U.S. Department of Transportation
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Vehicle Maintenance Practices Among 16(b)(2) Grantees

August 1981

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VEHICLE MAINTENANCE

A Study of

Vehicle Maintenance Practices

Among Section 16(b) (2) Grantees

Prepared for the

WASHINGTON STATE DEPARTMENT

OF TRANSPORTATION

By

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August 31, 1981

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BACKGROUND

This report describes the maintenance management practices of a number of transportation providers in Washington State who are funded by the Urban Mass Transportation Administration's 16(b)(2) program. These providers serve cities of a variety of sizes, and face maintenance problems of varying degrees of complexity.

Although 16(b)(2) providers are legally mandated to meet the needs of one particular set of special users, the material in this report is probably applicable to many other kinds of systems. Potential users might include specialized transportation providers for other groups, rural public transportation systems, coordinated human service transportation providers, small urban transit systems, small private providers, and buspools.

The document includes both an analysis of maintenance practices, plus a heavy sampling of the actual procedures and forms used by the systems which were contacted. Although these procedures may not precisely meet the needs of other providers, the material hopefully will provide ideas for operators on how to develop new maintenance management procedures or refine those which they already have in place.

Because of widespread national interest in alternative approaches to transit maintenance, especially for smaller buses, the Technology Sharing Program of the U. S. Department of Transportation is making this study available to a broader national audience. This process would not be possible without the cooperation of the Washington State Department of Transportation.

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I. INTRODUCTION

Background and Purpose

Under the Urban Mass Transportation Administration (UMTA) Section 16(b)(2) capital assistance program, as administered by the Washington State Department of Transportation (WSDOT), some 38 private nonprofit organizations have been able to acquire vehicles for use in transporting elderly and disabled people within their communities. Built into the regulations governing the program (WAC 468-87-370), are requirements for grantees to adequately maintain their fleets of vehicles at least to the recommended standards set out by the vehicle manufacturer. Since the Section 16(b)(2) program began in 1975, over 150 vehicles have been placed in service and most have received at least minimal maintenance during that time.

Over the years, questions have been raised as to the quality and frequency of maintenance these vehicles are receiving. In February 1981 an evaluation of the Section 16(b)(2) program in Washington was conducted and concerns about the sufficiency of maintenance efforts were voiced. This study is an out-growth of that evaluation and the questions it raised.

Grantees interviewed during the evaluation identified several issues about the maintenance of the Section 16(b)(2) vehicles that are relevant here:

- Are there sufficient maintenance standards to help guide maintenance programs?
- How can State inspections help develop good maintenance practices?
- Are financial problems forcing agencies to cut back on maintenance?

As the WSDOT mulled these questions over, a variety of others surfaced:

- What are the management systems for maintenance programs?
- Does the agency budget specifically identify maintenance?
- Does the agency's driver training program include maintenance-related training?

- Does the agency carry out its own maintenance policies?
- What problems are agencies facing relative to vehicle maintenance?
- What program elements have agencies found that work and enhance vehicle life and usefulness?
- What could the WSDOT do to help agencies with their maintenance programs?

The answers to these questions are detailed in the balance of this report which has been designed to provide information to both the WSDOT and the Section 16(b)(2) grantees.

The report's format details what types of maintenance programs are operated by the grantees, which have worked, what might be done by the WSDOT to help and ends with a discussion of the cost-effectiveness of maintenance programs.

The Study Process

The maintenance study design and analysis was contracted to the independent consultant who had performed the Section 16(b)(2) evaluation in the spring of 1981. After some discussion of alternatives, the WSDOT decided to conduct inperson or telephone surveys of all Section 16(b)(2) grantees who were (a) still operating their Section 16(b)(2) vehicles; (b) had two or more years operating experience with those vehicles; and (c) could easily be reached for interviews by WSDOT district staff.

Twenty-six grantees were identified and interviewed during the first two weeks of August (1981). Most of the interviews were conducted as part of site visits by WSDOT personnel involved with the State's paratransit program.

The interview process had the following steps:

- A letter was sent to each grantee agency to be interviewed, informing them of the study and requesting their cooperation.
- A packet was sent to each WSDOT staff interviewer explaining the study, explaining the interview and providing a set of interview questions in a survey format.
- The completed interview surveys were sent back to the consultant for tabulation and analysis and inclusion in this study report.

While the interviewing process worked well and the resulting surveys contained considerable useful information, a number of factors have affected the analysis of the information.

A major problem is the wide variation in operating styles and program designs among special transportation programs. Some of the interviewed grantees run formal, focused operations with paid staffs, computerized records and their own maintenance shops; while others have small operations that run one to four vans in a relatively informal manner with volunteer or part-time, paid drivers and maintenance that occurs "as needed" rather than according to a fixed schedule.

As with their operating styles, the agencies maintain records in myriad ways. Even the monthly reports required by the State contain data compiled in such different ways as to render the information virtually unusable for this type of research. For example, some operators list no maintenance expenses for months on end. For some this simply reflects internal record-keeping that does not separate maintenance costs. Others may not consider oil changes or similar work as maintenance and thus not record costs when those work elements are done. Still others may have some or all maintenance work performed in-house and therefore assume "it doesn't cost anything." From the interviews, it is clear that all programs do perform some maintenance work so the absence of expenditure records for maintenance does not mean an absence of maintenance effort.

The effect of these two problems -- differing operating styles and unparallel records -- is that little quantification of the study results is possible.

Discussions with WSDOT staff and some of the grantees also suggest that patterns established in past years or even in the last six months may be changed by future events such as retirement of older vehicles, addition of new vehicles or new program elements, and budget cuts. In light of these problems and the changing nature of the special transportation programs, this report is focused on maintenance programs that have worked, "tricks of the trade" that other grantees may find valuable and problems that need addressing in the near future.

One final note: Vehicle maintenance is clearly an important topic for all Section 16(b)(2) grantees. Their cooperation and willingness to provide information and copies of maintenance forms underscored their interest in the subject.

II. VEHICLE MAINTENANCE PROGRAMS: AN OVERVIEW

Efforts to group Section 16(b)(2) grantees to assist in understanding their maintenance programs are likely to be somewhat unsuccessful due to operating style and operating condition differences. In general, programs with more vehicles tend to operate in a more formalized manner than programs with only a few vehicles, although this may reflect a program's manager more than its fleet size. The amount of energy devoted to vehicle maintenance tends to reflect the place those vehicles have in the overall program. Thus agencies that consider themselves "transportation programs" seem to have more formal maintenance programs than do agencies that provide transportation only as to the means to get people to their other program activities. However, there are exceptions to these generalizations.

The following sections provide an overview of the maintenance programs and the factors that affect their design and operation among the Section 16(b)(2) grantees.

The Vehicles

The vehicles themselves are a major determinant of the complexity of a maintenance program and of the prominence that program has as a part of the whole transportation service. Almost all the grantees interviewed have had serious, costly and frustrating problems with their vehicles (both 16(b)(2) purchased and those from other sources). As one transportation manager indicated, his agency had been naive about maintenance requirements and the costs of keeping vans in running order have far exceeded expectations.

The programs that have not experienced serious mechanical problems with their vehicles are programs that make the lightest use of them -- four or less hours of service per day and even days with no use at all. With the exception of two agencies that attribute their mechanical problems to volcanic ash, all but nine of the interviewed agencies reported long histories of engine failures, brake problems,

