delivery vehicles, but to a lesser degree than under the No-Action Alternative. More fuel for the 165,000 COTS ICE vehicles would be purchased from retailers and bulk suppliers because of their lower average fuel efficiency (mpg) than the mix of current delivery vehicles. The need for commercial garage maintenance due to unscheduled repairs of vehicles is anticipated to

decrease. New COTS vehicles would result in adverse impacts to commercial fuel retailers from lower overall fuel sales and less maintenance needed by commercial garages for unscheduled repairs because the new vehicles would be more fuel-efficient and would not need as much maintenance as the high-maintenance and end-of-life delivery vehicles being replaced. This would result in less business for commercial garages performing unscheduled repairs because the new vehicles would not need as much maintenance as the delivery vehicles being replaced. Although there would be an increased demand for disposal of vehicles or parts that would need to be sold, recycled to the extent possible, or disposed in accordance with the Postal Service's fleet disposal strategy, there is adequate nationwide treatment and disposal capacity. Alternative 1.1 therefore would not impact short-term uses of environmental resources that would affect the maintenance of long-term productivity.

Delivery vehicle operation would contribute to ambient noise around Postal Service facilities and along delivery routes. Vehicle noise sources include air passing over vehicles, engine, exhaust and drivetrain, and tires rolling on roadway surfaces. COTS ICE vehicles are expected to be quieter than the aged delivery vehicles being replaced. There would be negligible to minimal impact on the overall ambient noise environment since each delivery event occurs over a short duration at generally low speeds and during daytime hours.

The COTS ICE vehicles would continue to produce air emissions during operations. Replacing the high-maintenance and end-of-life delivery vehicles with COTS ICE vehicles would result in a beneficial net reduction in air pollutant and GHG emissions. However, there would be less beneficial impact, including the least social cost benefit from carbon emissions, than under any other Alternative.

5-1.4 Alternative 1.2 – 100% LHD COTS BEVs

Alternative 1.2 would generate solid and hazardous wastes from continued maintenance of delivery vehicles, but to a lesser degree than under the No-Action Alternative. Less fuel would be purchased from retailers and bulk suppliers because the COTS BEVs would not require fuel for operation. New COTS vehicles would require less maintenance than the high-maintenance and end-of-life delivery vehicles. The need for commercial garage maintenance due to unscheduled repairs of vehicles is anticipated to decrease. This would result in adverse impacts to commercial fuel retailers from lower overall fuel sales and less maintenance needed for unscheduled repairs by commercial garages because the new vehicles would be more fuel-efficient and would not need as much maintenance as the high-maintenance and end-of-life delivery vehicles being replaced.

Although there would be an increased demand for disposal of vehicles or parts that would need to be sold, recycled to the extent possible, or disposed in accordance with the Postal Service's fleet disposal strategy, there is adequate nationwide treatment and disposal capacity with the exception of spent lithium-ion BEV batteries. Spent BEV batteries would be an additional source of hazardous waste. However, spent batteries could be collected under streamlined universal waste collection standards to make it easier to send them for recycling or proper treatment and disposal. Recycling methods in the U.S. are limited and vary in recovery capabilities for spent BEV batteries; however, it is expected that recycling capacity over the effective life of the COTS BEV would increase with the increasing nationwide adoption of BEVs.

Alternative 1.2 therefore would not impact short-term uses of environmental resources that would affect the maintenance of long-term productivity.

Delivery vehicle operation would contribute to ambient noise around Postal Service facilities and along delivery routes. Vehicle noise sources include air passing over vehicles, engine, exhaust and drivetrain, and tires rolling on roadway surfaces. BEVs are expected to be quieter than ICE vehicles at low speeds where tire noise does not predominate. There would be negligible to minimal impact on the overall ambient noise environment since each delivery event occurs over a short duration at generally low speeds and during daytime hours.

The COTS BEVs would produce fewer direct and indirect air emissions than the COTS ICE vehicles during operations. Replacing the high-maintenance and end-of-life delivery vehicles with COTS BEVs would have the same beneficial net reduction in air pollutant and GHG emissions as the 100 percent BEV NGDV Hypothetical Maximum. Alternative 1.2 would represent greater benefit in terms of social cost of carbon emissions and there would be approximately two times greater social cost benefit as compared to the ICE NGDV Hypothetical Maximum.

5-2 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources refer to the impacts on or losses of resources that cannot be recovered or reversed such as the use of fuel or mined minerals. The Proposed Action and Alternatives 1.1 and 1.2 would involve the purchase and deployment of up to 165,000 NGDV or COTS vehicles in total production orders over a ten-year period. High-maintenance and end-of-life delivery vehicles would be replaced at various Postal Service facility locations throughout the U.S. on a one-for-one basis, resulting in no additional delivery vehicles (see Appendix D).

5-2.1 Proposed Action

Under the Proposed Action ICE NGDV Hypothetical Maximum, fuel would continue to be used for ICE NGDV. There would be a one-to-one replacement of high-maintenance and end-of-life delivery vehicles, and the NGDV would be more fuel-efficient than the delivery vehicles being replaced, so less fuel would be consumed than is currently or under the No Action Alternative. BEV NGDV would not require fuel and even considering fuel for the grid (as evaluated through eGRID), there would be a net reduction in fuel usage.

In 2020, non-renewable energy sources accounted for about 80 percent of electricity generation (USEIA 2021), and the BEV NGDV would result in irreversible commitment of the non-renewable fuel resources. Also, the BEV NGDV would use nickel-manganese-cobalt-oxide batteries that would result in irreversible commitment of the mined mineral ores needed for battery production. The minerals of primary concern for BEV battery production are cobalt, lithium, graphite and manganese, all of which are listed as critical materials by the United States Geological Survey due to the heavy reliance for economic development and high vulnerability in the supply chain (FR 2018).

5-2.2 Alternative 1.1 – 100% RHD COTS ICE Vehicles

Alternative 1.1 would continue to use fuel for COTS ICE vehicles. There would be a one-to-one replacement of high-maintenance and end-of-life delivery vehicles, and the COTS ICE vehicles would be more fuel-efficient than the delivery vehicles being replaced. Thus, there would be a net reduction in fuel usage.

5-2.3 Alternative 1.2 - 100% LHD COTS BEVs

Alternative 1.2 would not require fuel usage, and even considering fuel for the grid (as evaluated through eGRID), there would be a net reduction in fuel usage

In 2020, non-renewable energy sources accounted for about 80 percent of electricity generation (USEIA 2021), and the COTS BEVs would result in irreversible commitment of the non-renewable fuel resources. Also, the COTS BEV lithium-ion batteries would result in more irreversible commitment of the mined mineral ores needed for battery production than for the ICE or No-Action Alternatives. The minerals of primary concern for BEV battery production are cobalt, lithium, graphite and manganese, all of which are listed as critical materials by the United States Geological Survey due to the heavy reliance on for economic development and high vulnerability in the supply chain (FR 2018).

6 CUMULATIVE IMPACTS

6-1 Introduction

Cumulative impacts are the impacts on the environment that result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time frame. The cumulative impacts of an action can be viewed as the collective environmental effects (magnitude, extent, or duration) on an environmental resource, ecosystem, or human community from a proposed action when added to impacts from other actions affecting that resource. If an action does not have impacts on a particular resource, there would be no cumulative effects attributable to the action.

The analysis of cumulative impacts requires specific knowledge of other actions occurring or proposed to occur within or near the geographic study area. This analysis focuses on the nationwide deployment of new Postal Service delivery vehicles with one-to-one replacement of high-maintenance and end-of-life delivery vehicles over a ten-year period. The quantity of new vehicles and the site-specific locations of where they would be deployed are not known at this time. Given the nature and nationwide scope of the Proposed Action and Alternatives 1.1 and 1.2, identifying the actions of others would be very difficult if not impossible to quantify. Therefore, cumulative effects from the incremental impacts of the Proposed Action and Alternative 1.1 and 1.2 scenarios are evaluated broadly on a nationwide scale.

6-2 Geographic Extent and Time Frame

The deployment of up to 165,000 replacement delivery vehicles over a ten-year period is nationwide in scope, with vehicles to be placed at various Postal Service facilities across the U.S. depending on the locations of the high-maintenance and/or end-of-life of existing delivery vehicles to be replaced. Therefore, the geographic extent of this cumulative impact analysis is also national in scope. The temporal scope of this analysis considers nationwide trends related to past and future action impacts when the incremental impacts related to upgrading the Postal Service's delivery fleet are added. The Proposed Action and Alternatives 1.1 and 1.2 deployments would span a time-period of ten years beginning in 2023, and the vehicles' operational time-period would continue for the life span of the vehicles.

6-3 Past, Present, and Reasonably Foreseeable Projects and Actions Considered

The temporal scope of this analysis spans past and planned future actions related to upgrading the Postal Service's delivery fleet vehicles. The Postal Service continually replaces high-maintenance and end-of-life delivery vehicles. The current delivery fleet of approximately 218,000 vehicles consists of approximately 159,000 LLV/FFVs, 34,000 LHD COTS vehicles, 17,000 RHD COTS vehicles, and 8,000 two-ton mixed delivery and collection vehicles (Cargo Vans). The mixed delivery and collection vans transport large volumes of mail from mailers' plants and Postal Service processing facilities to Post Offices and airports around the country. Cargo Vans travel on highways throughout the U.S. New COTS ICE vehicles, evaluated in a 2017 PEA (USPS), and an REC in 2020, continue to be purchased as needed to replace high-maintenance and end-of-life delivery vehicles and to support delivery route growth.

6-4 Discussion of Potential Cumulative Impacts

6-4.1 Resources Not Studied in Detail

The Proposed Action and Alternatives 1.1 and 1.2 scenarios would potentially affect the environmental resources discussed in this section. There would be no potential for cumulative impact on the environmental resources not studied in detail in this EIS, as described in Section 4-2 (water, geology, soils, prime farmland, vegetation, wildlife, threatened and endangered species, wetlands and floodplains, cultural resources, land use, wild and scenic rivers and coastal zone). As discussed in Sections 1-3.1 and 4-2, site-specific facility alterations and a potential new training facility are not included in the detailed evaluation of the Proposed Action and Alternatives 1.1 and 1.2, as these specifically address the purchase and operation of new Postal Service delivery vehicles. Appropriate NEPA reviews at the local level would be conducted in the future, as needed.

6-4.2 Socioeconomics

The purchase and deployment of up to 165,000 new delivery vehicles over a ten-year period to replace the same number of high-maintenance and end-of-life delivery vehicles would result in negligible impacts on community economics, employment, and minority and low-income populations. There would be a negligible beneficial effect on the nationwide economy from the purchase and deployment of 165,000 delivery vehicles and on the local communities where the vehicles are manufactured and sold. The sale, scrapping, and/or recycling of the aged delivery vehicles being replaced would likewise have a negligible positive economic effect on income for the used auto, parts, scrapping, and recycling industries. Adding more fuel-efficient ICE vehicle drivetrains and BEVs would reduce the demand for fuel (gasoline) purchases. These impacts would be insignificant when compared to the nationwide economy.

Adding BEVs would increase the demand for electricity available to commercial and residential users. There would be no to negligible impact on electricity availability. There would be beneficial impacts on ambient air quality in cities and suburbs where new ICE vehicles and BEVs are deployed because of the higher emission controls of the newer vehicles. There would be improvements in safety for delivery personnel and the general public that would decrease the potential risk of accidents due to vehicle mechanical failures and certain modern safety features. Postal Service deliveries are made regardless of socioeconomic status, so there would be no impact to minority or low-income populations in terms of mail service or disproportionately high or adverse economic effect resulting from the vehicle replacements at a facility. There would be no perceptible adverse impact to socioeconomic resources such as community economics, employees or minority and low-income populations employment from implementation of the Proposed Action and Alternatives 1.1 and 1.2 on a nationwide scale.

6-4.3 Transportation

The purchase and deployment of up to 165,000 new delivery vehicles over a ten-year period to replace the same number of high-maintenance and end-of-life delivery vehicles would result in no impact on local community or nationwide traffic, accessibility and parking at Postal Service facilities, or public transportation. There would be no increase in delivery routes or personnel. The new delivery vehicles would not impact nationwide traffic volume. Modern safety features on the new delivery vehicles would improve operational safety and coupled with past purchases of modern COTS ICE vehicles, would have a positive cumulative impact on operational safety. There would be no cumulative effect on traffic, accessibility, or public transportation, and no

potential for adverse cumulative effects on local or nationwide transportation on a nationwide scale.

6-4.4 Noise Environment

The purchase and deployment of up to 165,000 new delivery vehicles over a ten-year period would replace the same number of high-maintenance and end-of-life delivery vehicles. New ICE vehicles are expected to generate less noise than the delivery vehicles being replaced, and BEVs would generate even less noise than the ICE vehicles at low speeds where tire noise does not predominate. There would be negligible to minimal impact on the overall ambient noise environment since each delivery event occurs over a short duration at generally low speeds and during daytime hours. There would be no significant adverse cumulative impact on noise from any of the Proposed Action or Alternatives 1.1 and 1.2 on a nationwide scale.

6-4.5 Air Quality

The purchase and deployment of up to 165,000 new delivery vehicles over a ten-year period would replace the same number of high-maintenance and end-of-life delivery vehicles. The new ICE vehicles would continue to produce air emissions during operations. However, replacing the high-maintenance and end-of-life delivery vehicles with new ICE vehicles would result in a beneficial net reduction in air pollutant and GHG emissions, and there would be a positive (beneficial) impact on the social cost of carbon emissions. Past actions in which the Postal Service replaced high-maintenance and end-of-life delivery vehicles with new ICE vehicles also produced a beneficial net reduction in air pollutant emissions. The BEV alternatives would produce even fewer air emissions than ICE vehicles during operations, and would result in an even greater beneficial net reduction in air pollutant and GHG emissions and SCC emissions. The reduction in direct and indirect GHG emissions under the ICE NGDV Proposed Action Hypothetical Maximum would be 290,306 MT CO₂e, under the BEV NGDV Proposed Action Hypothetical Maximum would be 865,213 MT CO₂e (almost three times greater reduction in GHG emissions than under the ICE NGDV), under Alternative 1.1 (COTS ICE vehicles) would be 226,427 MT CO₂e, and under Alternative 1.2 (COTS BEVs) would be 1,116,730 MT CO₂e (the greatest reduction of both the Proposed Action and Alternative 1.1). There would be no significant adverse cumulative impact on air quality from any of the Proposed Action or Alternatives 1.1 and 1.2 on a nationwide scale.

6-4.6 Community Services

The purchase and deployment of up to 165,000 delivery vehicles over a ten-year period to replace the same number of high-maintenance and end-of-life delivery vehicles would not result in a significant adverse cumulative impact on community services. Adding BEV drivetrains to the Postal Service delivery fleet would reduce the demand for fuel, as would more fuel-efficient ICE vehicle drivetrains resulting in a negligible reduction in nationwide fuel demand. Adding BEVs would increase the demand for electricity from the electrical grid resulting in a negligible, incremental adverse effect on nationwide electricity demand (see Section 6-4.9). The Postal Service would install charging stations at various nationwide Postal Service facilities and not rely on public charging stations for charging delivery vehicles. There would be a potential beneficial impact on emergency services due to the improved, modern safety features of the new vehicles. There would be no significant adverse cumulative impact on community services on a nationwide scale.

6-4.7 Utilities and Infrastructure

The purchase and deployment of up to 165,000 delivery vehicles over a ten-year period to replace the same number of high-maintenance and end-of-life delivery vehicles would not result in a significant adverse cumulative impact on utilities or infrastructure. Adding BEVs would increase the demand for electricity from the electrical grid resulting in a negligible, incremental adverse effect on nationwide electricity demand (see Section 6-4.9), though this charging will occur in off-peak hours when overall grid demand is much lower. Charging stations would be needed at some Postal Service facilities to accommodate BEVs, and public charging stations would not be used. The impact on utilities and infrastructure services as a result of the Proposed Action and Alternative 1.2 would result in no or negligible changes from the present impacts on utility and infrastructure services. There would be no significant adverse cumulative impact on utilities and infrastructure on a nationwide scale.

6-4.8 Energy Requirements and Conservation

The purchase and deployment of up to 165,000 delivery vehicles over a ten-year period would replace the same number of high-maintenance and end-of-life delivery vehicles. The new NGDV and BEV delivery vehicles would be more fuel-efficient than the delivery vehicles being replaced. ICE NGDV would require less fuel (gasoline) than the replaced delivery vehicles and it is expected that oil changes would be less frequent for newer vehicles resulting in a reduction of oil needed for servicing the new vehicles. Past replacements of high-maintenance and end-of-life ICE delivery vehicles with new more fuel-efficient and lower maintenance ICE delivery vehicles also resulted in lower fuel consumption and less maintenance. Under Alternative 1.1, the COTS ICE vehicles would require more fuel (gasoline) than the replaced delivery vehicles, resulting in about 56 million gallons more annual fuel usage than the ICE NGDV hypothetical maximum Proposed Action. This Alternative would result in a negligible adverse impact on fuel resources on a nationwide scale. The cumulative impacts on fuel (gasoline) resources would be negligible, as the new delivery vehicles would make up a negligible percentage of the approximately 251 million cars and light trucks registered nationwide in 2021 (USDOE 2020).

BEVs would not require fuel, but electricity would be needed to recharge the BEVs. The Postal Service would install charging stations at various nationwide Postal Service facilities where new BEVs are deployed and would not rely on public charging stations. The increasing adoption of BEVs nationwide will place increasing demands on electrical usage for BEV operation. However, the annual energy usage and load requirements for the Proposed Action and Alternative 1.2 are less than one percent of the total annual energy generation for the U.S. in 2020. Nationally, the electric infrastructure needs of BEV NGDV or COTS BEVs would be minor in the context of the U.S. electric grid systems and no significant, national investment in generation, transmission, or distribution would be needed. Cumulative effects on the electrical energy demand would be negligible. The cumulative impacts on energy requirements would be negligible, as the new delivery vehicles would make up a negligible percentage of the approximately 251 million cars and light trucks registered nationwide in 2021 (USDOE 2020). There would be no significant adverse cumulative impact on energy requirements or conservation on a nationwide scale.

6-4.9 Solid and Hazardous Materials and Waste

The purchase and deployment of up to 165,000 delivery vehicles over a ten-year period to replace the same number of high-maintenance and end-of-life delivery vehicles would not result in a significant adverse cumulative impact on solid and hazardous waste treatment and disposal. Approximately the same quantities of wastes as currently generated by high-

maintenance and end-of-life vehicle replacements would be generated, except for the initial generation and disposal of scrapped vehicle wastes. The Postal Service sells vehicles or parts, and recycles materials to the extent possible, and waste is disposed of at licensed facilities with adequate capacity. There would be a significant reduction in the use of lubricants, oils, and greases used in BEVs compared to ICE vehicles. Nationally, there is adequate commercial treatment and landfill disposal capacity for hazardous waste through December 31, 2044 (EPA 2017). Spent BEV batteries would be an additional source of hazardous waste. Recycling capacity for BEV batteries is expected to increase over the next ten years before the end of the effective life of the NGDV or COTS batteries. No significant adverse cumulative impacts on solid and hazardous waste treatment and disposal on a nationwide scale are expected to result from implementation of either the Proposed Action or Alternatives 1.1 and 1.2.

6-4.10 Conclusion

Impacts from the Proposed Action and Alternatives 1.1 and 1.2 would not have the potential for significant adverse cumulative impacts on nationwide environmental resources when considered in combination with other actions nationwide. Because of adding newer delivery vehicles to the fleet, impacts on environmental resources generally are expected to be less than current impacts, including the No-Action Alternative. Therefore, the Proposed Action and Alternatives 1.1 and 1.2, would not result in a significant adverse cumulative impact on nationwide environmental resources.

7 MITIGATION MEASURES

7-1 Introduction

The EIS has been developed in accordance with NEPA regulations. As specified in NEPA, mitigation was considered throughout the environmental analysis process. Mitigation measures include avoiding the impact; minimizing or reducing the severity of impact over time; rectifying the impact by repairing, rehabilitating, or restoring the adverse effect; or compensating for the impact such that the impact is no longer significant.

The Proposed Action and Alternatives 1.1 and 1.2 would involve the purchase and deployment of up to 165,000 NGDV or COTS vehicles in total production orders over a ten-year period. High-maintenance and end-of-life delivery vehicles would be replaced at various Postal Service facility locations throughout the U.S. on a one-for-one basis, resulting in no additional delivery vehicles (Appendix D). This number of new delivery vehicles represents a negligible percentage of the over 122 million cars and almost 160 million trucks registered in the U.S. in 2018 (USDOE 2021).

7-2 Overview of Impacts

The Proposed Action and Alternatives 1.1 and 1.2 would not result in significant direct, indirect, or cumulative adverse impacts. There would be no or negligible adverse impacts on noise, economics, environmental justice, transportation, community services, utilities and infrastructure, energy requirements, or solid and hazardous waste (see Table 4-11.1). The Proposed Action and Alternatives 1.1 and 1.2 would result in minor positive (beneficial) impacts on traffic and vehicle safety from modern safety features, and air quality from a net reduction in delivery vehicle air emissions. The new vehicles would also result in reduced vehicle breakdowns. Alternative 1.1 would result in a negligible adverse impact on fuel resources on a nationwide scale. The Proposed Action and Alternative 1.2 would result in positive impacts on fuel consumption from increased fuel efficiency of the new delivery vehicles.

7-3 Mitigation Measures

Because of the small degree and low severity of adverse impacts of each of the Proposed Action and Alternatives 1.1 and 1.2 on environmental resources, mitigation measures are not necessary to avoid adverse impact, reduce the severity of adverse impact, rehabilitate and restore adverse effects, or compensate for adverse impact. Implementation of the Proposed Action or Alternatives 1.1 and 1.2 would provide various degrees of beneficial effects on some environmental resources.

7-4 Conclusion

Implementation of the Proposed Action or Alternatives 1.1 and 1.2 would serve to mitigate the existing impacts on environmental resources from the No-Action Alternative (continued operation of the high-maintenance and end-of-life delivery vehicles). No further mitigation measures would be necessary.

