

City of Canby – Canby Area Transit (CAT) Vehicle Maintenance Plan

Policy:

Canby Area Transit's goal as stated in the Transit Master Plan is to "Serve the transportation needs of residents, employees, and visitors with, safe, affordable, and efficient transit service" this Vehicle Maintenance Plan addresses this goal and its first stated objective which is to provide "Coordinated, efficient and reliable transit services that allow people to safely depend on transit as a primary mode of travel. These factors work together to create a higher quality of service for existing passengers and help attract new riders who might otherwise drive. Efficient service can also reduce the cost of operations."

Vehicle maintenance plays a critical role in the provision of safe, comfortable, and reliable transportation to our passengers, and effective and efficient service to the community.

Goals and Objectives:

The goals and objectives of the vehicle maintenance program are:

1. *Maintain vehicles to promote the safety and comfort of passengers, operators, and protect the public.*
 - Conduct regular pre-trip inspections in order to identify vehicle and equipment problems and assure vehicles are in good operating condition.
 - Conduct basic Preventive Maintenance service routines in a timely manner to identify vehicle problems and keep vehicle systems in good repair.
 - Conduct vehicle repairs in a timely manner and in accordance with industry best practices.
 - Maintain a clean appearance for vehicles through regular interior and exterior cleaning.
2. *Manage Preventive Maintenance and repair activities to promote the reliability of the service by minimizing service interruptions due to vehicle or equipment failure.*
 - Regularly inspect vehicles in order to identify and correct problems in to prevent service interruptions.
 - Schedule repairs promptly in order to minimize service interruptions.
 - Utilize subcontractors as needed to perform specialized services and to supplement City maintenance staff efforts.
 - Schedule preventive maintenance activities to maximize fleet availability during service peaks.
 - Analyze repair, road call and tow data to identify trouble-prone components or systems for proactive attention.
3. *Maintain vehicles and equipment to promote cost-efficiency of operations.*
 - Maintain and repair vehicles to ensure their operation at peak efficiency, including fuel efficiency, emissions systems, etc.
 - Analyze fleet fuel usage and repair data; identify vehicles which may need remedial work or may need to be made inactive.
 - Maintain vehicles and related equipment to fulfill manufacturer's warranty requirements and pursue warranty repairs where applicable; research and follow up on any applicable recalls or service bulletins.
 - Maintain vehicles to maximize the useful vehicle life, including the life of key components such as tires, brakes, batteries, etc.

- Manage the maintenance program to be cost effective in terms of staff time, service vendors and parts and supplies costs.
4. *Conduct vehicle operations, repairs, and cleaning in compliance with applicable local, state and federation regulations.*
- Ensure that shop equipment and maintenance procedures comply with applicable OSHA laws and regulations protecting the health and welfare of workers.
 - Handle and dispose of fuels, lubricants, solvents, tires and related materials in a safe and environmentally responsible manner.
 - Maintain vehicles to comply with relevant emission standards and other applicable regulations.
 - Conduct vehicle cleaning to comply with applicable wastewater and other relevant regulations.
 - Conduct maintenance and repairs in compliance with environmental standards and other relevant regulations.

Program Elements:

Pre-trip inspections. Each vehicle will be inspected at the start of each shift by a driver trained in the procedure. A walk-around will be performed according to the items listed on the Daily Vehicle Inspection Report (DVIR). All irregularities will be recorded on the DVIR. Safety issues will be reported immediately to the dispatcher. Vehicles with safety issues will be removed from service until inspected and cleared for service by a Mechanic. See the Standard Operating Procedures (page 3) and attached Daily Vehicle Inspection Report (page 10) for more information.

Basic Service Routines. Per the recommendations of the chassis, bus body, and wheelchair lift manufacturers, and the additional recommendations of the Lead Mechanic, a thorough preventive maintenance schedule will be established and followed for each vehicle. At or before the recommended mileage intervals, the Fleet Department staff will perform all the elements of maintenance due at that mileage. Please see Scheduled Maintenance Intervals on page 6 for more specific information.

Vehicle Cleaning. Interior cleaning and sweeping of each in-service vehicle will be performed at the end of each shift by contracted driving staff. Vehicle exteriors will be washed on a bi-weekly basis or more frequently, as needed.