FIGURE 1
SUMMARY OF GRANTEES MAINTENANCE PROGRAMS

Agency Name	Location	Passenger Fleet Size 1/	MAINTENANCE SCHEDULES			WHO PERFORMS			Maintenance Budget
			Safety	Preventative	Major	Safety	Preventative	Major	
SMALLER PROGRAMS									
Walla Walla Sr. Center	Walla Walla	2	Daily	Scheduled 2/	As Needed	Drivers	Local Mechanic	Local Garage	$2,228
Kittitas Co. Dev. Center	Ellensburg	4	Daily	Scheduled	As Needed	Drivers/Own Maint. Man	Dealer	Dealer	5,000
Benton/Franklin Red Cross	Kennewick	8	Daily	Scheduled	As Needed	Drivers	Local Garage	Dealer	– 3/
Diversified Industries	Port Angeles	3	Daily	Scheduled	As Needed	Drivers	Own Shop	Own Shop	–
Skills Training	Moses Lake	2	Daily	Scheduled/As Needed	As Needed	Drivers/ Own Shop	Own Shop	Dealer	2,400
United Cerebral Palsy	Seattle	8	Daily	Scheduled	As per Manual	Drivers	Own Maint. Man	Local Garage	–
Lower Columbia CAC	Longview	2	Daily	Scheduled/As Needed	Scheduled/As Needed	Drivers	City of Longview	City of Longview	2,400
Custom Industries	Bellevue	3	Daily	Scheduled/As Needed	As Needed	Drivers	Service Station	Dealer	–
N.W. Center	Seattle	2	Daily/Weekly	Scheduled	As Needed	Drivers/Maint. Supervisor	Own Shop	Service Station	1,200
Seattle Indian Health Board	Seattle	2	Daily	Scheduled	Scheduled	Drivers	Service Station	Dealer	–
S. King Co. Multi-Purpose Center	Federal Way	9	Daily	Scheduled	Scheduled	Drivers	Own Shop	Own Shop	–
Okanogan Senior Center	Omak	7	Daily	Scheduled/As Needed	Scheduled/As Needed	Drivers	Service Station	Dealer	4,400
NE Wash. Rural Resource Develop	Colville	7	Daily	Scheduled/As Needed	Scheduled/As Needed	Drivers	Local Garage	Best Bid	3,500
W.I.S.E.R. Institute	Bothell	1	Daily	As Recommended by Service Sta.	As Recommended by Service Sta.	Drivers	Service Station	Service Station	Not Available
Skagit County Senior Services	Mt. Vernon	5	Daily/Weekly	Scheduled	Scheduled/As Needed	Drivers/ Service Sta.	Service Station	Service Station	Being Prepared for 1982
V.I.C.T.O.R.	Vashon	1	Monthly	Scheduled	As Needed	Drivers	Service Station	Service Station	–
LARGER PROGRAMS									
Basta	Spokane	19	Daily	Scheduled/As Needed	Scheduled/As Needed	Drivers	Own Shop	Own Shop	–
Yakima Valley Trans. Exchange	Yakima	20	Daily	Scheduled	Scheduled/As Needed	Drivers	Own Shop	Yakima City Shop	–
Pierce County Red Cross	Tacoma	18	Daily/Weekly	Scheduled/As Needed	As Needed	Drivers/ Supervisor	Dealer	Dealer	$21,000
EOC of Clark Co.	Vancouver	18	Daily	Scheduled	Scheduled	Own Shop	Own Shop	Own Shop	–
Kitsap Housing & Trans. Assoc.	Port Orchard	24	Daily	Scheduled	Scheduled	Drivers	Kitsap Co. Garage	Kitsap Co. Garage	45,000
Chelan-Douglas Council on Aging	Wenatchee	15	Daily	Scheduled	Scheduled	Drivers	Service Station	Dealer	15,000
Grant County Seniors	Moses Lake	12	Daily	Scheduled/As Needed	Scheduled/As Needed	Drivers	Service Station	Dealer	2,700
NE King Co. Multi-Service Center	Bothell	13	Daily	Scheduled	Scheduled/As Needed	Drivers	Own Shop	Own Shop/ Service Station	31,200
Whatcom Co. Council on Aging	Bellingham	20	At Shift Changes	Scheduled/As Needed	Scheduled/As Needed	Drivers/ Maint. Man	Dealer	Dealer	10,200
Sr. Services of Snohomish Co.	Everett	12	Daily	Scheduled	As Needed	Drivers/	Own Shop	Own Shop/	–

1/ Some grantees operate fleets of nonpassenger vehicles (forklifts, trucks). The questions here pertained only to passenger vehicles, some of which were funded with Section 16(b)(2). Section 16(b)(2)-funded vehicles were not segregated from other passenger vehicles since funding source did not seem to have any bearing on how maintenance was performed.

2/ "Scheduled" means adherence to a fixed schedule (e.g. every 3,000 miles or every 3 months, etc.).

3/ No separate line item is kept for passenger vehicle maintenance.

4/ Some items are taken care of on a scheduled basis (see note 2); others are maintained as problems arise (as needed).

improperly mounted wheelchair lifts, etc. caused by poor design or defective parts. For several programs, maintenance budgets have proved to be insufficient because of the ongoing problems.

A report on the Federal Highway Administration (FHWA) Section 147 Demonstration Program (which provided funding for rural programs up to a few years ago) suggests that ongoing maintenance problems were common to all the Section 147 projects and that a number of serious consequences emerged. Chief among these was a loss of credibility (and ridership) for the programs that experienced large amounts of downtime for repair work. As with most of the Section 16(b)(2) grantees interviewed for this study, the Section 147 projects were unlikely to have back-up equipment available (see the discussion on back-up vehicles below).

The FHWA report identified a number of factors that contribute to the impact of maintenance problems. A key factor can be the use of several different types of vehicles in one fleet.

> This not only required more mechanical expertise but created additional problems with availability of parts. If no local dealers were available, parts had to be ordered from other areas. This caused abnormal repair delays. While vehicles were down for repairs, other vehicles had to be pressed into extra service. These vehicles were sometimes neglected which caused minor repairs to become major repairs. The problem compounded itself causing service curtailments.*

This description is not unlike problems experienced by a number of Washington's Section 16(b)(2) grantees. In many cases, repeated parts failures and breakdowns resulting from poor design or heavy use have kept vehicles out of service for weeks at a time.

There is considerable evidence that the cycle of breakdown-repair-breakdown is due to the design of the vehicles being used by the agencies, and the heavy use the

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*Jack Hayes, Rural Public Transportation Vehicles: A Section 147 Demonstration Program Technical Manual. Final Report. Supported by the USDOT, FHWA, UMTA Office of the Secretary. (August 1979) Pages 49-50.

vehicles get under less than ideal conditions. The availability of highly trained, reliable mechanics, and proper parts, also affects this cycle for some programs.

Vehicle Use

As has been mentioned above, a major factor affecting maintenance requirements is vehicle use. During the study interviews, a variety of factors were identified that could explain wear and tear on grantees' vehicles. These included:

- City stop-and-go driving
- Heavy use -- up to 40 hours or more per week
- Heavy use of lifts -- wheelchairs damage vehicle interiors
- Vehicle design itself (see above)
- Vehicle age -- almost all programs operate older vehicles in their fleets
- Use of nonassigned drivers
- Unusual environmental factors -- volcanic ash, heavy winds

For most of the grantees who had problems with wear and tear, stop-and-go driving was the key problem. Unavoidable in most programs, this type of driving causes serious wear on brakes and tires.

One way of assessing how vehicles are used is to estimate how much time the vehicles spend on certain types of roads. The assumption is that, for example, freeway driving is probably the least wearing on vehicles, while lots of driving on rural dirt roads, or in heavy, stop-and-go traffic, will result in considerable wear and tear.

While there is considerable variation, almost all trips are made on paved roads (most programs had no travel on unpaved roads; only a few reported more than 5 percent of all trips on unpaved roads). Most programs do little, if any, travel on freeways or major highways, although two programs did report an estimate of 40 percent freeway driving and three others reported 25 percent freeway travel. A

few programs travel on all types of roads (urban, suburban, rural and freeway) but most concentrate their services in urban and suburban areas or in small urban and rural areas. Problems with stop-and-go wear and tear came from programs operating primarily in urban and suburban areas.

Maintenance Frequencies

A theoretical measure of a "good" maintenance program is the degree to which maintenance is prescheduled. This means that, for example, the drivers perform daily maintenance (and safety) inspections before they start their day, and that oil changes and other work is performed regularly according to some timetable. To assess how formal the Section 16(b)(2) grantees' maintenance programs are, relative to maintenance schedules, the grantees were asked how often they perform vehicle safety checks, preventative maintenance and major maintenance work. Figure 2 defines these three types of maintenance work.

At the outset, it is important to note that most of the grantees meet or exceed the standards for maintenance frequency suggested by the vehicle manufacturers. This is not uniformly true for all aspects of the manufacturer's guidelines, but most of the grantees appear to have adapted their schedules to meet their local operating conditions which are generally much harder than those envisioned by the manufacturer.

Figure 2
Definitions of Types of Maintenance
Programs Used in the Study

Maintenance Type	Description	Examples of Elements
Safety Checks	Regular, quick vehicle inspections--safety and mechanical identification problem.	1/ Lights and Signals 2/ Brakes 3/ Tires 4/ Fluid levels 5/ Lifts 6/ Mirrors and windshield wipers
Preventative Maintenance	Regular servicing that keeps the vehicle in top running order.	1/ Oil change & lube 2/ Change filters 3/ Change belts 4/ Tire rotation
Major Maintenance	Annual, semiannual or when needed, overhauls or major parts replacements.	1/ Tire changes 2/ Transmission service 3/ Wheel alignments 4/ Change brake linings 5/ Engine tune ups 6/ Total engine overhaul

A few of the programs do have formal maintenance schedules based either on the vehicle manufacturer's or a mechanic's recommendations or on experience. These programs regularly perform preventative and major maintenance every so many miles or so many months. Some programs strongly advocate formal maintenance schedules because they feel they materially affect vehicle performance, safety and life. In addition, these programs indicate that operating on a fixed schedule means that back-up vehicles can be arranged or trips can be rearranged around the out-of-service equipment.

