



**MAINTENANCE PLAN:  
(VEHICLES, EQUIPMENT AND  
FACILITIES)**

Revised September 2022

107 Arrow Rd.  
Greensboro, NC 27409

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## Section 1: Introduction and Overview

### Organization Description

Piedmont Authority for Regional Transportation (PART) was created in 1997. It is one of only three (3) large, urban regional transit entities in NC. The others are Go - Triangle (Raleigh-Durham-Chapel Hill) and Charlotte Area Transit System (CATS).

PART Express is the regional bus system connecting major cities of the Piedmont and bringing people from the outlying counties into the urban areas. PART presently has an Administration Office at 107 Arrow Rd., Greensboro, NC. PART also has a Regional Hub (Coble Transportation Center) located at 8310 W. Market St., Greensboro, NC adjacent to the Administration Office on the PART Campus. PART has various park and ride facilities throughout the territorial jurisdiction that serve the general public for PART Express bus services, carpooling and vanpooling.

PART also has an Operations / Maintenance Facility adjacent to the PART Administration Office on the PART Campus. PART's revenue service contractor, National Express, provides scheduling, dispatching, maintenance and operations out of this facility.

### Operational Design

PART has 23 direct employees that serve in administrative, contract management, customer service and planning positions. PART does not directly employ any maintenance personnel.

The PART Director of Commuter Operations has responsibility for overseeing the maintenance of all Fixed-Route PART-owned assets which includes PART Express Commuter Bus and Van Operations. This is done through a combination of vendor oversight activities as well as self (or delegated staff) performance inspections.

National Express performs all transit operations and revenue vehicle maintenance. All bus drivers and mechanics are employees of National Express. The National Express contract with PART is earned via revenue hours operated. All maintenance costs on revenue vehicles are the responsibility of National Express under this contract.

The PART Director of Commuter Operations in coordination with the Field Operations Specialist has responsibility for overseeing the inspections and maintenance of the described PART-owned facilities. These responsibilities include performing routine, non-technical inspections of these assets on the schedules identified later in this document. Simple household repairs (e.g., lightbulb replacement) are frequently self-performed by the PART staff. PART uses qualified contractors to perform regular inspections of the various facility assets technical systems/subsystems such as vehicle lifts, HVAC, air compressors and boilers. When maintenance or repairs are needed to these technical systems, such repairs are handled by contractors.

PART's Mobility Manager provides daily oversight of PART's Vanpool operations and vehicle maintenance. This involves either directly or via delegated staff contacting the appropriate van drivers to schedule preventive maintenance service. Due dates for such service are monitored through a combination of tracking the dates of prior services along with the monthly mileage reports provided by the driver to PART. Actual vehicle maintenance is performed by a variety of vendors (including National Express or the Winston Salem Transit Authority – WSTA) under the direction of the identified PART personnel. The Mobility Manager maintains these vehicle maintenance records along with appropriate schedule updates.

## Section 2: PART Maintenance Plan Design

### Overview

The PART Maintenance Plan's approach enhances a focus on the goals and allows for the monitoring of performance progress. The performance indicators help determine the amount of progress that is being made toward achieving the goals and objectives. The three elements – 1) goals, 2) objectives and 3) performance indicators– control and monitor the maintenance department activities that work toward building a more effective transit operation. PART's goals and objectives for its maintenance program are listed below while its performance measures are described in Table 1: Maintenance Performance Measures:

#### GOALS AND OBJECTIVES

- I. To provide safe, dependable, and quality transportation for PART service area.
  1. Meet or exceed monthly performance goals
  2. Maintain quality revenue equipment
- II. Assure maximum ridership
  1. Meet on-time performance goals by insuring reliable vehicles and equipment
  2. Implement and update the annual safety plan
- III. To provide a cost-effective system
  1. Provide in-depth training programs for maintenance employees with NCDOT and vehicle manufacturer factory training and other component training opportunities.
    - a. Conduct an assessment of training needs
    - b. Update the comprehensive employee handbooks in maintenance areas
    - c. Monitor monthly reports to meet or exceed performance goals
  2. Ensure or extend recommended life expectancy of equipment and facilities
    - a. Preventive maintenance programs
    - b. Replace or repair maintenance department equipment as needed
- IV. PART Safety and Security Plan
  1. Ensure safety at maintenance facilities
  2. Post daily safety message
  3. Provide training in maintenance department
    - a. Handling hazardous materials training
    - b. First-aid training
    - c. Blood borne pathogens training
    - d. Fire extinguisher use training
    - e. Supervisor training classes
    - f. Technical training classes for mechanic

#### Preventative Maintenance Focus

Preventative Maintenance is the foundation of the maintenance approach. The goal of the program is to make the majority of repairs on a planned basis rather than when it breaks down. This approach, in conjunction with a defined asset replacement program, is intended to minimize lifecycle costs for these

assets, a performance target that is consistent with State of Good Repair and is consistent with fundamental asset management optimization practices.