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9 LIST OF PREPARERS

U.S. Postal Service

Davon M. Collins - Environmental Counsel, Procurement and Property Law. J.D., Yale Law School; B.A., Cornell University. Over 10 years' experience practicing environmental law in the private and public sectors.

Casey Cole Huron - M.S., Environmental Science and Policy, The Johns Hopkins University; B.S., Science-Business, the University of Notre Dame. Manager, Environmental Compliance and Risk Management, U.S. Postal Service - Environmental Affairs. Over 20 years' professional experience in environmental compliance and sustainability, with a corporate focus on program/project management, policy development, strategic planning, and communications. Has managed numerous national environmental programs and projects, is a Lean Six Sigma Greenbelt, and is a graduate of the USPS Advanced Leadership Program.

AECOM Technical Services, Inc.

Charles Allen, PE - B.C.E. Georgia Institute of Technology. More than 40 years environmental experience, including over 25 years NEPA experience, including for USPS (Network Rationalization PEA, COTS Vehicle Acquisitions PEA, and numerous Facilities Construction and Operation EAs and Records of Environmental Considerations), Federal Aviation Administration, Federal Emergency Management Agency, Department of Veterans Affairs, U.S. Department of Justice, U.S. Air Force, and U.S. Army Corps of Engineers.

Anneliesa Barta - MBA, Finance, and B.S., Psychology, Fordham University. Socioeconomic, Environmental Justice, and Energy Conservation Specialist with over ten years related experience in environmental impact assessment, and environmental planning. She has worked on a variety of Third- Party Environmental Assessments associated with solar, wind, and other renewable energy projects. She has identified subsistence populations and potentially impacted minority and low-income residents (communities of concern) and assessed the potential for disproportionately high and adverse human health or environmental effects on those communities.

Sunghye Chang Yun, PE - Ph.D. in Civil, Architecture, and Environmental Engineering, and M.S. Civil Engineering, The University of Texas at Austin; B.S.E Environmental Science and Engineering, Ewha Womans University. 17 years' relevant experience as an Air Quality Specialist, including air quality impact analysis in support of operational NEPA studies for USPS, and numerous NEPA studies including for the USPS (Network Rationalization, and COTS Vehicle Acquisitions) FAA, BLM, and U.S. Army.

Brendan Connelly - M.S., Energy Systems Engineering, University of Ireland, B.S. Mechanical Engineering, Miami University. Smart energy analyst with three years' experience in the electric vehicle, renewable energy, and energy efficiency sectors. His portfolio includes piloting V2G technology, research and development of electric vehicle adoption tools, preparing electric vehicles readiness plans, and writing technical papers on the impacts of equitable electric vehicle adoption and utilizing electric vehicles as an energy asset.

Paige Humecki, EIT, LEED AP O&M - Master of Energy Engineering, University of Illinois at Chicago; B.S., Environmental Engineering, Northwestern University. Seven years related experience with a specialty in energy engineering and technical analysis for smart energy

initiatives, including transportation electrification, for government agencies, electric utilities, and private companies. Her experience also includes modeling financial and environmental benefits for capital energy efficiency projects, and reporting performance on energy, water, and greenhouse gas reduction targets.

Larry W. Neal - M.S., Oceanography. More than 45 years' relevant experience, with more than 20 years' NEPA experience, including studies and EA preparation for USPS. Project manager, NEPA lead, subject management expert for government NEPA projects (including USPS, USAF, USACE, USMC, BLM, USFWS, USCG). Recently, served as Subject Matter Expert and technical reviewer for a BLM Planning EIS.

Priyal Pandya - M.S. in Environmental Technology, M.S. in Chemical Engineering. 12 years' related environmental and NEPA experience, including operational NEPA air quality emissions study for USPS COTS Vehicle Acquisitions. Specialized Training: USEPA/FHWA Training for MOVES Emission Modeling: 2011, 2014, 2015 and 2018; MySQL for MOVES Training, USEPA/FHWA, 2015.

Patricia W. Slade - B.S., Geology, Emory University. More than 35 years' environmental experience, including over 25 years NEPA experience, including for USPS (Network Rationalization PEA, COTS Vehicle Acquisitions PEA, and numerous Facilities Construction and Operation EAs and Records of Environmental Considerations), Federal Aviation Administration, Federal Emergency Management Agency, Department of Veterans Affairs, Department of Justice, U.S. Air Force, and U.S Army Corps of Engineers.

Roger Wayson, PE - Ph.D. in Civil Engineering, Vanderbilt University; M.S. Civil Engineering and BES, Environmental Engineering, The University of Texas at Austin. More than 40 years relevant experience addressing air pollution (criteria, greenhouse gases, hazardous air pollutants) and noise pollution. Over 200 publications including 27 Journal Articles, 70 Peer Reviewed Conference Papers, 7 Books/Book Chapters, and 71 Major Project Reports.

Fang Yang - M.S., Atmospheric Science, B.S., Physics. Over 31 years' experience in air quality, noise and vibration, and energy and GHG studies primarily by using regulatory modeling tools. Led studies for projects in the industrial, commercial, transportation, aviation, government, and military areas including NEPA air quality impact analyses for airport, highway, rail and bus transit, intermodal facility, power generation, oil and gas, waste water treatment, zoning and land development.

APPENDIX A
ACRONYMS AND ABBREVIATIONS
and
INDEX

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List of Acronyms and Abbreviations

Table A-2
Index

Table A-1
List of Acronyms

Acronym	Expansion
BEV	battery electric vehicle
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH ₄	Methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	CO ₂ equivalents
COTS	commercial-off-the-shelf
Cyl	Cylinder
dB	Decibel
dBA	decibel (A-weighted scale)
DOT	Department of Transportation
eGRID	Emissions & Generation Resource Integrated Database
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
EPAct	Energy Policy Act
FFV	Flexible Fuel Vehicle
FR	Federal Register
FY	fiscal year
GHG	Greenhouse Gas
REET	Greenhouse Gases, Emissions, and Energy use in Technologies
GSA	General Services Administration
GVWR	Gross Vehicle Weight Rating
GWP	Global Warming Potential
Hz	Hertz
ICE	internal combustion engine
ITE	Institute of Transportation Engineers
IWG	Interagency Working Group
kg/mi	Kilogram(s) per mile
km/h	Kilometer(s)/hour
kW	Kilowatt
kWh	kilowatt hour
lbs	Pounds
lb/MWh	pounds per megawatt-hour
LHD	Left Hand Drive
LLV	Long-Life Vehicle
µg/m ³	micrograms per cubic meter
mpg	miles per gallon
mph	miles per hour
MOVES	Motor Vehicle Emission Simulator
MT	Metric Ton
MWh	Megawatt hours
N ₂ O	nitrous oxide
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NECPA	National Energy Conservation Policy Act

Acronym	Expansion
NEPA	National Environmental Policy Act
NGDV	Next Generation Delivery Vehicles
NO _x	nitrogen oxide
NO ₂	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NR	not required
NRHP	National Register of Historic Places
O ₃	ozone
OIG	Office of Inspector General
Pb	lead
PEA	Programmatic Environmental Assessment
PM _{2.5}	particulate matter (measured as less than 2.5 microns in diameter)
PM ₁₀	particulate matter (measured as less than 10 microns in diameter)
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
RFI	Request for Information
RFP	Request for Proposal
RHD	Right Hand Drive
SCC	Social Cost of Carbon
SIP	State Implementation Plan
SO ₂	sulfur dioxide
SOW	Statement of Work
TCO	Total Cost of Ownership
tpy	ton per year
UST	underground storage tank
U.S.	United States
USC	United States Code
USCB	United States Census Bureau
USDOE	United States Department of Energy
USEIA	U.S. Energy Information Administration
USPS	United States Postal Service
VMF	Vehicle Maintenance Facility
VOC	volatile organic compound
WTP	Well-to-Pump

Table A-2

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APPENDIX B

CONSULTATION AND COORDINATION

B1 Notice of Intent

NOI Federal Register Publication (March 4, 2021)

Table B1-1

Notice of Intent Stakeholder Distribution List

Example NOI Letter (with Enclosure: March 4, 2021 Federal Register Publication, Postal Service Notice of Intent To Prepare an Environmental Impact Statement for Purchase of Next Generation Delivery Vehicles)

Agency and Public Comments

- U.S. Environmental Protection Agency (letter, April 2, 2021)
- Institute for Policy Integrity (letter, April 5, 2021)
- Elders Climate Action (Notice)
- Example form letters received from Elders Climate Action

Table B1-2

Response to Agency and Public Comments on the NOI

B2 Notice of Availability

Federal Register Publication

Stakeholder Distribution List

Example NOA Letter

Agency and Public Comments (*included upon conclusion of 45-day public comment period*)

Responses to Agency and Public Comments (*included upon conclusion of 45-day public comment period*)



graduate programs. The data is used by NSF in its assessment of the impact of its investments in the GRFP, and informs its program management.

Estimate of Burden: Overall average time will be 15 minutes per Fellow (8,250 Fellows) for a total of 2,063 hours for all institutions with Fellows. An estimate for institutions with 12 or fewer Fellows will be 1 hour, institutions with 12–48 fellows will be 4 hours, and institutions over 48 Fellows will be 10 hours.

Respondents: Academic institutions with NSF Graduate Fellows (GRFP Institutions).

Estimated Number of Responses per Report: One from each of the 271 current GRFP institutions.

Dated: March 1, 2021.

Suzanne H. Plimpton,
Reports Clearance Officer, National Science Foundation.

[FR Doc. 2021-04460 Filed 3-3-21; 8:45 am]

BILLING CODE 7555-01-P

POSTAL SERVICE

Notice of Intent To Prepare an Environmental Impact Statement for Purchase of Next Generation Delivery Vehicles

AGENCY: U.S. Postal Service.

ACTION: Notice.

SUMMARY: The U.S. Postal Service announces its intention to prepare an Environmental Impact Statement (EIS) for the purchase over 10 years of 50,000 to 165,000 purpose-built, right-hand-drive vehicles—the Next Generation Delivery Vehicle (NGDV)—to replace existing delivery vehicles nationwide that are approaching the end of their service life. While the Postal Service has not yet determined the precise mix of the powertrains in the new vehicles to be purchased, current plans are for the new vehicle purchases to consist of a mix of internal combustion engine and battery electric powertrains; the purchases will also be designed to be capable of retrofits to keep pace with advances in electric vehicle technologies. The EIS will evaluate the environmental impacts of the purchase and operation of the NGDV, as well as a commercial off-the-shelf (COTS) vehicle alternative and a “no action” alternative.

DATES: Comments should be received no later than April 5, 2021. The Postal Service will also publish a Notice of Availability to announce the availability of the Draft EIS and solicit comments on

the Draft EIS during a 45-day public comment period.

ADDRESSES: Interested parties may direct comments, questions or requests for additional information to: Mr. Davon Collins, Environmental Counsel, United States Postal Service, 475 L'Enfant Plaza SW, Washington, DC 20260-6201, or at NEPA@usps.gov. Note that comments sent by mail may be subject to delay due to federal security screening.

SUPPLEMENTARY INFORMATION: This notice concerns the proposed purchase over 10 years of 50,000 to 165,000 new purpose-built delivery vehicles to replace the same number of existing delivery vehicles, and the intent of the U.S. Postal Service, pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA), its implementing procedures at 39 CFR 775, and the President's Council on Environmental Quality Regulations (40 CFR parts 1500–1508), to prepare an EIS to evaluate the environmental impacts of the proposed action versus a COTS vehicle alternative and a “no action” alternative. The EIS will consider the physical, biological, cultural, and socioeconomic environments. To assist in this process, the Postal Service is soliciting the public's input and comments.

Joshua J. Hofer,

Attorney, Ethics and Compliance.

[FR Doc. 2021-04457 Filed 3-3-21; 8:45 am]

BILLING CODE 7710-12-P

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34-91217; File No. SR-NYSE-2021-14]

Self-Regulatory Organizations; New York Stock Exchange LLC; Notice of Filing of Proposed Rule Change To Amend the Schedule of Wireless Connectivity Fees and Charges To Add Circuits for Connectivity Into and Out of the Data Center in Mahwah, New Jersey

February 26, 2021.

Pursuant to Section 19(b)(1)¹ of the Securities Exchange Act of 1934 (“Act”),² and Rule 19b-4 thereunder,³ notice is hereby given that on February 12, 2021, New York Stock Exchange LLC (“NYSE” or “Exchange”) filed with the Securities and Exchange Commission (“Commission”) the proposed rule change as described in Items I and II below, which Items have

been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Exchange proposes to amend the schedule of Wireless Connectivity Fees and Charges (the “Fee Schedule”) to (1) add circuits for connectivity into and out of the data center in Mahwah, New Jersey (the “Mahwah Data Center”); (2) add services available to customers of the Mahwah Data Center that are not colocation Users; and (3) change the name of the Fee Schedule to “Mahwah Wireless, Circuits, and Non-Colocation Connectivity Fee Schedule.” The proposed rule change is available on the Exchange's website at www.nyse.com, at the principal office of the Exchange, and at the Commission's Public Reference Room.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the self-regulatory organization included statements concerning the purpose of, and basis for, the proposed rule change and discussed any comments it received on the proposed rule change. The text of those statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant parts of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

The Exchange proposes to amend the Fee Schedule to add services (“NCL Services”) and related fees available to customers of the Mahwah Data Center that are not colocation Users (“NCL Customers”),⁴ as well as circuits into and out of the Mahwah Data Center that are available to both colocation Users and NCL Customers. In addition, in a conforming change, because the Fee Schedule would no longer be limited to wireless services, the Exchange proposes to change the name of the Fee Schedule from “Wireless Connectivity Fee Schedule” to “Mahwah Wireless,

⁴For purposes of the Exchange's colocation services, a “User” means any market participant that requests to receive colocation services directly from the Exchange. See Securities Exchange Act Release No. 76008 (September 29, 2015), 80 FR 60190 (October 5, 2015) (SR-NYSE-2015-40).

¹ 15 U.S.C. 78s(b)(1).

² 15 U.S.C. 78a.

³ 17 CFR 240.19b-4.

Table B1-1

Notice of Intent Stakeholder Distribution List

Contact Name Position	Mailing Address
Cindy Barger Director, NEPA Compliance Division	U.S. Environmental Protection Agency 1200 Pennsylvania Avenue, NW Ariel Rios Building, Mail Code 2251A Washington DC 20460-0003
Mr. Mark Dimondstein President	American Postal Workers Union 1300 L Street, NW Washington, DC 20005-4128
Ronnie W. Stutts President	National Rural Letter Carriers' Association 1630 Duke Street Alexandria, VA 22314-3467
Fredric V. Rolando President	National Association of Letter Carriers 100 Indiana Avenue, NW Washington, DC 20001-2144
Paul V. Hogrogian President	National Postal Mail Handlers Union 815 16th Street NW, Suite 5100 Washington, DC 20006 1200 New Jersey Avenue, SE, W41-113 Washington, DC 20006
Brian J. Wagner President	National Association of Postal Supervisors 1727 King Street, Suite 400 Alexandria, VA 22314-2753
Daniel M. Heins President	United Postmasters and Managers of America 8 Herbert Street Alexandria, VA 22305
Tammy L. Whitcomb Acting Inspector General	Office of Inspector General, United States Postal Service 1735 North Lynn Street Arlington, VA 22209-2020
Brian Costner Acting Director	Office of NEPA Policy and Compliance (GC-54) U.S. Department of Energy 1000 Independence Avenue, SW Washington, DC 20585-0119
Russell Krupen Attorney Advisor, Office of Chief Counsel	National Highway Traffic Safety Administration Department of Transportation 1200 New Jersey Avenue, SE, W41-113 Washington, DC 20590-0001
Jayni Hein Senior Director for NEPA	Council on Environmental Quality U.S. Department of Energy 730 Jackson Place, NW Washington, DC 20503

Example NOI Stakeholder Letter, with NOI Federal Register Enclosure

JENNIFER G. BEIRO-REVEILLÉ
CHIEF SUSTAINABILITY OFFICER



March 5, 2021

Daniel M. Heins
President
United Postmasters and Managers of America
8 Herbert Street
Alexandria, VA 22305

SUBJECT: Notice of Intent to Prepare an Environmental Impact Statement for Purchase of Next Generation Delivery Vehicles

Dear Mr. Heins:

The Postal Service is investigating the purchase of Next Generation Delivery Vehicles (NGDV) for delivery operations nationwide. The new vehicles would replace existing delivery vehicles that are approaching the end of their service life. Pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969, its implementing procedures at 39 CFR 775, and the President's Council on Environmental Quality Regulations (40 CFR parts 1500-1508), the Postal Service is preparing an Environmental Impact Statement (EIS) to evaluate the environmental impacts of the proposed action and alternatives. A copy of the Notice of Intent to prepare the EIS is enclosed.

Interested parties should contact Davon Collins at NEPA@usps.gov with questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jennifer Beiro-Reveillé".

Jennifer Beiro-Reveillé

Enclosure

cc: David Mills, Manager, Labor Relations Policy and Programs

475 L'ENFANT PLAZA SW ROOM 2717
WASHINGTON, DC 20260-4233
Visit Us @ USPS.COM



graduate programs. The data is used by NSF in its assessment of the impact of its investments in the GRFP, and informs its program management.

Estimate of Burden: Overall average time will be 15 minutes per Fellow (8,250 Fellows) for a total of 2,063 hours for all institutions with Fellows. An estimate for institutions with 12 or fewer Fellows will be 1 hour, institutions with 12–48 fellows will be 4 hours, and institutions over 48 Fellows will be 10 hours.

Respondents: Academic institutions with NSF Graduate Fellows (GRFP Institutions).

Estimated Number of Responses per Report: One from each of the 271 current GRFP institutions.

Dated: March 1, 2021.

Suzanne H. Plimpton,
Reports Clearance Officer, National Science Foundation.

[FR Doc. 2021–04460 Filed 3–3–21; 8:45 am]

BILLING CODE 7555–01–P

POSTAL SERVICE

Notice of Intent To Prepare an Environmental Impact Statement for Purchase of Next Generation Delivery Vehicles

AGENCY: U.S. Postal Service.

ACTION: Notice.

SUMMARY: The U.S. Postal Service announces its intention to prepare an Environmental Impact Statement (EIS) for the purchase over 10 years of 50,000 to 165,000 purpose-built, right-hand-drive vehicles—the Next Generation Delivery Vehicle (NGDV)—to replace existing delivery vehicles nationwide that are approaching the end of their service life. While the Postal Service has not yet determined the precise mix of the powertrains in the new vehicles to be purchased, current plans are for the new vehicle purchases to consist of a mix of internal combustion engine and battery electric powertrains; the purchases will also be designed to be capable of retrofits to keep pace with advances in electric vehicle technologies. The EIS will evaluate the environmental impacts of the purchase and operation of the NGDV, as well as a commercial off-the-shelf (COTS) vehicle alternative and a “no action” alternative.

DATES: Comments should be received no later than April 5, 2021. The Postal Service will also publish a Notice of Availability to announce the availability of the Draft EIS and solicit comments on

the Draft EIS during a 45-day public comment period.

ADDRESSES: Interested parties may direct comments, questions or requests for additional information to: Mr. Davon Collins, Environmental Counsel, United States Postal Service, 475 L'Enfant Plaza SW, Washington, DC 20260–6201, or at NEPA@usps.gov. Note that comments sent by mail may be subject to delay due to federal security screening.

SUPPLEMENTARY INFORMATION: This notice concerns the proposed purchase over 10 years of 50,000 to 165,000 new purpose-built delivery vehicles to replace the same number of existing delivery vehicles, and the intent of the U.S. Postal Service, pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA), its implementing procedures at 39 CFR 775, and the President's Council on Environmental Quality Regulations (40 CFR parts 1500–1508), to prepare an EIS to evaluate the environmental impacts of the proposed action versus a COTS vehicle alternative and a “no action” alternative. The EIS will consider the physical, biological, cultural, and socioeconomic environments. To assist in this process, the Postal Service is soliciting the public's input and comments.

Joshua J. Hofer,
Attorney, Ethics and Compliance.

[FR Doc. 2021–04457 Filed 3–3–21; 8:45 am]

BILLING CODE 7710–12–P

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–91217; File No. SR–NYSE–2021–14]

Self-Regulatory Organizations; New York Stock Exchange LLC; Notice of Filing of Proposed Rule Change To Amend the Schedule of Wireless Connectivity Fees and Charges To Add Circuits for Connectivity Into and Out of the Data Center in Mahwah, New Jersey

February 26, 2021.

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II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the self-regulatory organization included statements concerning the purpose of, and basis for, the proposed rule change and discussed any comments it received on the proposed rule change. The text of those statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant parts of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

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⁴ For purposes of the Exchange's colocation services, a “User” means any market participant that requests to receive colocation services directly from the Exchange. See Securities Exchange Act Release No. 76008 (September 29, 2015), 80 FR 60190 (October 5, 2015) (SR–NYSE–2015–40).

¹ 15 U.S.C. 78s(b)(1).

² 15 U.S.C. 78a.

³ 17 CFR 240.19b–4.

Agency and Public Comments on the NOI



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
POLICY

April 2, 2021

Davon Collins
Environmental Counsel
United States Postal Service
475 L'Enfant Plaza SW
Washington, D.C. 20260-6201

Dear Mr. Collins:

The U.S. Environmental Protection Agency (EPA) is responding to the United States Postal Service's (Postal Service) March 4, 2021 Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for the Purchase of Next Generation Delivery Vehicles (NGDV).

According to the NOI, the Postal Service intends to purchase 50,000 to 165,000 purpose-built, right-hand-drive NGDV over 10 years to replace existing delivery vehicles nationwide that are approaching the end of their service life. While the Postal Service has not yet determined the precise mix of the powertrains in the new vehicles to be purchased, current plans are for the new vehicle purchases to consist of a mix of internal combustion engine and battery electric powertrains. The purchases will be designed to be capable of retrofits to keep pace with advances in electric vehicle technologies.

We appreciated the opportunity to discuss the NOI in further detail with you by teleconference on March 26, 2021. We have enclosed comments and recommendations for consideration as you develop the draft EIS. EPA is available to be a cooperating agency and is available to review the administrative drafts and lend assistance, if requested. Many lead agencies have found EPA's early engagement on administrative drafts to be useful when agencies are working on aggressive schedules. EPA looks forward to reviewing the draft EIS related to this project. If you have any questions, please contact Jonathan Simpson, the lead reviewer for this review, at 202-564-8168 or by email at simpson.jonathan@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Tomiak", is positioned above the typed name.