More of the grantee programs operate on some form of flexible maintenance schedule. These programs take care of certain maintenance work on a fixed, schedule basis (daily safety checks, oil changes every 3,000 miles) but other elements are handled on an "as needed" basis. This is true for many programs' tire

service, belt changes, etc. as well as many major maintenance elements including transmission service, engine tune ups and major overhauls. (All but one of the interviewed agencies have daily safety checks).

The difference between setting formal schedules for maintenance work and doing the work "as needed" reflects four major factors: the programs budget, design, philosophy and experience. For example, some programs only perform maintenance work when they have to because their budgets are so tight that preventative maintenance is viewed as a luxury. Other programs feel that regular preventative maintenance saves money in the long run by reducing the chances of a major breakdown or a serious accident.

Other programs have difficulty prescheduling maintenance work because they lack back-up vehicles, and their clients would be stranded without the van service. One of the key findings of this study was how few programs have regular back-up or reserve vehicles available. Only nine of the 26 agencies interviewed had even one vehicle available to be put into service for emergencies or when another vehicle was down for repairs or maintenance. Several of the agencies that do not have back-up vehicles in their own fleets indicated that their local dealers provide back-up vans, if needed, or that another transportation program can help pick up at least a portion of the agency's stranded clients. Figure 3 shows the distribution of back-up vehicles among the interviewed grantee agencies.

Figure 3

Availability of Back-Up Vehicles

Number of Back-up Vehicles	Number of Agencies	Average Fleet Size	Percent of Agencies with/without Back-up
0	14	6.7	53.9% (without)
1 part time	3	3.3	11.5
1	6	12.8	23.1
2	3	18.0	11.5
	26	--	100.0%

Some agencies that operate on an "as needed" basis in whole or in part indicated that to do otherwise would not meet the vehicles' real maintenance requirements. For example, 4,000 miles may be too long between oil changes if travel conditions are very rough. Furthermore, experience has shown that many parts fail sooner than anticipated. These agencies indicate that performing maintenance work at the time the problem first surfaces is better for the vehicle and can eliminate unnecessary work and expense.

Other interviewed agencies would prefer a fixed, and thus budgetable, schedule for maintenance work but vehicle breakdowns or a long chain of minor mechanical problems have necessitated operating on a more flexible basis.

Who Maintains the Vehicles?

In almost all cases, maintenance activities are split between drivers and one or more mechanics or garages depending on the type of maintenance work required.

Safety Checks: In all but a few cases, vehicle drivers are responsible for daily safety inspections of their vehicles. The drivers perform this job because they are the most familiar with the vehicles. In a few programs the regular, daily maintenance inspections are augmented by a supervisor's review or a weekly inspection by a program mechanic or other person who is not a driver. Drivers have performed safety checks satisfactorily for most programs. While some grantees reported that drivers were not sufficiently thorough or did not meet program requirements, most programs reported being very pleased with the care drivers took in these daily inspections. In almost all cases, safety inspections are reported on a short checklist that drivers complete and turn in to the "office". One program that uses volunteer drivers extensively feels that these drivers would be unwilling to fill out forms and do lots of paper work, so that program's safety inspections are handled by the program supervisor.

Preventative Maintenance: Unlike safety checks, the performance of preventative maintenance work follows virtually no pattern among the grantees. Again, experience and budget, plus the availability of reliable mechanics, affect the assignment of this work. A few programs use drivers to take care of the basic work and have someone else handle the more complex or time-consuming jobs. In

some cases, programs have hired a part-time mechanic to take care of vehicles in-house. In several programs, this mechanic also does safety inspections and keeps the vans clean and ready to run. Several of the larger programs have their own shops and find the availability of regular service substantially improves their operations.

Most grantees have preventative maintenance work performed by a local service station or garage and in a few cases by the dealer. Location, reliability, prompt service and cost seem to be the deciding factors in selecting a place to handle ordinary preventative maintenance work.

Some programs use service stations almost daily as a part of a combined safety check-minor maintenance approach. As vehicles are fueled, the driver or the service station attendant checks fluid levels, tire pressures and similar items and either corrects problems or schedules a service visit.

The few programs that have preventative maintenance work performed by the dealer do so because they have a good relationship (and usually a service cost discount) or there is a lack of affordable, convenient alternatives.

Major Maintenance: Most programs appear to have arrived at their choice of a major maintenance provider by trial and error. A few programs have sufficient in-house capacity to be able to handle tune ups and engine overhauls and other large maintenance work themselves. Most programs, including some with in-house mechanical or shop capacities, have major maintenance work performed by a service station, commerical garage or dealer. A couple of programs have tied in with a city or county garage and seem pleased by the work performed and the garages' billing rates. (Some preventative maintenance work is also performed under these contracts.)

Major maintenance work is the area in which the most dissatisfaction was found. A number of grantees indicated that they were still searching for a reliable, trustworthy garage. Others complained of long delays in getting parts or in getting work done. A few indicated that their vehicles had no priority and have been left with work unfinished for considerable periods. Cost is a major problem. Several programs with small numbers of vehicles feel that they are at the mercy of the local garage or dealer who doesn't have to give them fleet rates or service

discounts. On the other hand, most programs reported good expereinces with major maintenance work, particularly when they had a long-standing relationship with a garage or dealer and had established a priority for their vehicles and some sort of advantageous pricing policy. One program reported a 20 percent discount on all major maintenance work; others receive fleet discounts on parts and labor.

The most unusual method for hiring out major maintenance work was found in Colville where the N.E. Washington Rural Resource Board seeks bids for maintenance work over $300.00. The procedure, which is followed for all agency purchasing is very simple:

- A letter detailing the work to be done, the deadline for completion and requesting a bid is sent to a list of local garages, (picked from the telephone book; bid requests are not advertised in the newspapers).
- Bidders are required to guarantee all work performed. (A 10 percent price overage is allowed to compensate for bid-processing delays.)
- Bids are reviewed by the Board at their next meeting and the bidder is selected based on the price offered, the guarantee and the agreement to do the listed work in the prescribed time.

The Board has been very pleased with this process. There are enough qualified local garages available to respond to the bids and the process spreads the work through the community which is politically popular. In addition, the bid process allows price comparisons which in a number of cases have resulted in substantial savings (in one case, the price spread was from $650.00 to $1,700.00). The program has found that it is generally able to preschedule its major maintenance work with sufficient time to use the bid process. The only change the Board is considering is raising the point at which bids are sought to $500.00.

Maintenance Program Supervision

Almost all the interviewed grantees had their transportation coordinator or manager supervise maintenance work. In a few cases, an agency's assistant director or other administrative staff person had this responsibility, but generally, the supervisory role fell to chance or to someone who had supervised other aspects of the program. Only one supervisor had actually been a mechanic and that experience was only coincidental to his assignment. "The lack of any alternative"

was the most frequently cited reason supervisors were selected. The program's manager is usually the only option for the many programs that have a manager and a few drivers; the manager logically supervises maintenance along with all other program aspects.

Maintenance Budgets

Just over half of the interviewed agencies maintain separate maintenance budgets or line items within larger program budgets. There appears to be no clearly identifiable pattern to explain why some programs keep separate budgets when others do not. There is also no identifiable correlation between the sizes of the budgets and fleet size or annual mileage records.

Most of the agencies that do keep separate maintenance budgets indicate that the amount budgeted has been sufficient to cover costs to date. Others indicate that their budgets are tight and that if any unanticipated major maintenance or repair work is required, the budget will be insufficient. A clear concern here is with the large number of older vehicles being operated. Programs are experiencing high repair rates for these vehicles with little hope for early replacements.

Evidently, most of the programs that do not have an identifiable maintenance budget have not found this to be a problem. Most apparently work well within a larger transportation services budget although one program manager said that he thought a separate budget would be useful, particularly for assuring funding for work late in the year. Another thought a contingency fund could be useful to cover major maintenance work or unanticipated repairs.

Driver Training

Grantees were asked whether drivers received any training to help them perform daily maintenance/safety checks or to identify problems requiring maintenance work. Almost all the inteviewed programs have some kind of training although much of it is "on-job training" resulting from daily use of a vehicle safety checklist or experience. The following is a summary of the most typical driver training approaches:

- Transportation Coordinator/Manager gives individual training and/or rides with new drivers for several hours (or up to a week).
- New drivers are screened carefully for their knowlege of vehicles including maintenance requirements. There may be a test with questions such as "How often should the oil be changed in our vans?"
- The programs provides drivers with training manuals and other materials about driving and safety (including information about vehicle maintenance). Some of these materials are generated locally; others come from insurance companies, the State Patrol or from other transportation programs.
- Classes are offered with films, handouts and talks by State Patrol personnel or mechanics from a local dealership or the program's own shop.
- Weekly drivers' meetings are held to discuss problems -- including maintenance problems.

Some grantees use one of the approaches listed above and some use a combination. Most of the programs are satisfied with whatever they are able to do although one or two would like to do more driver training -- when additional funds become available.