### **Performance Monitoring and Enforcement**

PART employs performance measures and a series of compliance strategies to ensure that its maintenance program is being followed by National Express and is working as designed. The measures are monitored through a combination of daily reports, weekly meetings, monthly reviews and quarterly, bi-annual and annual activities. These policies are documented in PART Policy Number PART-013-003, "3<sup>rd</sup> Party Oversight Policy and Procedures," which is included as Appendix A of this document. However, Table 1: Maintenance Performance Measures summarizes these activities and identifies examples of the relevant recording/reporting document(s).

The PART Director of Commuter Operations is responsible for collecting and maintaining these records, as well as ensuring that these performance measures are being achieved. In instances where performance is below the target standard, the PART Director of Commuter Operations has direct responsibility to taking whatever remedial actions are needed to correct these issues, including involving the appropriate vendors, PART executive management, and leveraging the liquidated damages provisions of the service contract as needed.

### **Warranty Policy Statement**

It is PART's policy to keep records of all possible warranty claims on both parts and labor that are covered under a warranty, including work performed by outside vendors. If needed repairs are covered by an applicable warranty, the appropriate vendor is contacted to arrange for repairs to be performed (or be reimbursed) under the appropriate warranty provisions.

PART's vendor, National Express, is responsible for tracking and filing all vehicle-related warranty claims. National Express is financially motivated to recover warranty coverage as diligently as possible as warranty recovery reduces its National Express's costs. National Express ensures that warranty claims are made per the manufacturers' policies and paid in a timely fashion.

National Express uses its vehicle maintenance system (VMS) to track and administer warranty claims. National Express also uses its VMS to ensure that all manufacturers' policies are followed in repairing a warranted item, including the recovery of warranted parts and tracking vendor replacement of these parts.

Table 1: Maintenance Performance Measures

Time Period	Task	Goal /Measurement	Recording Documentation
Daily	Out of Service Report	Down ratio not to exceed 15%	<ul style="list-style-type: none"> <li>“Vehicle Out of Service Report”, Appendix B</li> </ul>
Daily	Daily Safety Message	Safety message posted daily	<ul style="list-style-type: none"> <li>“Daily Safety Message”, Appendix C example;</li> <li>”3<sup>rd</sup> Party / Program Oversight” daily checklist form, Appendix D</li> </ul>
Weekly	Buses Cleaned	Clean a minimum of 68buses	<ul style="list-style-type: none"> <li>”3<sup>rd</sup> Party / Program Oversight” daily checklist form, Appendix D</li> </ul>
	Complaints Reviewed	Review 100% of complaints	<ul style="list-style-type: none"> <li>“Operations Summary”, Appendix E</li> </ul>
Monthly	Invoice	Invoice received	<ul style="list-style-type: none"> <li>”3<sup>rd</sup> Party / Program Oversight” daily checklist form, Appendix D</li> </ul>
	Operational Statistics Report	Mean Distance Between Failures	<ul style="list-style-type: none"> <li>“Operation Statistics Report”, Appendix F (need example)</li> </ul>
	Monthly Safety Meetings/Reports	Meeting materials /employee list received	<ul style="list-style-type: none"> <li>“Safety &amp; Training Summary”, Appendix G;</li> <li>“Weekly 3<sup>rd</sup> Part Oversight Meeting”, Appendix H;</li> <li>”3<sup>rd</sup> Party / Program Oversight” daily checklist form, Appendix D</li> </ul>
	Monthly Safety Activities Report	Safety Activities Report received	<ul style="list-style-type: none"> <li>“Safety &amp; Training Summary”, Appendix G;</li> <li>“Weekly 3<sup>rd</sup> Part Oversight Meeting”, Appendix H;</li> <li>”3<sup>rd</sup> Party / Program Oversight” daily checklist form, Appendix D</li> </ul>
	Vehicle Mileage Report	Vehicle Mileage Report received	<ul style="list-style-type: none"> <li>Vehicle Mileage Report (TBD), Appendix I</li> </ul>
	Facility Inspections Report:		
By PART	PART Hub	Inspection received	<ul style="list-style-type: none"> <li>PART Facility Inspection form, Appendix J (TBD)</li> </ul>
	Monthly PM Service Reports	Complete 80% PM's no later than +10% 6,000 miles, +10%	“PM Report,” Appendix K