Robert Tomiak
Director
Office of Federal Activities

Enclosure

EPA Scoping Comments
Notice of Intent to Prepare an EIS for Purchase of Next Generation Delivery Vehicles

Purpose and Need and Alternatives

The NOI indicates that the alternatives under consideration include the purchase and operation of Next Generation Delivery Vehicles (NGDV) alternative, a commercial off-the shelf (COTS) vehicle alternative, and a “no action” alternative. EPA understands that the NGDV will be equipped with either fuel-efficient combustion engines or battery electric powertrains and can be retrofitted to keep pace with advances in electric vehicle technologies. EPA recommends that the Postal Service consider an alternative to replace part or all of the fleet with hybrid fuel-efficient vehicles or all electric vehicles. An all-electric fleet would support the Administration’s January 27, 2021 Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, which, in part, directs federal agencies to develop a plan to achieve or facilitate clean and zero-emissions vehicles for federal, state, local, and Tribal fleets, including Postal Service vehicles.

In addition to replacing existing delivery vehicles that are approaching the end of their service life, EPA recommends that the purpose and need be expanded to include the need for safer delivery vehicles, to increase cargo capacity to maximize efficiency, and to better accommodate higher package volumes stemming from the growth of e-commerce. Lastly, it may be helpful to include the lifecycle of Postal Service vehicles from deployment to retirement/disposal in the project description.

Emissions

If the Postal Service plans to pursue a mix of internal combustion and battery electric powertrains, EPA recommends the EIS discuss the best places to locate the all-electric vehicles versus the internal combustion vehicles. Strategic locations for all-electric fleets should consider designated National Ambient Air Quality Standard nonattainment and maintenance areas; and communities with environmental justice characteristics that are already burdened with high levels of traffic-related pollutants. Other siting considerations may include states with Zero Emission Vehicle (ZEV) standards, areas with existing public and private electric vehicle charging stations or planned charging infrastructure development. The EIS should also discuss why the Postal Service selected internal combustion engines vehicles in certain cases (or areas) over-all.

The emissions due to electricity generation for the vehicles will vary depending on where the vehicles are deployed. For this reason, EPA recommends the following tools that may assist with emissions analysis.

- EPA’s eGRID (<https://www.epa.gov/egrid>) data and Argonne National Laboratory GREET model (<https://greet.es.anl.gov/>) to evaluate upstream emissions, and
- The Beyond Tailpipe calculator (<https://www.fueleconomy.gov/feg/Find.do?action=bt2>) which may be used for light-duty vehicles.

EPA recommends the Postal Service use the 2016 CEQ Final Greenhouse Gas Guidance as a resource for addressing, as appropriate, greenhouse gas emissions, disclosing climate change impacts associated with any of the reasonable alternatives considered, including the “no action” alternative, and considering practicable mitigation to reduce potential greenhouse gas emissions.

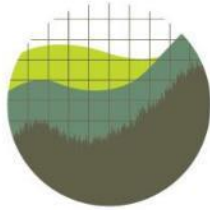
Environmental Justice

As mentioned under emissions, low income and disadvantaged communities may already be burdened with high levels of traffic-related pollutants or traffic related noise impacts. For any alternative analyzed, EPA recommends that the Postal Service consider the equitable distribution of project benefits to minority and low-income populations both in the timing of the replacement of delivery vehicles and the type of vehicles replaced by the alternatives evaluated.

Other Resource Areas/Topics

Some additional areas that may be considered for discussion in the EIS include:

- Motor vehicle safety to Postal Service drivers and the public.
- Land use development – e.g., if using battery electric powertrains in the mix or full – what updates to Postal Service facilities are needed for plug in stations.
- Hazardous Waste – disposal of existing fleet, disposal of parts for new fleet (e.g., recycling of batteries).

Agency and Public Comments on the NOI (cont.)

Institute for
Policy Integrity
NEW YORK UNIVERSITY SCHOOL OF LAW

April 5, 2021

To: U.S. Postal Service
Subject: Consideration of Greenhouse Gas Emissions and Omission of All Zero-Emission Alternative in Upcoming Environmental Impact Statement for Purchase of Next Generation Delivery Vehicles (Document No. 2021-04457)

The Institute for Policy Integrity at New York University School of Law (“Policy Integrity”)¹ respectfully submits the following comments on the U.S. Postal Service’s above-referenced Notice of Intent.² Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. Policy Integrity regularly submits comments to federal agencies on the consideration of greenhouse gases and impacts on climate change under the National Environmental Policy Act (“NEPA”).

In the Notice of Intent, the Postal Service announces that it will prepare an environmental impact statement for the purchase of 50,000–165,000 vehicles “consist[ing] of a mix of internal combustion engine and battery electric powertrains.”³ The Postal Service further explains that this assessment “will evaluate the environmental impacts of the purchase and operation of the [proposed vehicles], as well as a commercial off-the-shelf (COTS) vehicle alternative and a ‘no action’ alternative.”⁴ In these comments, we offer advice to the Postal Service on how it can incorporate climate impacts into its environmental review by using the social cost of greenhouse gases. We also urge the Postal Service to consider the alternative of an all zero-emission fleet.

The Postal Service Should Contextualize the Climate Impacts of Each Alternative Using the Social Cost of Greenhouse Gases

The Postal Service’s selection will inevitably have substantial impacts on the emissions of greenhouse gases and other pollutants, resulting in hundreds of thousands or potentially

¹ This document does not purport to represent the views, if any, of New York University School of Law.

² 86 Fed. Reg. 12,715 (Mar. 4, 2021).

³ *Id.*

⁴ *Id.* Several weeks ago, before completing the environmental review, the Postal Service awarded a service contract to complete this fleet overhaul. U.S. Postal Service, *U.S. Postal Service Awards Contract to Launch Multi-Billion-Dollar Modernization of Postal Delivery Vehicle Fleet* (Feb. 23, 2021), <https://about.usps.com/newsroom/national-releases/2021/0223-multi-billion-dollar-modernization-of-postal-delivery-vehicle-fleet.htm>.

millions of metric tons of carbon dioxide emissions ever year.⁵ The Postal Service should not only estimate the greenhouse gas emissions from each alternative, but also provide context to those emissions by using the social cost of greenhouse gases to assess their climate impacts.

As a federal appeals court has explained, the “impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires,” and it is arbitrary and capricious not to “provide the necessary contextual information about the[se] cumulative and incremental environmental impacts.”⁶ As a starting point for its climate analysis, the Postal Service must calculate the greenhouse gas emissions from each alternative. This calculation is relatively straightforward. To calculate direct tailpipe emissions, the agency simply needs to estimate the vehicle miles travelled from the fleet using available agency data, and then multiply that mileage by the fleet’s average tailpipe emissions per mile.⁷

But mere quantification of greenhouse gas emissions is not enough. To fulfill their obligation to take a “hard look” under NEPA, agencies must also assess the impact of a project’s emissions on climate change and resulting health and welfare harms such as mortality or property damages. The U.S. Supreme Court has called the disclosure of impacts the “key requirement of NEPA,” and held that agencies must “consider and disclose the *actual environmental effects*” of a proposed project in a way that “brings those effects to bear on [the agency’s] decisions.”⁸ The actual effects of greenhouse gas emissions are not those emissions themselves, but rather the incremental climate impacts caused by those emissions.⁹ For this reason, numerous federal courts have held that mere quantification of greenhouse gas emissions

⁵ On average, 165,000 passenger cars produce approximately 763,000 metric tons of carbon dioxide equivalence per year. EPA, Greenhouse Gas Equivalencies Calculator, <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>. But since trucks tend to emit more on a per-mile basis than passenger cars—and mail trucks are likely driven more miles than the average car as well—the greenhouse gas implications of this determination may be substantially larger.

⁶ *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008); *see also id.* (“[T]he fact that climate change is largely a global phenomenon that includes actions that are outside of [the agency’s] control . . . does not release the agency from the duty of assessing the effects of its actions on global warming within the context of other actions that also affect global warming.”); *Border Power Plant Working Grp. v. U.S. Dep’t of Energy*, 260 F. Supp. 2d 997, 1028–29 (S.D. Cal. 2003) (failure to disclose project’s indirect carbon dioxide emissions violates NEPA).

⁷ Average tailpipe emissions per mile are a direct function of a vehicle’s mileage per gallon. One gallon of gasoline releases 8,887 grams of carbon dioxide, while one gallon of diesel fuel releases 10,180 grams of carbon dioxide. EPA, *Greenhouse Gas Emissions from a Typical Passenger Vehicle*, <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>.

⁸ *Balt. Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 96 (1983).

⁹ For a more complete discussion of actual climate effects, including air-quality mortality, extreme temperature mortality, lost labor productivity, harmful algal blooms, spread of West Nile virus, damage to roads and other infrastructure, effects on urban drainage, damage to coastal property, electricity demand and supply effects, water supply and quality effects, inland flooding, lost winter recreation, effects on agriculture and fish, lost ecosystem services from coral reefs, and wildfires, *see* EPA, *Multi-Model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment* (2017); U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment* (2017); EPA, *Climate Change in the United States: Benefits of Global Action* (2015); Union of Concerned Scientists, *Underwater: Rising Seas, Chronic Floods, and the Implications for U.S. Coastal Real Estate* (2018).

and comparisons to geographic inventories is insufficient because this fails to capture the project's incremental climate impacts.¹⁰

An available and widely-used tool—the social cost of greenhouse gases—allows for the incremental assessment of climate impacts that NEPA requires. The social cost of greenhouse gases calculates how the emission of an additional unit of greenhouse gases affects atmospheric greenhouse concentrations, how that change in atmospheric concentrations affects temperature, and how that change in temperature incrementally contributes to the various economic damages resulting from climate change.¹¹ The social cost of greenhouse gases tool therefore captures the factors that actually affect public welfare and assesses the degree of impact to each factor, in ways that merely estimating the volume of emissions cannot. In fact, various agencies have used the social cost of greenhouse gases to assess a project's climate impacts under NEPA.¹²

Applying the social cost of greenhouse gases is straightforward and provides information that would be very useful to the Postal Service's assessment. The most widely used social cost estimates were developed by the federal Interagency Working Group on the Social Cost of Greenhouse Gases ("Working Group"), a coordinated effort among twelve federal agencies and White House offices. The National Academies of Sciences has issued two reports that broadly supported the use of the Working Group's estimates by federal agencies.¹³ Distinguished economists have explained that the Working Group's estimates are the best numbers available.¹⁴ And the U.S. Court of Appeals for the Seventh Circuit upheld agency reliance on these estimates.¹⁵

¹⁰ See, e.g., *Ctr. for Biological Diversity*, 538 F.3d at 1216–17 (rejecting analysis under NEPA when agency "quantifie[d] the expected amount of [carbon dioxide] emitted" but failed to "evaluate the incremental impact that these emissions will have on climate change or on the environment more generally," noting that this approach impermissibly failed to "discuss the actual environmental effects resulting from those emissions" or "provide the necessary contextual information about the cumulative and incremental environmental impacts" that NEPA requires); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1190 (D. Colo. 2014) ("Beyond quantifying the amount of emissions relative to state and national emissions and giving general discussion to the impacts of global climate change, [the agencies] did not discuss the impacts caused by these emissions."); *Mont. Envtl. Info. Ctr. v. U.S. Office of Surface Mining*, 274 F. Supp. 3d 1074, 1096–99 (D. Mont. 2017) (rejecting the argument that the agency "reasonably considered the impact of greenhouse gas emissions by quantifying the emissions which would be released if the [coal] mine expansion is approved, and comparing that amount to the net emissions of the United States").

¹¹ Interagency Working Group on the Social Cost of Greenhouse Gases, *Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis* 5 (2010).

¹² See e.g., Bureau of Ocean Energy Mgmt., Final Environmental Impact Statement of Cook Inlet Planning Area Oil and Gas Lease Sale 244 (BOEM 2016-069) (Dec. 23, 2016); see also Peter Howard & Jason Schwartz, *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, 42 COLUM. J. ENVT'L. L. 203, 270–84 (2017) (listing all uses by federal agencies through mid-2016, including numerous NEPA assessments).

¹³ Nat'l Acad. Sci., Eng'g & Med., *Valuing Climate Damages: Updating Estimates of the Social Cost of Carbon Dioxide* (2017); Nat'l Acad. Sci., Eng'g & Med., *Assessment of Approaches to Updating the Social Cost of Carbon: Phase 1 Report on a Near-Term Update* (2016).

¹⁴ See, e.g., Richard L. Revesz et al., *Best Cost Estimate of Greenhouse Gases*, 357 Science 655 (2017) (co-authored with economists Michael Greenstone, Michael Hanemann, Peter Howard, and Thomas Sterner).

¹⁵ *Zero Zone, Inc. v. U.S. Dep't of Energy*, 832 F.3d 654, 678 (7th Cir. 2016).

The Working Group released estimates in 2010 and updated them in 2016 to “provide a consistent approach for agencies to quantify [climate change] damage in dollars.”¹⁶ This past February, the Working Group once again reaffirmed its previous numbers as reflecting “the best available science,” though the Working Group acknowledged that these valuations “likely underestimate societal damages from [greenhouse gas] emissions” and began a process to update these valuations by January 2022.¹⁷ And as the Working Group explained, agencies should apply the social cost metrics to any “relevant agency actions”—not just regulations.¹⁸ This advice echoed similar language in Executive Order 13,990, in which President Biden recognized that the social cost of greenhouse gases could be useful for a wide range of agency processes including “decision-making, budgeting, and procurement.”¹⁹ In that Executive Order, President Biden called on the Working Group to provide additional guidance by September 2021 on the decisions for which the executive branch should apply the social cost of greenhouse gases.²⁰

Accordingly, the Postal Service should apply the Working Group’s social cost of greenhouse gases valuations to assess the incremental climate impacts of each alternative.

The Postal Service Should Consider the Alternative of an All Zero-Emission Fleet

The Postal Service should also consider the alternative of an all zero-emission fleet.²¹ NEPA regulations currently require an agency to “[e]valuate reasonable alternatives to the proposed action.”²² As the Council on Environmental Quality explained last year in adopting this regulatory language, while an environmental impact statement “need not include every available alternative,” “NEPA’s policy goals are satisfied when an agency analyzes . . . a spectrum of alternatives [that] allows for the selection of any alternative within that spectrum.”²³ Here, however, the Postal Service omits a reasonable policy alternative—an all-zero emission fleet—that falls outside the “spectrum of alternatives” that the agency intends to consider. Continued

¹⁶ *Fla. Se. Connection, LLC*, 162 FERC ¶ 61,233, at P 45 (Mar. 14, 2018).

¹⁷ Interagency Working Group on the Social Cost of Greenhouse Gases, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide – Interim Estimates under Executive Order 13,990 at 3–4 (2021).

¹⁸ *Id.* at 14.

¹⁹ Exec. Order No. 13,990 § 5(b), 86 Fed. Reg. 7037 (Jan. 25, 2021).

²⁰ *Id.*

²¹ The Postal Service states that the environmental impact statement “will evaluate the environmental impacts of the purchase and operation of the [proposed vehicles], as well as a commercial off-the-shelf (COTS) vehicle alternative and a ‘no action’ alternative.” 86 Fed. Reg. 12,715. Because the proposed fleet “consist[s] of a mix of internal combustion engine and battery electric powertrains,” the Postal Service does not contemplate an alternative consisting exclusively of zero-emission vehicles.

²² 40 C.F.R. § 1502.14(a).

²³ Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43,304, 43,330 (July 16, 2020). These regulations are currently being challenged in several federal lawsuits, and have been flagged by the Biden administration for reconsideration and possible repeal. Prior to this regulation taking effect, CEQ regulations required agencies to “objectively evaluate *all* reasonable alternatives” (emphasis added). Since the prior iteration of this regulation appears to be more stringent than the current version, rescission of the current version and restoration of the prior version would not affect the unlawfulness of the Postal Service’s failure to consider the alternative of an all zero-emission fleet.

omission of an all zero-emission fleet among the alternatives evaluated would therefore violate NEPA's alternatives requirements.

Indeed, the consideration of an all zero-emission fleet is clearly a "reasonable alternative" that the Postal Service should consider. Electric vehicles already make up a significant share of the automobile market, accounting for 1.7 million vehicle sales in the year 2020.²⁴ Electric vehicle sales are projected to quintuple by 2025 (to 8.5 million vehicles) and increase by a factor of fifteen by 2030 (to 26 million vehicles)²⁵—both dates which lie within the ten-year procurement plan proposed here. Electric vehicles are also expected to cost the same or less than fossil-fuel vehicles later this decade.²⁶ And other mail carriers including FedEx and UPS are rapidly transitioning their fleets to zero-emission vehicles.²⁷

Because an all zero-emission fleet is commercially viable and would curtail the greenhouse gas pollution endemic to all other options, the Postal Service should assess this option alongside other alternatives. In doing so, the Postal Service should evaluate the climate benefits of this alternative using the social cost of greenhouse gases, and should select a different alternative only if it presents sufficiently offsetting benefits relative to the prospect of purchasing all zero-emission vehicles.

Sincerely,

Iliana Paul, Senior Policy Analyst
Max Sarinsky, Senior Attorney
Jason A. Schwartz, Legal Director

²⁴ BloombergNEF, Electric Vehicle Outlook 2020, <https://about.bnef.com/electric-vehicle-outlook/>.

²⁵ *Id.*

²⁶ Katie Fehrenbacher, *The race to mainstream electric vehicles by 2030*, GREENBIZ (Dec. 2, 2020), <https://www.greenbiz.com/article/race-mainstream-electric-vehicles-2030>.

²⁷ See Grace Dean, *FedEx Is Going All-Electric*, BUSINESS INSIDER (Mar. 3, 2021), <https://www.businessinsider.com/fedex-delivery-fleet-all-electric-carbon-neutral-2040-sustainability-2021-3>; UPS, Finding the Path to a Zero-Emissions Future, <https://www.ups.com/us/en/services/knowledge-center/article.page?kid=art16a2aa42a4f&articlesource=longitudes>.

Agency and Public Comments on the NOI (cont.)

3/29/2021

CALL TO ACTION: Comment on USPS Vehicle Fleet!

SHARE:

[Join Our Email List](#)**Tell the Postal Service
Strictly Electric Vehicles From Now On****Comments needed by April 5, 2021**

If you were troubled by the chaos within the U.S. Postal Service in the run-up to the November 2020 election, then you will not be entirely surprised to learn that the USPS leadership is up to no good again.

It has recently signed a contract for purchase of up to 165,000 new mail delivery vehicles without either (a) completing an Environmental Impact Statement as required by law, or (b) making a commitment that the new vehicles will be electric vehicles.

The following is a form letter of "comment" that complies with the federal procedure for registering objections to USPS actions, if you send it before April 5, 2021. You can use it to call for correction of these misdeeds. But it must be received by April 5, 2021 to be considered.

Take Action!

**Download the form
letter to submit your
comments here.**

It only takes a few minutes
to send your comment and
make an impact.

**ACT TODAY TO PROTECT TOMORROW**

Agency and Public Comments on the NOI (cont.)

From: [REDACTED]
To: [REDACTED]
Subject: [EXTERNAL] Fwd: USPS - Electrify the fleet! 30 Second Action Item.
Date: Sunday, April 4, 2021 6:19:40 PM

CAUTION: This email originated from outside USPS. **STOP and CONSIDER** before responding, clicking on links, or opening attachments.

We can not go backward. We have to save our world.

HB

Begin forwarded message:

From: [REDACTED]
Subject: [REDACTED]
Date: April 3, 2021 at 10:01:00 AM PDT
To: [REDACTED]
Reply-To: [REDACTED]

Dear Fellow Supporters of the Environment & of USPS Going Green & Saving Money,
Hello!

I would like to ask for thirty seconds of your time to take an impactful action.

Below you will find a letter to USPS' Environmental Counsel.

The letter points out that:

- USPS violated the National Environmental Policy Act by awarding the contract for new mail trucks before completing an Environmental Impact Statement (EIS),
- asks that the contract be placed on hold until the EIS is completed, and
- asks that the EIS include an evaluation of purchasing 100% electric vehicles.

This letter was produced by an organization called [Elders Climate Action](#). If you have time to read it, please do. It's very thorough and well written.

My request is that you copy the letter (below) into a new email and send it to USPS' Environmental Counsel.

Your email must be received by USPS before April 5th. Please send it today. :)

Thank you for doing this.

Best wishes,

Meldan

Copy and paste the text below in a new email and add your name as the signature

Email to: NEPA@USPS.gov

Subject line: Comments on United States Postal Service's March 4, 2021 Notice of Intent to Prepare Environmental Impact Statement for Purchase of up to 165,000 Next Generation Delivery Vehicles

Mr. Davon Collins
Environmental Counsel
United States Postal Service
475 L'Enfant Plaza SW
Washington, DC 20260-6201

Agency and Public Comments on the NOI (cont.)

Dear Mr. Collins,

I am a citizen climate activist and a breather of the air in a place served by USPS delivery vehicles. And I am one of millions committed to ending the Climate Crisis and the air pollution pandemic that contributes to premature death and disease in America. We call on the USPS to join us in building a just and sustainable future for our children, our grandchildren, and all children. I write to comment on the Notice of Intent referred to above, as well as on the contract recently awarded to Oshkosh Defense.

The award of the purchase contract to Oshkosh Defense before completion of an Environmental Impact Statement violates the National Environmental Policy Act (NEPA).

In its March 4, 2021 Notice of Intent (NOI) to Prepare Environmental Impact Statement (EIS), the USPS states that it has not yet decided on the mix of powertrain for the new delivery vehicles and will evaluate the environmental impacts of 3 alternative powertrains for the vehicles: (1) a mix of internal combustion and battery electric powertrains; (2) existing "commercial off the shelf" vehicles; and (3) no action. Yet USPS News announced on February 23, 2021 that the USPS has already awarded the contract for the delivery vehicles to Oshkosh Defense, which builds only internal combustion engines.