Vehicle Repairs. The need for a vehicle repair may be discovered during a pre-trip inspection, preventive maintenance inspection, or breakdown. City Fleet Department staff will determine warranty coverage for the system requiring attention, and if appropriate, pursue warranty repairs with the vendor, bus or chassis manufacturer, or authorized warranty outlet. The Lead Mechanic will determine whether the repair can be accomplished in-house, or because of the need for special diagnostic expertise or equipment, will be assigned to a subcontractor.

Documentation and Analysis. Vehicle condition will be regularly documented through pre-trip and post-trip inspections and problems discovered on the road will be documented on the DVIR by the driver, reported to dispatch, and logged or removed from service as appropriate. In addition, all vehicle maintenance and repair activity and costs will be documented. Vehicle data will be organized for summary and analysis.

The remainder of this document provides detail regarding Canby Area Transit's vehicle inspection procedures, maintenance practices, and supporting forms and documentation.

STANDARD OPERATING PROCEDURES

Canby Area Transit - Fleet Management

These procedures apply to the management of the City of Canby/Canby Area Transit (CAT) vehicle fleet:

1. At the start of each driving shift, each driver performs a pre-trip inspection to ensure safety and accessibility items are operational and that any defects are recorded on the Daily Vehicle Inspection Report (DVIR). Additionally, safety issues are reported directly to the dispatcher and when necessary vehicles are removed from service until inspected and cleared for service by a Mechanic.
2. Each driver records beginning and ending mileage for the route (s).
3. Each day, dispatch staff record vehicle miles driven for that day in the *Mobilitat Easy Rides* database. At the end of the month an ending odometer reading is recorded for each vehicle.
4. Vehicle condition and mileage is entered daily into the fleet database (Fleet Maintenance Pro). The program flags vehicles 500 miles prior to the scheduled deadline for a Preventive Maintenance (PM) service. This allows staff to easily identify vehicles due for PM and assure that the service is performed on or before the service due mileage. Work is scheduled in-house or out-sourced as needed to meet the maintenance deadlines.
5. Specific components of each vehicle are scheduled for inspection, lubrication, cleaning or replacement at regular intervals. The intervals are determined by published information from the vehicle and component manufacturers. In addition, such inspections may include other items or incorporate shorter intervals as recommended by maintenance staff or management.
6. At each service, maintenance staff record service date, odometer reading, service items, parts used, parts cost, and labor hours in Fleet Maintenance Pro as the work is performed.
7. At regular intervals Fleet Department staff audit the data collection process and verify the completeness and timeliness of the database records. Management also works with maintenance staff to revise maintenance policy and checklists as needed, and to upgrade database capabilities.
8. Monthly, management quarter review preventive maintenance detail to ensure timely performance of preventive maintenance services for the prior month, and consult with maintenance staff to ensure adequate resources are available for the workload.

PRE & POST TRIP INSPECTIONS: (OPERATOR)

See Daily Vehicle Inspection Report (DVIR) on page 10 for details.

DAILY END-OF-SHIFT: (OPERATOR)

In addition to DVIR items end of shift operators:

- Stow wheelchair securements
- Sweep the coach interior and inspect for damage
- Power off all switches
- Lock vehicle doors

AS NEEDED MAINTENANCE: (OPERATOR)

- Fuel as needed
- Wash vehicle interior as needed (minimum weekly)
- Monitor performance of the climate control systems.
- Clean interior window glass, wipe seats, sweep floors

BI-WEEKLY MAINTENANCE: (BUS WASHER)

- Clean exterior of vehicles
- Clean interior window glass, wipe seats, sweep & mop floor
- Wash vehicle interior as needed

DAILY MAINTENANCE: (MECHANIC)

- Review operator defect reports and repair, schedule for repair, or take vehicle out of service as appropriate

PREVENTIVE MAINTENANCE (PM) CHECKLIST

See Preventive Maintenance (PM) Checklist for detail (page11).

ANNUAL INSPECTION: ALL REVENUE VEHICLES

See Annual Inspection Report for detail (pages 12-13).