Time Period	Task	Goal / Measurement	Recording Documentation
	Monthly State Inspections	100% Inspections Completed	<ul style="list-style-type: none"> <li>• “Maintenance Summary”, Appendix L</li> </ul>
	Ride Along Check Report	25% of operators have a ride along per quarter	<ul style="list-style-type: none"> <li>• Ride Along Check form, Appendix M</li> </ul>
<b>Quarterly</b>	Drug & Alcohol Report	50% Safety Sensitive Positions Tested for Drugs, 10 % Alcohol company wide	Drug and Alcohol testing form, Appendix N
	Park & Ride Lot Maintenance Report	Complete 17 P & R Lot inspections	<ul style="list-style-type: none"> <li>• <b>Park and Ride check form, Appendix O (TBD)</b></li> </ul>
	Vehicle 90-day Safety Inspection	Inspection performed	<ul style="list-style-type: none"> <li>• Vehicle 90-day Safety Inspection form, Appendix P</li> </ul>
	PART Express Vehicle Inspections	Inspect all PART Express vehicles (July/Jan.)	<ul style="list-style-type: none"> <li>• PART Express Vehicle Inventory Inspection, Appendix Q</li> </ul>
<b>Bi-Annual</b>	Elon University Vehicle Inspections	Inspect all Elon University vehicles (July/Jan.)	PART Express Vehicle Inventory Inspection, Appendix Q
			<ul style="list-style-type: none"> <li>•</li> </ul>
			<ul style="list-style-type: none"> <li>•</li> </ul>
	TDM /Vanpool Inspections Vehicle Inventory Inspection	Inspect all TDM Vanpool Inspections (May – June)	PART Express Vehicle Inventory Inspection, Appendix R
<b>Annual</b>	Shop Equipment Inventory Inspection	Inspection performed	Shop Equipment Inventory Inspection, Appendix S
	Lift - Annual Inspection	Inspection performed	<ul style="list-style-type: none"> <li>• Lift Inspection, Appendix T</li> </ul>
	Fuel Tank Inspection	Inspection performed	<ul style="list-style-type: none"> <li>• Fuel Tank Inspection, Appendix U</li> </ul>
	Security Video Equipment Inspection	Inspection performed	<ul style="list-style-type: none"> <li>• <b>Security Video Inspection, Appendix V (TBD)</b></li> </ul>
	Vault Inspection	Inspection performed	<ul style="list-style-type: none"> <li>• <b>Vault Inspection, Appendix W (TBD)</b></li> </ul>
			<ul style="list-style-type: none"> <li>•</li> </ul>
			<ul style="list-style-type: none"> <li>•</li> </ul>



## Appendices

The following documents are included in this appendix in the order they are identified in the above subsection:

- A. 3<sup>rd</sup> Party Oversight Policy
- B. Vehicle Out of Service Report
- C. Daily Safety Message
- D. 3<sup>rd</sup> Party / Program Oversight
- E. Operations Summary
- F. Operation Statistics Report (need Example)
- G. Safety & Training Summary
- H. Weekly 3<sup>rd</sup> Part Oversight Meeting
- I. Monthly Mileage Report
- J. PART Facility Inspection form (TBD)
- K. PM Compliance Report - monthly
- L. Maintenance Summary
- M. Driver Ride Check
- N. Drug and Alcohol testing report
- O. Park and Ride Check form (TBD)
- P. Vehicle 90-day Safety Inspection
- Q. PART Express Vehicle Inspection
- R. Vehicle Inventory
- S. Shop Equipment Inventory Inspection
- T. Lift Inspection
- U. Fuel Tank Inspection

V. Security Video Equipment Inspection (TBD)

W. Vault Inspection (TBD)

## Subsection A: Revenue Bus Maintenance

### Revenue Vehicle Fleet

The PART Express fleet includes 39 vehicles. All vehicles have bike racks and most are wheelchair accessible.