NEPA prohibits any agency from taking action that will have a significant impact on the human environment before it completes the NEPA process, including an Environmental Impact Statement (EIS). It prohibits any agency from making irreversible commitments of resources before it provides information to the decisionmaker and citizens in a Record of Decision (ROD) after an environmental impact statement. No EIS has been completed and no ROD has been issued. Therefore, the award of the purchase contract to Oshkosh Defense must be reversed pending completion of an EIS according to NEPA rules.

The EIS as described in the NOI will violate NEPA rules requiring evaluation of the "environmentally preferable alternative" which is, of course, vehicles that do not contribute to unhealthy air pollution.

NEPA Section 101(a) says that each ROD must identify all alternatives considered and specify which alternative is "environmentally preferable" (that is, the one that will promote national environmental policy as expressed in NEPA Section 101). NEPA Section 101(a) requires the use of "all practicable means and measures..." to "create and maintain conditions under which man and nature can exist in productive harmony..." Clearly NEPA requires consideration of the health impacts of air pollution which deny many Americans any hope of "productive harmony," and consideration of the impact that greenhouse gases will have on the stability of the climate and the consequential impacts on the environment, human health and the sustainability of natural systems on which human civilization depends.

The Energy Information Administration reported that the transportation sector of our economy contributes 37% of total U.S. CO2 emissions in 2019. Transportation CO2 emissions have been rising by nearly 3% annually for the last 5 years. Before the COVID pandemic, scientists estimated that air pollution from burning carbon would take an estimated 242,000 lives in 2020, the third-leading cause of death in the U.S. The science is clear: air pollution harms health across the entire lifespan, damaging lungs, hearts, brains, skin and other organs ... affecting virtually all systems in the human body.

In light of NEPA's clear intent to protect present and future generations of Americans, the USPS must consider the option of an electric delivery fleet that will cut emissions immediately and become pollution free when the grid has been decarbonized. We cannot have a postal service that delivers our mail while polluting our air, damaging our health, and threatening our future. The NOI must be revised to include the environmentally preferable alternative of 100% electric delivery vehicles.

Purchase of 100% Electric Vehicles is Practicable and Will be Effective.

NEPA Section 101(a) requires the use of "all practicable means and measures" to "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." What does "practicable" mean with respect to USPS Next Generation Delivery Vehicles? "Practicable" is defined by Meriam Webster as "capable of being put into practice or of being done or accomplished; synonymous with FEASIBLE; and capable of being used: synonymous with USABLE."

For-profit U.S. companies with operations similar to those of the USPS, like FedEx, Amazon and UPS, are demonstrating that a 100% electric delivery fleet is both feasible (capable of being put into practice) and usable (capable of being used), by converting their delivery fleets to electric vehicles: (a) FedEx has issued detailed plans for its entire pickup and delivery fleet to be zero-emission electric vehicles by 2040; (b) Amazon already uses electric delivery vehicles and plans to have 100,000 on the road by 2030; and (c) United Parcel Service has already begun using small zero-emissions vans similar to the type that the US Postal Service needs, with plans to have 10,000 by the middle of the decade.

The US Postal Service can do the same. And this very practicable alternative of a 100% electric vehicle delivery fleet will also be effective in reducing the health impacts of air pollution, accomplishing NEPA's goal to "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."

Therefore, I ask that the USPS take no action on the award of the contract for purchase of delivery vehicles until completion of the NEPA process, including a proper Environmental Impact Statement. I

also ask that the NOI for the Environmental Impact Statement be revised to include, as the environmentally preferable alternative, evaluation of the option to purchase 100% electric powertrain delivery vehicles.

Thank you for your consideration of my comment on this important matter.

[Insert your name, City, State, Zip]

<https://sign.moveon.org/petitions/usps-replace-the-delivery-fleet-with-electric-trucks-not-gas-1>

started this petition on MoveOn. If there's an issue close to your heart that you'd like to campaign on, you can [start your campaign here](#).

You're receiving this message because you signed the [USPS - Electrify the fleet!](#) petition on the [MoveOn.org](#) petition website. MoveOn Civic Action does not endorse the contents of this email or the petitions posted on MoveOn's public petition website. If you don't want to receive e-mail about this petition, [click here to unsubscribe](#).

Agency and Public Comments on the NOI (cont.)

I am a 75 year old LETTER WRITING Grandmother. I write this for 1000s I taught overseas and 5 grandchildren. We must speak for their future... and act NOW.

ECA MEMBER COMMENT LTR ON USPS NOI FOR DELIVERY VEHICLES

DEADLINE 04 05 2021

If you were troubled by the chaos within the U.S. Postal Service in the run-up to the November 2020 election, then you will not be surprised to learn that the USPS leadership is up to no good again.

It has recently signed a contract to replace its fleet of 165,000 delivery vehicles without either (a) completing an Environmental Impact Statement as required by law, or (b) making a commitment that the new vehicles will be zero emissions electric vehicles.

The following is a form letter of "comment" that complies with the federal procedure for registering objections to USPS actions, if you send it before April 5, 2021. You can use it to call for correction of these misdeeds. But It must be received by April 5, 2021 to be considered. You can copy the text into an email or send it as an attachment. If you mail the letter, expect delays in delivery.

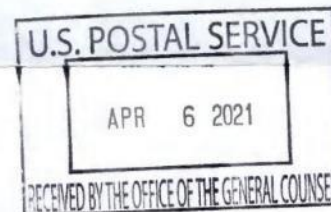
Copy and paste (Control/Command C | Control/Command V) the text below the line in a new document or email and add the date and your name as the signature

Send by email to: NEPA@USPS.gov

Date: 28 March 2021

Palm Sunday

Mr. Davon Collins
Environmental Counsel
United States Postal Service
475 L'Enfant Plaza SW
Washington, DC 20260-6201

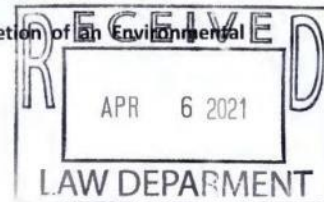


Subject: Comments on United States Postal Service's March 4, 2021 Notice of Intent to Prepare Environmental Impact Statement for Purchase of up to 165,000 Next Generation Delivery Vehicles

Dear Mr. Collins:

I am a citizen climate activist and a breather of the air in a place served by USPS delivery vehicles. And I am one of millions committed to ending the Climate Crisis and the air pollution pandemic that contributes to premature death and disease in America. We call on the USPS to join us in building a just and sustainable future for our children, our grandchildren, and all children. I write to comment on the Notice of Intent referred to above, as well as on the contract recently awarded to Oshkosh Defense.

The award of the purchase contract to Oshkosh Defense before completion of an Environmental Impact Statement violates the National Environmental Policy Act (NEPA).



Agency and Public Comments on the NOI (cont.)

In its March 4, 2021 Notice of Intent (NOI) to Prepare Environmental Impact Statement (EIS), the USPS states that it has not yet decided on the mix of powertrain for the new delivery vehicles and will evaluate the environmental impacts of 3 alternative powertrains for the vehicles: (1) a mix of internal combustion and battery electric powertrains; (2) existing "commercial off the shelf" vehicles; and (3) no action. Yet USPS News announced on February 23, 2021 that the USPS has already awarded the contract for the delivery vehicles to **Oshkosh Defense, which builds only internal combustion engines.**

NEPA prohibits any agency from taking action that will have a significant impact on the human environment before it completes the NEPA process, including an Environmental Impact Statement (EIS). It prohibits any agency from making irreversible commitments of resources before it provides information to the decisionmaker and citizens in a Record of Decision (ROD) after an environmental impact statement. No EIS has been completed and no ROD has been issued. Therefore, the award of the purchase contract to Oshkosh Defense must be reversed pending completion of an EIS according to NEPA rules.

The EIS as described in the NOI will violate NEPA rules requiring evaluation of the "environmentally preferable alternative" which is, of course, vehicles that do not contribute to unhealthy air pollution.

NEPA Section 101(a) says that each ROD must identify all alternatives considered and specify which alternative is "**environmentally preferable**" (that is, the one that will promote national environmental policy as expressed in NEPA Section 101). NEPA Section 101(a) requires the use of "**all practicable means and measures...**" to "**create and maintain conditions under which man and nature can exist in productive harmony...**" Clearly NEPA requires consideration of the health impacts of air pollution which deny many Americans any hope of "productive harmony," and consideration of the impact that greenhouse gases will have on the stability of the climate and the consequential impacts on the environment, human health and the sustainability of natural systems on which human civilization depends.

The Energy Information Administration reported that the transportation sector of our economy contributes 37% of total U.S. CO2 emissions in 2019. Transportation CO2 emissions have been rising by nearly 3% annually for the last 5 years. Before the COVID pandemic, scientists estimated that air pollution from burning carbon would take an estimated 242,000 lives in 2020, the third-leading cause of death in the U.S. The science is clear: air pollution harms health across the entire lifespan, damaging lungs, hearts, brains, skin and other organs ... affecting virtually all systems in the human body.

In light of NEPA's clear intent to protect present and future generations of Americans, the USPS must consider the option of an electric delivery fleet that will cut emissions immediately and become pollution free when the grid has been decarbonized. We cannot have a postal service that delivers our mail while polluting our air, damaging our health, and threatening our future. The NOI must be revised to include the environmentally preferable alternative of 100% electric delivery vehicles.

Purchase of 100% Electric Vehicles is Practicable and Will be Effective.

NEPA Section 101(a) requires the use of "**all practicable means and measures**" to "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." What does "practicable" mean with respect to USPS Next Generation Delivery Vehicles? "Practicable" is defined by

our air
needs
attention

Shame!

Meriam Webster as "capable of being put into practice or of being done or accomplished: synonymous with FEASIBLE; and capable of being used: synonymous with USABLE."

For-profit U.S. companies with operations similar to those of the USPS, like FedEx, Amazon and UPS, are demonstrating that a 100% electric delivery fleet is both feasible (capable of being put into practice) and usable (capable of being used), by converting their delivery fleets to electric vehicles: (a) FedEx has issued detailed plans for its entire pickup and delivery fleet to be zero-emission electric vehicles by 2040.; (b) Amazon already uses electric delivery vehicles and plans to have **100,000** on the road by 2030; and (c) United Parcel Service has already begun using small zero-emissions vans similar to the type that the US Postal Service needs, with plans to have 10,000 by the middle of the decade.

The US Postal Service can do the same. And this very practicable alternative of a 100% electric vehicle delivery fleet will also be **effective** in reducing the health impacts of air pollution, accomplishing NEPA's goal to "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."

Therefore, I ask that the USPS take no action on the award of the contract for purchase of delivery vehicles until completion of the NEPA process, including a proper Environmental Impact Statement. I also ask that the NOI for the Environmental Impact Statement be revised to include, as the environmentally preferable alternative, evaluation of the option to purchase 100% electric powertrain delivery vehicles.

Thank you for your consideration of my comment on this important matter.

[Insert your name, City, State, Zip]

P.S. Having lived at APO and FPO addresses for 25 years while serving as an employee of DODEA, I am grateful and respectful of USPS' great history and service. Going forward, these adaptations are necessary. I support them and will continue to advocate for critical, climate related modifications to transportation delivery systems (USPS) that serve the public good, and my grandchildren's future. Please do this hard thing.

Sincerely,

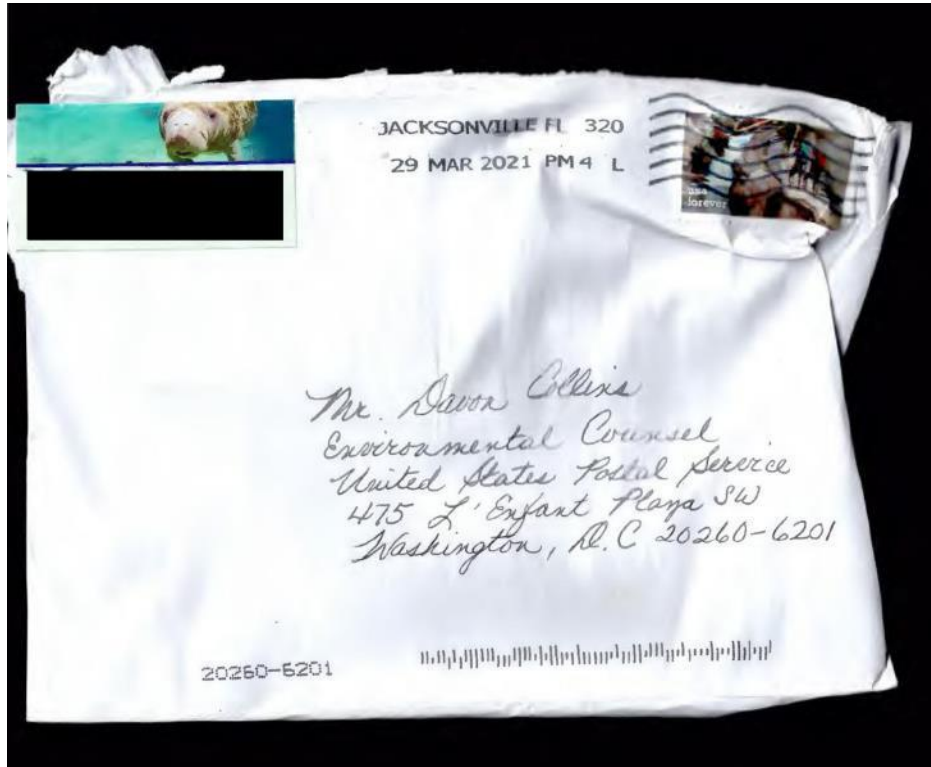
The elephant in the living room must be addressed

Dear Mr. Collins,

Please do this hard thing.
I have served children for 35
years and stand for their
air, water and planetary future.

Sincerely,

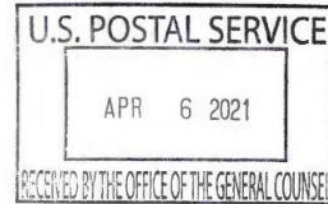
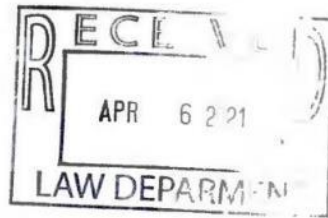
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Agency and Public Comments on the NOI (cont.)

April 1, 2021

Mr. Davon Collins
Environmental Counsel
United States Postal Service
475 L'Enfant Plaza SW
Washington, DC 20260-6201



Subject: Comments on United States Postal Service's March 4, 2021 Notice of Intent to Prepare Environmental Impact Statement for Purchase of up to 165,000 Next Generation Delivery Vehicles

Dear Mr. Collins:

I am a citizen climate activist and a breather of the air in a place served by USPS delivery vehicles. And I am one of millions committed to ending the Climate Crisis and the air pollution pandemic that contributes to premature death and disease in America. We call on the USPS to join us in building a just and sustainable future for our children, our grandchildren, and all children. I write to comment on the Notice of Intent referred to above, as well as on the contract recently awarded to Oshkosh Defense.

The award of the purchase contract to Oshkosh Defense before completion of an Environmental Impact Statement violates the National Environmental Policy Act (NEPA).

In its March 4, 2021 Notice of Intent (NOI) to Prepare Environmental Impact Statement (EIS), the USPS states that it has not yet decided on the mix of powertrain for the new delivery vehicles and will evaluate the environmental impacts of 3 alternative powertrains for the vehicles: (1) a mix of internal combustion and battery electric powertrains; (2) existing "commercial off the shelf" vehicles; and (3) no action. Yet USPS News announced on February 23, 2021 that the USPS has already awarded the contract for the delivery vehicles to **Oshkosh Defense, which builds only internal combustion engines.**

NEPA prohibits any agency from taking action that will have a significant impact on the human environment before it completes the NEPA process, including an Environmental Impact Statement (EIS). It prohibits any agency from making irreversible commitments of resources before it provides information to the decisionmaker and citizens in a Record of Decision (ROD) after an environmental impact statement. No EIS has been completed and no ROD has been issued. Therefore, the award of the purchase contract to Oshkosh Defense must be reversed pending completion of an EIS according to NEPA rules.

The EIS as described in the NOI will violate NEPA rules requiring evaluation of the "environmentally preferable alternative" which is, of course, vehicles that do not contribute to unhealthy air pollution.

NEPA Section 101(a) says that each ROD must identify all alternatives considered and specify which alternative is "**environmentally preferable**" (that is, the one that will promote national environmental policy as expressed in NEPA Section 101). NEPA Section 101(a) requires the use of "**all practicable**

means and measures..." to "create and maintain conditions under which man and nature can exist in productive harmony..." Clearly NEPA requires consideration of the health impacts of air pollution which deny many Americans any hope of "productive harmony," and consideration of the impact that greenhouse gases will have on the stability of the climate and the consequential impacts on the environment, human health and the sustainability of natural systems on which human civilization depends.

The Energy Information Administration reported that the transportation sector of our economy contributes 37% of total U.S. CO2 emissions in 2019. Transportation CO2 emissions have been rising by nearly 3% annually for the last 5 years. Before the COVID pandemic, scientists estimated that air pollution from burning carbon would take an estimated 242,000 lives in 2020, the third-leading cause of death in the U.S. The science is clear: air pollution harms health across the entire lifespan, damaging lungs, hearts, brains, skin and other organs ... affecting virtually all systems in the human body.

In light of NEPA's clear intent to protect present and future generations of Americans, the USPS must consider the option of an electric delivery fleet that will cut emissions immediately and become pollution free when the grid has been decarbonized. We cannot have a postal service that delivers our mail while polluting our air, damaging our health, and threatening our future. The NOI must be revised to include the **environmentally preferable alternative** of 100% electric delivery vehicles.

Purchase of 100% Electric Vehicles is Practicable and Will be Effective.

NEPA Section 101(a) requires the use of "all practicable means and measures" to "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." What does "practicable" mean with respect to USPS Next Generation Delivery Vehicles? "Practicable" is defined by Meriam Webster as "capable of being put into practice or of being done or accomplished: synonymous with FEASIBLE; and capable of being used: synonymous with USABLE."

For-profit U.S. companies with operations similar to those of the USPS, like FedEx, Amazon and UPS, are demonstrating that a 100% electric delivery fleet is both feasible (capable of being put into practice) and usable (capable of being used), by converting their delivery fleets to electric vehicles: (a) FedEx has issued detailed plans for its entire pickup and delivery fleet to be zero-emission electric vehicles by 2040.; (b) Amazon already uses electric delivery vehicles and plans to have **100,000** on the road by 2030; and (c) United Parcel Service has already begun using small zero-emissions vans similar to the type that the US Postal Service needs, with plans to have 10,000 by the middle of the decade.

The US Postal Service can do the same. And this very practicable alternative of a 100% electric vehicle delivery fleet will also be **effective** in reducing the health impacts of air pollution, accomplishing NEPA's goal to "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."

Therefore, I ask that the USPS take no action on the award of the contract for purchase of delivery vehicles until completion of the NEPA process, including a proper Environmental Impact Statement. I also ask that the NOI for the Environmental Impact Statement be revised to include, as the

environmentally preferable alternative, evaluation of the option to purchase 100% electric powertrain delivery vehicles.

Thank you for your consideration of my comment on this important matter.



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3/31/21, 7:22 PM
Page 3 of 3



Response to Agency and Public Comments on the NOI**Summary**

- 1,753 comments were timely received in response to the NOI.
- The vast majority were form letter from Elders Climate Action.
- Several short emails urging USPS to buy electric vehicles were also submitted.

Table B1-2

Response to Agency and Public Comments on the NOI

Comment Received	EPA Comment	Response
1. USPS should acquire electric vehicles.		The EIS analyzes three action alternatives involving purchase of battery electric vehicles. (EIS Section 3)
2. Competitors of USPS are acquiring electric vehicles.		The commercial-off-the-shelf (COTS) BEV market and technology is rapidly advancing. The Postal Service needs a right-hand-drive (RHD) vehicle for the most efficient and safe curb-line deliveries. There is no RHD COTS BEV currently available or otherwise marketed by commercial manufacturers for future development. The Next Generation Delivery Vehicle offers a flexible powertrain that can be ordered in whatever internal combustion engine (ICE) or BEV mix the Postal Service desires. The NGDV can also be retrofitted to keep pace with advances in BEV technologies.
3. USPS should select the proposed action as the LLVs are old and falling apart.		The purpose of the Proposed Action is to replace aging and high-maintenance cost delivery vehicles (including the LLV), with the purpose-built NGDV. (EIS Section 2)
4. USPS violated NEPA by awarding Oshkosh Defense the NGDV contract prior to completion of the EIS.		The contract award contains an express NEPA clause stating that the Postal Service may modify or terminate the award as a result of the NEPA process. (EIS Section 1-3.2)
5. USPS should consider an alternative to replace part or all of the fleet with hybrid fuel-efficient or all electric vehicles.	Yes	ICE, mild hybrid, and plug-in hybrid electric vehicles were among the 44 prototype vehicles offered as part of the NGDV prototype phase. NGDV Production proposals included ICE vehicles and battery electric vehicles (BEVs); the proposals did not include a hybrid production vehicle. (EIS Sections 1-3.2.1 and 1-3.2.2)
6. Purpose and need should be expanded to include the need for safer delivery vehicles, to increase cargo capacity to maximize efficiency, and to better accommodate higher package volumes stemming from the growth of e-commerce.	Yes	The Purpose and Need include the need for a purpose-built vehicle with modern safety features, an increased cargo capacity and better access to the parcels in the cargo area, and RHD configuration for optimal ergonomics and efficiencies for deliveries to curb-line residential mailboxes (EIS Section 2)
7. Consider full life-cycle of PS vehicles from deployment to retirement/disposal in the project description.	Yes	A Postal Service delivery vehicle life cycle is illustrated in Figure 4-10.1 (EIS Section 4-10.1), and the EIS analyzes full life cycle impacts (EIS Section 4).

