



Next Generation Delivery Vehicle (NGDV) Prototype Design Statement of Objectives

Section B

PROTOTYPE VEHICLES, CARRIER ROUTE NEXT GENERATION

Revision History

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Table of Contents

1.0	Scope.....	1
1.1	Scope.....	1
1.2	Background.....	1
1.3	Intended Use	1
2.0	Legal Requirements	2
3.0	Vehicle Requirements	2
3.1	Description.....	2
3.2	Prototype Quantities	2
3.3	Safety.....	2
3.4	Driving Range	2
3.5	Cab and Cargo Area Height	3
3.6	Doors	3
3.7	Operator's Seat.....	3
3.8	Heating/Ventilation/Air Conditioning	3
3.9	Emission Control Equipment	4
3.10	Prototype Certification and Testing Results (Deliverable).....	4
3.11	Painting	4
3.12	Markings	4
3.13	Drawings (Deliverable)	4
3.14	Operator Instructions Manual (Deliverable).....	4
4.0	Vehicle Objectives	5
4.1	Production Price	5
4.2	Drivetrain.....	5
4.3	Road Speed.....	5
4.4	Vehicle Acceleration	5
4.5	Maintenance and Servicing	5
4.6	Maneuverability.....	5
4.7	Human Factors	5
4.8	External Lighting	5
4.9	Interior Lighting	5
4.10	Cab, Body, and Frame.....	6
4.11	Rolling Carts and Shelving Capability	6
4.12	Vehicle to Operator Interface.....	6
4.13	Vehicle Telematics.....	6
4.14	USPS Mobile Delivery Device (MDD).....	6
4.15	Break-in Security	6
4.16	Vehicle Operator Cab Accessories.....	6
5.0	Vehicle Desirable Features / Lessons Learned.....	7
5.1	Body Damage	7
5.2	Vehicle Doors	7
5.3	Lock and Ignition Components	8
5.4	Windshield	8
5.5	Windshield Wipers	8
5.6	Camera and monitoring system components.....	8
5.7	Crevices	8
5.8	Step Wells.....	8
5.9	High current circuits	8
5.10	Grease Fittings	8
5.11	Tire Scuff and Wear	8
5.12	Service Brake System	8
5.13	Parking Brake System	9
5.14	Exhaust System.....	9
5.15	Rust Protection	9
5.16	Flexible Skirts	9
5.17	Cold Weather Environments.....	9

6.0	Quality Assurance Provisions	9
6.1	Responsibility for Inspection	9
6.2	Quality Conformance Inspection	9
7.0	Prototype Vehicle Inspection	10
7.1	General Examination Elements	10
7.2	Prototype Inspection Tests	11
7.3	Examination Procedure	11
7.4	Prototype Inspection Test Procedures	11
Table 1: Physical Dimensions		3
Table 2: Examination Elements.....		10
Table 3: Prototype Inspection Tests.....		11
Attachment A		15
Attachment B		16
Attachment C		17

1.0 Scope

1.1 Scope

This Statement of Objectives (SOO) communicates the Postal Service's needs and design objectives to create a safe and flexible platform that facilitates improved delivery efficiencies, customer service, and revenue generation. The new flexible platform will be referred to as the Next Generation Delivery Vehicle (NGDV). The design objectives are:

- Maximize operator efficiency in a safe and ergonomically sound manner
- Incorporate durable quality and reliability to minimize maintenance and repair
- Include a flexible interior configuration to accommodate changing products and service offerings
- Incorporate a walk-in cargo area design
- Realize low total cost of ownership
- Portray modern image

The NGDV vehicles will serve as the Postal Service's future delivery vehicle for national delivery operations. We are seeking delivery vehicles that must be suitable for curbside delivery of mail, parcels, and future packaged products as new customer markets and delivery items emerge. In particular, the Postal Service seeks to acquire two (2) different sized prototype NGDV vehicles. The two vehicle sizes will allow flexibility to assign and match vehicle capacity to route mail volume. The first vehicle type, referred to as the NGDV Standard Vehicle, will be used to deliver a total mail volume of 155 ft³ and the second vehicle type, referred to as the NGDV Small Vehicle, will be used to deliver a total mail volume of 121 ft³. For each of these two sized vehicles, standard vehicle and small vehicle, both vehicle sizes shall be offered in two wheel drive (2WD) and four wheel / all-wheel drive (4WD/ AWD) configurations. The Postal Service's prototype design goal is for the vehicle body and frame to have a minimum vehicle life cycle of 20-years and the power train to have a minimum life expectancy of 12 years while withstanding the unique rigors of its intended use as provided in Section 1.3 "Intended Use". Additionally, each of the supplier's produced designs should strive to include innovations to improve all aspects of vehicle operation and safety such as new fuel saving technologies, new handling and safety technologies, (e.g. cameras, etc.), and improved methods for handling mail, and loading as part of the delivery process. Included is information gathered as "Lessons Learned" from our existing right hand drive mail delivery fleet identified in Paragraph 5, "Vehicle Desired Features / Lessons Learned".

1.2 Background

The USPS operates over 200,000 vehicles in all areas of the United States and its territories. Approximately 163,000 of these are right-hand drive vehicles that are over 24 years old on average, are nearing their design useful life and need to be replaced with the Next Generation Delivery Vehicles (NGDVs). The potential also exists to replace 20,000 plus left hand drive vehicles with NGDVs to meet new and growing delivery needs.