Table 2: PART Express Fleet

Vehicle Inventory List - PART Express - 2020												
Vehicle No.	Year	Length	Make / Model	VIN	Passengers	Fuel	Engine	Useful Life Cycle	In Service	Mileage	Assigned Location	
1	5815	2008	40'	Orion VII	1VHFH6G2986703798	39	Diesel	Cummins ISL	Heavy / 12 yrs	05-2008	577183	Mid-range, long routes
2	5926	2009	40'	Orion VII	1VHFH6G2196704882	39	Diesel	Cummins ISL	Heavy / 12 yrs	03-2009	524369	Mid-range, long routes
3	5927	2009	40'	Orion VII	1VHFH6G2396704883	39	Diesel	Cummins ISL	Heavy / 12 yrs	03-2009	548299	Mid-range, long routes
4	5928	2009	40'	Orion VII	1VHFH6G2596704884	39	Diesel	Cummins ISL	Heavy / 12 yrs	03-2009	517219	Mid-range, long routes
5	5929	2009	40'	Orion VII	1VHFH6G2596704920	39	Diesel	Cummins ISL	Heavy / 12 yrs	03-2009	582249	Mid-range, long routes
6	5930	2009	40'	Orion VII	1VHFH6G2796704921	39	Diesel	Cummins ISL	Heavy / 12 yrs	03-2009	416719	Mid-range, long routes
7	5931	2009	40'	Orion VII	1VHFH6G2996704922	39	Diesel	Cummins ISL	Heavy / 12 yrs	03-2009	529843	Mid-range, long routes
8	5932	2009	40'	Orion VII	1VHFH6G2596704934	39	Diesel	Cummins ISL	Heavy / 12 yrs	03-2009	501802	Mid-range, long routes
9	5933	2009	40'	Orion VII	1VHFH6G2796704935	39	Diesel	Cummins ISL	Heavy / 12 yrs	03-2009	465199	Mid-range, long routes
10	5034	2010	40'	Orion VII	1VHFH6G28A6706049	39	Diesel	Cummins ISL	Heavy / 12 yrs	10-2010	420916	Mid-range, long routes
11	5035	2010	40'	Orion VII	1VHFH6G29A6706058	39	Diesel	Cummins ISL	Heavy / 12 yrs	10-2010	509700	Mid-range, long routes
12	5036	2010	40'	Orion VII	1VHFH6G26A6706003	39	Diesel	Cummins ISL	Heavy / 12 yrs	10-2010	539379	Mid-range, long routes
13	5037	2010	40'	Orion VII	1VHFH6G28A6706021	39	Diesel	Cummins ISL	Heavy / 12 yrs	10-2010	461557	Mid-range, long routes
14	5038	2010	40'	Orion VII	1VHFH6G27A6706043	39	Diesel	Cummins ISL	Heavy / 12 yrs	10-2010	517889	Mid-range, long routes
15	5441	2014	25'	Champion Challenger	1GB6G5BL3E1132086	18	Diesel	Duramax 6.6	Light/5 yrs	11-2014	204563	Shuttles, short routes
16	5443	2014	25'	Champion Challenger	1GB6G5BL1E1133589	18	Diesel	Duramax 6.6	Light/5 yrs	11-2014	204807	Shuttles, short routes
17	5445	2014	25'	Champion Challenger	1GB6G5BL4E1133392	18	Diesel	Duramax 6.6	Light/5 yrs	11-2014	170690	Shuttles, short routes
18	1721	2016	24'	Sprinter	WDAPF4CB2GP227714	17	Diesel	Mercedes	Light/7 yrs	05-2016	127464	Shuttles, short routes
19	1722	2016	24'	Sprinter	WDAPF4CB6GP227716	17	Diesel	Mercedes	Light/7 yrs	05-2016	131878	Shuttles, short routes
20	1700	2017	40'	New Flyer Excelsior	5FYD8FV16HF052126	38	Diesel	Cummins ISL	Heavy / 12 yrs	06-2017	182062	Long, busy routes
21	1701	2017	40'	New Flyer Excelsior	5FYD8FV18HF052127	38	Diesel	Cummins ISL	Heavy / 12 yrs	06-2017	228895	Long, busy routes
22	1702	2017	40'	New Flyer Excelsior	5FYD8FV1XHF052128	38	Diesel	Cummins ISL	Heavy / 12 yrs	06-2017	201610	Long, busy routes
23	1703	2017	40'	New Flyer Excelsior	5FYD8FV11HF052129	38	Diesel	Cummins ISL	Heavy / 12 yrs	06-2017	171431	Long, busy routes
24	1704	2017	40'	New Flyer Excelsior	5FYD8FV18HF052130	38	Diesel	Cummins ISL	Heavy / 12 yrs	06-2017	177886	Long, busy routes
25	1705	2017	40'	New Flyer Excelsior	5FYD8FV1XHF052131	38	Diesel	Cummins ISL	Heavy / 12 yrs	06-2017	190654	Long, busy routes
26	1706	2017	40'	New Flyer Excelsior	5FYD8FV11HF052132	38	Diesel	Cummins ISL	Heavy / 12 yrs	06-2017	195286	Long, busy routes
27	1707	2017	40'	New Flyer Excelsior	5FYD8FV13HF052133	38	Diesel	Cummins ISL	Heavy / 12 yrs	06-2017	183464	Long, busy routes
28	1801	2018	25'	StarTrans LTV	1FDFE4FS4JDC24132	18	Gas	E450	Light/5 yrs	08-2018	59876	Shuttles, short routes
29	1802	2018	25'	StarTrans LTV	1FDFE4FS6JDC24133	18	Gas	E450	Light/5 yrs	08-2018	72299	Shuttles, short routes
30	1901	2019	25'	Phoenix LTV	1FDFE4FS3KDC14130	18	Gas	E450	Light/5 yrs	09-2019	34396	Shuttles, short routes
31	1902	2019	25'	Phoenix LTV	1FDFE4FS5KDC14131	18	Gas	E450	Light/5 yrs	09-2019	44469	Shuttles, short routes
32	2001	2020	40'	New Flyer XD40	5FYD8FV17LF073978	38	Diesel	Cummins ISL	Heavy / 12 yrs	03-2020	466	Long, busy routes
33	2002	2020	40'	New Flyer XD40	5FYD8FV19LF073979	38	Diesel	Cummins ISL	Heavy / 12 yrs	03-2020	534	Long, busy routes
34	2003	2020	40'	New Flyer XD40	5FYD8FV15LF073980	38	Diesel	Cummins ISL	Heavy / 12 yrs	03-2020	528	Long, busy routes
35	2004	2020	40'	New Flyer XD40	5FYD8FV17LF073981	38	Diesel	Cummins ISL	Heavy / 12 yrs	03-2020	514	Long, busy routes
36	2020	2020	25'	StarTrans LTV, Senator II	1FDFE4FS8KDC53389	18	GAS	E450	Light/5 yrs	04-2020	791	Shuttles, short routes
37	2021	2020	25'	StarTrans LTV, Senator II	1FDFE4FS4KDC53390	18	GAS	E450	Light/5 yrs	04-2020	793	Shuttles, short routes
38	2022	2020	25'	StarTrans LTV, Senator II	1FDFE4FS6KDC53388	18	GAS	E450	Light/5 yrs	04-2020	785	Shuttles, short routes