Comment Received	EPA Comment	Response
8. USPS should consider best places to locate all-electric vehicles and prioritize nonattainment and maintenance NAAQS areas.	Yes	The Postal Service would evaluate ICE and BEV NGDV deployment based on existing nationwide delivery route characteristics and other established factors to prioritize potential placement of the two powertrains. Route characteristics for placement of BEV NGDV would include routes located in mild temperature ranges, routes with frequent and numerous curb-line stops as they best recapture the vehicle's motion (kinetic) energy via regenerative braking to recharge the battery, and routes in locations with compromised air quality and/or states with proactive BEV policies and regulations. (EIS Section 3-1.1)
9. USPS should use the 2016 GHG guidance as a resource.	Yes	The EIS analysis used the 2016 GHG guidance as a resource. (EIS Section 4-6.1.3)
10. Environmental Justice should be considered for low-income and disadvantaged communities already burdened with high levels of traffic-related pollutants or noise impacts. Also consider the equitable distribution of project benefits to minority and low-income populations in the timing of replacement of delivery vehicles and the types of vehicles replaced.	Yes	The Proposed Action and Alternatives would result in no impact on minority or low-income populations in terms of mail service or disproportionately high adverse economic effect. See response to Comment 8 regarding deployment of the new delivery vehicles. Both the Proposed Action and Alternatives would result in negligible beneficial impacts on air quality due to higher emission controls and better gas mileage of the newly purchased vehicles as compared to the high-maintenance and end-of-life delivery vehicles being replaced. Such beneficial impacts would occur regardless of race or socioeconomic status. Both the Proposed Action and Alternatives would also result in safety and ergonomic improvements for delivery employees and the general public, and decrease the risk of accidents due to mechanical failure or fewer modern safety features associated with the existing delivery vehicles. These beneficial impacts would occur regardless of race or socioeconomic status. (EIS Section 4-3.3.1)
11. USPS should consider hazardous waste implications for disposal of existing fleet.	Yes	The EIS considers hazardous waste implications for disposal of the existing fleet. Disposal of the existing delivery vehicles would take place over a ten-year period, and the Postal Service vehicle disposal strategy and contracts in place for recycling and disposal would minimize the adverse impacts to the extent possible. Recycling and disposal of the wastes and materials from the replaced vehicles would have no significant adverse impact on commercial treatment capacity and landfill capacity over the ten-year period. (EIS Section 4-10.2)
12. USPS should consider land use development – for example, if updates to postal facilities are needed for plug-in stations.	Yes	The Postal Service would conduct appropriate environmental reviews at the local level per Postal Service Handbook RE-6 (2015) as needed for construction activities. Postal Service environmental checklists, screening analyses, and stand-alone, project-level Environmental Assessments would be

Comment Received	EPA Comment	Response
		employed on a facility-specific basis to assess the extent of impacts from any facility-related actions. (EIS Section 1-3.1)
13. Institute for Policy Integrity recommends consideration of “social cost” of greenhouse gases.		The EIS considers the social cost of greenhouse gas (carbon). (EIS Sections 4.6.1-4 and 4-6.3, and Appendix F)

B2 Notice of Availability

Note: The Federal Register Notice of Availability publication will be inserted in the Final EIS.

Publication in Federal Register expected August 26, 2021 (refer to Federal Register for the actual publication date and comment period end-date)

U.S. POSTAL SERVICE

Notice of Availability of Draft Environmental Impact Statement for Purchase of Next Generation Delivery Vehicles

AGENCY: U.S. Postal Service

ACTION: Notice of Availability of Draft Environmental Impact Statement

SUMMARY: Pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA), its implementing procedures at 39 CFR 775, and the President's Council on Environmental Quality Regulations (40 CFR parts 1500-1508), the U.S. Postal Service announces availability of the Draft Environmental Impact Statement (DEIS) to purchase over 10 years 50,000 to 165,000 purpose-built, right-hand-drive vehicles – the Next Generation Delivery Vehicle (NGDV) – to replace existing delivery vehicles nationwide that are approaching the end of their service life. While the Postal Service has not yet determined the precise mix of the powertrains in the new vehicles to be purchased, under the Proposed Action, at least ten percent of the NGDVs would have battery electric (BEV) powertrains, with the remainder being internal combustion (ICE). The DEIS evaluates the environmental impacts of the Proposed Action, as well as two BEV and ICE commercial off-the-shelf (COTS) vehicle alternatives and the “no action” alternative.

DATES: The Postal Service is soliciting comments on the DEIS during a 45-day public comment period. Comments should be received no later than [45 days from publication]. The Postal Service will also publish a Notice of Availability to announce the availability of the Final EIS.

ADDRESSES: Interested parties may view the DEIS at <http://uspsngdveis.com/>

Interested parties may mail or deliver written comments, containing the name and address of the commenter, to: Mr. Davon Collins, Environmental Counsel, United States Postal Service, 475 L'Enfant Plaza SW, Office 6606, Washington, DC 20260-6201, or at NEPA@usps.gov. Note that comments sent by mail may be subject to delay due to federal security screening. Faxed comments are not accepted. All submitted comments and attachments are part of the public record and subject to disclosure. Do not enclose any material in your comments that you consider to be confidential or inappropriate for public disclosure.

You may inspect and photocopy all written comments, by appointment only, at USPS Headquarters Library, 475 L'Enfant Plaza SW, 11th Floor North, Washington, D.C. 20260 by calling 202-268-2906.

Table B2-1

Notice of Availability Stakeholder Distribution List

Contact Name Position	Mailing Address
Robert Tomiak Director, Office of Federal Activities	U.S. Environmental Protection Agency 1200 Pennsylvania Avenue, NW WJC Building North, Mail Code 2251A Washington, DC 20460-0003
Cindy Barger Director, NEPA Compliance Division	U.S. Environmental Protection Agency 1200 Pennsylvania Avenue, NW WJC Building North, Mail Code 2251A Washington, DC 20460-0003
Mr. Mark Dimondstein President	American Postal Workers Union 1300 L Street, NW Washington, DC 20005-4128
Ronnie W. Stutts President	National Rural Letter Carriers' Association 1630 Duke Street Alexandria, VA 22314-3467
Fredric V. Rolando President	National Association of Letter Carriers 100 Indiana Avenue, NW Washington, DC 20001-2144
Paul V. Hogrogian President	National Postal Mail Handlers Union 815 16th Street NW, Suite 5100 Washington, DC 20006-4101
Brian J. Wagner President	National Association of Postal Supervisors 1727 King Street, Suite 400 Alexandria, VA 22314-2753
Daniel M. Heins President	United Postmasters and Managers of America 8 Herbert Street Alexandria, VA 22305-2628
Tammy L. Whitcomb Inspector General	Office of Inspector General, United States Postal Service 1735 North Lynn Street Arlington, VA 22209-2020
Brian Costner Director	Office of NEPA Policy and Compliance (GC-54) U.S. Department of Energy 1000 Independence Avenue, SW Washington, DC 20585-0119
Russell Krupen Attorney Advisor, Office of Chief Counsel	National Highway Traffic Safety Administration Department of Transportation 1200 New Jersey Avenue, SE, W41-113 Washington, DC 20590-0001
Jayni Hein Senior Director for NEPA	Council on Environmental Quality U.S. Department of Energy 730 Jackson Place, NW Washington, DC 20503-1659
Iliana Paul, Senior Policy Analyst, Max Sarinsky, Senior Attorney, Jason A. Schwartz, Legal Director	Institute for Policy Integrity at New York University School of Law 139 MacDougal Street, Third Floor New York, NY 10012-1076

Example NOA Letter

August 27, 2021

Address

Re: Notice of Availability of Draft Environmental Impact Statement for Purchase of
Next Generation Delivery Vehicles

Dear Addressee:

The Postal Service has prepared a Draft Environmental Impact Statement (DEIS) for the purchase of Next Generation Delivery Vehicles (NGDV) for delivery operations nationwide. The new vehicles would replace existing delivery vehicles that are approaching the end of their service life. Pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969, its implementing procedures at 39 CFR 775, and the President's Council on Environmental Quality Regulations (40 CFR parts 1500-1508), the Postal Service prepared this DEIS to evaluate the environmental impacts of the proposed action and alternatives. A copy of the Notice of Availability of the DEIS is enclosed.

Interested parties may view the DEIS at <http://uspsngdveis.com/>

Interested parties may mail or deliver written comments, containing the name and address of the commenter, to: Mr. Davon Collins, Environmental Counsel, United States Postal Service, 475 L'Enfant Plaza SW, Office 6606, Washington, DC 20260-6201, or at NEPA@usps.gov. Note that comments sent by mail may be subject to delay due to federal security screening. Faxed comments are not accepted. All submitted comments and attachments are part of the public record and subject to disclosure. Do not enclose any material in your comments that you consider to be confidential or inappropriate for public disclosure.

Sincerely,

Jennifer Beiro-Réveillé

Enclosure

APPENDIX C

COST DATA BACKGROUND

LLV Maintenance Cost Background Data

NGDV Total Cost of Ownership Background Information

Estimated Costs of Purchasing Versus Leasing of Right-Hand Drive (RHD) Commercial-off-the-Shelf (COTS) Vehicles

Table C-1

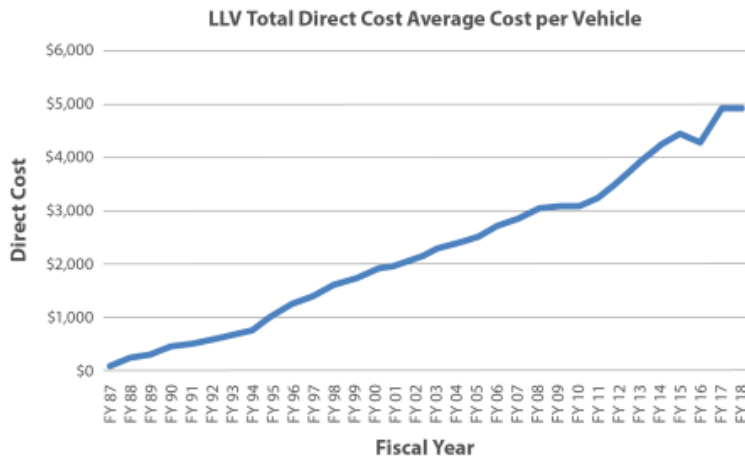
Estimated Costs for RHD COTS Purchase and RHD COTS Lease

Appendix C References

LLV Maintenance Cost Background Data

Since their purchase in 1987, maintenance costs for LLVs have gradually increased, as illustrated in Figure 1 (Postal Service Office of Inspector General's Audit Report, Delivery Vehicle Acquisition Strategy [2020]).

Figure 1. LLV Average Maintenance Cost Trend



Source: FY 2019 Commercial Off-the-Shelf (COTS) Acquisition Investment Review Committee (IRC) presentation from May 15, 2019.

While annual LLV maintenance costs have not significantly changed since 2018, the average LLV will incur about \$5,000 in maintenance costs yearly. However nearly 10,000 RHD vehicles require more than \$12,000 in annual maintenance costs due to significant mechanical repair work or damages incurred from major accidents to keep them operational (Office of Inspector General, 2020). Table 2 from this report presents relevant data.

Table 2. FY 2019 LLV Maintenance Cost

Annual Maintenance Cost Range	Total Quantity	Average Maintenance Cost	Percentage of Total ^a
<\$3,000	39,999	\$2,078	28%
\$3,000-\$4,000	24,130	3,485	17%
\$4,000-\$5,000	19,792	4,478	14%
\$5,000-\$6,000	15,539	5,476	11%
\$6,000-\$7,000	11,764	6,477	8%
\$7,000-\$8,000	8,881	7,473	6%
\$8,000-\$9,000	6,339	8,473	4%
\$9,000-\$10,000	4,661	9,466	3%
>\$10,000	9,952	12,548	7%
Total/Average	141,057	\$5,007	100%

Source: Solution for Enterprise Asset Management (SEAM) Query 9 FY 2019.

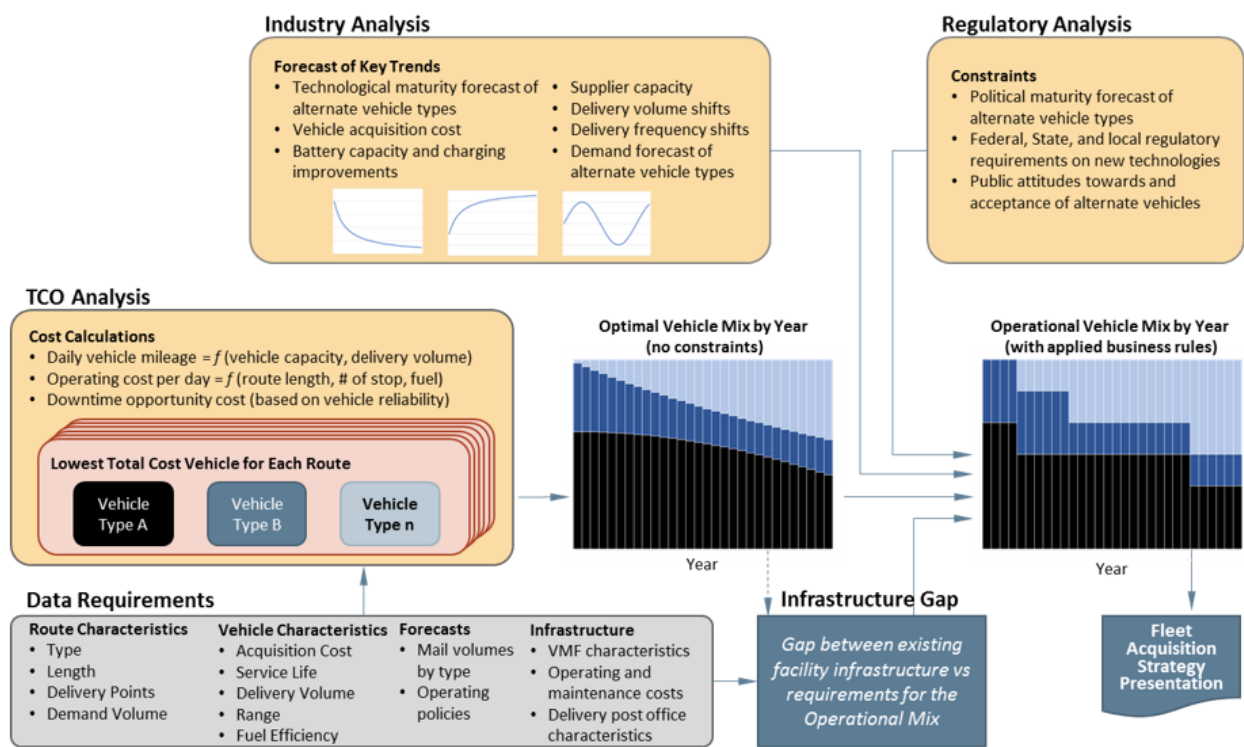
NGDV Total Cost of Ownership Background Information

The Postal Service considered several variables in a comparative life cycle cost analysis for future purchase and deployment of the NGDV. Analysis considered acquisition costs (vehicle pricing, freight, other contract costs [training, manuals, technical data package, milestone payments], and estimated electric vehicle charging infrastructure costs. Estimated vehicle acquisition costs were based on NGDV supplier rough order of magnitude cost, COTS procurements, and evolving market conditions. The analysis also considered recurring costs (maintenance, fuel [gasoline for ICE vehicles, electricity for BEVs]). Estimated operational savings were based on potential maintenance and fuel savings.

Offerors provided NGDV Production proposals and pricing to the Postal Service in July 2020. The proposals included internal combustion engine (ICE) vehicles and battery electric vehicles (BEVs). The Postal Service then evaluated proposals to determine which offeror provided the Postal Service with the best value by weighing technical evaluation factors/risk and the Total Cost of Ownership (TCO). Cost estimates were derived for the acquisition of each vehicle (Year 0), plus 20 years of recurring costs (fuel and maintenance, Year 1 through Year 20). The cost estimates were converted to present value, including a nominal discount rate and inflation, to allow a comparable TCO.

For illustrative purposes, an example TCO analysis approach for vehicle purchase and operation/maintenance is presented below.

Total Cost of Ownership Analysis Approach



Estimated Costs of Purchasing Versus Leasing of Right-Hand Drive (RHD) Commercial-off-the-Shelf (COTS) Vehicles

The Postal Service evaluated the estimated costs of purchasing and leasing RHD COTS vehicles as part of its decision analysis for future vehicle delivery acquisition. The estimates were based on past RHD COTS delivery vehicle acquisition data, and compared purchasing and leasing of 24,470 RHD COTS vehicles over a 13-year period.

Purchasing RHD COTS vehicles was determined to be more than three times less costly than leasing RHD COTS vehicles.

Table C-1

Estimated Costs for RHD COTS Purchase and RHD COTS Lease

Purchase vs Lease	Total Estimated Cost ¹
RHD COTS Purchase	\$1,567,512
RHD COTS Lease	\$5,281,355

¹ Based on 2019 USPS analysis comparing 24,470 RHD COTS vehicles over 13-year period

Appendix C References

Office of Inspector General. 2020. *Audit Report, Delivery Vehicle Acquisition Strategy*. Report Number 19-002-R20. August 12.

APPENDIX D**HYPOTHETICAL TEN-YEAR PURCHASE/DEPLOYMENT**

Table D-1 presents the hypothetical spread of new delivery vehicle purchase and deployment, and replacement of existing delivery vehicles, developed for the purpose of the EIS analyses. The actual purchase plan and timing would be based on operational needs.

Table D-1

Hypothetical Purchase/Deployment and Replacement of High-Maintenance and End-of-Life Delivery Vehicles Over a Ten-Year Period¹

Year	Number of Vehicles Added ¹	Number of LLVs Replaced ¹	Number of FFVs Replaced ¹	Number of COTS Replaced ¹
Year 1	2,379	2,379	--	--
Year 2	7,250	7,250	--	--
Year 3	15,900	15,900	--	--
Year 4	20,000	20,000	--	--
Year 5	20,000	20,000	--	--
Year 6	20,000	20,000	--	--
Year 7	20,000	20,000	--	--
Year 8	20,000	20,000	--	--
Year 9	20,000	459	19,541	--
Year 10	19,471	--	1,529	17,942
Total	165,000	125,988	21,070	17,942

¹ For analytical purposes. The actual purchase plan and timing will be based on operational needs

LLV – Long-Life vehicle (hypothetically, 125,988, or 76% of replaced vehicles would be LLVs)

FFV – Flexible Fuel vehicle (hypothetically, 21,070, or 12.8% of replaced vehicles would be FFVs)

COTS – Metris (hypothetically, 17,942, or 10.9% of replaced vehicles would be Metris)

APPENDIX E

NOISE BACKGROUND INFORMATION

Sound and Human Perception of Noise - Background Information

Table E-1

Subjective Responses to Changes in A-Weighted Decibels

Figure E-1

A-Weighted Sound Levels from Typical Sources

Comparison of Noise from BEVs and ICE Vehicles

Appendix E References

Sound and Human Perception of Noise - Background Information

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. The perception and evaluation of sound involves three basic physical characteristics:

- Intensity – the acoustic energy, which is expressed in terms of sound pressure, in decibels (dB),
- Frequency – the number of cycles per second the air vibrates, in Hertz (Hz), and
- Duration – the length of time the sound presents.

The dB is a logarithmic unit used to that represents the intensity of a sound, also referred to as the sound level. All sounds have a spectral content, which means their magnitude or level changes with frequency. Environmental noise measurements are usually expressed on an “A-weighted” scale that filters out very low and very high frequencies in order to replicate human sensitivity. According to EPA (1974), changes in hearing level of less than 5 dBA generally are not considered noticeable to the human ear. There is no known evidence that a noise change of 5 dBA has any practical significance for the individual affected.

Table E-1 shows how humans perceive changes in the loudness of noise, and Figure E-1 shows A-weighted sound levels from typical noise sources. Changes in hearing level of less than 5 dBA generally are not considered noticeable (EPA 1974).

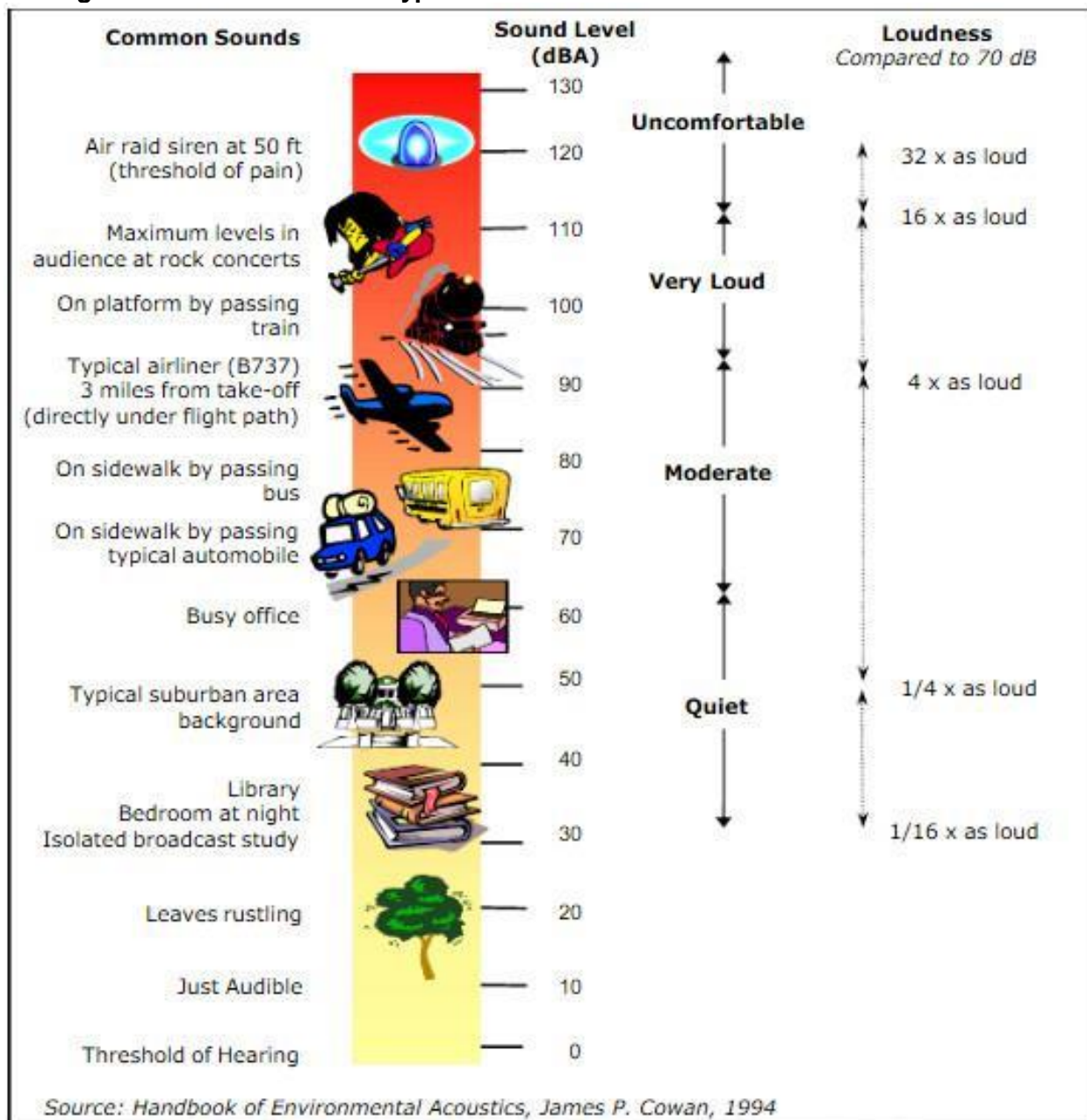
Table E-1

Subjective Responses to Changes in A-Weighted Decibels

Loudness	Perceived Loudness
3 dB	Barely perceptible
5 dB	Quite noticeable
10 dB	Dramatic
20 dB	Striking

Figure E-1 shows A-weighted sound levels from typical sound sources.