Most of the programs felt that well-trained, alert drivers are the key to identifying problems early. Several respondees indicated that prompt reporting of problems by drivers could save a program great sums of money; drivers have to be aware of the importance of this routine part of their jobs.

Maintenance Program Satisfaction

The interviewees were asked to evaluate how satisfied they have been with their current maintenance program. Almost all the grantees reported being pleased with their maintenance programs and a large number are "very satisfied." Satisfaction seems to relate to a number of factors:

- Drivers who actively take a part in vehicle maintenance and who take the daily inspections seriously and report problems promptly.
- A good working relationship with a trustworthy mechanic whether in one's own shop or outside.

- Prompt service so that downtime is minimized.
- Cost breaks (discounts, fleet rates).
- Vehicles that do not breakdown continuously.
- Record formats that are clear, easy to use and are useful.

A number of agencies indicated that their maintenance program is the outgrowth of much experimentation and many adjustments to fit their operations' particular characteristics. A couple of agencies indicated that their maintenance programs are still evolving.

Agencies with their own shops or own mechanics or maintenance personnel to take care of regular maintenance tend to be very satisfied with the benefits of these resources -- lower costs, rapid turn-around time and strong central control. Even programs that only have need for a part-time maintenance person reported being pleased with the arrangement.

As was mentioned earlier, many of the programs that use commercial garages or local government shops report high levels of satisfaction. Again, price breaks, strong rapport and prompt work are the keys. (In some cases, the garages provide night service which assures that the vehicles are available during the day -- an element that improves satisfaction.)

III. RECOMMENDED MAINTENANCE PROGRAM ELEMENTS

Many of the interviewees had suggestions to offer about successful elements of their maintenance programs. The following is a summary of those recommendations.

- A basic component of a working maintenance program is regular inspections by people (drivers, service station attendants, maintenance personnel) who know what to look for. A second component is a clear procedure for reporting problems, handling the problems and putting the vehicle back into service.

- Regular schedules for maintenance help programs plan vehicle downtime, arrange for back-up vehicles and budget maintenance work. A 3,000-6,000-12,000 mile service frequency was recommended by several programs.
- Good supervision is needed at all times. Safety inspections should be double-checked on a regular basis by a supervisor and all in-house maintenance work, as well as that which is farmed out, should be carefully monitored. Good records are a basic supervisory tool.
- Considerable sums can be saved if at least some preventative maintenance work is done in-house. Even small programs with small fleets should consider use of a trained, part-time maintenance person to change the oil, replace small parts, etc.
- Yakima Valley Transportation Exchange has a Loss Control Committee that it recommends. The Committee is made up of the maintenance supervisor, the operations manager and a driver who monitors driver hiring, training and ongoing van driving; vehicle equipment and maintenance, accident and other incident reporting and investigation and other aspects of the program that relate to safety and vehicle maintenance. (A copy of the rules governing the commitee is in the appendix.)
- Care should be taken in selecting or custom designing maintenance records forms. The forms should be simple to use but should be set up so they provide a clear picture of vehicle status. An expense and parts and repair log for each vehicle is valuable for identifying problem patterns so that they can be anticipated. Logs can also be used to determine if preventative maintenance is being performed too often, or not often enough, by comparing maintenance frequency with records of breakdowns and parts replacement.

IV. WSDOT ASSISTANCE

The grantees were asked to identify any assistance they felt might be provided by the State Department of Transportation that would help improve the quality of their maintenance programs. The ideas for possible assistance included fiscal assistance, technical assistance and assistance in finding qualified and affordable mechanics. The following is a summary of the suggestions posed by the interviewed grantees.

- Provide assistance in finding new funding sources to help cover operating costs including maintenance. This would be most useful if information about funding sources were provided with lead time to apply for the funds -- a newsletter would be a good way to spread the information.
- Allow Section 16(b)(2) funds to be used to purchase vehicle maintenance equipment and tools.
- Share information on good programs, new ways to keep vehicles in tip-top shape, etc.
- Arrange for Section 16(b)(2) grantees to use WSDOT shops. (This idea has been investigated with the WSDOT. The shops are not set up to handle the vans operated by the grantees. State shops in most areas have diesel mechanics rather than automotive mechanics. Also, in most areas the shops are working at full capacity. There is some question whether there would be any price break at the State shops since many commercial garage rates are competitive.
- Assist grantees in finding reliable shops by certifying ones with good records.
- Help grantees arrange cooperative maintenance ventures with other private nonprofit van programs, commercial transportation companies (taxis) or the local public transit system. Linking up with other fleets could save money.
- Provide standardized maintenance forms.*
- Work on state purchasing procedures to arrange for better quality equipment and more reliable vendors.
- Assist programs to share information on a regular basis.
- Whatever the state does, it shouldn't cost the grantees any more to maintain their equipment.
- Assist in setting up bulk purchasing programs for parts, fuel, and tools.
- Offer high quality driver training in vehicle maintenance.
- Help new grantees develop their maintenance programs and understand the requirements. Use WUTC** and WSDOT inspections early in the grant period to help grantees get off to a good start.

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*Based on the findings of this study, developing a single set of forms to meet all programs' needs may not be feasible.

**Washington State Utilities and Transportation Commission.

V. THE COST-EFFECTIVENESS OF MAINTENANCE PROGRAMS

There is surprisingly little formal research available on the cost-effectiveness of maintenance programs for paratransit and special transportation programs. Most work that has been done on the topic relates to highway equipment or military vehicles and thus is somewhat difficult to use with any assurance of comparability. Most reports that do deal with special transportation services and mention maintenance simply assume it will be done and make no effort to assess whether it will pay off.

Three short reports on aspects of vehicle maintenance (in other transportation sectors) were identified as having some bearing on special transportation programs. In addition, some of the interviewed grantees were able to offer some insight into the issue of the cost-effectiveness particularly as it relates to preventative maintenance.

William D. Diggs, Administrator of Maintenance and Operations for the Department of Administrative Services for the City of Seattle has kept careful records that show substantial cost and labor time reductions per dispatch hour for the City's street sweepers since a full scale preventative maintenance program was established in 1977.* Under Seattle's program, equipment operators are trained to identify possible problems and to report them. A "debriefing" of operators by maintenance personnel occurs when the sweeper is turned in for maintenance. Use of forms, checklists, regular inspections and scheduled maintenance work resulted in about a 30 percent maintenance cost saving per dispatch hour between 1977 and 1980.

The Diggs' report points out that there are a variety of ways to make preventative maintenance contribute to the overall cost-effectiveness of a program. First, the scope of preventative maintenance must be clearly defined and sufficiently narrow to make it reasonable to do frequently. Second, use of records of breakdowns will

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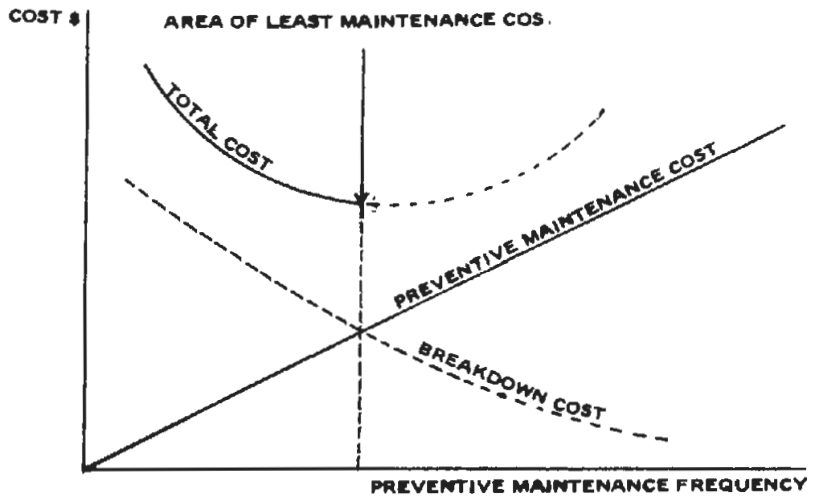
*William D. Diggs. "Overview of Preventative Maintenance Programs: Are They Effective." Paper presented at the 1980 International Public Works Congress and Equipment Show. (September 17, 1980.)

help in scheduling preventative maintenance work frequency (which may or may not coincide with the manufacturer's recommendation). "You certainly do not want to spend time and money where equipment breakdowns are infrequent or create only minor problems," Diggs points out. He says that one way to save money is to evaluate whether it costs more to repair a part or to replace it. He advocates a preventative maintenance program in which the equipment is so well understood that decisions can be easily made as to the amount of work needed and its frequency. Good records are the key to this process, according to Diggs.