### Revenue Fleet Performance Indicators

PART uses many performance indicators to determine the level of performance in the National Express maintenance department. Some are reviewed daily, and others are reviewed weekly, bi-weekly, or monthly. On a consistent basis, the indicators are checked and compared with the last data that was collected and reviewed. They are also computed for fiscal year-to-date, and last fiscal year-to-date. Listed below are some of PART's monthly maintenance performance indicators currently proposed for immediate usage:

FIXED ROUTE FLEET	GOAL (MONTHLY)
Revenue Vehicles – Peak Hour	26
Overtime Hours	10
Maintenance Vehicle Accident per 100,000 miles	

Parts Inventory	\$85,000-\$100,000
Daily Out of Service	< 15% out of service
Fuel Miles per Gallon	
PART Buses	5.5 mpg
Sprinter Buses	15 mpg
Startrans Cutaways	12 mpg
Oi Analysis Grade	Grade Range 1-5 - Corrected
On-time PM Completion	90% PM completed
Missed trips per month due to operational failure	0
Revenue miles between failures (major)	50,000
Revenue miles between road call (minor)	10,000
Maintenance Employees Accidents (lost time) per 10,000,000 hours'	0
Maintenance Employee Injuries (Not Lost Time) per 100,000 hours	0

## Vehicle Cleaning

PART vehicles have a detailed cleaning by National Express on a rotating basis. Otherwise, a vehicle may be cleaned if it has been in the shop for repairs, or an emergency cleaning is needed.

A detailed cleaning includes the following:

- The vehicle will be completely swept out:
  - under the seats
  - in the step wells
  - in the driver's compartment
  - behind the modesty panels
- Trash on the window sills, behind the seats, behind the rear seat, between the seats and wall sections and in the driver's area will be removed. Floors will be cleaned using a mop and pine oil. The driver's area will be hand cleaned.
- The coach ceilings will be cleaned using a proper cleaner, and all coach interior advertising signs will be cleaned or replaced.
- The windows and sills will be cleaned using a glass cleaner, including all passenger windows, door windows and front and side driver's compartment windows.
- The driver's compartment, modesty panels, dashboard, rear seat sills, and rear interior wall will be cleaned using Armorall or similar cleaner.
- All grab rails, overhead stanchions, brackets, door touch bars and seat hand holds, where applicable, will be cleaned to original finish using appropriate cleaner.
- All seats will be cleaned to new condition including bottom part of the seat, seat back, and rear of the seat back. This also includes the driver's seat.

## Daily Farebox Collection and Audit

Each member of the National Express service lane crew is responsible for servicing a designated list of vehicles. One of the various duties is pulling and emptying the vaults of each applicable vehicle. The vaults are pulled when they take it through the service lane in the evening. Each bus is equipped with an electronic GFI farebox. The vault is pulled using an electronic probe, which downloads the data and unlocks the farebox. Once a vehicle is probed the information is downloaded to a designated computer inside the vault room. **The canisters are then emptied into the vault in the vault room, then an empty canister is placed back into the bus.** Security of the canisters is of the utmost importance.

## Daily Fueling and Fluid Checks

Daily checks consist of fueling and fluid checks and are typically performed by the utility staff. Fuels and fluid consumed are entered into the vehicle management system for tracking purposes and management reporting. Unusual patterns of fuel use or fluid consumption are 'watch-outs' for fleet management personnel to evaluate whether additional investigation or repairs are needed.

## Scheduled Preventive Maintenance

The goal of PART's vehicle maintenance oversight program is to ensure that its fleet is properly maintained and serviced in a way that it meets or exceeds the predicted useful life of the vehicle. As described previously, PART uses its preventive maintenance program as the basis for this strategy. All of the vehicles in the PART fleet receive a National Express--performed Preventive Maintenance (P.M.) inspection that is performed in accordance with the requirement of the Original Equipment Manufacturer (OEM) and/or the vehicle component vendor (e.g., Cummins engines) that is appropriate to that equipment and classification.

National Express employs an equipment classification system that allows for specific performance limits to be set for every vehicle type, and for complete maintenance tracing of all components of the vehicle. A vehicle limits profile defines operating parameters such as fuel consumption, operating limits of various factors known to merit concern, and the various labor rates which might apply to the coach for accounting purposes.

The National Express PM program uses a 6,000 miles driven interval to schedule PM service. The maintenance vendor complements the above program through fluid analysis to determine the optimal intervals for fluid replacement and/or performing repairs for which the results of the fluid analysis may warrant.

PM inspections follow a progressive pattern of increasing detail and component areas starting with an "A" inspection, which is the most basic, and continuing through the "D" inspection, which is the most thorough. Each progressive inspection is additive, including all inspection areas from the lower level services. Wheelchair lift/ramp inspections are required at all PM services, with a specific section of the PM inspection form that covers those components. Appendix X, "PM Work Order Form" contains an example of the PM inspection used.

PM inspections follow a step-by-step investigation of all areas of the vehicle. The National Express Transit Maintenance Supervisor instructs the mechanic on the repairs that need to be performed.