Figure E-1

A-Weighted Sound Levels from Typical Sources**Comparison of Noise from BEVs and ICE Vehicles**

The Danish Road Directorate (2015) compared noise between BEVs and ICE vehicles for two comparably-equipped cargo vans and two comparably-equipped passenger cars under simulated urban driving conditions. BEVs were 4 to 5 dB less noisy than their ICE counterparts at low speed (6 to 12 miles per hour (mph) [10 to 20 kilometers per hour (km/h)]) when driving steady. The difference in emitted noise from the two drivetrains was not significant at approximately 19 mph (30 km/h) when tire/road noise became dominant.

Appendix E References

Cowan, James P. 1994. *Handbook of Environmental Acoustics*.

Danish Road Directorate. 2015. Noise from Electric Vehicles – Measurements. March 25, 2015.

Available on the internet at

https://www.vejdirektoratet.dk/api/drupal/sites/default/files/publications/noise_from_electric_vehicles_0.pdf. Accessed June 2021.

EPA (United States Environmental Protection Agency). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. March 1974.

APPENDIX F

AIR QUALITY BACKGROUND INFORMATION AND CALCULATIONS

Tables and Background Information

National Ambient Air Quality Standards

General Conformity *De Minimis* Thresholds

Summary of Delivery Vehicle Acquisitions and Replacement of Aged Vehicles, and Annual Mileage Calculation

Vehicle Emission Factors from MOVES (gram/mile)

Indirect Emissions from Electricity Consumption by BEVs using eGRID

Indirect Emissions from Energy Consumption by ICE using GREET

Aggregated Direct and Indirect Net Emission Calculation

Social Cost of Carbon

Effects of Climate Change on Proposed Action and Alternatives 1.1 and 1.2

Appendix F References

National Ambient Air Quality Standards

The CAA specifies two sets of NAAQS – primary and secondary – for each of the criteria pollutants as applicable, as shown in Table F-1. Primary standards define levels of air quality necessary to protect public health, including the health of sensitive populations such as people with asthma, children, and the elderly. Secondary standards define levels of air quality necessary to protect public welfare (including protection against decreased visibility and damage to animals, crops, vegetation, and buildings). Standards have been established using average exposure times, based on the health and welfare effects of each pollutant.

Table F-1
National Ambient Air Quality Standards

Pollutant	Average Time	Federal Primary NAAQS	Federal Secondary NAAQS	Violation Criteria
Carbon monoxide (CO)	8-hour average	9 ppm	None	If exceeded more than once per year
Carbon monoxide (CO)	1-hour average	35 ppm	None	If exceeded more than once per year
Lead (Pb)	Rolling 3 month	0.15 µg/m ³	Same as Primary Standard	If exceeded
Nitrogen dioxide (NO ₂)	Annual average	0.053 ppm	Same as Primary Standard	If exceeded 98 th percentile, averaged over 3 years
Nitrogen dioxide (NO ₂)	1-hour average	0.10 ppm	None	If exceeded Annual Mean
Ozone (O ₃) ⁽¹⁾	8-hour average	0.070 ppm	Same as Primary Standard	If exceeded Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate matter (PM ₁₀)	24-hour average	150 µg/m ³	Same as Primary Standard	If exceeded more than once per year on average over 3 years
Particulate matter (PM _{2.5})	Annual arithmetic mean	12 µg/m ³	15 µg/m ³	If exceeded based on 3-year average on annual mean concentration
Particulate matter (PM _{2.5})	24-hour	35 µg/m ³	Same as Primary Standard	If exceeded based on 3-year average of the 98 th percentile of 24-hour concentrations
Sulfur dioxide (SO ₂) ⁽²⁾	3-hour average	No standard	0.5 ppm	If exceeded on 3-year average of 99 th percentile of 1-hour daily maximum concentrations
Sulfur dioxide (SO ₂) ⁽²⁾	1-hour average	0.075 ppm	No standard	If exceeded more than once per year

µg/m³ = micrograms per cubic meter

NAAQS = National Ambient Air Quality Standards

PM₁₀ = particulate matter less than 10 micrometers

PM_{2.5} = particulate matter less than 2.5 micrometers

ppm = parts per million

Notes:

(1) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standards additionally remain in effect in some areas. Also, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O₃ standards.

(2) The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet one year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a SIP call under the previous SO₂ standards (40 CFR 50.4(3)).

Source: EPA (2021b) online at: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

Table F-2

General Conformity *De Minimis* Thresholds

Criteria Pollutant	Designation Classification	<i>De Minimis</i> Threshold (tpy)
Ozone (VOC or NO _x)	Serious nonattainment	50
Ozone (VOC or NO _x)	Severe nonattainment	25
Ozone (VOC or NO _x)	Extreme nonattainment	10
Ozone (VOC or NO _x)	Other areas outside an ozone transport region	100
Ozone (NO _x)	Marginal and moderate nonattainment inside an ozone transport region	100
Ozone (NO _x)	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
Ozone (VOC)	Maintenance within an ozone transport region	50
Ozone (VOC)	Maintenance outside an ozone transport region	100
CO, SO ₂ and NO ₂	All nonattainment & maintenance	100
PM ₁₀	Serious nonattainment	70
PM ₁₀	Moderate nonattainment and maintenance	100
PM _{2.5}	Direct Emissions for nonattainment and maintenance	100
PM _{2.5}	SO ₂ for nonattainment and maintenance	100
PM _{2.5}	NO _x (unless determined not to be a significant precursor) for nonattainment and maintenance	100
PM _{2.5}	VOC or ammonia (if determined to be significant precursors) for nonattainment	25
PM _{2.5}	VOC or ammonia (if determined to be significant precursors) for maintenance	100
Lead	All nonattainment area	25

tpy: tons per year

CO: Carbon monoxide

SO₂: Sulfur dioxideNO₂: Nitrogen dioxideNO_x: Nitrogen oxide

VOC: Volatile organic compound

PM: Particulate Matter

Source: EPA (2021c) online at: <https://www.epa.gov/general-conformity/de-minimis-tables>

F-3

Summary of Vehicle Acquisitions and Replacement of Aged Vehicles, and Annual Mileage Calculation

Table F-3.a

New Vehicles – ICE NGDV or Alternative 1.1 COTS ICE Vehicles - Emissions (tons per year)

Model Year	Number of Vehicles	Total Annual Mileage for All Vehicles	VOC	NO_x	CO	PM_{2.5}	PM₁₀	SO₂	CO_{2e}
2023	2,379	15,123,541	0.24	0.44	12.44	0.20	1.24	0.03	5,382
2024	7,250	46,088,975	0.60	0.91	32.30	0.60	3.77	0.10	15,690
2025	15,900	101,077,890	1.25	1.57	64.99	1.32	8.27	0.21	32,990
2026	20,000	127,142,000	1.39	1.65	70.34	1.63	10.36	0.26	41,498
2027	20,000	127,142,000	1.39	1.65	70.35	1.63	10.36	0.26	41,501
2028	20,000	127,142,000	1.14	1.08	37.57	1.51	10.24	0.26	41,525
2029	20,000	127,142,000	1.15	1.14	40.13	1.51	10.24	0.26	41,531
2030	20,000	127,142,000	1.18	1.14	40.14	1.51	10.24	0.26	41,537
2031	20,000	127,142,000	1.18	1.14	40.15	1.51	10.24	0.26	41,539
2032	19,471	123,779,094	1.15	1.11	39.08	1.47	9.97	0.26	40,440
Total	165,000	1,048,921,500	10.67	11.83	447.49	12.89	84.92	2.19	343,633 (311,739 MT)

Notes:

- (1) The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.
- (2) This table shows the emissions from 165,000 ICE vehicles, consisting of 100% ICE NGDV or 100% COTS ICE vehicles.
Table F-3.b shows emissions from 165,000 BEVs (either NGDV or COTS).
To calculate the emissions for the Proposed Action Hypothetical Scenario involving 90% ICE NGDV and 10% BEV NGDV, 90% of the emissions from the Table F-3.a were calculated to establish the estimated emissions from 90% ICE NGDV, and 10% of the emissions from Table F-3.b were calculated to establish the estimated emissions from 10% BEV NGDV.
For the Alternative 1.1 scenario, 100% of the emissions from Table F-3.a were calculated to establish the estimated emissions from 165,000 COTS ICE vehicles.
- (3) ICE NGDV: Gross Vehicle Weight Rating (GVWR) 8,501 pounds
- (4) Alternative 1.1 COTS Vehicle: GVWR ranges from 6,393 lbs (Metris) – 8,550 lbs (ProMaster)
- (5) The new NGDV model-years are 2023-2032 assuming that the vehicle years of manufacture are the same as the vehicle deployment years. Based on EPA's MOVES model, the 165,000 NGDV are categorized as "light commercial truck" for the emissions calculations.
- (6) Since both ICE NGDV and Alternative 1.1 COTS ICE vehicles are categorized as the same "light commercial truck" vehicle type in the MOVES model, the emission rates calculated in Table F-3.a. were utilized for the emissions analyses for both vehicle types.
- (7) The Postal Service has estimated the average miles traveled per each new delivery vehicle to be 6,357 miles per year based on 21.05 miles per day of average travel route per vehicle (this represents an average across all city and rural routes currently using Postal Service Vehicles) and 302 working days per year. The estimated number of miles travelled annually by 165,000 new delivery vehicles on a nationwide basis is 1,048,921,500 miles per year.
- (8) The emission factors derived from the MOVES model are based on an urban unrestricted road type in Westchester County, New York, and an average vehicle speed of 25 mph. Westchester County, New York was selected to be consistent with the Postal Service's 2017 Programmatic Environmental Assessment (e.g., area with the greatest number of highest maintenance-cost LLVs replacement).

- (9) Although EPA recently released MOVES3 in January 2021 and continues to update this new model with the most recent release of MOVES3.01 in March 2021, the states are still testing and developing inputs in adopting this new model version within the two-year grace period. Therefore, MOVES2014b, an earlier version that is still valid for use, was used to estimate vehicular emission factors for this EIS.

Table F-3.b

New Vehicles – BEV NGDV or Alternative 1.2 COTS BEV - Emissions (tons per year)

Model Year	Number of Vehicles	Total Annual Mileage for All Vehicles	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
2023	2,379	15,123,541	-	-	-	0.15	1.19	-	-
2024	7,250	46,088,975	-	-	-	0.47	3.62	-	-
2025	15,900	101,077,890	-	-	-	1.03	7.94	-	-
2026	20,000	127,142,000	-	-	-	1.29	9.99	-	-
2027	20,000	127,142,000	-	-	-	1.29	9.99	-	-
2028	20,000	127,142,000	-	-	-	1.29	9.99	-	-
2029	20,000	127,142,000	-	-	-	1.29	9.99	-	-
2030	20,000	127,142,000	-	-	-	1.29	9.99	-	-
2031	20,000	127,142,000	-	-	-	1.29	9.99	-	-
2032	19,471	123,779,094	-	-	-	1.26	9.72	-	-
Total	165,000	1,048,921,500	-	-	-	10.65	82.38	-	-

Notes:

- (1) The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.
- (2) The table shows the emissions from 165,000 BEVs, consisting of either BEV NGDV or COTS BEV.
Therefore, to calculate the emissions for the Proposed Action Hypothetical Maximum consisting of 90% ICE NGDV and 10% BEV NGDV, in Table F-3.c, 10% of the emissions from Table F-3.b were calculated to establish the estimated emissions from 10% of BEV NGDV.
For the Proposed Action Hypothetical Maximum consisting of 100% BEV, 100% of the emissions from this table were calculated to establish the estimated emissions from 165,000 BEV NGDV.
For Alternative 1.2, 100% of the emissions from this table were calculated to establish the estimated emissions from 165,000 COTS BEVs.
- (3) BEVs have no tailpipe or evaporative emissions and the brake and tire wear emissions are identical to conventional vehicles. Therefore, only particulate matter emissions associated with brake and tire wear result from BEV operation.
- (4) BEV NGDV: GVWR 8,877 pounds
- (5) Alternative 1.1 COTS BEV: GVWR 9,428 lbs
- (6) The new NGDV model-years used in the analysis are 2023-2032 assuming that the vehicle years of manufacture are the same as the assumed vehicle deployment years. Based on EPA's MOVES model, the NGDV are categorized as "light commercial truck."
- (7) Since both BEV NGDV and Alternative 1.2's COTS BEV are categorized as the same "light commercial truck" vehicle type in the MOVES model, the data in Table F-3.b. were utilized for the emissions analyses for both vehicle types.
- (8) The Postal Service has estimated the average miles traveled annually per each new delivery vehicle to be 6,357 miles per year based on 21.05 miles per day of average travel route per vehicle and 302 working day per year. The estimated number of miles travelled annually by 165,000 new delivery vehicles on a nationwide basis is 1,048,921,500 miles per year.
- (9) The emission factors were estimated based on an urban unrestricted road type in Westchester County, New York, and 25 mph of vehicle speed.
- (10) Although EPA recently released MOVES3 in January 2021 and continues to update this new model with the most recent release of MOVES3.01 in March 2021, the states are still testing and developing inputs in adopting this new model version within the two-year grace period. Therefore, MOVES2014b, an earlier version that is still valid for use, was used to estimate vehicular emission factors for this EIS.

Table F-3.c

Summary of Emissions from New Vehicles for All Proposed Scenarios - Emissions (tons per year)

Alternative	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
Proposed Action New vehicles: hypothetical maximum 165,000 vehicles consisting of 90% ICE NGDV + 10% BEV NGDV	9.60	10.65	402.74	12.67	84.67	1.97	309,270 (280,565 MT)
Proposed Action New vehicles: hypothetical maximum 165,000 BEV NGDV	-	-	-	10.65	82.38	-	-
Alternative 1.1 New vehicles: maximum 165,000 COTS ICE vehicles	10.67	11.83	447.49	12.89	84.92	2.19	343,633 (311,739 MT)
Alternative 1.2 New vehicles: maximum 165,000 COTS BEVs	-	-	-	10.65	82.38	-	-

MT = metric tons

Table F-3.d

Summary of Emissions from Existing Vehicles for No-Action Scenario - Emissions (tons per year)

Alternative	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
No-Action Alternative 165,000 existing LLVs/FFVs/Metris	935.99	2,264.31	11,496	59.14	136.72	3.72	592,398 (537,415 MT)

MT = metric tons

Notes:

- (1) The above represents emissions from existing vehicles for No Action scenario. This also represents the vehicles to be replaced when the emissions are represented as negative values (emission decrease for vehicle removal) when the net emissions are calculated for all Proposed Actions and Alternatives scenarios.
- (2) The detailed emission calculation for the existing LLVs/FFVs/Metris are shown in Tables F-3.f, F-3.g, and F-3.h.

Table F-3.e

Summary of Net Emission Changes of Direct Emissions for All Proposed Scenarios Calculated Based on MOVES Model - Emissions (tons per year)

Alternative	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
Proposed Action New vehicles: hypothetical maximum 165,000 vehicles consisting of 90% ICE NGDV + 10% BEV NGDV Replaced vehicles: 165,000 existing LLVs/FFVs/Metris	-926.39	-2,253.67	-11,093	-46.47	-52.06	-1.75	-256,850 MT
Proposed Action New vehicles: hypothetical maximum 165,000 BEV NGDV Replaced vehicles: 165,000 existing LLVs/FFVs/Metris	-935.99	-2,264.31	-11,496	-48.49	-54.34	-3.72	-537,415 MT
Alternative 1.1 New vehicles: maximum 165,000 COTS ICE vehicles Replaced vehicles: 165,000 existing LLVs/FFVs/Metris	-925.32	-2,252.48	-11,048	-46.25	-51.80	-1.54	-225,676 MT
Alternative 1.2 New vehicles: maximum 165,000 COTS BEVs Replaced vehicles: 165,000 existing LLVs/FFVs/Metris	-935.99	-2,264.31	-11,496	-48.49	-54.34	-3.72	-537,415 MT
No-Action Alternative 165,000 existing LLVs/FFVs/Metris	935.99	2,264.31	11,496	59.14	136.72	3.72	537,415 MT

MT = metric tons

Table F-3.f
Aged LLVs (Model Years 1987 - 1994) to be Replaced

Year	Number of Vehicles Replaced	Total Annual Mileage for All Vehicles Replaced (reduction)
2023	-2,379	-15,123,541
2024	-7,250	-46,088,975
2025	-15,900	-101,077,890
2026	-20,000	-127,142,000
2027	-20,000	-127,142,000
2028	-20,000	-127,142,000
2029	-20,000	-127,142,000
2030	-20,000	-127,142,000
2031	-459	-2,917,909
Total	-125,988	-800,918,315

Notes:

- (1) The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.

Aged LLVs (Model Years 1987 - 1994) to be Replaced - Emissions (tons per year)

VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO ₂ e
-900.87	-2,167.60	-10,439	-51.69	-111.73	-2.90	-462,511 (-419,583 MT)

Notes:

- (1) The table shows the emissions generated from the currently operated aged LLV vehicles to be replaced, which were considered as negative values (as emission decreases) in the net emission calculation for all proposed scenarios.
- (2) Aged LLVs: GVWR 4,450 pounds
- (3) Based on EPA's MOVES model, the estimated 125,988 aged LLVs were categorized as "passenger truck" using model-years of 1987-1994 (equivalent to vehicle years of manufacture). The worst-case (minimum value) emission factors among all modeled years (as shown in Table F-4.c) were used to calculate conservatively the net emission changes, since the minimum value emission factor for the aged LLVs represents the minimum emission decrease.
- (4) Since the new delivery vehicles would be deployed on a one-to-one replacement basis, the average miles traveled annually for each vehicle would be the same. The Postal Service has estimated the average miles traveled per each vehicle to be 6,357 miles per year based on 21.05 miles per day of average travel route per vehicle and 302 working days per year. The estimated number of miles travelled annually by 125,988 LLVs on a nationwide basis is 800,918,315 miles per year.
- (5) The emission factors were estimated based on an urban unrestricted road type in Westchester County, New York, and 25 mph of vehicle speed.

Table F-3.g

Aged FFVs (Model Years 2000 - 2001) to be Replaced

Year	Number of Vehicles Replaced	Total Annual Mileage for All Vehicles Replaced (reduction)
2031	-19,541	-124,224,091
2032	-1,529	-9,720,006
Total	-21,070	-133,944,097

Notes:

- (1) The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.

Aged FFVs (Model Years 2000 - 2001) to be Replaced - Emissions (tons per year)

VOC	NO_x	CO	PM_{2.5}	PM₁₀	SO₂	CO_{2e}
-33.90	-94.21	-1,003.70	-6.09	-15.79	-0.54	-85,378 (-77,454 MT)

Notes:

- (1) The table shows the emissions from the currently operated aged FFV vehicles to be replaced, which were considered as negative values (as emission decreases) in the net emission calculation for all proposed scenarios.
- (2) Aged FFV: GVWR 5,100 pounds
- (3) Based on EPA's MOVES model, the estimated 21,070 aged FFVs were categorized as "passenger truck," using the model-years of 2000-2001 (equivalent to vehicle years of manufacture). The worst-case (minimum value) emission factors out of all modeled years (as shown in Table F-4.d) were used to calculate conservatively the net emission changes, since the minimum value emission factor for the aged FFVs represents the minimum emission decrease.
- (4) Since the new vehicles would be deployed on a one-to-one replacement basis, the average miles traveled annually for each vehicle would be the same. The Postal Service has estimated the average miles traveled per each vehicle to be 6,357 miles per year based on 21.05 miles per day of average travel route per vehicle and 302 working days per year. The estimated number of miles traveled annually by 21,070 FFVs on a nationwide basis is 133,944,097 miles per year.
- (5) The emission factors were estimated based on an urban unrestricted road type in Westchester County, New York, and 25 mph of vehicle speed.

Table F-3.h

Aged Metris (Model Years 2020 - 2022) to be Replaced - Emissions (tons per year)

Year	Number of Vehicles Replaced	Total Annual Mileage for All Vehicles Replaced (reduction)	Model Year	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
2032	-5,980	-38,019,696	2020	-0.43	-1.01	-19.73	-0.46	-3.07	-0.10	-15,613
2032	-5,980	-38,019,696	2021	-0.42	-0.83	-17.71	-0.45	-3.06	-0.09	-14,752
2032	-5,980	-38,019,696	2022	-0.38	-0.66	-15.62	-0.45	-3.06	-0.09	-14,144
Total	-17,942	-114,059,088	Total	-1.23	-2.50	-53.06	-1.37	-9.20	-0.28	-44,509 (-40,378 MT)

Notes:

- (1) The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.
- (2) The table shows the emissions from the current Metris vehicles to be replaced, which were considered as negative values (as emission decrease) in the net emission calculation for all proposed scenarios.
- (3) Aged Metris: GVWR 6,614 pounds
- (4) Based on EPA's MOVES model, the estimated 17,942 Metris were categorized as "light commercial truck," using the model-years of 2020-2022 (equivalent to vehicle years of manufacture).
- (5) Since the new vehicles would be deployed on a one-to-one replacement basis, the average miles traveled annually for each vehicle would be the same. The Postal Service has estimated the average miles traveled per each vehicle to be 6,357 miles per year based on 21.05 miles per day. The estimated number of miles travelled annually by 17,942 Metris on a nationwide basis is 114,059,088 miles per year.
- (6) The emission factors were estimated based on an urban unrestricted road type in Westchester County, New York, and 25 mph of vehicle speed.