One tool the City of Seattle uses to evaluate preventative maintenance (P.M.) program cost-effectiveness is the following chart. To quote Diggs:

> The following Chart represents the relationship of Total Costs to the frequecy of P.M. and breakdown costs. On the left side of the Chart with little P.M. work done, the breakdown costs are high. As you increase the number of P.M.'s breakdown costs decrease and total cost decreases to its lowest point where the P.M. and breakdown curves cross. Further increasing the frequency of P.M.'s decreases the breakdown costs but with an attendant increase in P.M. costs and Total Costs.
>
> Improvement in your P.M. process can improve your overall cost effectiveness. If you determine you are left or right of center, on the total cost curve, you're not operating in the most effective manner.

Figure 4
Relationship of Total
Costs to the Frequency of Preventative
Maintenance



(Source: Ibid. page 7)

A second report, this one from the City of Wilmington, Delaware, reviews a test of the cost-effectiveness of four strategies for maintaining the City's police cars.* For a period of nine months, the researchers followed the experience of four subgroups of patrol cars:

1) "Control Group:" These cars were operated under the existing minimal maintenance program where, with the exception of oil changes, vehicle maintenance occurred only "as needed."

2) "Ownership Preventative:" These cars were maintained regularly in the City's own shop. The key here was that two officers were assigned responsibility for the maintenance of each car. (They had to perform regular inspections and point out problems to the shop as well as make certain the car was in the shop for its scheduled tune-ups, etc.)

3) "Nonownership Preventative:" Maintenance was performed regularly in the City shop, but without any designated car "owner" (responsible officer).

4) "Nonownership Preventative Private:" Like Group 3, but work was contracted to a private (commercial) garage.

Despite some major methodological problems with this study, it is valid to conclude that there were cost savings for the second group. Assigning responsbility for keeping the vehicles in good shape to the vehicle users coupled with in-house maintenance work, produced substantial savings.**

The report author suggests that other fleet operators may want to try this test in their own operations. If so, they can avoid some major methodological problems by

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*Ed Swift. "A Study of Alternative Approaches to Motor Vehicle Maintenance." Prepared for the Office of Policy Development and Research, Department of Housing and Urban Development. City of Wilmington (January 1979).

**These findings have been substantiated in Washington State by several of the Section 16(b)(2) grantees who have used assigned drivers and in-house maintenance support.

using the following test conditions:

- Use the same make of vehicle for all participating vehicles.
- Vehicles should be approximately the same age and have about the same amount of use.
- Vehicles should receive roughly the same amount of use during the test.
- The test should last long enough to compensate for minor use variations and to give sufficient information to analyze.

The third report comes from the Ann Arbor Office of the U.S. Environmental Protection Agency (EPA).* The EPA was testing reports that inspection and maintenance programs could improve fuel efficiency for older model cars (1972-1977) that were fitted with air pollution devices. The EPA was able to show that the vehicles used in the studies underlying the reports were maintained by highly trained (by the EPA) mechanics. Comparably trained mechanics are not available in most communities and without highly trained mechanics, intensive maintenance work with the objective of improving fuel efficiency in older vehicles may not be cost-effective. (The EPA does indicate, however, that newer models have had engineering design changes that can make a good maintenance program produce moderate fuel savings.) The EPA's finding that the quality of the mechanic and the work performed affects cost-effectiveness was pointed out by a number of the Section 16(b)(2) grantees who have found that bargains may not be that in the end.

Among the Section 16(b)(2) grantees interviewed for this study, there was consensus that a good maintenance program can save money and wear and tear on vehicles (and program personnel). Most of the agencies with formal, scheduled preventative maintenance programs reported cost savings and/or reductions in downtime. Most of the agencies could not provide hard numbers to prove the cost-effectiveness of formal maintenance programs. Some were willing to provide examples of cost savings.

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*Inspection and Maintenance Staff, U.S. Environmental Protection Agency. "Effects of Inspection and Maintenance Program on Fuel Efficiency." Ann Arbor, (March 1979).

The South King County Multi-Purpose Center did report on the costs of not providing preventative maintenance. In 1980, the Center had to rebuild engines in three vans (two 1976 and one 1977, all Dodges) which had only about 75,000 miles on them. These vans had had infrequent oil changes and little if any maintenance care. According to the Center's Transportation Manager, these vans should have been useful for 125,000 miles before an engine rebuild would normally be required and that, with proper preventative maintenance, their vehicle life could have exceeded 200,000 to 300,000 miles.

The North East King County Multi-Service Center reported that for the last two years it has had scheduled preventative maintenance every 3,000 to 4,000 miles (or roughly every six to eight weeks). The result has been no serious breakdowns or major repairs during this period. One additional benefit has been an ability to anticipate problems with defective parts. Some vans have had a history of defective parts. The Center's mechanic checks those parts every six to eight weeks and can replace those parts showing unusual wear or other problems before they result in a breakdown. In conjunction with the South King County Multi-Service Center, the North East Center has been stockpiling replacements for potentially defective parts so that substitutions can be made immediately without long delays while parts are ordered.

In contrast to its well-maintained fleet with its low maintenance costs, the North East King County Multi-Service Center is operating some badly maintained vans transferred from another program. Like the South King County Center's experience, these poorly maintained vans are now "oil burners," requiring endless repairs.

VI. SUMMARY AND CONCLUSIONS

In sum, it seems clear that a good maintenance program can be of benefit to special transportation operators particularly if attention is paid to a preventative maintenance effort. Key elements of such a program include:

- Establishment of regular maintenance schedules.
- Assignment of responsibility for various aspects of vehicle maintenance from daily safety checks through major maintenance work. Use of easily-used

records and inspection procedures helps in this process.*

- Use of vehicle logs to keep track of maintenance and repair histories that can help establish need for maintenance work and help avoid unnecessary work.
- Development of in-house capacity to do all or some maintenance work.

Today's rising costs coupled with declining program revenues may curtail good maintenance programs and foreclose the creation of new ones. Certainly some new approaches to maintenance programming have to be explored. Among these are joint maintenance programs shared by two or more agencies; linkages with publicly operated garages (transit, school districts, city or county); parts and fuel purchasing pools and other approaches that take advantage of fleet rates and economics of scale.

The State Department of Transportation can assist in the development of stronger maintenance programs by providing support to programs seeking to develop innovative programs such as joint maintenance operations. Such support could include financial assistance; help in identifying funding sources and useful program elements; assitance with negotiations, etc.

In addition, the State could spearhead an effort to document the types of savings that can be achieved through sound maintenance programs so that the use of such programs can be justified even in times of financial hardship.

Development of a simple reporting form that pinpoints the relationship between vehicle use, vehicle maintenance and vehicle operating costs could be the tool to provide that documentation.

In addition, as better use of existing equipment becomes a higher priority, State-assisted exchanges of information about what works and what does not could help programs stretch the useful lives of their vehicles.

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*A set of record forms is appended to this report. These have been provided by many of the 16(b)(2) agencies as models for other agencies to consider.

8/PT6

APPENDIX A

LIST OF PARTICIPATING GRANTEES

1. Syd Pawloski
North/East King County
Multi-Service Center
18220 96th N.E.
Bothell, WA
485-6524

2. Margo Thornley
W.I.S.E.R. Institute
Bothell, WA
364-5545

3. Steve Hutchins
South King County
Multi-Service Center
2450 Star Lake Rd.
Federal Way, WA
839-8150

4. John Mautz
Northwest Center for
the Retarded
1600 West Armory Way
Seattle, WA
285-9140

5. Dave O'Connell
Whatcom County COA
315 Halleck St.
Bellingham, WA
733-4030

6. John Kirby
United Cerebral Palsy Assoc.
of King-Sno.Counties
4109 Interlake Ave. N.
Seattle, WA
632-2827

7. Tim Holloran
Skagit Co. Senior Services
Mt. Vernon, WA
336-9414

8. Warren Raymond
Custom Industries
15155 Bel-Red Road
Bellevue, WA
643-0234

9. Carol Bunting
Seattle Indian Health Board
USPHS Hospital
1131 14th Ave. S.
Seattle, WA
324-9360, ext. 415

10. Keith Spelhaug/Bill Henderson
Senior Services of Sno. County
3402 112th St. S.W.
Everett, WA
355-1112

11. Dave Scheiber
V.I.C.T.O.R.
Vashon, WA
463-5200

12. Marliene Cheek
Chelan-Douglas COA
104 N. Wenatchee Ave.
Wenatchee, WA
662-3461

13. Gary Knapp
Skills Training & Emply. Program
Building 2114 Grant Co. Airport
Moses Lake, WA
762-5322

14. Robert Eash/Margery Biery
Grant County Seniors

Moses Lake, WA
765-9249

15. Jeff Russell
Okanogan Senior Citizens Assoc.
Omak, WA
826-4391

16. Mike Wolniewicz
Diversified Industries, Inc.
2602 West 18th
Port Angeles, WA
452-9789

17. Antony Clark
Pierce County Red Cross
306 S. 7th St.
Tacoma, WA
572-4830

18. Bobbi Soran/Barbara Singleton
Kitsap Peninsula Housing
and Transportation Assoc.
614 Division St.
Port Orchard, WA
876-7171