## Unscheduled Maintenance and Repairs

Unscheduled maintenance inspections and service of vehicles typically is based on defects found during Pre-trip and Post-trip inspections performed by the Bus Operators. This is currently accomplished using the Zonar inspection system. This system has 9 diodes placed throughout the inside and outside of the buses. The Operator must tap the hand held data entry device on each diode to properly complete the inspection. This hand held device is also where the Operator records any vehicle defect on the bus. The device will transmit the data to the Maintenance Manager to address the vehicle issue. Additionally, work orders are generated internally by Supervisors, as dictated by empirical or newly available data in the form of technical bulletins, manufacturer notifications, recall notifications, and the like. Additional repairs are determined by mileage factors, performance failures, or manufacturer standards, and are designed for optimum vehicle performance and economics.

## Record Keeping

PART's vendor, National Express, uses its **Dossier Vehicle Management System (VMS)** to record vehicle maintenance performed on the revenue vehicle fleet consisting of the heavy buses and cut-away vehicles. This system has the capability of producing various reports relating to the vehicles in the fleet as well as the fluid consumption.

The process of capturing vehicle maintenance work is started by creating a work order within the VMS for the appropriate vehicle. On the work order sheet, the mechanic records all work performed and time spent working on the vehicle. Staff personnel record the issued inventory item(s) on a work order sheets. The Transit Maintenance Supervisor inputs the items issued into the maintenance software program. In the case of a preventive maintenance-based work order, the mechanic also will fill out a P.M. Inspection Checklist and attach it to the work order sheet.

The vendor also maintains vehicle service files that contain the actual work order documents generated as well as documenting part installation and any repairs performed by outside vehicles to these vehicles. These records are maintained at the vendor maintenance facilities located at the vehicle storage lots described previously.

## Other Details on Revenue Equipment Maintenance Program

Additional details on the revenue vehicle maintenance program are detailed in the National Express-supplied document, "Vehicle Maintenance Plan," which is included as Appendix Y of this document. This document includes significant, additional details related to the vendor's maintenance programs including but not limited to the following:

### Organization of the National Express "Vehicle Maintenance Plan" Document

#### Vehicle Maintenance Plan

##### Subject

- Background

- References

- Policy

- Purpose

- Mission Statement

- Goal and Objectives

##### Vehicles

- Maintenance Operations

##### Safety Program

##### Organization

- Categories

##### Procedures

##### Preventive Maintenance

- Preventive Maintenance Inspections

- PMI Defect Repairs

- Work Generated from the Operational Safety Inspection

- Special Projects/Campaigns

##### Training

##### Warranty

##### Responsible Party

## Plan Approval

### **Appendices**

The following documents are included in this appendix in the order they are identified in the above subsection:

- X. PM Work Order form
- Y. Maintenance Plan (National Express)

## **Subsection B: Vanpool Maintenance**

### **Program Description**

The PART Ridesharing/Vanpool Program is designed to increase the use of alternative transportation in PART's service region by providing individuals and employers with everything they need to start a vanpool. Details of this program are described in PART's "Vanpool Operations Manual", a copy of which is provided as Appendix Z.

In this program, PART serves as the "Lessor" (the provider of the vehicle). The "Lessee" is the person/entity that contracts with PART to operate the vehicle and form a vanpool. The lessee may/may not be the driver but often is when the lessee is an individual rather than a company. In any case, the lessee remains the responsibly party for complying with all condition of the lease. Certain obligations and conditions apply to each party (lessee/lessor) as long as the lease is in effect. These conditions are covered in the referenced manual. However, in effect this program can be described as a 'full-service vehicle lease' with the lessor (PART) being responsible for all maintenance, repairs and fuel costs for the van as long as the lessee operates the vehicle in compliance with the agreed conditions (which include a monthly payment).

PART's Mobility Manager is the person responsible for the overall operation of PART's vanpool program. These responsibilities include ensuring that all vanpool vehicles receive the necessary maintenance services to comply with PART's overall maintenance program design, which is described at the beginning of Section 2 of this document. As with other PART-owned assets, the performance target is to have assets achieve or exceed their useful life targets.

### **Maintenance Responsibilities of the Lessee**

The lessee (or their designated driver) is expected to check the water, oil and transmission fluid each time the van is fueled unless such fueling is performed by National Express or WSTA personnel or as otherwise arranged.

#### ***Monthly Reports***

The lessee is responsible for completing a Monthly Revenue and Expense Report. These reports are due to the PART on the 1st of each month for the prior month. These reports include monthly reporting of miles operated, which allows PART's Mobility Manager (or their delegate) to track the PM maintenance needs.

#### ***Van Appearance and Cleanliness***

The van driver is responsible for keeping the van clean, both inside and out. This improves safety through increased visibility from the van and of the van's lights and signals. A clean van also represents the pride the driver takes in the van and symbolizes a positive image for both the vanpool and the Piedmont Authority for Regional Transportation.

The riders are also expected to help maintain the cleanliness and appearance of the vanpool. Personal articles may be kept in the area of the riders' seats at the discretion of the vanpool driver.