Table F-3.i

Summary of Net Aggregated (Direct and Indirect) Emission Changes (tons per year) for All Proposed Scenarios Calculated Based on MOVES, eGRID, and GREET Models

Alternative	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
Proposed Action New vehicles: hypothetical maximum 165,000 vehicles consisting of 90% ICE NGDV + 10% BEV NGDV Replaced vehicles: 165,000 existing LLVs/FFVs/ Metris	NA	-2,343	NA	-51	NA	-55	-290,306
Proposed Action New vehicles: hypothetical maximum 165,000 BEV NGDV Replaced vehicles: 165,000 existing LLVs/FFVs/ Metris	NA	-3,158	NA	-92	NA	-534.01	-865,213
Alternative 1.1 New vehicles: maximum 165,000 COTS ICE vehicles Replaced vehicles: 165,000 existing LLVs/FFVs/ Metris	-925	-2,252	-11,048	-46	-52	-1.54	-226,427
Alternative 1.2 New vehicles: maximum 165,000 COTS BEVs Replaced vehicles: 165,000 existing LLVs/FFVs/ Metris	NA	-3,380	NA	-117	NA	-739.01	-1,116,730
No Action Alternative	1,903	3,570	12,081	148	378	915.03	1,332,698

MT = metric tons

Notes:

- (1) NA = not available, as eGRID does not provide VOC, CO, and PM₁₀ emissions factor data for the upstream sources. Therefore, the aggregated net emissions for VOC, CO and PM₁₀ were not calculated.

Vehicle Emission Factors from MOVES (gram/mile)

Table F-4.a

New Vehicles – ICE NGDV or Alternative 1.1 RHD COTS ICE Vehicles – Light Commercial Truck Emission Factor (gram/mile)

Model Year	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
2023	0.014	0.027	0.746	0.012	0.074	0.002	322.835
2024	0.012	0.018	0.636	0.012	0.074	0.002	308.826
2025	0.011	0.014	0.583	0.012	0.074	0.002	296.087
2026	0.010	0.012	0.502	0.012	0.074	0.002	296.096
2027	0.010	0.012	0.502	0.012	0.074	0.002	296.122
2028	0.008	0.008	0.268	0.011	0.073	0.002	296.288
2029	0.008	0.008	0.286	0.011	0.073	0.002	296.334
2030	0.008	0.008	0.286	0.011	0.073	0.002	296.377
2031	0.008	0.008	0.286	0.011	0.073	0.002	296.390
2032	0.008	0.008	0.286	0.011	0.073	0.002	296.390

Note:

Emission factors selected based on the following assumptions: (1) Fuel-Gasoline, (2) Urban Road Type - Urban Unrestricted/Arterial/Collector/Local (Westchester County, New York), (3) Vehicle Speed - 25 mph, (4) Weekday travel, (5) Winter months for CO, PM_{2.5}, PM₁₀ and SO₂, (6) Summer months for VOC, NO_x, and CO₂

Table F-4.b

New Vehicles – BEV NGDV or Alternative 1.2 LHD COTS BEV – Light Commercial Truck Emission Factor (gram/mile)

Model Year	PM _{2.5}	PM ₁₀
2023	0.009	0.071
2024	0.009	0.071
2025	0.009	0.071
2026	0.009	0.071
2027	0.009	0.071
2028	0.009	0.071
2029	0.009	0.071
2030	0.009	0.071
2031	0.009	0.071

Note: The emission factors were selected based on the following assumption: Winter months for PM_{2.5} and PM₁₀ tire and brake wear

Table F-4.c

Existing 125,988 Aged LLV Vehicles – Passenger Truck Emission Factor (gram/mile)

Model Year	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
1987	1.255	2.455	17.443	0.141	0.219	0.011	594.710
1988	1.257	2.465	17.442	0.121	0.198	0.011	584.481
1989	1.264	2.489	17.445	0.122	0.198	0.010	555.241
1990	1.020	2.685	12.173	0.089	0.161	0.004	558.496
1991	1.026	2.688	12.232	0.088	0.160	0.003	523.878
1992	1.027	2.698	12.234	0.088	0.160	0.003	524.101
1993	1.035	2.707	12.315	0.089	0.161	0.003	529.892
1994	1.090	2.538	11.824	0.059	0.127	0.003	533.522
Worst-Case (minimum value)	1.020	2.455	11.824	0.059	0.127	0.003	523.878

Table F-4.d

Existing 21,070 Aged FFV Vehicles – Passenger Truck Emission Factor (gram/mile)

Make Year	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
2000	0.602	1.521	8.163	0.052	0.120	0.004	578.253
2001	0.230	0.638	6.798	0.041	0.107	0.004	590.263
Worst-Case (minimum value)	0.230	0.638	6.798	0.041	0.107	0.004	578.253

Table F-4.e

Existing 17,942 Metris Vehicles – Light Commercial Truck Emission Factor (gram/mile)

Make Year	VOC	NO _x	CO	PM _{2.5}	PM ₁₀	SO ₂	CO _{2e}
2020	0.010	0.024	0.471	0.011	0.073	0.002	372.540
2021	0.010	0.020	0.422	0.011	0.073	0.002	352.001
2022	0.009	0.016	0.373	0.011	0.073	0.002	337.486

Indirect Emission from Energy Consumption by BEVs using eGRID

The electricity purchases (e.g., indirect GHG emissions and non-greenhouse gas emissions from energy consumption by BEVs) were evaluated using EPA's Emissions & Generation Resource Integrated Database (eGRID) data (2021d). EPA's Clean Air Markets Division published eGRID to provide the public with a comprehensive inventory of air emissions from the U.S. electric power sector. The eGRID includes operating data and a detailed emissions profile of CO₂, CH₄, NO_x, N₂O, PM_{2.5}, SO₂, and CO₂e expressed as the pounds of emissions per megawatt-hour (lb/MWh) electricity generated. While the eGRID data are aggregated to calculate various geographic levels, the national-level output emission data from eGRID were used since the Proposed Action scenarios and Alternative 1.2 are nationwide. The analyses used the latest version of eGRID (eGRID2019) released in February 2021.

The indirect emissions related to electricity purchases associated with the Proposed Action and Alternative scenarios that included purchase and deployment of BEVs would depend largely on the amount of electricity purchased for the BEVs. Therefore, the potential annual electricity purchase associated with the proposed BEVs was calculated based on the following information: the number of BEVs, the number of BEV charging events per year, the electricity purchase per one fully charging event, and the emission factors per electricity consumed derived from eGRID. The analyses did not consider electricity transmission and distribution losses associated with electricity purchases.

The eGRID data represents the energy from both fuel and operation since the fuel is burned at the power plant to generate the total energy needed for vehicle operations (the stored energy is used in operation). The remaining operational emissions are brake and tire wear calculated from the MOVES model. Therefore, the Postal Service calculated the total aggregated direct and indirect emissions for BEVs by combining the emissions from MOVES and eGRID.

The following tables present detail calculations of indirect emissions using eGRID.

Table F-5.a

Total Energy Consumption by Proposed BEV Scenarios

Proposed Scenarios	Maximum number of BEVs	Total Annual Mileage for All Vehicles (miles/year)	Max Range on Single Charge (miles)	Electricity Spent for a Single Charge (kWh)	No. of Charges per Year	Total Electricity Charged per year (MWh)
Proposed Action - Purchase and Deployment of up to 165,000 NGDV (90% ICE NGDV + 10% BEV NGDV)	16,500	104,892,150	70	94	1,498,460	140,855
Proposed Action - Purchase and Deployment of up to 165,000 NGDV (100% BEV NGDV)	165,000	1,048,921,500	70	94	14,984,593	1,408,552
Alternative 1.2 - Purchase and Deployment of up to 165,000 COTS Vehicles (100% COTS BEVs)	165,000	1,048,921,500	108	67	9,712,237	650,720

kWh = kilowatt hour

MWh = megawatt hour

Table F-5.b

Indirect Emissions from Energy Consumption by BEV using eGRID's Nationwide Emission Profile Factors

Proposed Scenarios	VOC (tpy)	NO_x (tpy)	CO (tpy)	PM_{2.5} (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	CO_{2e} (MT)
Proposed Action - Purchase and Deployment of up to 165,000 NGDV (90% ICE NGDV + 10% BEV NGDV)	NA	41	NA	5	NA	38	46,748
Proposed Action - Purchase and Deployment of up to 165,000 NGDV (100% BEV NGDV)	NA	413	NA	45	NA	381	467,485
Alternative 1.2 - Purchase and Deployment of up to 165,000 COTS Vehicles (100% COTS BEV)	NA	191	NA	21	NA	176	215,968

eGRID US Nationwide Emission Profile Factor	VOC (lb/MWh)	NO_x (lb/MWh)	CO (lb/MWh)	PM_{2.5} (lb/MWh)	PM₁₀ (lb/MWh)	SO₂ (lb/MWh)	CO_{2e} (lb/MWh)
Nationwide eGRID Emission Profiles	NA	0.586	NA	0.0643	NA	0.541	889.21

Notes:

- (1) For Proposed Action Hypothetical Maximum, the emissions associated with the energy consumption for BEV NGDV were calculated based on the maximum mile on a single charge specific for BEV NGDV (70 miles per single charge), the battery size (94 kWh) assuming that the electricity spent for a single charge would be 100% of the battery size (as shown in Table 3-1.3), the number of charges per year (calculated based on the total miles per year divided by the maximum travel miles on a single charge), and the emission factor from eGRID.
- (2) For Alternative 1.2, the emissions associated with the energy consumption for COTS BEV were calculated in the same way as for the BEV NGDV, but using a different specific basis for COTS BEV: 108 miles of travel mileage per single charge and 67 kWh of a battery size for a single charge (as shown in Table 3-2.2). The emissions associated with energy consumption for aged ICE were calculated based on the miles of travel for each year and the emission factor (kilograms per mile [kg/mi]) from the GREET model.
- (3) Note: NA = not available, as eGRID does not provide VOC, CO, and PM₁₀ emissions factor data for the upstream sources. Therefore, the aggregated net emissions for VOC, CO and PM10 were not calculated.

Indirect Emission from Energy Consumption by ICE using GREET

Comparably, the environmental footprint of fuel (gasoline) purchases (e.g. emissions from gasoline consumption by ICE vehicles) was evaluated using Argonne National Laboratory's Greenhouse Gases, Emissions, and Energy use in Technologies (GREET) model. The GREET model can simulate the energy use and emissions output of various vehicle and fuel combinations. Indirect emissions associated with energy (e.g. gasoline) consumption for ICE vehicles were evaluated using GREET's emission cycle associated with fuel, called Well-to-Pump (WTP), which represents the fuel cycle from well pad to fuel pump. The total aggregated direct and indirect emissions for ICE vehicles were calculated by combining the emissions from MOVES and GREET's WTP.

The indirect emissions related to fuel (gasoline) purchases would depend largely on the miles traveled for the proposed ICE vehicles. Therefore, the potential annual gasoline purchase associated with the proposed ICE vehicles was calculated based on the number of ICE vehicles, the total miles traveled per vehicle per year, and the emission factors per mile traveled derived from the GREET model.

Detailed calculations of indirect emissions using the GREET model are presented on the following pages.

Table F-6.a

Indirect Emissions from Energy Consumption by New ICE NGDV (148,5000 ICE NGDV)

Year	Total Number of ICE Vehicles	Total Annual Mileage for All Vehicles (miles/year)	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO _{2e} (MT)
2023	2,141	13,611,187	13	18	8	1	3	12	10,463
2024	6,525	41,480,078	38	54	24	4	10	37	31,887
2025	14,310	90,970,101	84	114	51	8	21	79	68,886
2026	18,000	114,427,800	106	144	64	10	26	99	86,649
2027	18,000	114,427,800	106	144	64	10	26	99	86,649
2028	18,000	114,427,800	106	144	64	10	26	99	86,649
2029	18,000	114,427,800	106	144	64	10	26	99	86,649
2030	18,000	114,427,800	105	140	63	10	26	99	86,511
2031	18,000	114,427,800	105	140	63	10	26	99	86,511
2032	17,524	111,401,185	103	136	62	9	26	97	84,223
Total	148,500	944,029,350	871	1,176	527	80	218	820	715,078

tpy = Ton Per Year

MT = Metric Ton

Notes:

- (1) The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.
- (2) The emissions associated with energy consumption for ICE NGDV and aged ICE vehicles to be replaced were calculated based on the miles of travel for each year and the emission factor (kg/mi) from GREET model (Table F-6.f).

Table F-6.b

Indirect Emissions from Energy Consumption by New COTS ICE Vehicles (165,000 COTS ICE Vehicles)

Year	Total Number of ICE Vehicles	Total Annual Mileage for All Vehicles (miles/year)	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO ₂ e (MT)
2023	2,379	15,123,541	14	20	9	1	4	13	11,626
2024	7,250	46,088,975	43	60	27	4	11	41	35,430
2025	15,900	101,077,890	93	127	57	9	23	88	76,540
2026	20,000	127,142,000	117	160	71	11	29	110	96,277
2027	20,000	127,142,000	117	160	71	11	29	110	96,277
2028	20,000	127,142,000	117	160	71	11	29	110	96,277
2029	20,000	127,142,000	117	160	71	11	29	110	96,277
2030	20,000	127,142,000	117	155	70	11	29	110	96,123
2031	20,000	127,142,000	117	155	70	11	29	110	96,123
2032	19,471	123,779,094	114	151	68	10	28	107	93,581
Total	165,000	1,048,921,500	967	1,306	585	89	242	911	794,531

tpy = Ton Per Year

MT = Metric Ton

Note: The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.

Table F-6.c

Indirect Emissions Decreases from Energy Consumption by Existing ICE Vehicles (Aged LLV Being Replaced)

Year	Total No. of ICE Vehicles	Total Annual Mileage for All Vehicles (miles/year)	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO ₂ e (MT)
2023	-2,379	-15,123,541	-14	-20	-9	-1	-4	-13	-11,626
2024	-7,250	-46,088,975	-43	-60	-27	-4	-11	-41	-35,430
2025	-15,900	-101,077,890	-93	-127	-57	-9	-23	-88	-76,540
2026	-20,000	-127,142,000	-117	-160	-71	-11	-29	-110	-96,277
2027	-20,000	-127,142,000	-117	-160	-71	-11	-29	-110	-96,277
2028	-20,000	-127,142,000	-117	-160	-71	-11	-29	-110	-96,277
2029	-20,000	-127,142,000	-117	-160	-71	-11	-29	-110	-96,277
2030	-20,000	-127,142,000	-117	-155	-70	-11	-29	-110	-96,123
2031	-459	-2,917,909	-3	-4	-2	0	-1	-3	-2,206
2032	0	0	0	0	0	0	0	0	0
Total	-125,988	-800,918,315	-739	-1,004	-448	-68	-185	-696	-607,033

tpy = Ton Per Year

MT = Metric Ton

Note: The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.

Table F-6.d

Indirect Emissions Decreases from Energy Consumption by Existing ICE Vehicles (Aged FFV Being Replaced)

Year	Total No. of ICE Vehicles	Total Annual Mileage for All Vehicles (miles/year)	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO ₂ e (MT)
2031	-19,541	-124,224,091	-114	-152	-69	-10	-28	-108	-93,917
2032	-1,529	-9,720,006	-9	-12	-5	-1	-2	-8	-8,100
Total	-21,070	-133,944,097	-123	-163	-74	-11	-31	-116	-102,018

tpy = Ton Per Year

MT = Metric Ton

Note: The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.

Table F-6

Indirect Emissions Decreases from Energy Consumption by Existing ICE Vehicles (Aged Metris Being Replaced)

Year	Total No. of ICE Vehicles	Total Annual Mileage for All Vehicles (miles/year)	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO _{2e} (MT)
2032	-17,942	-114,059,088	-105	-139	-63	-10	-26	-99	-86,232
Total	-17,942	-114,059,088	-105	-139	-63	-10	-26	-99	-86,232

tpy = Ton Per Year

MT = Metric Ton

Note: The above represents a hypothetical spread of vehicles to be replaced per year, used only for the purpose of this EIS evaluation.

Table F-6.f

GREET's Nationwide Emission Profile - Emission Factors for Well-to-Pump (WTP) (kg/mi)

Pollutant / Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
VOC	8.40E-04	8.40E-04	8.37E-04	8.37E-04	8.37E-04	8.37E-04	8.37E-04	8.36E-04	8.36E-04	8.36E-04
CO	5.24E-04	5.24E-04	5.08E-04	5.08E-04	5.08E-04	5.08E-04	5.08E-04	5.01E-04	5.01E-04	5.01E-04
NO _x	1.18E-03	1.18E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.11E-03	1.11E-03	1.11E-03
PM ₁₀	2.13E-04	2.13E-04	2.09E-04	2.09E-04	2.09E-04	2.09E-04	2.09E-04	2.08E-04	2.08E-04	2.08E-04
PM _{2.5}	7.98E-05	7.98E-05	7.73E-05	7.73E-05	7.73E-05	7.73E-05	7.73E-05	7.60E-05	7.60E-05	7.60E-05
SO ₂	7.99E-04	7.99E-04	7.87E-04	7.87E-04	7.87E-04	7.87E-04	7.87E-04	7.87E-04	7.87E-04	7.87E-04
CO _{2e}	7.69E-01	7.69E-01	7.57E-01	7.57E-01	7.57E-01	7.57E-01	7.57E-01	7.56E-01	7.56E-01	7.56E-01

kg/mi = kilogram per mile

Note: GREET's output emission factors (kg/mi) for the GHG and non-greenhouse gases from GREET model vary based on the model year. The GREET model was run for the years FY2023- FY2033 when the action would occur. The model assumed that all proposed vehicles are categorized as LHD vocational vehicles.

Aggregated Direct and Indirect Net Emission Calculation

The combined direct tailpipe GHG emissions and the indirect GHG emissions associated with energy consumption by vehicle fuel associated with the two Proposed Action scenarios and Alternatives 1.1 and 1.2 were used to evaluate the total aggregated GHG emissions.

Table F-7.a

Net Aggregated (Direct and Indirect) Air Emission Changes**Proposed Action - Purchase and Deployment of up to 165,000 Vehicles (90% ICE NGDV and 10% BEV NGDV)**

Emission Type	Vehicle Action	Vehicle Description	VOC (tpy)	NO_x (tpy)	CO (tpy)	PM_{2.5} (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	CO₂e (MT)
Direct	New	90% ICE NGDV	9.60	10.65	402.74	11.61	76.43	1.97	280,565
Direct	New	10% BEV NGDV	-	-	-	1.07	8.24	-	-
Direct	Removed	Replaced Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Direct Total (Emissions Decrease)			-926.39	-2,253.67	-11,093	-46.47	-52.06	-1.75	-256,850

Emission Type	Vehicle Action	Vehicle Description	VOC (tpy)	NO_x (tpy)	CO (tpy)	PM_{2.5} (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	CO₂e (MT)
Direct + Indirect	New	90% ICE NGDV (GREET + MOVES)	880.29	1,186.20	929.60	91.75	294.00	822.14	995,643
Direct + Indirect	New	10% BEV NGDV (eGRID + MOVES)	NA ¹	41.27	NA ¹	5.59	NA ¹	38.10	46,748
Direct + Indirect	Removed	Replaced Vehicles (LLVs/FFVs/Metris) (GREET + MOVES)	-1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698
Aggregated Total (Emissions Decrease)			-1,023¹	-2,343	-11,152¹	-51	-84.5¹	-55	-290,306

tpy = Ton Per Year

MT = Metric Ton

Note:

¹ This value does not include VOC, CO, and PM₁₀, as eGRID does not provide VOC, CO, and PM₁₀ emissions factor data for the upstream sources. Therefore, the aggregated net emissions for VOC, CO and PM₁₀ are not included in this calculation.

Table F-7.b

Net Aggregated (Direct and Indirect) Air Emission Changes**Proposed Action - Purchase and Deployment of up to 165,000 NGDV (100% BEV NGDV)**

Emission Type	Vehicle Action	Vehicle Description	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO _{2e} (MT)
Direct	New	100% BEV NGDV	-	-	-	10.65	82.38	-	-
Direct	Removed	Replaced Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Direct Total			-935.99	-2,264.31	-11,496	-48.49	-54.34	-3.72	-537,415
Direct + Indirect	New	100% BEV NGDV (eGRID + MOVES)	NA ¹	412.71	NA ¹	55.94	NA ¹	381.01	467,485
Direct + Indirect	Removed	Replaced Vehicles (LLVs/FFVs/Metris) (GREET + MOVES)	-1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698
Aggregated Total			-1,903¹	-3,158	-12,081¹	-92	-378¹	-534	-865,213

tpy = Ton Per Year MT = Metric Ton

Note: ¹This value does not include VOC, CO, and PM₁₀, as eGRID does not provide VOC, CO, and PM₁₀ emissions factor data for the upstream sources. Therefore, the aggregated net emissions for VOC, CO and PM₁₀ are not included in this calculation.