TRANSIT DEPARTMENT (CAT) FLEET

The City of Canby's Fleet Department maintains the Canby Area Transit fleet of 13 accessible vehicles and 2 sedan staff vehicles. The following provides a description of the fleet as of July 1, 2012:

BUS #	YEAR	MAKE	VIN#	PLATE#	LENGTH	FUEL	BODY
20002	2002	FORD/GIRARDIN	1FDXE45F52HA20586	E224017	25	DIESEL	CUT-AWAY
20003	2003	FORD/GIRARDIN	1FDXE45F63HA17519	E225477	24	DIESEL	CUT-AWAY
20005	2003	FORD/GIRARDIN	1FDXE45F23HA17520	E225478	24	DIESEL	CUT-AWAY
20006	2002	FORD/GIRARDIN	1FDXE45F12HA18026	E224014	21	DIESEL	CUT-AWAY
20014	2006	FREIGHTLINER	4UZABOBV07CX85017	E238812	35	DIESEL	COACH
20015	2006	FREIGHTLINER	4UZABOBV07CX85018	E238813	35	DIESEL	COACH
20016	2006	FREIGHTLINER	4UZABOBV07CX85019	E238814	35	DIESEL	COACH
20017	2009	CHEV/SENATOR	1GBE4V1999F407205	E248092	26	DIESEL	CUT-AWAY
20018	2010	CHEV/SENATOR	1GB9G5A68A1121989	E253103	22	DIESEL	CUT-AWAY
20019	2010	CHEV/SENATOR	1GB9G5A65A1122100	E253104	22	DIESEL	CUT-AWAY
20023	2003	CHEV/VENTURE	1GBDX23E23D251183	E225484		GAS	MINIVAN
20724	2002	FORD/CrownVic	2FAFP71W32X138708	E228367		GAS	SEDAN
20725	2002	FORD/CrownVic	2FAFP71W52X138709	E228368		GAS	SEDAN
20026	2012	CHEV ARBOC	1GB6G5BG6B1186044	E257280	26	GAS	CUT-AWAY
20027	2012	CHEV ARBOC	1GB6G5BG7B1190622	E257279	26	GAS	CUT-AWAY

SCHEDULED MAINTENANCE INTERVALS

See Preventive Maintenance (PM) Checklist (attached) and PM Service Intervals by vehicle type (below) for detail.

Champion – Freightliner

Full Service: oil filter, oil change. Regular PM tests & inspection See PM Checklist	PM Service Interval 5,000 miles
Lift Maintenance as per Ricon F9TF Requirements for 750 cycles (High use in Mild Climate)	5,000 miles
Service transmission	50,000 miles
Replace battery (or 730 days)	100,000 miles
Annual Inspection	12 months
Lift Maintenance as per Ricon F9TF Requirements for (additional maintenance)	12 months
Service differential	100,000 miles
Replace serpentine belt and belt tensioner	150,000 miles
Replace shocks	150,000 miles
Replace water pump	250,000 miles
Replace starter	250,000 miles
Replace alternator	250,000 miles
Diesel Engine Fuel System (Test & Clean)	500,000 miles
Rebuild suspension	500,000 miles

Girardin – Ford – Diesel

Full Service: oil filter, oil change. Regular PM tests & inspection See PM Checklist	PM Service Interval 3,000 miles
Lift Maintenance as per Ricon S-Series Requirements for 1750 cycles	3,000 miles
Service transmission	50,000 miles
Replace battery (or 730 days)	100,000 miles
Annual Inspection	12 months
Lift Maintenance as per Ricon S-Series Requirements for 3500 cycles	12 months
Service differential	100,000 miles
Replace serpentine belt and belt tensioner	150,000 miles
Replace shocks	150,000 miles
Replace water pump	250,000 miles
Replace starter	250,000 miles
Replace alternator	250,000 miles
Diesel Engine Fuel System (Test & Clean)	500,000 miles
Rebuild suspension	500,000 miles