19. Ed Gilmore
EOC of Clark County
2101 East 13th
Vancouver, WA
695-1581

20. Marilyn Mays/Judy Wallila
Lower Columbia CAC
Longview, WA
425-3430

21. Gini Heintzman
Yakima Valley Transp.
2009 S. 64th Ave.
Yakima, WA
965-0038

22. Syd Johns
Benton/Franklin Red Cross
404 N. Conway
Kennewick, WA
783-6195

23. Jim Larson
Kittitas Co. Develop. Center
804 Elmview Rd.
Ellensburg, WA
925-6124

24. Karen Martin
Walla Walla Senior Citizens Center
Jefferson Park Fieldhouse
Walla Walla, WA
529-2850

25. Emilio Zamora
SASTA
W. 1027 Broadway Ave.
Spokane, WA
747-7137

26. Audrey Rose
Northeast WA Rural Resource
Development Assoc.
219 S. Elm
Colville, WA
684-2515

8/PT6

APPENDIX B

SAMPLE MAINTENANCE
PROGRAM FORMS USED BY GRANTEES

I. Daily Safety Check Record Forms

II. Preventative and Major Maintenance Records

III. Vehicle Maintenance Log Forms

IV. Driver Training Materials

I. DAILY SAFETY CHECK RECORD FORMS

UNITED CEREBRAL PALSY OF KING-SNOHOMISH COUNTIES

BUS CHECK LIST -- GILLIG ONLY

TRANSPORTATION DEPARTMENT

START UP:

Check oil
Check water
Check tires
Check lights

Report any problems in these areas to Ardel Burmeister

Check air stops -- brakes -- mirrors
Turn on battery

RUNNING:

Air pressure -- 120 lbs. approx.
Oil pressure -- 40 - 50 lbs.
Water temperature -- 170 degrees

SHUT DOWN:

Shut off battery
Bleed brakes -- in summer, once a week; in winter, every night
Lock up all doors
Be sure emergency brakes are on and bus is left in gear

E.O.C. OF CLARK COUNTY

OPERATING TECHNIQUES AND MANEUVERS

1. Daily Check-In Procedures

   a. Report to and sign in at the office at the scheduled time. (Check with dispatcher the evening before for reporting time.)

   b. Pick up vehicle keys, roster forms, clipboard, donation box and other forms as required.

   c. Add additional names to roster forms as required.

   d. Check with Dispatcher for messages/last minute changes to roster.

   e. Know your addresses

2. Vehicle Inspection

   a. Walk around vehicle to inspect cleanliness of windows, body, mirrors, condition of tires and for any indication of water, oil or gasoline leak.

   b. Inspect inside of vehicle for cleanliness of seats, floor and windows. Check for: emergency equipment availability, working radio, stool, if needed, proper number of wheelchair tie-downs, belts and bars, if required.

   c. Check lights - headlights (High and low beams), turn signals front and rear, brake lights.

   d. Check license plate.

3. Pre-Ignition - The following tasks should be done before the engine is started:

   a. Driver position:
   The driver should position himself/herself so that he/she is within reach of all controls and in position for greatest visibility.

   b. Mirror adjustment:

   - Outside Flat Mirror - adjusted so that driver can see rear tires at ground level in bottom of mirror and rear bumper near the inside edge.
   - Outside Convex Mirror - adjusted to give maximum localized vision to both sides of the van.
   - Inside Mirror - is used to view the passengers.

   c. Fasten seat belt. The driver should use a seat belt.

   d. Record odometer readings

4. Starting the Engine

   a. Automatic transmission - Check parking brake.

   b. Warm-up - Let engine run at fast idle during warm-up period; check oil pressure gauge.

   Note: A 3 to 5 minute warm-up period is all that is necessary prior to driving the vehicle.

   c. Operation Inspection -
   Check service and parking brakes, transmission, engine and steering operation.

NEVER ATTEMPT TO OPERATE YOUR VEHICLE WHEN IT IS IN AN UNSAFE CONDITION.

5. Daily Check Out Procedures
   a. Fill up vehicle if tank is below half.
   b. Report to dispatcher.
   c. Hang up clip board and vehicle keys.
   d. Turn in ending mileage and transportation coupons, and Donation Box.
   e. Turn in blue Operator's Report card, if applicable.
   f. Sign out.

6. Stopping for loading and unloading

   a. Sight distance - Your vehicle must be clearly visible from front and rear.
   b. Give traffic adequate warning that you are going to load or unload. Slow down, check your mirrors, pull as far to the right as possible, turn on four-way flashing lights prior to stop. Place the vehicle in neutral or park and apply brake. Turn off engine if you are leaving the vehicle for more than one minute, except Headstart.

7. Backing - should be avoided if at all possible.

   a. Straight line backing:
      - Adjust seat properly.
      - Adjust mirrors.
      - Secure responsible observer to watch areas not seen through mirrors.
      - Use flat mirrors inside and outside to guide in straight line backing and judging distance.

   b. There is no excuse for a backing up accident - NEVER.

   c. Pulling into parking spaces.

      - Use flat mirrors inside and outside for judging clearance and distance.

NORTHSHORE MULTI SERVICE CENTER

The Driver Will Check Each Day The Appropriate Items On The Vehicle They Are Driving.

Week of: _____

Van #: _____

Daily:	M	T	W	TH	F	Date	Mileage	Driver's Initials
All Lights:								
Turn Signals:								
Tires:								
Oil:								
Brakes:								
Mirrors:								

Weekly:	W
Radiator Water Levels:	
Battery Water Level:	
Speedometer/Odometer:	
4-Way Flasher:	
Interior Lights:	
First Aid Kit Secured:	
3-Reflectors Secured:	
Fire Extinguisher: Charged	
Certified	
Secured	
Body Condition:	
Wash Van:	

Gasolone Purchases:

mileage
No. gallons
$ cost

mileage
No. gallons
$ cost

mileage
No. gallons
$ cost

mileage
No. gallons
$ cost

The responsibility of each driver will be to report any and all noticeable problems to the Transportation Coordinator so that the problem may be remedied.

Reports will be turned in each Friday to the Transportation Coordinator for review of van maintenance.

Comments:

GRANT COUNTY SENIORS

TRANSPORTATION PROGRAM

VEHICLE CHECK LIST

Inspect Vehicle at beginning of work day, check each item if OK

Note any defects on bottom of sheet.

	Date				
EXTERIOR					
	Tires				
	Turn Signals				
	Van clean				
	Head/Tail lights				
	Mirrors				
	Wipers				
	Body				
INTERIOR					
	Brakes				
	Transmission				
	Steering				
	Safety Equipment				
	Dash Gauges				
	Seat Belts				
UNDERHOOD					
	Oil Level				
	Radiator Level				
	Transmission Fluid (color & level)				
	W/W Fluid Level				
	Battery Connections				
	Belts				
	Amount Gas Added				
Starting Mileage					
	Driver Initials				

Defects: _____

_____

_____

_____

_____

(OVER)

GCS-T-FORM #8-JUN 81

In those vans with lifts inspect lift twice weekly. Check if O.K. Note any defects on bottom.

Date		
Ropes		
Hoses		
Hose attachments		
Back stop		
Electrical connections		
Operation		
Leaks		

Defects: _____

_____

_____

_____

_____

* RETURN THIS SHEET TO MAIN OFFICE EACH FRIDAY

Lower Columbia Community Action Council, Inc.
PRE-TRIP INSPECTION

DAILY VEHICLE CHECKLIST

VEHICLE DEFECT LIST

DATE _____ VEHICLE _____

MILEAGE: Ending _____
Starting _____
Daily total _____

INSPECT AND CHECK BELOW ITEMS IF O.K.