1.3 Intended Use

These vehicles will be used on multi-stop delivery, relay, collection, and package only routes. They will be operated in all weather conditions found in the United States. These vehicles will be operated for a minimum of 8 continuous hours per day over hilly terrain, semi-improved roads, city streets, and make a minimum of 600 starts and stops per day to deliver mail/packages, and to collect mail from street letter boxes in addition to stops and starts required by traffic conditions. The operator will dismount and remount, turn the vehicle on and off, and lock/unlock the vehicle up to 200 times during delivery and collection operations each day. The vehicles must be easily loaded and unloaded by operators ranging from a 5th percentile female to a 95th percentile male. The vehicle shall allow the carrier to deliver mail directly into the curbside mailboxes without exiting the vehicle. The vehicle shall also provide easy egress and ingress when delivering mail and packages. Given typical mail delivery operations, the vehicles will be subject to low speed operation with rapid accelerations and decelerations and frequent and prolonged stops.

2.0 Legal Requirements

The prototype vehicles must be designed to meet all federal, state, and local requirements pertaining to vehicles and vehicle operations. In addition, the vehicle must meet all applicable federal and state requirements including ergonomic and safety, such as OSHA or DOT requirements. If any federal or state waiver, deviation or permit is required in order for the Postal Service to operate a proposed prototype vehicle on public roads, the supplier shall be solely responsible for obtaining the required waiver, deviation or permit from the appropriate authority at no additional cost to the Postal Service.

3.0 Vehicle Requirements

3.1 Description

In addition to the two different size vehicles, the USPS is seeking delivery of two (2) delivery vehicle prototype configurations: two-wheel drive (2WD) and four-wheel drive (4WD) or all-wheel drive (AWD) vehicle versions. A fully enclosed weather-tight body is to be provided. A body design that permits the carrier to move from the vehicle cab into the cargo area and back without exiting the vehicle is preferred. The vehicles, with all windows and doors in the fully closed positions, must be watertight when subject to hard driving rain and other forms of precipitation. The vehicles must function reliably and efficiently under all conditions of service.

3.2 Prototype Quantities

Each supplier must deliver six (6) prototype delivery vehicles as specified in the table below for examination and testing within the time frame specified by the Contracting Officer (CO), to evaluate the vehicle's reliability, durability, and effectiveness during Postal Service mail delivery and collection operations.

Prototype Mix

Size	Drive Type	Qty
Standard	2WD	2
Standard	4WD	1
Small	2WD	2
Small	4WD	1

3.3 Safety

The vehicle design shall obviate safety hazards to people, property, and the mail. Systems and components that are inherently hazardous shall be enclosed, guarded, or insulated as necessary. Where applicable, accident prevention and passenger protection technologies shall be considered in the design such as crumple zones, side view cameras and bumper sensors.

3.4 Driving Range

The minimum daily driving range is 70 miles over an eight (8) hour continuous operating period with a minimum of 600 stop / starts. The desired vehicle availability design objective is sixteen (16) hours per vehicle per day (24-hour period). The daily driving range requirement must meet the stated metric with the vehicle fully loaded to Gross Vehicle Weight Rating (GVWR), heater or air conditioning systems operating at their maximum settings and all accessories turned on in normal operational modes.

Accessories include lights, indicators, instrumentation, and mail delivery associated equipment such as the Mobile Delivery Device (MDD), (see Attachment C, MDD) etc.

3.5 Cab and Cargo Area Height

The cab and cargo area must provide standing headroom and allow for free floor space sufficient for the operator to access the stowed mail and packages. The standing headroom must accommodate operators ranging from a 5th percentile female to a 95th percentile male. The carrier must be able to retrieve mail from and place mail into a curbside mailbox without having to move from the operator's seat, the mailbox base being located between 41 to 45 inches above the same ground level on which the vehicle is operating (see Attachment A).

Table 1: Physical Dimensions

CHARACTERISTIC	REQUIREMENT (Nominal) (US)
Mail cargo stowage volume (standard vehicle)	155 ft. ³
Mail cargo stowage volume (small vehicle)	121 ft. ³
Max height from ground*	112 in.*

*dimension to be determined on the basis of the vehicle being loaded to its curb weight, parked on a level-ground surface, with the tires inflated to the proper inflation pressure as recommended by the vehicle and tire manufacturer.

3.6 Doors

The vehicle design must include the following; roll up rear door for easy loading and unloading, a curbside sliding cargo area door for easy loading and unloading, a walk in from cab area to cargo area and a cargo area that can be secured separately from the cab. The vehicle design must include sliding type doors on both the left and right side of the operator's cab providing the operator easy and safe ingress and egress while delivering or loading mail or parcels.

3.7 Operator's Seat

A high-back operator's seat with an integrated, fixed head restraint must be provided. The seat position and vehicle design must accommodate delivery access to curbside mailboxes where the mailbox base is located between 41 to 45 inches above the same ground level on which the vehicle is operating (see Attachment A).

3.8 Heating/Ventilation/Air Conditioning

3.8.1 Heater and Defroster

The vehicles must contain integrated heating and defrosting systems. The heater units must generate sufficient heat so the temperature measured at the operator's feet is maintained at or above a minimum temperature of 65 degrees Fahrenheit when the outside ambient temperature is -30 degrees Fahrenheit.

3.8.2 Air Conditioning/Cooling System

The vehicles must have air conditioning/cooling systems sufficient to cool the operator's torso area when seated in the driving position with the driver's window open, so that the air temperature at the operator's torso area is maintained at or below 85 degrees Fahrenheit when the outside temperature is 120 degrees Fahrenheit. Cooling is only required in the operator cab.

3.8.3 Cargo Area Ventilation

The vehicles must include active ventilation for providing outside air directly to the cargo area that can be

operational when the vehicle is parked. The design must prevent insects, foreign materials, and water from entering into the cargo area. This ventilation system is to be independent of ventilation in the cab area.

3.9 Emission Control Equipment

If applicable, the vehicles must be equipped with emission control equipment complying with all applicable state and federal laws and regulations governing control of air pollution from new motor vehicles and new motor vehicle engines that are in effect on the date of manufacture.