Senator – Chevrolet – Diesel

Full Service: oil filter, oil change. Regular PM tests & inspection See PM Checklist
Lift Maintenance as per Bruan 403/404 Requirements for 750 & 1500 Cycles
Service transmission
Replace battery (or 730 days)
Annual Inspection
Lift Maintenance as per Bruan 403/404 Requirements for 4,500 Cycles
Service differential
Replace serpentine belt and belt tensioner
Replace shocks
Replace water pump
Replace starter
Replace alternator
Diesel Engine Fuel System (Test & Clean)
Rebuild suspension

PM Service Interval

3,000 miles
3,000 miles
50,000 miles
100,000 miles
12 months
12 months
100,000 miles
150,000 miles
150,000 miles
250,000 miles
250,000 miles
250,000 miles
500,000 miles
500,000 miles

Arboc – Chevrolet – Gas

Full Service: oil filter, oil change. Regular PM tests & inspection See PM Checklist
Lift Maintenance as per Bruan RA300 Requirements for 750 Cycles
Annual Safety Inspection
Lift Maintenance as per Bruan RA300 Requirements for 1,500 Cycles, Adjust Microswitch & Deploy/Stow pressure
Service transmission
Replace battery (or 730 days)
Service differential
Complete Gas Engine Tune up
Replace serpentine belt and belt tensioner
Replace shocks
Replace starter
Replace alternator
Replace water pump
Rebuild suspension

PM Service Interval

3,000 miles
3,000 miles
12 months
12 months
50,000 miles
100,000 miles
100,000 miles
100,000 miles
150,000 miles
150,000 miles
250,000 miles
250,000 miles
250,000 miles
500,000 miles

Venture – Chevrolet – Gas

Full Service: oil filter, oil change. Regular PM tests & inspection See PM Checklist

Ramp inspected & lubricated according to manufacturer recommendations

Annual Safety Inspection

Service transmission

Replace battery (or 730 days)

Service differential

Complete Gas Engine Tune up

Replace serpentine belt and belt tensioner

Replace shocks

Replace starter

Replace alternator

Replace water pump

Rebuild suspension

PM Service Interval

3,000 miles

3,000 miles

12 months

50,000 miles

100,000 miles

100,000 miles

100,000 miles

150,000 miles

150,000 miles

200,000 miles

200,000 miles

200,000 miles

300,000 miles

Crown Victoria – Ford – Gas (Non Revenue)

Full Service: oil filter, oil change. Regular PM tests & inspection See PM Checklist

Service transmission

Replace battery (or 730 days)

Service differential

Complete Gas Engine Tune up

Replace serpentine belt and belt tensioner

Replace shocks

Replace starter

Replace alternator

Replace water pump

Rebuild suspension

PM Service Interval

3,000 miles

50,000 miles

100,000 miles

100,000 miles

100,000 miles

150,000 miles

150,000 miles

200,000 miles

200,000 miles

200,000 miles

300,000 miles

Attachments

Daily Vehicle Inspection Report (DVIR)
Preventive Maintenance (PM) Checklist
Annual Inspection Report

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DAILY VEHICLE INSPECTION Report

Vehicle No.	Date	Drivers Name	Start Miles	Start Time	End Miles	End Time
		1				
		2				
		3				