NOTE ANY DEFECTS BELOW

A. ENGINE

1. Oil level _____
2. Radiator level _____
3. Battery level _____
4. Windshield washer level _____
5. Engine _____

B. EXTERIOR

1. Tires _____
2. Turn signals _____
3. Head lights _____
4. Tail lights _____
5. Mirrors _____
6. Windshield wipers _____
7. Fresh body damage _____
8. Cleanliness _____

C. INTERIOR

MAINTENANCE PERFORMED

1. Brakes
2. Steering
3. Transmission

Safety Equipment:

4. Fire extinquisher
5. Flares
6. First aid kit
7. Dash gauges
8. Radio
9. Fresh damage
10. Cleanliness

D. FUEL ADDED _____ Gal.
OIL ADDED _____ Qts.
MILEAGE AT FUELING _____

_____
Driver Signature

SEATTLE INDIAN HEALTH BOARD
Vehicle Condition Report
(Check opposite defects)

DRIVERS NAME_____ DATE_____ VEH.#_____

ENGINE

_____Runs Hot
_____Runs Cold
_____Misses
_____Backfires
_____Idles Too Slow
_____No Power
_____Low Oil Pressure
_____Water Leak
_____Exhaust Leak
_____Pings
_____Accelerator Sticks
_____Accelerator Stiff
_____Hard Starting
_____Won't Take Gas
_____Cuts Out on a Pull
_____Fan Belt

CLUTCH

_____Grabs
_____Slips
_____Won't Release
_____Chatters
_____Pedal Bound
_____Pedal Hard

TRANSMISSION

_____Noisy
_____Hard to Shift
_____Gears Rake
_____Jumps Out of Gear
_____Won't Shift to High
_____Won't Shift to Low
_____Gears Rake into High
_____Gears Rake into Low

STEERING

_____Hard Steering
_____Shimmy
_____Loose Steering

BRAKES

_____Pull Left
_____Pull Right
_____Too Sensitive
_____Foot Brake Slack
_____Hand Brake Slack
_____Does Not Release

LIGHTS

_____Headlights Out of Focus
_____Headlight Out (R) (L)
_____Dome Light Out
_____Right Tail Light Out
_____Left Tail Light Out
_____Right Brake Light Out
_____Left Brake Light Out
_____Right Blinker Out
_____Left Blinker Out
_____Four Way Flash Out

ELECTRICAL

_____Generator Not Charging
_____Starter
_____Horn
_____Battery
_____Heater
_____Defroster
_____Tachometer
_____Speedometer

CHASSIS

_____Out of Line
_____Weak Springs
_____Wheel Lugs Loose
_____Tires

BODY

_____Floor Covering
_____Seats
_____Drivers Seat
_____Glass
_____Windows Hard to Raise
_____Windshield Wipers
_____Roof Leaks
_____Mirror
_____Fire Extinguisher
_____First Aid Kit
_____Flares

OTHER

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

DATE REPAIRED_____

WALLA WALLA SENIOR CENTER DAILY BUS MAINTENANCE AND SAFETY LOG

Bus No_____ Bus Driver_____

First Week Date_____ Second Week Date_____

MAINTENANCE	Mon		Tue		Wed		Thu		Fri		Mon		Tue		Wed		Thu		Fri	
	OK	NA	OK	NA	OK	NA	OK	NA	OK	NA	OK	NA	OK	NA	OK	NA	OK	NA	OK	NA
1. Tires																				
A. L. Front																				
B. R. Front																				
C. L. Rear																				
D. R. Rear																				
E. Spare																				
2. Oil																				
3. Trans. Fluid																				
4. Water																				
5. Brakes																				
6. Lights																				
7. Seat Belts																				
SAFETY																				
1. First Aid Kit																				
2. USCG Fire Extinguisher																				
3. Accident Report Forms																				
4. Flares																				
5. Flashlight																				
6. Chains (traction aids)																				

BENTON FRANKLIN TRANSPORTATION

DAILY VEHICLE CHECK LIST

	MON.	TUES.	WED.	THURS.	FRI.
1. OIL LEVEL					
2. BATTERY					
3. BELTS					
4. FIRE EXTIN.					
7. CLEANLINESS					
8. TIRES					
9. LIGHTS					
10. TURN SIGNALS					
11. FLASHERS					
12. EXTERIOR					
13. RADIATOR					
14. WIPERS					
15. DASH GUAGES					
16. JACK & HANDLE					
17. INTERIOR					

COMMENTS:

SIGNATURE _____

DATE _____

YAKIMA VALLEY TRANSPORTATION - ELDERLY & HANDICAPPED

VAN REPORT

Driver's Name_____ Van Number _____ Date _____

	PRE-TRIP INSPECTION	OKAY	NEEDS WORK
1.	STEERING MECHANISM - ESCESSIVE PLAY?	_____	_____
2.	HORN	_____	_____
3.	WINDSHIELD WIPERS	_____	_____
4.	REAR VISION MIRRORS	_____	_____
5.	SEAT BELT ARRANGED ON SEATS	_____	_____
6.	VAN CLEAN INSIDE	_____	_____
7.	FUEL	_____	_____
8.	BRAKES - PEDAL & EMERGENCY CHECK	_____	_____
9.	VAN CLEAN OUTSIDE	_____	_____
10.	WATER IN BATTERY	_____	_____
11.	OIL	_____	_____
12.	PRESSURE IN TIRES	_____	_____
13.	FLASHERS	_____	_____
14.	TAIL LIGHTS	_____	_____
15.	BRAKE LIGHTS	_____	_____
16.	HEADLIGHTS	_____	_____
17.	SIGNAL LIGHTS	_____	_____
18.	COOLANT	_____	_____

COMMENTS: _____

_____

_____

_____

_____

_____

_____

Signature of Examiner_____

PRE-TRIP INSPECTION TEST

DAILY VEHICLE CHECKLIST

DATE _____ VEHICLE _____

MILEAGE: END _____

START _____

DAILY TOTAL _____

INSPECT AND CHECK BELOW ITEMS IF O.K.

1. EXTERIOR

Tires _____
Turn Signals _____
Head Lights _____
Tail Lights _____
Fresh Body Damage _____
Windshield Wipers _____
Cleanliness _____

2. INTERIOR

Brakes _____
Steering _____
Transmission _____
Safety Equipment:
Fire Extinquisher _____
Flares _____
First Aid Kit _____
Dash Gauges _____
Radio _____
Fresh Damage _____
Cleanliness _____

3.. UNDER HOOD

Oil Level _____
Radiator Level _____
Battery Level _____
Windshield Washer Fluid Level _____
Engine _____

Fuel Added _____ gal.
Oil Added _____ qts.
MILEAGE AT FUELING _____

_____
DRIVER SIGNATURE

VEHICLE DEFECT LIST

NOTE ANY DEFECTS BELOW:

1. EXTERIOR

2. INTERIOR

3. UNDER HOOD

_____
Maintenance Performed

_____ COST
_____ COST

_____
MECHANIC SIGNATURE

Senior Services of Snohomish Co.

UNITED CEREBRAL PALSY OF KING-SNOHOMISH COUNTIES

BUS DRIVERS

VEHICLE CONDITION REPORT & CHECKLIST

Bus Number: Mileage Reading:

ITEM	Repair Needed	ITEM	Repair Needed
Windshield Glass		Engine	
Windshield Wiper		Cooling System (Radiator)	
Mirrors		Steering	
Gauges (Brake & Engine)		Drive Train	
Horn		Brakes (Service)	
Heater/Defroster/Air-Conditioner		Brakes (Parking)	
Seat Belts		Tires (Tread & Pressure)	
Interior Lights		Wheels	
Windows		Exhaust System	
Seats		Headlights	
Floor		Stop/Taillights	
Emergency Equipment		Turn/Emergency Lights	
Strange or Odd Noises		Reflectors	
Vibrations, etc. (Check and explain		Exterior	
at bottom		Interior	
If no defects noted, check:			

EXPLAIN: (Repairs completed, etc.)

Driver or Inspector Signature: Date:

1/79

II. PREVENTATIVE AND MAJOR MAINTENANCE RECORDS

KITSAP PENINSULA HOUSING AND TRANSPORTATION

ASSOCIATION

VEHICLE MAINTENANCE SCHEDULE

CHANGE OIL, LUBE, FILTER
CHECK REAR AND ALL FLUID LEVELS .....4,000 MILES

TUNE UP.....12,000 MILES

TIRES ROTATED.....12,000 MILES

TRANSMISSION SERVICE .....24,000 MILES

PACK WHEEL BEARINGS ..... 24,000 MILES

WINTERIZE AND FLUSH..... 24,000 MILES

BRAKES CHECKED ..... 24,000 MILES

Bus #_____ Mileage:_____ Mileage Done:_____ Date_____

2500

Lube & Oil
Belts
Tires
Coolant
Power Steering
Transmission
Rear Axel
Brake Cylinder
Universal Joint

Comments:

10,000

Tires
Cooling System

12,000

Front End

15,000

Crankcase Inlet
Air Cleaner
Wheel Bearings
Vapor Storage Canister
Radiator & Emission Hoses
Brake Linings

20,000

Tune Up
Transmission

25,000

Front Ball Joints

30,000

Fuel Filter
PCV Valve
Ignition System
Manifold Heat
Rear Axel
Differential

Every 6 Months

Steering: spring Clip, idler arm:
Front Ball joints & Seals
Body Mechanisms
Carb choke shaft
Fast Idle Cam
Pivot Pin
Muffler & Shocks

MAINTENANCE SCHEDULE FOR L.C.C.A.C. VANS

Every 2,000 - 4,000 miles:

1. Change motor oil
2. Replace oil, air, and fuel filters
3. Lubricate chassis

Every 8,000 miles:

1. Check brakes, replace parts if necessary
2. Check wheel bearings, repack, or replace if necessary
3. Clean and lube wheelchair lift