PART will authorize the designated maintenance provider (WSTA, National Express or other) to clean the van each time the vehicle is brought in for a preventive maintenance inspection. All other times, the vanpool group (lessee) is responsible to clean the van.



## *Fueling*

All vanpool groups are provided a fleet fueling card and drive code for fueling the vehicle. The driver will need to enter the odometer reading and their driver code directly at the fuel pump to access fuel. The card is accepted at most all fueling stations in the region. The driver should use 87 octane unleaded gasoline for the vans. No vanpool vehicles use diesel fuel in our fleet.

## *Daily Operations*

The driver is expected to operate the van in a safe manner. The lessee arranges for a backup driver as needed, collect monthly fares and ensures that the van is clean.

## *Driver Training/Authorization*

All vanpool drivers must pass a DMV safety check. The driver must sign the Vanpool Lease Agreement, DMV Authorization Form and the Driver/Rider Agreement. Driver's must also review all materials in the PART Vanpool Operations Manual, and an overview of the vehicle safety and operational procedures.

## **Responsibilities of PART**

### *Vehicle Maintenance*

PART's Mobility Manager has established the following guidelines for vanpool vehicle inspections/maintenance:

- (a) Safety inspection every 10,000 miles
- (b) Change oil and filter every 10,000 miles
- (c) Front brake reline every 24,000 miles
- (d) Spark plugs changed every 24,000 miles
- (e) Air filter every 24,000 miles
- (f) Transmission fluid and filter every 24,000 miles
- (g) Pack front bearing every 24,000 miles
- (h) Rear brake reline every 36,000 miles
- (i) Differential lube changed every 40,000 miles
- (j) Wires, cap, rotors every 40,000 miles
- (k) Shocks every 40,000 miles
- (l) Change belts every 40,000 miles
- (m) Change hoses every 40,000 miles

PART's Mobility Manager or Vanpool Coordinator calls the respective vanpool lessee to schedule the service based on PART records and monthly mileage reports.

When unscheduled repairs are needed, the driver/lessee contracts PART's Mobility Manager or Vanpool Coordinator to determine a plan for the repairs.

PART's Mobility Manager or Vanpool Coordinator are responsible for tracking that vanpool vehicles receive their required maintenance, tracking and recording this information, and performing any actions necessary to address issues of non-compliance with this program.

### *Exchanging Vehicles for Maintenance*

For vehicles where service is performed at location other than WSTA or National Express, PART's Mobility Manager or Vanpool Coordinator will arrange to exchange vehicles with the driver and have these repairs performed with external vendors. PART staff will subsequently re-exchange these vehicles upon completion.

### *Outside Maintenance Repair*

In some cases, temporary repairs may be necessary before the van can be taken to PART's designated maintenance facility. The PART's Mobility Manager or Vanpool Coordinator can pre-approve "Emergency Service Station" to make minor repairs. Some of these repairs may include jump-starting the van, replacing a light bulb, or fuse, etc. PART staff will call these emergency service stations to make arrangements for these quick, minor repairs. These service stations will bill PART for all repairs.

### *Record Keeping Requirements*

PART uses a combination of vendors to maintain vanpool vehicles including WSTA, National Express and various private sector vendors. Accordingly, PART aggregates the paper maintenance and repairs records from the various sources and maintains a separate repair file for each vehicle.

PART currently is exploring options for consolidating these maintenance records electronically to include consolidating these records within the National Express or WSTA VMS systems. In the interim, PM requirements are tracked manually and via spreadsheets by the PART Director of Commuter Resources (or their delegate).

## **Appendices**

- Z. Vanpool Operations Manual
- AA. Other vanpool / driver forms

## Subsection C: Facilities

PART-owned facilities and equipment include the following:

- Administrative Office - 107 Arrow Rd., Greensboro, NC.
- Operations/Maintenance Facility – 8310 W. Market St., Greensboro, NC
- Coble Transportation Center (CTC) – 8310 W. Market St., Greensboro, NC
- Regional Hub - 602 S. Regional Rd., Greensboro, NC
- 22 Park and Ride locations (see Appendix AA for details)
- PART-owned equipment lifts currently located at the Greensboro facility leased by National Express

The PART Field Operations Specialist has responsibility for overseeing the inspections and maintenance of the described PART-owned facilities or equipment. These responsibilities include staff performing routine, non-technical inspections of these assets on the schedules identified later in this document. Simple household repairs (e.g., lightbulb replacement) are frequently self-performed by the PART staff.

PART uses qualified contractors to perform regular inspections of the various facility assets technical systems/subsystems. When maintenance or repairs are needed to these technical systems, such repairs are handled by contractors.