3.10 Prototype Certification and Testing Results (Deliverable)

The Supplier must furnish six copies, in loose leaf or bound form, all requisite certifications and testing results. These documents shall be countersigned by a responsible company official certifying that all applicable tests and certifications required for the prototype vehicles, including those related to the EPA and the FMVSS, have been performed. Certification documentation should include descriptive paragraphs detailing test locations, grades, distances, and any required waivers for operation of the prototype vehicles on public highways.

3.11 Painting

3.11.1 Preparation for Painting

All paint must be applied to properly prepared surfaces in accordance with best manufacturing practices. The final finish must be free from sags, runs, and orange peel effect.

3.11.2 Interior Painting

If the interior is other than natural aluminum the interior must be painted white in accordance with color chip number 17773 of FED- STD-595. Paint samples must be provided for approval prior to the prototype inspection. If the interior is painted all interior painting should not corrode, peel, chip, or crack for a minimum of 5 years.

3.11.3 Exterior Painting

All exterior finishes should be the manufacturer's standard paint using the following enamel colors:

- a) White Polyurethane - Except for the underside of the vehicle, including the front and rear wheel wells, the exterior must be painted white, in accordance with color chip number 17773 of FED- STD-595. Paint samples must be provided for approval prior to the prototype inspection.
- b) Black Polyurethane - The under portion of the vehicle, i.e., chassis frame, axles, wheels, etc., must be painted black with the manufacturer's highest quality standard paint, dipped or powder coated according to SAE J2334. Paint samples must be provided for approval prior to the prototype inspection.

All exterior painting should not corrode, peel, chip, or crack for a minimum of 5 years.

3.12 Markings

The USPS will provide vehicle markings.

3.13 Drawings (Deliverable)

The supplier must furnish five sets of dimensioned outline drawings labeled in both English and metric dimensions in accordance with Section A, Table 3 Deliverables Table.

3.14 Operator Instructions Manual (Deliverable)

Operator Instruction Manuals must be provided for the prototype vehicles in accordance with Section A, Table 3 Deliverables Table. The Operator Instructions Manual must contain a complete description of the vehicles driving instructions, maintenance intervals, and warnings. Operator instruction manuals shall be

updated, revised, or changed as required due to vehicle modification or major component reconfiguration as governed by the U.S. Tread Act. No generic information shall be provided. The supplier shall provide one softcopy to the COR and one paperbound copy with each prototype vehicle delivered.

4.0 Vehicle Objectives

4.1 Production Price

The objective is to design prototype vehicles that can be produced and delivered at a price of \$35,000 or less. Higher production prices will be considered if total cost of ownership is comparable.

4.2 Drivetrain

The vehicles design objectives are to provide the most efficient and economical drivetrain practical with a minimum life expectancy of 12 years.

4.3 Road Speed

The NGDVs will operate in a wide range of road environments in transiting between delivery operations. The vehicle design objective is for each vehicle, when loaded to GVWR, to be capable of maintaining a minimum sustained road speed of not less than 60 mph when operated on smooth, hard-surfaced roads, on grades from 0 to 1%, and at altitudes of up to 3,000 feet.

4.4 Vehicle Acceleration

The vehicle design objective is for each vehicle, when loaded to GVWR, to be capable of accelerating from 0 to 15 mph within 5 seconds, from 0 to 50 mph within 22 seconds, and from 0 to 60 mph within 35 seconds.

4.5 Maintenance and Servicing

The vehicle design objective is to minimize preventative and corrective maintenance activities and provide easy access to serviceable components.

4.6 Maneuverability

The vehicles should be highly maneuverable with minimal turning radius and steering effort.

4.7 Human Factors

Vehicle design should maximize visibility, control, reach, and accessibility to operators ranging from the 5th percentile adult female through the 95th percentile adult male of the general U.S. population. For maximum visibility, the design should consider innovative features such as camera and sensing technologies. Additionally, all functional features of the cab should allow unobstructed passage of the operator from the cab to cargo area from a seated position.

4.8 External Lighting

Each vehicle should be equipped with an efficient lighting system that provides maximum visibility for the operator and provides maximum visibility of the vehicle to other vehicle drivers.

4.9 Interior Lighting

Each vehicle should be equipped with an efficient interior lighting system that provides illumination such that operators can easily read labels on mail during night operations when there is no other light source but that provided by the vehicle.

4.10 Cab, Body, and Frame

The body should be designed with integrated cab and cargo areas as referenced in section 3.1. The body and frame should provide a minimum life expectancy of 20 years. The body should be weather-tight.

4.11 Rolling Carts and Shelving Capability

The vehicle design should include both rolling carts and shelving systems to expedite the loading of mail into the vehicle. The design should include a universal mounting system that allows the attachment of either rolling carts or shelving systems to the wall of the cargo area. Furthermore, the design should include a method for the operator to easily load and unload rolling carts to and from the vehicle at street level.

4.12 Vehicle to Operator Interface

The vehicle design should include an interface to provide the operator with information such as turn-by-turn directions, location, and mail delivery information by delivery point, vehicle failure warnings, messaging, etc. The interface should consider technologies such as visual heads-up display or voice prompt/voice recognition systems.

4.13 Vehicle Telematics

Features related to vehicle telematics and "Black Box" logging capabilities

4.14 USPS Mobile Delivery Device (MDD)

Ability to communicate with the USPS Mobile Delivery Device (MDD), see Attachment C.

4.15 Break-in Security

The vehicle design should prevent break-in attempts to the cab and cargo areas of a minimum duration of 15 minutes, when using common tools such as crowbars, hammers, picks, screwdrivers, etc. Breaking of window glass will not be considered a point of break-in entry.