✓ = Satisfactory

X = Unsatisfactory

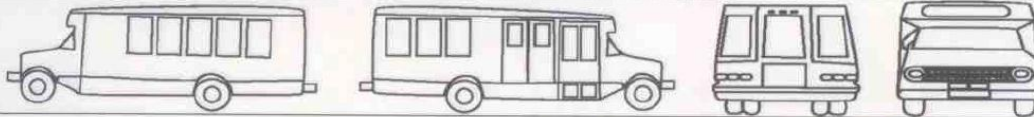
1	2	3	INSPECTION ITEM	1	2	3	INSPECTION ITEM
			TIRE condition, tread depth and air pressure				Seats and cushions are secure
			Wheels and rims for cracks, rips, welds or protruding objects.				Seat belts are complete, operational and secure
			Lug nuts tight, no excessive rust or damage				2 way radio is complete and operational – RADIO CHECK
			ENGINE COMPARTMENT				Windshield wipers operational
			Engine oil				Windshield washer operational
			Automatic Transmission fluid				Horn operational
			Cooling system level				Passenger door complete and operational
			Windshield washer solution				Valid Registration present and visible
			Brake fluid level				Valid proof of insurance
			Power steering fluid level				OTHER:
			Battery terminals clean, no corrosion				BRAKES
			Under vehicle leaks				Brake pedal feels good and stopping properly
			VEHICLE GLASS				Parking brake complete and operating properly
			Windshield has no chips or cracks				STEERING AND SUSPENSION SYSTEM
			Mirrors are complete and in good condition				Steering wheel secure, no excessive PLAY
			Windows complete				Gearshift mechanism tight and working properly
			Emergency windows complete and operable				SAFETY ITEMS
			VEHICLE LIGHTING				First aid kit, fully stocked and present
			Headlights operational – High and low beam				Triangle reflectors present and complete
			All Clearance lights operational & reflectors present				Orange Traffic Cone present
			Brake lights complete and operational				Fire extinguisher present, fully charged
			Turn signals complete and operational				Vehicle accident packet present and accessible
			Backup lights complete and operational				Body fluid kit present and accessible
			Backup alarm complete and audible				Seat Belt web cutter present
			Emergency 4 way flashers operational				WHEELCHAIR LIFT
			VEHICLE INTERIOR ENVIRONMENT				Lift free from leakage
			Front & rear air conditioner complete and operational				Lift operating properly electronically
			Front & Rear heater complete and operational				Lift operating properly manually
			Defroster complete and operational				Lift interlock operating properly
			INTERIOR				# of Lap Belts: # of Tie Downs:
			Clean				

Next PMS due on:

Quarts of oil added:

Gallons of fuel added:

Please explain in detail below any problems you are having with the vehicle and when the problem occurs.



Any items in bold marked unsatisfactory must be brought to the attention of the Supervisor immediately. The bold typeface indicates items that place a vehicle out of service.

I declare that I have properly performed a vehicle inspection on the vehicle indicated above and have inspected and marked the inspection items, listed above, accordingly.

Driver's signature Pre Trip inspection: _____
There have been no incidents or accidents with this vehicle since the above signed inspection.

Driver's signature mid trip inspection: _____

Driver's post trip inspection: _____

<input type="checkbox"/> Reviewed	Technicians Signature: _____
<input type="checkbox"/> Noted for repair	Shop Managers Signature: _____
<input type="checkbox"/> Could not duplicate problem	
<input type="checkbox"/> Repaired	

Driver number 2, mid trip, only has to perform a walk around inspection. Only inspect items where a mark can be placed.

Paratransit DVI 04_2011



Preventive Maintenance (PM) Checklist

Full Service to be accomplished recommended miles (3,000/5,000)

- Change Oil & Filter
- Lube
- Change Fuel Filter
- Inspect Drive Train
- Check Transmission Fluids
- Inspect Suspension & Steering System
- Inspect Brakes
- Inspect Tires (Air pressure)
- Check Engine Compartment Fluids*
 - Brake Fluids
 - Power Steering Fluid
 - Radiator Coolant Reservoir
 - Transmission Fluid
 - Windshield Washer Fluid
- Inspect Belts & Hoses
- Inspect Batteries & Terminals
- Inspect Air Filter
- Check Lights
- Check interior
- Open Emergency Exits & Test Operation
- Inspect & Test Operation of LIFT

Canby Area Transit - City of Canby



Annual Inspection Report

Bus Number: _____ Date: _____ Lift Type: _____

Work Order Number: _____ Mileage: _____ Fuel Type: _____

NEEDS IMMEDIATE ATTENTION	APPEARS OKAY	NEEDS REPAIR	CONCERN RESOLVED	NEEDS IMMEDIATE ATTENTION	APPEARS OKAY	NEEDS REPAIR	CONCERN RESOLVED
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TEST DRIVE VEHICLE