The designated facilities and equipment will be maintained at a minimum to the specifications in the operation and maintenance manual provided with the facility. In addition, PART will insure the following routine maintenance and care functions are provided by PART or a contractor:

- 1.) **Overhead Doors** - Each overhead door will be inspected quarterly and lubricated semi-annually. In addition PART will generate quarterly visual inspection report for any needed repairs.
- 2.) **Plumbing** – PART will inspect all plumbing fixtures and associated devices biweekly to insure proper operation and make sure there are no leaks. Any corrosion or poor operation will be noted and scheduled for repair/replacement.
- 3.) **HVAC** – [Water source Heat Pumps, Energy Recovery Unit, Water Pumps, Inside Water Treatment Systems, Boiler, Garage Waste Oil Heater, Garage unit Heater, etc.] These systems will be serviced four times annually, March, June, September and December, PART and Maintenance Contractor will perform PM responsibilities between those times. All units will be maintained to operate at peak efficiency through a maintenance contract. In addition, PART will inspect monthly by PART inspector and have air filters cleaned, replaced and dated as appropriate.
- 4.) **Generators** – The back-up power systems (where applicable) will be inspected quarterly through a maintenance agreement to insure proper operation, and verify the unit is serviced twice annually as per the contract.
- 5.) **Painting & Exterior Care** – The maintenance free exterior of the building will be inspected monthly and needed repairs noted and requested. This inspection shall include, but not be limited to: gutters, doors, sidewalks, windows, flashings, roof, vents, all extrusions, caulking, signage and general appearance issues.
- 6.) **Landscaping** – PART shall assure that all landscaped areas are maintained to include trimming, grass cutting, weeding, mulching and live growth replacement when needed. Fences shall also be inspected.

- 7.) **Garage Equipment-** PART will have qualified vendors perform and annual inspections of all PART-owned garage equipment to ensure the safety of this equipment and ensure that regular maintenance is being performed.
- 8.) **Park and Ride Lots-** The lots will be inspected for large cracks, holes, crumbling, etc. PART will help determine when re-striping and sealing need to be completed. Ice and snow removal from parking lots and walkways shall be coordinated by PART and supplies prepared before the season.

## Record Keeping

Facility inspections are performed at the intervals indicated above. Once performed, the completed inspection forms are reviewed during the “Weekly 3<sup>rd</sup> Party Oversight Meeting” described previously and documented on the form by this name. Additionally, National Express provides a monthly report on each of facility conditions on its “NETC Monthly Facility Inspection” form. PART’s Field Operations Specialist retains these records. Copies of these forms are enclosed in the appendix for this subsection.

## Appendices:

- A. 3<sup>rd</sup> Party Oversight Policy
- B. Vehicle Out of Service Report
- C. Daily Safety Message
- D. 3<sup>rd</sup> Party / Program Oversight
- E. Operations Summary
- F. Operation Statistics Report (need Example)
- G. Safety & Training Summary
- H. Weekly 3<sup>rd</sup> Part Oversight Meeting
- I. Monthly Mileage Report
- J. PART Facility Inspection form (TBD)
- K. PM Compliance Report – monthly
- L. Maintenance Summary
- M. Driver Ride Check
- N. Drug and Alcohol testing report
- O. Park and Ride Check form (TBD)
- P. Vehicle 90-day Safety Inspection
- Q. PART Express Vehicle Inspection
- R. Vehicle Inventory
- S. Shop Equipment Inventory Inspection
- T. Lift Inspection

U. Fuel Tank Inspection

V. Security Video Equipment Inspection (TBD)

W. Vault Inspection (TBD)

## Appendices

X. Park and Ride lot locations

Y. Shop Equipment Inspection form

Z. Weekly 3<sup>rd</sup> Part Oversight Meeting form

AA. NETC Monthly Facility Inspection form

## Appendix AA

<u>Lot #</u>	<u>Park &amp; Ride Lot</u>	<u>Address</u>	<u>Lot Size (Square Feet)</u>
1	Thomasville	Hwy, 109 & W. Cooksey Drive, Thomasville, NC	13,270
2	North Lexington	North Lexington, behind Rite Aid at the intersection of Hwy 64 and Forest Hill Road,	51,848

		North Lexington, NC	
3	South Lexington	274, Hargrave Road, Lexington, NC	23,785
4	Mocksville	Hwy 601 at Boyce Dr Near Walmart, Mocksville, NC	41,551
5	King	S Main St & Newsome Road, King, NC	27,928
7	Mt. Airy	US 52/Andy Griffith Pkwy & Carter St., Mount Airy, NC	83,294
8	Pilot Mountain # 1	104 Golf Course Road, Pilot Mountain, NC	25,010
9	Pilot Mountain # 2	671 Key St. , Pilot Mountain, NC	33,229
10	Asbury Church Road	1513 Asbury Church Road, Yadkin County, NC	52,861
11	Yadkinville	US 601 Off US 421, Yadkin County, NC	37,150
12	Graham	820 S Main St., Graham, NC	27,611
13	PART Hub (old)	602 South Regional Road, Greensboro, NC	3,500
14	Archdale	Aldridge Road & S. Main St., Archdale, NC	28,030
15	South Asheboro	McDowell St. and Industrial Drive, Asheboro, NC	16,452
16	North Asheboro	N. Fayetteville St. and Balfour St., North Asheboro, NC	56,263
17	PART Admin. Facility and CTC Facility	107 Arrow Road, Greensboro, NC and 8310 W. Market St., Greensboro, NC	13,720 18,961

**Appendix BB**

**Shop Equipment Inspection Form**