4.16 Vehicle Operator Cab Accessories

The following accessories should be considered in the operator cab design:

4.16.1 Mail Tray

The vehicle design should include a mail tray system in the operator cab to appropriately handle Delivery Point Sequenced (DPS) letter mail trays, Flat Sequencing System (FSS) mail trays, saturation mail and spurs (small parcels less than 1 lb. such as boxes of checks and sample boxes). See Attachment B Mail Trays for mail tray information. The mail tray system should be made of light and durable material to withstand the daily loading, unloading and shuffling of mail it is designed to hold. Any mail tray adjustment controls should be intuitive, i.e. movement forward and rearward of an adjustment control and must move each tray position forward and rearward independently from one another. The mail tray system should provide acceptable foot clearance for the 95th percentile male while wearing heavy boots (to permit the 95th percentile male to swivel his body toward the tray rather than be forced to twist his torso toward the tray). The mail tray design should minimize replenishment trips to the cargo area. The mail tray should be easily repositioned to allow the operator unobstructed passage to the cargo area.

4.16.2 Forms Holder

The vehicle design should include a forms holder having compartments that accommodate stacks of forms that are 5.5 inches by 3.5 inches and 6.9 inches by 5.4 inches as well as compartments for holding a pen/pencil, rubber bands and other miscellaneous items

4.16.3 Cup Holder

The interior of the vehicle design should include a standard adjustable cup holder.

4.16.4 Coat Hooks

The vehicle design should accommodate two coat hooks.

4.16.5 Vehicle Telematics

Features related to vehicle telematics and “Black Box” logging capabilities.

4.16.6 USPS Mobile Delivery Device (MDD)

Ability to communicate with the USPS Mobile Delivery Device (MDD), see Attachment C.

4.16.7 Docking Station Area

The vehicle design should provide a flat area on or adjacent to the dash panel at least 6 inches wide by 10 inches deep to support a docking station for the carrier scanning equipment. The area should be set back at an angle such that view is unobstructed. The scanner is approximately 1.5 lb. and approximately 8 inches tall by 2 inches deep by 3.5 inches wide (see Attachment C, MDD). The mounting location should accommodate the reach of a seated 5th percentile female operator. The area should accommodate a minimum of two 12-volt power ports with 20 amp circuits protected by a circuit breaker or fuse to power the equipment with dedicated ground from the negative battery terminal. Provided power should contain little or no noise and no transient voltage spikes that are harmful to sensitive electrical components.

5.0 Vehicle Desirable Features / Lessons Learned

Various vehicle usage and design issues have driven maintenance costs, reliability and durability for the existing vehicle fleet—principally the LLVs. These key “lessons-learned” through the USPS’ experience with existing vehicles, offer suggestions for how the vehicle design might be improved or tailored for the unique conditions and environment in which mail delivery vehicles are operated. This listing of observations is being offered to potential suppliers for informational purposes only—and any suggestions related to materials use, assembly, design or any other vehicle characteristics should not be considered as mandatory or required. Many of the observations and suggestions may be unique to the LLV design and therefore not applicable or relevant to the NGDV prototype design being offered in response to this SOO.

Suppliers are encouraged to consider these suggestions and observations as they proceed with finalizing their vehicle designs.

5.1 Body Damage

Historically, the highest rate of body damage has been to the front door, fender, and grill components, resulting in frequent replacement of these body panels. Repair of larger body panels (i.e., roof, rear quarter panels) requires excess labor and the use of highly specialized tools. Optimal vehicle body design and construction would allow body panels to be repaired or replaced easily, especially in the areas that have a high potential for accident damage.

5.2 Vehicle Doors

Vehicle doors experience high cycles of opening and closing, which can result in stress related failures if the door design is not rigid enough. Door components (i.e. locks and latches) that can withstand the rigors of the postal duty cycle and are designed for easy replacement should be considered in the prototype design. Similarly, windows experience a high duty cycle, which resulted in a retrofit of the window regulator on the existing fleet. Durable window components should be considered in the prototype design.

5.3 Lock and Ignition Components

High maintenance costs are common with manual locks and ignition components. Remote key fobs are susceptible to water damage. The prototype vehicle design should consider remote lock and ignition components that demonstrate a level of durability and reliability resulting in reduced maintenance costs, compared to the maintenance cost of the current manual lock cylinder design, while providing increased security.

5.4 Windshield

Windshield leaks are common, and replacement requires excess labor. A method of installation eliminating the potential for leaks would be favored, as well as replacement procedures using approved and accepted industry methods.

5.5 Windshield Wipers

Windshield wipers have experienced fatigue around the wiper pivot, due to snow loads and extended use, and the assemblies are frequently replaced due to failure of individual components. Additionally, premature wear of pivots and linkages requires that the wiper motor exert excessive force.

5.6 Camera and monitoring system components

Camera and monitoring system components are exposed to a range of environmental conditions and vehicle dynamics. Current vehicles have exhibited issues with fogging of the camera lens and system failures due to vibration.

5.7 Crevices

Mail can be inadvertently dropped into small crevices and areas inside the operator cab that are difficult to access. The prototype design should consider eliminating all crevices.

5.8 Step Wells

Due to repeated ingress and egress by the mail carrier on most delivery routes, the step well is prone to high wear.

5.9 High current circuits

Vehicle fires have been attributed to electrical component failures in high current circuits including switches or controls (i.e. ignition switch, headlight switch, heating system blower motor control, etc.) without adequate protection.

5.10 Grease Fittings

The postal duty cycle exposes front suspension and steering components to extreme driving and maneuvering conditions. The prototype design should consider grease fittings that ensure ease and proper lubrication for ball and socket type joints.