Table F-7.c

Net Aggregated (Direct and Indirect) Air Emission Changes**Alternative 1.1 - Purchase and Deployment of up to 165,000 COTS Vehicles (100% RHD COTS ICE Vehicles)**

Emission Type	Vehicle Action	Vehicle Description	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO _{2e} (MT)
Direct	New	100% COTS ICE Vehicles	10.67	11.83	447	12.89	84.92	2.19	311,739
Direct	Removed	Replaced Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Direct Total			-925.32	-2,252.48	-11,048	-46.25	-51.80	-1.54	-225,676
Direct + Indirect	New	100% COTS ICE Vehicles (GREET + MOVES)	978.10	1,317.99	1,032.88	101.94	326.67	913.49	1,106,270
Direct + Indirect	Removed	Replaced Vehicles (LLVs/FFVs/Metris) (GREET + MOVES)	-1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698
Aggregated Total			-925	-2,252	-11,048	-46	-52	-1.54	-226,427

Table F-7.d

Net Aggregated (Direct and Indirect) Air Emission Changes**Alternative 2.2 - Purchase and Deployment of up to 165,000 COTS Vehicles (100% COTS BEVs)**

Emission Type	Vehicle Action	Vehicle Description	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO _{2e} (MT)
Direct	New	100% COTS BEVs	-	-	-	10.65	82.38	-	-
Direct	Removed	Replaced Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Direct Total			-935.99	-2,264.31	-11,496	-48.49	-54.34	-3.72	-537,415
Direct + Indirect	New	100% COTS BEVs (eGRID + MOVES)	NA ¹	190.66	NA ¹	31.57	NA ¹	176.02	215,968
Direct + Indirect	Removed	Replaced Vehicles (LLVs/FFVs/Metris) (GREET + MOVES)	-1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698
Aggregated Total			-1,903¹	-3,380	-12,081¹	-117	-378¹	-739	-1,116,730

tpy = Ton Per Year

MT = Metric Ton

Note: ¹This value does not include VOC, CO, and PM₁₀, as eGRID does not provide VOC, CO, and PM₁₀ emissions factor data for the upstream sources. Therefore, the aggregated net emissions for VOC, CO and PM₁₀ are not included in this calculation.

Table F-7.e

Aggregated (Direct and Indirect) Air Emissions from Existing Delivery Vehicles Over a Ten-Year Period

Emission Type	Vehicle Action	Vehicle Description	VOC (tpy)	NO _x (tpy)	CO (tpy)	PM _{2.5} (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	CO _{2e} (MT)
Direct	Existing Vehicles	Existing Vehicles (LLVs/FFVs/Metris)	-935.99	-2,264.31	-11,496	-59.14	-136.72	-3.72	-537,415
Direct + Indirect	Existing Vehicles	Existing Vehicles (LLVs/FFVs/Metris) (GREET + MOVES)	-1,903.42	-3,570.48	-12,081.32	-148.19	-378.47	-915.03	-1,332,698

tpy = Ton Per Year

MT = Metric Ton

F-8

Social Cost of Carbon

Table F-8.a

Social Cost of CO₂, CH₄, and N₂O, 2020-2050 (in 2020 dollars per metric ton of pollutant)

Emissions Year	CO₂ Discount Rate and Statistic (5% Average)	CO₂ Discount Rate and Statistic (3% Average)	CO₂ Discount Rate and Statistic (2.5% Average)	CH₄ Discount Rate and Statistics (5% Average)	CH₄ Discount Rate and Statistics (3% Average)	CH₄ Discount Rate and Statistics (2.5% Average)	N₂O Discount Rate and Statistics (5% Average)	N₂O Discount Rate and Statistics (3% Average)	N₂O Discount Rate and Statistics (2.5% Average)
2020	14	51	76	670	1500	2000	5800	18000	27000
2025	17	56	83	800	1700	2200	6800	21000	30000
2030	19	62	89	940	2000	2500	7800	23000	33000
2035	22	67	96	1100	2200	2800	9000	25000	36000
2040	25	73	103	1300	2500	3100	10000	28000	39000
2045	28	79	110	1500	2800	3500	12000	30000	42000
2050	32	85	116	1700	3100	3800	13000	33000	45000

CO₂ = carbon dioxideCH₄ = methaneN₂O = nitrous oxideSource: *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990* (Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021).

Table F-8.b

**Social Cost of Proposed Action - Purchase and Deployment of up to 165,000 NGDV
(90% ICE NGDV and 10% BEV NGDV)**

Operational Year	Pollutant	\$, 2020 dollars (5% Average)	\$, 2020 dollars (3% Average)	\$, 2020 dollars (2.5% Average)
2025	CO ₂	-4,322,018	-14,237,237	-21,101,618
2025	CH ₄	-116,475	-247,510	-320,307
2025	N ₂ O	-462,666	-1,428,822	-2,041,175
2025	Total	-4,901,160	-15,913,569	-23,463,100
2030	CO ₂	-4,830,491	-15,762,655	-22,627,037
2030	CH ₄	-136,859	-291,188	-363,986
2030	N ₂ O	-530,705	-1,564,901	-2,245,292
2030	Total	-5,498,055	-17,618,744	-25,236,314
2035	CO ₂	-5,593,200	-17,033,837	-24,406,691
2035	CH ₄	-160,154	-320,307	-407,664
2035	N ₂ O	-612,352	-1,700,979	-2,449,410
2035	Total	-6,365,706	-19,055,123	-27,263,765
2040	CO ₂	-6,355,909	-18,559,255	-26,186,346
2040	CH ₄	-189,272	-363,986	-451,342
2040	N ₂ O	-680,392	-1,905,096	-2,653,527
2040	Total	-7,225,573	-20,828,337	-29,291,215
2045	CO ₂	-7,118,618	-20,084,673	-27,966,000
2045	CH ₄	-218,391	-407,664	-509,580
2045	N ₂ O	-816,470	-2,041,175	-2,857,645
2045	Total	-8,153,479	-22,533,511	-31,333,225
2050	CO ₂	-8,135,564	-21,610,091	-29,491,419
2050	CH ₄	-247,510	-451,342	-553,258
2050	N ₂ O	-884,509	-2,245,292	-3,061,762
2050	Total	-9,267,583	-24,306,725	-33,106,439

Note: Future damages are converted into present-day value by using a discount rate to determine how much weight is placed on impacts that would occur in the future. Future costs and benefits are generally less significant than present costs and benefits, and the discount rate reflects this level of relative significance. A high discount rate means that future effects are much less significant than present effects, whereas a low discount rate means that they are closer to equally significant than present effects. Higher discount rates result in a lower SCC; if future climate damages are discounted at a high rate, less value is placed on avoiding those damages today.

Table F-8.c

**Social Cost of Proposed Action - Purchase and Deployment of up to 165,000 NGDV
(100% BEV NGDV)**

Operational Year	Pollutant	\$, 2020 dollars (5% Average)	\$, 2020 dollars (3% Average)	\$, 2020 dollars (2.5% Average)
2025	CO ₂	-10,146,258	-33,422,969	-49,537,614
2025	CH ₄	-1,103,898	-2,345,783	-3,035,719
2025	N ₂ O	-2,987,312	-9,225,522	-13,179,316
2025	Total	-14,237,468	-44,994,273	-65,752,649
2030	CO ₂	-11,339,936	-37,004,001	-53,118,647
2030	CH ₄	-1,297,080	-2,759,744	-3,449,680
2030	N ₂ O	-3,426,622	-10,104,143	-14,497,248
2030	Total	-16,063,638	-49,867,888	-71,065,575
2035	CO ₂	-13,130,452	-39,988,195	-57,296,518
2035	CH ₄	-1,517,859	-3,035,719	-3,863,642
2035	N ₂ O	-3,953,795	-10,982,764	-15,815,180
2035	Total	-18,602,106	-54,006,677	-76,975,339
2040	CO ₂	-14,920,968	-43,569,227	-61,474,389
2040	CH ₄	-1,793,834	-3,449,680	-4,277,604
2040	N ₂ O	-4,393,105	-12,300,695	-17,133,111
2040	Total	-21,107,907	-59,319,603	-82,885,104
2045	CO ₂	-16,711,484	-47,150,259	-65,652,260
2045	CH ₄	-2,069,808	-3,863,642	-4,829,553
2045	N ₂ O	-5,271,727	-13,179,316	-18,451,043
2045	Total	-24,053,019	-64,193,218	-88,932,855
2050	CO ₂	-19,098,839	-50,731,292	-69,233,292
2050	CH ₄	-2,345,783	-4,277,604	-5,243,514
2050	N ₂ O	-5,711,037	-14,497,248	-19,768,975
2050	Total	-27,155,659	-69,506,143	-94,245,781

Note: Future damages are converted into present-day value by using a discount rate to determine how much weight is placed on impacts that would occur in the future. Future costs and benefits are generally less significant than present costs and benefits, and the discount rate reflects this level of relative significance. A high discount rate means that future effects are much less significant than present effects, whereas a low discount rate means that they are closer to equally significant than present effects. Higher discount rates result in a lower SCC; if future climate damages are discounted at a high rate, less value is placed on avoiding those damages today.

Table F-8.d

Social Cost of Alternative 1.1 - Purchase and Deployment of up to 165,000 COTS Vehicles (100% RHD COTS ICE Vehicles)

Operational Year	Pollutant	\$, 2020 dollars (5% Average)	\$, 2020 dollars (3% Average)	\$, 2020 dollars (2.5% Average)
2025	CO ₂	-3,674,881	-12,105,490	-17,942,065
2025	CH ₄	-6,762	-14,369	-18,595
2025	N ₂ O	-182,150	-562,522	-803,603
2025	Total	-3,863,793	-12,682,381	-18,764,264
2030	CO ₂	-4,107,220	-13,402,507	-19,239,082
2030	CH ₄	-7,945	-16,904	-21,131
2030	N ₂ O	-208,937	-616,096	-883,964
2030	Total	-4,324,102	-14,035,507	-20,144,176
2035	CO ₂	-4,755,728	-14,483,354	-20,752,268
2035	CH ₄	-9,297	-18,595	-23,666
2035	N ₂ O	-241,081	-669,669	-964,324
2035	Total	-5,006,107	-15,171,618	-21,740,259
2040	CO ₂	-5,404,237	-15,780,371	-22,265,455
2040	CH ₄	-10,988	-21,131	-26,202
2040	N ₂ O	-267,868	-750,030	-1,044,684
2040	Total	-5,683,092	-16,551,531	-23,336,341
2045	CO ₂	-6,052,745	-17,077,388	-23,778,641
2045	CH ₄	-12,678	-23,666	-29,583
2045	N ₂ O	-321,441	-803,603	-1,125,045
2045	Total	-6,386,865	-17,904,657	-24,933,268
2050	CO ₂	-6,917,423	-18,374,404	-25,075,658
2050	CH ₄	-14,369	-26,202	-32,118
2050	N ₂ O	-348,228	-883,964	-1,205,405
2050	Total	-7,280,020	-19,284,570	-26,313,181

Note: Future damages are converted into present-day value by using a discount rate to determine how much weight is placed on impacts that would occur in the future. Future costs and benefits are generally less significant than present costs and benefits, and the discount rate reflects this level of relative significance. A high discount rate means that future effects are much less significant than present effects, whereas a low discount rate means that they are closer to equally significant than present effects. Higher discount rates result in a lower SCC; if future climate damages are discounted at a high rate, less value is placed on avoiding those damages today.

Table F-8.e

Social Cost of Alternative 1.2 - Purchase and Deployment of up to 165,000 COTS Vehicles (100% COTS BEVs)

Operational Year	Pollutant	\$, 2020 dollars (5% Average)	\$, 2020 dollars (3% Average)	\$, 2020 dollars (2.5% Average)
2025	CO ₂	-14,398,101	-47,429,039	-70,296,611
2025	CH ₄	-1,120,869	-2,381,847	-3,082,390
2025	N ₂ O	-3,008,469	-9,290,861	-13,272,658
2025	Total	-18,527,439	-59,101,746	-86,651,659
2030	CO ₂	-16,091,995	-52,510,722	-75,378,294
2030	CH ₄	-1,317,021	-2,802,172	-3,502,716
2030	N ₂ O	-3,450,891	-10,175,705	-14,599,924
2030	Total	-20,859,908	-65,488,599	-93,480,934
2035	CO ₂	-18,632,837	-56,745,457	-81,306,924
2035	CH ₄	-1,541,195	-3,082,390	-3,923,041
2035	N ₂ O	-3,981,798	-11,060,549	-15,927,190
2035	Total	-24,155,829	-70,888,396	-101,157,155
2040	CO ₂	-21,173,678	-61,827,140	-87,235,554
2040	CH ₄	-1,821,412	-3,502,716	-4,343,367
2040	N ₂ O	-4,424,219	-12,387,815	-17,254,456
2040	Total	-27,419,310	-77,717,670	-108,833,377
2045	CO ₂	-23,714,519	-66,908,823	-93,164,183
2045	CH ₄	-2,101,629	-3,923,041	-4,903,802
2045	N ₂ O	-5,309,063	-13,272,658	-18,581,722
2045	Total	-31,125,212	-84,104,523	-116,649,707
2050	CO ₂	-27,102,308	-71,990,505	-98,245,866
2050	CH ₄	-2,381,847	-4,343,367	-5,324,128
2050	N ₂ O	-5,751,485	-14,599,924	-19,908,988
2050	Total	-35,235,640	-90,933,797	-123,478,982

Note: Future damages are converted into present-day value by using a discount rate to determine how much weight is placed on impacts that would occur in the future. Future costs and benefits are generally less significant than present costs and benefits, and the discount rate reflects this level of relative significance. A high discount rate means that future effects are much less significant than present effects, whereas a low discount rate means that they are closer to equally significant than present effects. Higher discount rates result in a lower SCC; if future climate damages are discounted at a high rate, less value is placed on avoiding those damages today.

Table F-8.f

Social Cost of No-Action Alternative - 165,000 Existing Delivery Vehicles

Operational Year	Pollutant	\$, 2020 dollars (5% Average)	\$, 2020 dollars (3% Average)	\$, 2020 dollars (2.5% Average)
2020	CO ₂	-14,863,873	-54,146,965	-80,689,594
2020	CH ₄	-950,932	-2,128,953	-2,838,604
2020	N ₂ O	-2,581,543	-8,011,684	-12,017,527
2020	Total	-18,396,348	-64,287,602	-95,545,725
2025	CO ₂	-18,048,988	-59,455,491	-88,121,531
2025	CH ₄	-1,135,442	-2,412,813	-3,122,464
2025	N ₂ O	-3,026,636	-9,346,965	-13,352,807
2025	Total	-22,211,066	-71,215,269	-104,596,802
2030	CO ₂	-20,172,399	-65,825,722	-94,491,762
2030	CH ₄	-1,334,144	-2,838,604	-3,548,255
2030	N ₂ O	-3,471,730	-10,237,152	-14,688,088
2030	Total	-24,978,272	-78,901,478	-112,728,105
2035	CO ₂	-23,357,514	-71,134,248	-101,923,698
2035	CH ₄	-1,561,232	-3,122,464	-3,974,045
2035	N ₂ O	-4,005,842	-11,127,340	-16,023,369
2035	Total	-28,924,588	-85,384,051	-121,921,112
2040	CO ₂	-26,542,630	-77,504,479	-109,355,634
2040	CH ₄	-1,845,092	-3,548,255	-4,399,836
2040	N ₂ O	-4,450,936	-12,462,620	-17,358,650
2040	Total	-32,838,658	-93,515,354	-131,114,120
2045	CO ₂	-29,727,745	-83,874,710	-116,787,571
2045	CH ₄	-2,128,953	-3,974,045	-4,967,557
2045	N ₂ O	-5,341,123	-13,352,807	-18,693,930
2045	Total	-37,197,821	-101,201,563	-140,449,058
2050	CO ₂	-33,974,566	-90,244,941	-123,157,802
2050	CH ₄	-2,412,813	-4,399,836	-5,393,347
2050	N ₂ O	-5,786,217	-14,688,088	-20,029,211
2050	Total	-42,173,596	-109,332,865	-148,580,360

Note: Future damages are converted into present-day value by using a discount rate to determine how much weight is placed on impacts that would occur in the future. Future costs and benefits are generally less significant than present costs and benefits, and the discount rate reflects this level of relative significance. A high discount rate means that future effects are much less significant than present effects, whereas a low discount rate means that they are closer to equally significant than present effects. Higher discount rates result in a lower SCC; if future climate damages are discounted at a high rate, less value is placed on avoiding those damages today.

EFFECTS OF CLIMATE CHANGE ON PROPOSED ACTION AND ALTERNATIVES 1.1 AND 1.2

The climate of the United States is strongly connected to the changing global climate. Global annual average surface air temperature has increased by 1.8°F over the last 115 years (1901-2016). Studies conducted around the world have documented rising surface, atmospheric, and oceanic temperatures, melting glaciers, diminishing snow cover, shrinking sea ice, changing in precipitation patterns, increased frequency and/or intensity of extreme weather events, rising sea levels and associated storm surge, and ocean acidification (U.S. Global Change Research Program 2017).

The Proposed Action and Alternatives 1.1 and 1.2 involve the replacement of up to 165,000 vehicles in total production orders over a ten-year period. High-maintenance and end-of-life delivery vehicles would be replaced at various existing Postal Service facility locations throughout the U.S. on a one-for-one basis, resulting in no additional delivery vehicles. No new VMFs would be needed, and expansions of Postal Service facilities are not currently anticipated.

At facilities where BEVs would be deployed and that are subject to flooding (100-year and 500-year floodplains as established by the Federal Emergency Management Agency), or to flooding from extreme weather events or sea level rise, the Postal Service would carefully consider the placement of BEV charging stations. The Postal Service would conduct appropriate environmental review at the local level per Postal Service Handbook RE-6 (2015) as needed. Postal Service environmental checklists, screening analyses, and stand-alone, project-level Environmental Assessments would be employed on a facility-specific basis to assess the extent of impacts.

New BEV operation could be impacted by excessive ambient air temperatures that could affect BEV performance and the life of the batteries, and in extreme cases result in brown-out of the electrical grid that would hinder charging the BEVs.

Appendix F References

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APPENDIX G

FUEL CONSUMPTION CALCULATIONS

Table G-1
Current Fuel Efficiency and Estimated Fuel Consumption of Existing Delivery Vehicles Proposed for Replacement

Table G-2
Estimated Fuel Consumption of Future ICE NGDV (Proposed Action Hypothetical Maximum) and COTS ICE Delivery Vehicles (Alternative 1.1)

Table G-3
Estimated Fuel Consumption Comparison of Existing 165,000 Delivery Vehicles and the Proposed Action ICE Hypothetical Maximum (90% ICE NGDV and 10% BEV NDGV)

Table G-4
Estimated Fuel Consumption Comparison of Existing 165,000 Delivery Vehicles and Alternative 1.1 (165,000 COTS ICE Vehicles)

Table G-1
Current Fuel Efficiency and Estimated Fuel Consumption of Existing Delivery Vehicles Proposed for Replacement

Vehicle Type	Fuel Efficiency (mpg) ¹	Number of Vehicles Proposed for Replacement ²	Average Delivery Route Length (miles)	Number of Delivery Days	Total Estimated Gasoline Usage ³ (gallons)
LLVs	8.2	125,988.00	21.05	302	97,672,965
FFVs	6.9	21,070.00	21.05	302	19,412,188
COTS (Metris)	6.3	17,942.00	21.05	302	18,104,617
Annual Total²	---	165,000.00	---	---	135,189,770

¹ Based on USPS FY 2020 fuel consumption monitoring

² See Table D-1 in Appendix D

³ Estimated annual fuel usage calculated as [(Average Delivery Route Length/Fuel Efficiency) X # Vehicles X # Delivery Days]

Table G-2
Estimated Fuel Consumption of Future ICE NGDV (Proposed Action Hypothetical Maximum) and COTS ICE Delivery Vehicles (Alternative 1.1)

Vehicle Type	Fuel Efficiency (mpg) ^{1, 2}	Number of Vehicles Proposed for Replacement ³	Average Delivery Route Length (miles)	Number of Delivery Days	Total Estimated Gasoline Usage ⁴ (gallons)
ICE NGDV	8.6	148,500	21.05	302	109,770,855
COTS ICE Vehicles	6.3	165,000	21.05	302	166,495,476

¹ ICE NGDV with air conditioning (see Table 3-1.2)

² Actual Postal Service average mileage for RHD Metris Vehicles (see Table 3-2.1)

³ See Table D-1 in Appendix D

⁴ Estimated annual fuel usage calculated as [(Average Delivery Route Length/Fuel Efficiency) X # Vehicles X # Delivery Days]

Table G-3

Estimated Fuel Consumption Comparison of Existing 165,000 Delivery Vehicles and the Proposed Action ICE Hypothetical Maximum (90% ICE NGDV and 10% BEV NDGV)

Vehicle Type	Fuel Efficiency (mpg)¹	Number of Vehicles Proposed for Replacement²	Average Delivery Route Length (miles)	Number of Delivery Days	Total Estimated Gasoline Usage³ (gallons)
Existing Delivery Vehicles being Replaced	(see Table G-1)	165,000	21.05	302	-135,189,770
ICE NGDV	8.6	148,500	21.05	302	109,770,855
BEV NGDV	N/A	16,500	21.05	302	N/A
Difference⁴					-25,418,916

¹ ICE NGDV with air conditioning (see Table 3-1.2)

² See Table D-1 in Appendix D

³ Estimated annual fuel usage calculated as [(Average Delivery Route Length/Fuel Efficiency) X # Vehicles X # Delivery Days]

⁴ ICE NGDV are estimated to be more fuel-efficient than the current mix of Delivery Vehicles, thus resulting in less gasoline usage, plus this Proposed Action scenario includes at least 10% BEV NGDV

Table G-4

Estimated Fuel Consumption Comparison of Existing 165,000 Delivery Vehicles and Alternative 1.1 (165,000 COTS ICE Vehicles)

Vehicle Type	Fuel Efficiency (mpg)¹	Number of Vehicles Proposed for Replacement²	Average Delivery Route Length (miles)	Number of Delivery Days	Total Estimated Gasoline Usage³ (gallons)
Existing Delivery Vehicles being Replaced	(see Table G-1)	165,000	21.05	302	-135,189,770
COTS ICE Vehicles	6.3	165,000	21.05	302	166,495,476
Difference⁴					31,305,706

¹ Actual Postal Service average mileage for RHD Metris Vehicles (see Table 3-2.1)

² See Table D-1 in Appendix D

³ Estimated annual fuel usage calculated as [(Average Delivery Route Length/Fuel Efficiency) X # Vehicles X # Delivery Days]

⁴ COTS ICE vehicles are estimated to be less fuel-efficient than the current mix of Delivery Vehicles, thus resulting in more gasoline usage for the same number of vehicles