Test Drive Vehicle

INSTRUMENTS AND CONTROLS

Ammeter Gauge

Oil Pressure Gauge

Temperature Gauge

Fuel Gauge

Heater Fan Switch

Heater Temperature Controls

Air Conditioning System

Door Lock Controls

Window Controls and Switches

Window Locks and Latches

Seat Controls

Safety Belt Systems

WINDSHIELD WIPER SYSTEM

Blade Condition

Intermittent System

Low, Normal, and High Speeds

Washer Delivery System

FRAME INSPECTION

Sub Frame Condition

Main Frame Condition

Undercarriage Condition

STEERING AND SUSPENSION SYSTEM

Steering Gear Box or Rack

Steering Gear Box or Rack Hoses

Tie Rod Ends and Steering Links

Front Struts or Shocks

Rear Shocks or Struts

Rear Springs and Shackles

EXTERNAL LIGHT OPERATION

Headlights

Cyclops

Turn Signals

Tail Lamps

Brake Lamps

Marker Lamps

Driving Lamps

GLASS

Windshield

Door Glass

Side Window Glass

Rear Window Glass

Rear Hatch Glass

Sun Roof Glass

STATE INSPECTION: _____

TIRE AND WHEEL CONDITION

Tire Condition Front

Tire Condition Rear

Wheel & Well Covers

Spare Tire & Jack

ENGINE

Coolant Protection To _____ Degrees Below Freezing

Intake Manifold

Exhaust Manifolds(s)

Carburetor/Fuel Injection System

Cylinder Head(s)

Engine Block

Oil Pan

Emissions System

Drive Belts and Pulleys

Water Pump

Power Steering Pump

Alternator

Battery

FUEL SYSTEM

Fuel Lines and Connections

Fuel Tank

Fuel Filler Neck

EXHAUST SYSTEM

Exhaust Pipe

Catalytic Converter

Muffler

Tailpipe

DRIVE TRAIN

Front Axle CV Boots

Front Axle

Trans Axle or Transmission

Rear Drive Line

Rear Axle

BRAKE SYSTEM

Master Cylinder

Brake Booster

Brake Lines

Front Brake Calipers or Cylinders

Rear Brake Calipers or Cylinders

Front Brake Pads or Shoes Replaced or _____ % Remaining

Rear Brake Pads or Shoes Replaced or _____ % Remaining

LIFT

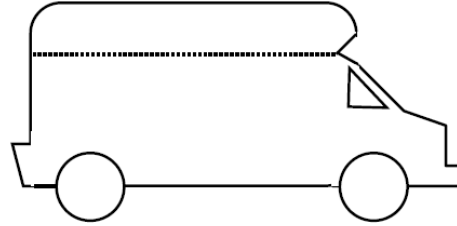
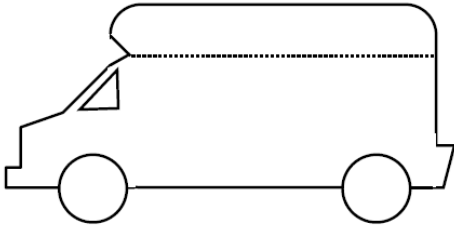
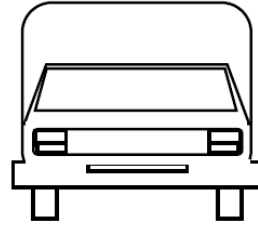
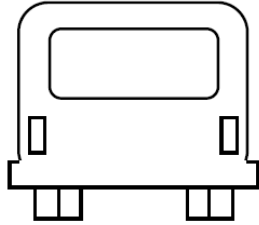
Operation

Condition

COMMENTS:

Annual Inspection Report

Bus Number: _____ Work Order Number: _____ Date: _____



NEEDS IMMEDIATE ATTENTION	APPEARS OKAY	NEEDS REPAIR	CONCERN RESOLVED	NEEDS IMMEDIATE ATTENTION	APPEARS OKAY	NEEDS REPAIR	CONCERN RESOLVED
INTERIOR APPEARANCE				EXTERIOR APPEARANCE			
<input type="checkbox"/> Condition of Upholstery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Body Damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Wheelchair Securement Tracking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Fender Damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Wheelchair Stations Harnesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/> Interior Lights (doors, steps, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SAFETY EQUIPMENT			
<input type="checkbox"/> Window Gaskets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Fire Extinguisher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Grab Bars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Blood Borne Pathogen Kit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> First Aid Kit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Emergency Kit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Belt Cutter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS:

SIGNATURE: _____ **DATE:** _____