5.11 Tire Scuff and Wear

Tire scuff and wear has been a significant problem on the existing vehicles. The front suspension and tire alignment geometries should ensure proper tire-to-road contact and minimize wear while taking into consideration the comparatively high frequency but low speed of turns typical of carrier route service.

5.12 Service Brake System

Uneven brake wear has been experienced due to unbalanced distribution of brake force between front and rear axles.

5.13 Parking Brake System

The USPS has experienced rollaway (rolling of vehicle that occurs if operator neglects to engage the parking brake) and runaway (rolling of the vehicle that occurs if the operator neglects to place the transmission in "Park") issues. The USPS has also experienced issues with parking brake system reliability, ease of operation and maintenance. The prototype design should consider an "intelligent" braking system to apply and release the parking brake automatically.

5.14 Exhaust System

The exhaust system experiences high damage from corrosion as well as impacts with curbs and other obstacles. The prototype design should consider, if applicable, a design that reduces the potential for such damage. For example, routing the exhaust system along the left side of the vehicle may extend the life of the exhaust system by placing metal components further away from the gutter/curb where rain water, melted snow, and salt collect.

5.15 Rust Protection

The USPS has experienced rust of the chassis in the areas of the rear spring hangers and body mounts. Galvanic corrosion has been experienced in the areas of the body mounts throughout the vehicle. The USPS has learned that areas where dissimilar metals are in contact with each other has caused significant corrosion issues. The prototype design should consider chassis and frame members that utilize corrosion protection technologies to meet the specified service life.

5.16 Flexible Skirts

The USPS has experienced body damage on vehicles without flexible skirts due to curb strikes and ice buildup. The prototype design should consider flexible skirts that prevent this kind of damage.

5.17 Cold Weather Environments

In cold weather environments, vehicles are often driven through snow banks damaging critical components such as cooling systems, transmissions and engine lubrication systems. The prototype design should minimize damage to critical components if driven through snow banks.

6.0 Quality Assurance Provisions

6.1 Responsibility for Inspection

The Supplier is responsible for the location and schedule for the performance of all inspection requirements as specified herein. The supplier may use their own or any other facilities suitable for the performance of the inspection requirements specified in paragraph 7.0. The USPS reserves the right to perform any of the inspections set forth in paragraph 7.0.

6.2 Quality Conformance Inspection

The supplier must furnish the USPS copies of the inspection records showing the Prototype has been inspected and tested, and conforms in all respects to the requirements in paragraph 7.0. Such inspection records must be full and complete and furnished to the USPS prior to the start of the USPS inspection of the prototype test vehicle.

7.0 Prototype Vehicle Inspection

7.1 General Examination Elements

The Prototype vehicles will be examined in accordance with Table 2 to determine conformance with the SOO. At the discretion of the USPS, the presence of one or more defects may be cause for rejection.

Table 2: Examination Elements

Inspection Element	Section Reference
Vehicle Design	3.1-3.8
Driving Range	3.4
Cab and Cargo Area	3.5
Doors	3.6
Operators Seat	3.7
HVAC	3.8.1-3.8.2
Cargo Ventilation	3.8.3
Emissions Control Equipment	3.9
Prototype Certification and Test Results	3.10
Design Drawings	3.13
Operator Instruction Manual	3.14

7.2 Prototype Inspection Tests

The Prototype vehicles will be tested in accordance with Table 3, Prototype Inspection Test schedule. Failure to successfully pass any test may be cause for rejection at USPS discretion.

Table 3: Prototype Inspection Tests

Test	Section Reference
Road test	7.4.2
Brake Fade Test	7.4.3
Parking brake holding test	7.4.4
Service brake test	7.4.5
Acceleration test	7.4.6
Gradeability test	7.4.7
Clearance circle test	7.4.8
Tire chain clearance test	7.4.9
Jacking test	7.4.10
Bumper impact test	7.4.11
Side door/ partition tests	7.4.12
Break-In Test	7.4.13
Heater/ defroster test	7.4.14
Air Conditioner	7.4.15
Water Spray Test	7.4.16

7.3 Examination Procedure

Failure of a prototype vehicle to meet any requirement specified herein as a result of the quality conformance examination, and tests specified in Tables 2 and 3, may be cause for rejection of the prototype vehicle at USPS discretion. The USPS will not conduct any further evaluation on a failed prototype until evidence has been provided by the supplier that corrective action has been taken to eliminate the deficiencies.

7.4 Prototype Inspection Test Procedures

7.4.1 General

Unless otherwise specified, tests will be performed without shelter and at the climatic conditions existing at the place of test. The vehicle will be uniformly loaded to its GVWR and full complement of fuel, lubricant, and coolant when applicable. The vehicle will be operated as specified herein without maintenance other than the supplier's recommended normal scheduled maintenance, as established by the maintenance schedule prepared and submitted by the supplier and approved by the USPS prior to the test.

7.4.2 Road Test

The vehicle will be driven a sufficient distance by a USPS representative to determine their operating and handling characteristics. Driving will include operation of the vehicles with and without payload in both urban and rural environments, and at legal and safe speeds up to and including 60 mph. Travel will be over roadway surfaces varying from primary (excellently maintained) highways to secondary (poorly maintained) roads. Cause for failure of the test may include evidence of poor handling qualities, or failure of the vehicle to safely maintain a speed of 60 mph on a 1 percent grade, or 45 mph on a 2.5 percent

grade.

7.4.3 Brake Fade Test

The vehicles will be driven a minimum of 25 consecutive stops from a speed of 35 mph. The deceleration rate of these stops shall be held to 8 feet per second per second and the acceleration rate to 35 mph must be the maximum for the vehicle. The cycle will be repeated without delay until the total number of stops is completed. Failure to maintain a deceleration rate of 8 feet per second per second indicates brake fade or other discernible malfunctions may be cause for failure of the test.

7.4.4 Parking Brake Holding Test

The parking (hand) brake will be tested to demonstrate its adequacy to hold the vehicles on a 20 percent grade, with the transmission parking mechanism disengaged for a period of not less than 5 minutes. The parking brake will be tested in both the ascending and descending attitudes. Failure of the parking brake to hold the vehicle securely in either the ascending or descending attitude may be cause for failure of the test.

7.4.5 Service Brake Emergency Stopping Test

The service brake system will be tested to demonstrate its capability to stop the vehicles adequately and safely under an emergency (panic) stop condition. The test will be conducted on a reasonably level, dry, asphalt or concrete road surface free from loose material. The vehicles will be subjected to two emergency (panic) type stops from a speed of 20 mph. Failure of the vehicle to stop within 25 feet or failure of the vehicles to make a safe, controlled stop within a 10 feet lane during each test, or any indication of excessive pedal pressure, appreciable brake fade, or malfunction of the service brake system, may be cause for failure of the test. Brake linings will be subject to visual inspection after test.

7.4.6 Acceleration Tests

The vehicle will be tested to demonstrate its ability to accelerate from a speed of 0 to 60 mph within an allotted time of 35 seconds, to accelerate from 0 to 50 mph within an allotted time of 22 seconds, and to accelerate from 0 to 15 mph within an allotted time of 5 seconds. Inability of the vehicle to meet this requirement may constitute failure of this test.

7.4.7 Gradeability Tests

The vehicle will be tested to demonstrate its ability to stop on and ascend a 20 percent grade in low gear. The test will be performed on dry, asphalt, or concrete road surface free from loose material having a predetermined grade of not less than 20 percent. The vehicle will be tested in both forward and reverse drives. Failure of the vehicle to stop on and ascend the grade in either forward or reverse drives may be cause for failure of the test.

7.4.8 Clearance Circle Test

The vehicles will be operated to determine the vehicle clearance circle diameter in both directions.

7.4.9 Tire Chain Clearance Test

The vehicle, with side doors closed, will be tested to determine that it can be used safely when equipped with tire chains on the drive wheels. With drive wheels equipped with heavy-duty, cross-link type tire chains, compress the spring on the left drive wheel so that the axle is in contact with the left drive wheel axle stop and the right spring is allowed to hang free. Jack up the vehicle by the appropriate bumper until both drive wheels are completely free of ground contact.

This test will be repeated with the right drive wheel spring compressed and the left spring allowed to hang free. In case of 4-wheel drive this procedure will be repeated for each axle. Operate the vehicle at a speedometer indicated speed of 20 mph. Any indication of tire chain to body contact during either test may be cause for failure of the test.

7.4.10 Jacking Test

The vehicle will be tested to demonstrate its ability to withstand the stresses on the jacking points and supports and braces, and associated vehicle components during maintenance servicing operations. The vehicles will be alternately jacked up at each Jacking/lifting point with vehicle loaded to its GVWR to lift the nearest wheel(s) to the jacking point slightly off ground. Any indication of frame twisting that results in binding of the side doors or any evidence of deformation of the lift point structure, or frame and body member that results in a permanent set in such components or members may be cause for failure of the test.

7.4.11 Bumper Impact Tests

The front and rear bumpers will be tested to demonstrate their ability to withstand impacts associated with terminal and docking operations. The vehicle will be impacted against a fixed barrier, or other immovable object, at a sustained speed of 4 mph at a 30° angle to the vehicle center-line, such that the right outboard face of the front bumper is the first point of contact with the barrier. The same test will be repeated for the left outboard face of the front bumper and the right and left outboard faces of the rear bumper. These tests will be followed by impacts into a fixed collision barrier that is perpendicular to the line of travel of the vehicle, while traveling longitudinally forward, then longitudinally rearward, at 5 mph. At the onset of all barrier impacts, the vehicle is operating at idling speed in accordance with the manufacturer's specifications and the vehicle is loaded to its full GVW. Upon completion of each test, the vehicle will be visually inspected for damage. Any evidence of vehicle damage, including damage to the bumper (with exception for cosmetic damage), bumper supports and braces, chassis members, or body paneling, may be cause for failure of the test.

7.4.12 Side Door and Partition Door Tests

All side and partition sliding doors will be tested to demonstrate ease of opening and closing. With the vehicle positioned on the level, the right and left sliding doors and partition sliding door will be closed and opened (excluding the latch action) utilizing a spring gauge. A force in excess of 19 lbs. to open or close any of these doors may constitute failure of this test.

7.4.13 Break-in Test

The vehicle will be tested by the United States Postal Inspection Service representative for break-in resistance during prototype Test using crowbars, hammers, picks, screwdrivers, and other common tools. The Inspection Service will attempt to break-in to the cab and cargo areas. Failure of the lock system or the door permitting entry within 15 minutes may be cause for failure of the test. Breaking of window glass will not be used as a point of break in entry.

7.4.14 Heater and Defroster Tests

The heater and defroster system will be tested to demonstrate the ability to provide enough heat so that the air temperature at the operator's feet is at least 65°F when the outside ambient temperature is -30°F with windows closed. The defroster system will be tested to demonstrate its ability to conform to the standards required in SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, and Multipurpose Vehicles. Failure of the heater and defroster system to meet the specified requirements may be cause for failure of the test.

7.4.15 Air-Conditioning Test

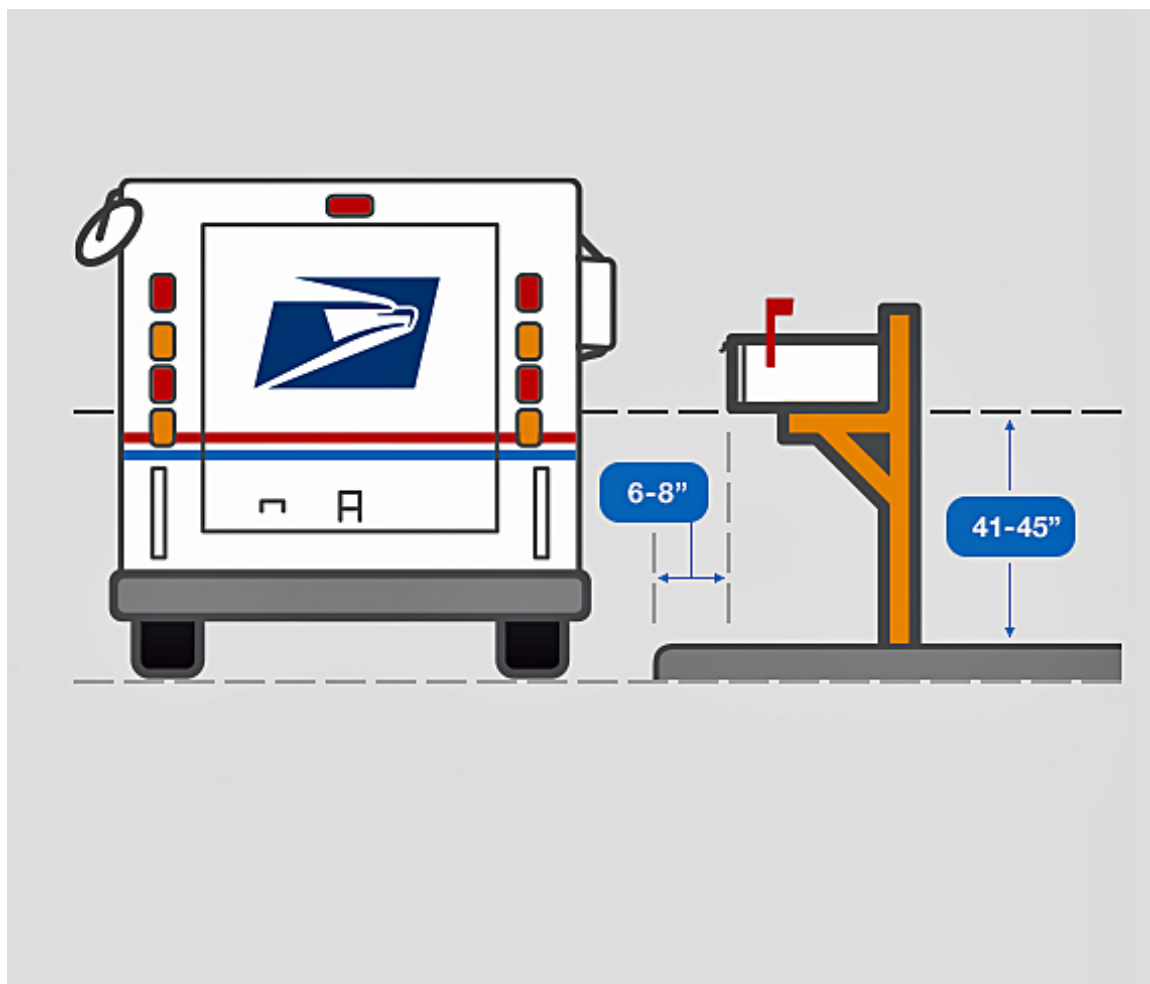
The air conditioning system will be tested to demonstrate the ability to provide cooled air so that the air temperature at the operator's torso area with operator's window open is maintained at or below 85 degrees Fahrenheit when the outside temperature is 120 degrees Fahrenheit. Failure to meet this cooling requirement may be cause for failure of the test.

7.4.16 Water Spray Test

The vehicle will be subjected to a water spray test to simulate a hard driving rain. Water will be impinged on the vehicle from the top at an angle of approximately 45° to the horizontal, and at a rate equivalent to at least 3 inches of water per hour. Each surface, i.e., front, rear, right side, left side, and undercarriage, will be exposed simultaneously to this simulated rainfall for at least 10 minutes. Any leakage of water into the interior of the vehicle, or any indication of malfunctioning of the vehicle's electrical and ignition system, may constitute failure of this test.

Attachment A

Mail Box Dimensions (in inches)



Attachment B

Mail Trays (in inches)

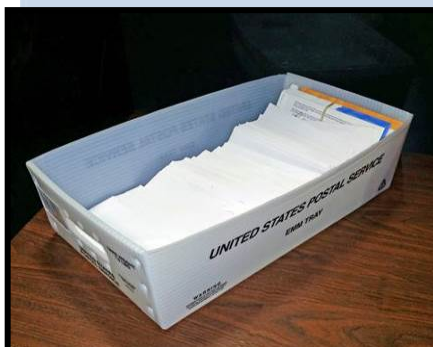
Letter Tray, Corrugated Polyethylene

Dimensions:

Length: 24.5

Width: 11.2

Height: 5.0



Letter Tray, Hard Plastic:

Dimensions:

Length: 26.3

Width: 12.75

Height: 4.25



FSS Street Tray:

Dimensions:

Length: 20.5

Width: 3.75

Height: 6.0



Flat Tray:

Dimensions:

Length: 18.25

Width: 13.25

Height: 11.5



Attachment C

USPS MDD

Dolphin 99EX

Mobile Computer

Purpose built for transportation and logistics applications, Honeywell's Dolphin® 99EX mobile computer provides user-friendly ergonomics, cutting-edge wireless technology, multi-functional data capture and extreme durability for front-line workers operating in a variety of locations ranging from loading docks to residential doorsteps.

The reliable and intuitive Dolphin 99EX delivers an outstanding feature set that enables improved productivity for mobile workers. Integrated Shift-PLUS™ technology provides all day battery life, minimizing the time and expense incurred when batteries need to be charged or replaced. The Dolphin 99EX is IP67-rated and can withstand multiple 6 feet (1.8 meters) drops to concrete, ensuring years of trouble-free operation.

The 99EX features the latest in wireless technology, including a software- definable radio that allows on-the-fly switching between GSM and CDMA networks, leading to improved network coverage and lower costs related to device provisioning and deployment.

Additionally, built-in Wi-Fi provides workers with access to critical data using the new, lightning fast 802.11n standard while still supporting legacy a/b/g protocols.

Integrated motion, light and proximity sensors help conserve battery life and improve ease of use by automatically optimizing the offering for the current environment.

Similarly, multiple keypad options are available to ensure that the device is configured to meet diverse data input needs. With additional features such as an ultra-bright 3.7 inch display that can be read, even in direct sunlight, the Dolphin 99EX offers superior usability.

Designed with input from leading companies in the transportation and logistics sector, Honeywell's Dolphin 99EX mobile computer provides a rugged solution that increases productivity by connecting enterprises, front-line workers and customers using real-time wireless communication.

Features:

- **Superior Durability:** Incorporates an IP67-rated design that withstands multiple 6 feet drops to concrete and 2,000 1 meter tumbles, resulting in a lower total cost of ownership for enterprises
- **Shift-PLUS Power Management:** Enhances productivity by providing full shift battery life, eliminating the need for employees to carry spare batteries or chargers
- **Adaptus® Imaging Technology 6.0:** Enables multi-functional data capture by providing fast scanning of linear and 2D bar codes with excellent motion tolerance, as well as seamless image capture through use of an integrated color camera
- **Fast and Reliable Wireless Connectivity:** Delivers full wireless coverage for applications inside and outside of the four walls, allowing real-time access to critical data
- **Optimal Combination of Performance and Usability:** Improves ease of use and worker efficiency with a large outdoor-viewable screen, multiple keypad options, a super fast CPU and smart sensors.



Dolphin 99EX Technical Specifications

Mechanical/Environmental

Dimensions	8.5" L x 2.7" W (keypad) x 1.5" (standard battery)/1.8" (extended battery) 215 mm L x 69 mm W (keypad) x 39 mm (standard battery)/45mm (extended battery)
Weight	Standard battery – 505g (17.8 oz); Extended battery – 581g (20.5 oz)
Operating Temperature	-4° to 122°F (-20° to 50°C)
Storage Temperature	-13° to 158°F (-25° to 70°C)
Humidity	95% humidity, non-condensing
Drop	Withstands multiple 6' (1.8m) drops to concrete, all axis, and across operating temperature range
Tumble	Exceeds 2,000 (1m) tumbles per IEC 60068-2-32 specification
Environmental Sealing	Independently certified to meet IP67 standards for moisture and particle resistance
ESD	Air: ±15 KV; Contact: ±8 KV
System Architecture	
Processor	Texas Instruments® OMAP3715 1.0GHz processor
Operating System	Microsoft® Windows Embedded Handheld 6.5 Professional and Classic
Memory	1GB discrete NAND flash x 256 MB RAM
Display	Chemically strengthened 3.7" transfective active matrix glass display, VGA (480x640), 333 nits
Touch Panel	Industrial touch panel with resistive touch and support for finger touch and stylus
Keypad	Backlit 55-key alphanumeric, 43-key alpha shifted numeric, 34-key numeric shifted alpha (phone or calculator style)
Audio	Speaker, HAC compliant receiver, microphone
Camera	3.1 megapixel camera with Automated Camera Control (ACC). Features include automated picture profiles, camera Application Programming Interface (API), cooperational use of camera and imager, and flashlight utility
I/O Ports	RS-232/USB 2.0/audio out/charging connector, integrated IrDA port with support for SIR mode
Storage Expansion	User accessible Micro SDHC memory card slot. Please check current price guide for available qualified card options
Battery	Standard – Li-ion, 3.7V, 3060mAh; Extended – Li-ion, 3.7V, 5000mAh
Battery Life	Standard/Extended: 9 hours/15.5 hours (scanning and sending data over WLAN every 9 seconds) Standard/Extended: 8 hours/14.75 hours (scanning and sending data over WWAN every 15 seconds, GPS continuously receiving information)
Imager/Scanner	N5600/5603 Standard range (SR), Extended range (ER), and High Density (HD) imagers with high-visibility laser or green LED aimer. All imagers have 25° angle and come equipped with Adaptus 6.0 Imaging Technology
Decode Capabilities	Reads standard 1D and 2D symbologies
Development Environment	Honeywell SDK for Windows® Embedded
Warranty	1 year factory warranty
Service Plans	Optional three-and five-year Service Made Simple programs offer worry-free mobile computing
Wireless Connectivity	
WWAN	GSM (Voice and Data): 3.9G - HSPA+ (800/850/1900/1700/2100 MHz), GSM/GPRS/EDGE (850/900/1800/1900 MHz) Software definable Gobi 3000 (data only): 3.9G – HSPA+/UMTS (800/850/900/1700/1900/2100MHz), GSM/GPRS/ EDGE (850/900/1800/1900MHz), EVDO Rev A - 1xRTT/EVDO (800/1900 MHz); support for dual SIM card
WLAN	802.11a/b/g/n, Wi-Fi™ - certified
WLAN Security	WPA, WPA2 (Personal and Enterprise), 802.1x, EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, WMM, CWG-RF Profile, CCX v.4, WAPI
WPAN	Bluetooth® V2.1, support for enhanced data rate 2.0 Mbps & 3.0 Mbps rates class II
GPS	Integrated Assisted GPS (A-GPS) with fast position acquisition and low power consumption