Every 10,000 miles:

1. Rotate tires, replace if necessary

Every 12,000 miles:

1. Tune engine
2. Replace spark plugs

Every 15,000 miles:

1. Service transmission
2. Change oil in rear axle differential

As needed:

1. Spark plugs and coil wires
2. Belts and hoses
3. Other maintenance items as they arise

SASTA (

SERVICE INSPECTION	
UNIT #	

DATE	
MILEAGE	
BY	

SYMBOLS: (✓)OK (X) ADJUSTED (O) NEEDS REPAIR

NOTE: ANY REPAIRS NEEDED WHICH CANNOT BE MADE AT TIME OF INSPECTION SHOULD BE LISTED UNDER REMARKS. NOTIFY FIELD SUPERVISOR

ENGINE COMPARTMENT

_____ CHECK ALL WIRING FOR BROKEN INSULATION, LOOSE TERMINALS ETC.

_____ CHECK ALL OIL LINES/BRACKETS

_____ CHECK ALL FUEL LINES/ BRACKETS

_____ CHECK ALL WATER LINES, HOSES & CLAMPS (INCL. HEATER CORE)

_____ CHECK ALL RADIATOR BELTS

_____ CHECK TRANSMISSION FOR LEAKS

_____ NEUTRAL SWITCH ADJUSTMENTS

_____ BLOW OUT RADIATOR FINS (INSIDE)

_____ RADIATOR FILLER CAP/GASKET

_____ TAIL PIPE & MUFFLER BRACKETS

_____ CHECK BATTERY CASE & MOUNT

_____ CHECK WATER MANIFOLED FOR LEAKS

_____ CHECK VALVE COVER GASKETS

_____ CHECK ALTERNATOR & MOUNT

_____ STARTER OPERATION

_____ CHECK ENGINE MOUNTS

_____ CHECK FAN, HUB & SHROUD

_____ RADIATOR & SURGE TANKS FOR LEAKS, LOOSE MOUNTING, ETC. CHECK WINDSHIELD WASHER CASE

UNDER CHASSIS-PIT INSPECTION

_____ DRAG LINK & TIE ROD FOR WEAR/ADJ.

_____ CHECK FUEL TANKS FOR LEAKAGE, ETC.

_____ SHOCK ABSORBERS

_____ DRIVE-SHAFT & U-JOINTS

_____ DIFFERENTIAL-PINION-SEALS-HOUSING

_____ BRAKE RELEASE OPERATION & ADJ.

_____ CHECK A/C BELTS & SEAL

_____ CHECK A/C ALTERNATOR & MOUNT

_____ _____

_____ BRAKE SHOE UNIT

_____ WHEEL SEALS FOR OIL/GREASE LEAKS

_____ ENTIRE UNDER-CHASSIS OF VAN FOR DEFECTS

_____ CHECK DIFFERENTIAL OIL LEVEL

_____ COMPLETE CHASSIS-LUBRICATION AS PER MANUFACTURERS SPECIFICATION

_____ LIFT MOTOR, ETC.

ENGINE COMPARTMENT LUBRICATION

_____ SERVICE AIR CLEANER

_____ CHECK CARBURETOR LINKAGE

_____ CHANGE OIL FILTER ELEMENT

_____ _____

_____ CHECK TRANSMISSION FLUID

_____ CHANGE FUEL FILTER

_____ CHANGE OIL & LUBE

NOTE: REFER TO MANUFACTURERS MAINTENANCE MANUALS FOR DETAILS OF INSPECTION PROCEDURES, SERVICE & REPAIR INSTRUCTIONS.

SERVICE INSPECTION _____

INTERIOR INSPECTION	EXTERIOR INSPECTION
_____ FREE-PLAY IN STEERING WHEEL	_____ CHECK OPERATION ALL EXT. LTS.
_____ BRAKE & ACCELERATOR PEDAL OPER.	_____ SPARE TIRE MOUNT
_____ HORN FOR SOUND & OPERATION	_____ ALL EXTERIOR TRIM
_____ CHECK ALL GAUGES	_____ OUTSIDE MIRRORS
_____ SHIFT LEVER OPERATION	_____ STEP OPERATION & MOUNT
_____ HAND BRAKE OPERATION	_____ LIFT OPERATION & MOUNT
_____ WINDSHIELD WIPER OPERATION	_____ LIFT CONTROL/LOOSE WIRES/ETC.
_____ REAR VIEW MIRRORS	_____ WINDSHIELD WIPERS/BLADE OPER,
_____ HEAD LIGHTS, DIMMER	_____ TIGHTEN WHEEL/AXLE FLANGE NUTS
_____ ALL INTERIOR LIGHTS	_____ CHECK TIRES FOR TREAD, AIR PRESSURE, UNEVEN WEAR, ETC.
_____ TURN SIGNAL, FLASHER OPERATIONS	_____ GENERAL BODY & PAINT CONDITION
_____ ALL DOOR OPERATION & LOCK	_____ _____
_____ HEATER/DEFROSTER OPERATION	_____ _____
_____ DRIVER SEAT ADJUSTMENT	_____ _____
_____ WINDOWS, LATCHES OPERATION	
_____ SEATS, FRAMES & COVERING	
_____ GENERAL INTERIOR CONDITION	
_____ FIRE EXTINGUISHER	
_____ ENGINE COVER FOR LEAKS, ETC.	
_____ FLOOR COVERINGS LOOSE/REPAIR	
_____ RADIO MOUNT & OPERATION	
_____ _____	
_____ _____	
_____ _____	
_____ _____	
_____ _____	
_____ _____	
_____	

REMARKS: _____

SIGNATURE OF FIELD SUPERVISOR

SASTA

VEHICLE DEFECT REPORT

VEHICLE NO. _____ DATE _____

	DEFECTS	Check √	VEHICLE IS IN SATISFACTORY CONDITION EXCEPT AS CHECKED √ or NOTED BELOW	Check √	DEFECTS	
STEER	HARD				SLACK	BRAKES
	PULLS				Unequal	
	SHIMMY				Sensitive	
DOORS	SLOW				TIGHT	
	HANG				NOISY	
	LOOSE				No Power	ENGINE
BODY	BUZZER				HEATS	
	W S. Wiper				DIES	
	HEAT				Cuts Out	
	HORN				RACES	
	LIGHTS				KNOCKS	
	WINDOWS				FUMES	
	SEATS				WATER	
	STEPS				GRABS	CL. & TRANS.
	MIRRORS				SLIPS	
MISC.	TIRES				Shifting	
	Hd. Lights				NO.D. D.	
	GEN				ST.In D.D	
	STARTER					
	SPRINGS					
	H. Brake					

DEFECT REPORTED BY: _____
SIGNATURE

DEFECT REPORTED BY: _____
SIGNATURE

DEFECT REPORTED BY: _____
SIGNATURE

FOR MAINTENANCE DEPT. USE ONLY

DESCRIPTION OF WORK TO BE DONE _____

_____

_____

_____

_____

VEHICLE #_____

SEATTLE INDIAN HEALTH BOARD

Vehicle Preventive Maintenance Report

DATE	MILEAGE	2000 MI.				8,000 MI		12000 MI.		15000 MI.			WHERE SERVICED	PRICE
		OIL CHANGE	OIL FILTER	AIR FILTER	LUBRICATION	BRAKE SERVICE	CHECK WHEELBEARINGS	ROTATE TIRES	TUNE ENGINE	TRANSMISSION	PCV VALVE	CHANGE OIL IN REAR AXLE		

Benton/Franklin Red Cross

AUTOMOBILE INSPECTION REPORT

Please indicate by check (✓) appropriate condition.

(1-2) 29 | CAR NO. (3-7)

OPERATOR	OFFICE	RESPONSIBILITY CODE	SPEEDOMETER READING

TIRES

ITEM	GOOD TREAD	FAIR TREAD	POOR TREAD	UNEVEN WEAR	SIDEWALL DAMAGE	OTHER DAMAGE
Left Front						
Right Front						
Right Rear						
Left Rear						
Spare						

GLASS

☐ NO DAMAGE ON WINDSHIELD

OTHER GLASS DAMAGE – LOCATION & TYPE

Use these symbols to describe damage

SCRATCH
CRACK
CHIP
BREAK
SAND-BLAST

DRIVER SIDE

MECHANICAL

Engine	☐ SMOOTH	☐ ROUGH	☐ BURNS OIL	OTHER
Transmission	☐ SMOOTH	☐ SLIPS	☐ LEAKS OIL	OTHER
Brakes	☐ QUIET	☐ NOISY	☐ PULL TO SIDE	OTHER
Front End and Steering	☐ OK	☐ NEEDS ALIGNING/ TIGHTENING	☐ PULL TO SIDE	OTHER

OTHER *(Radiator, Air Conditioner, Muffler, Etc.)*

METAL & PAINT

ITEM	NO DAMAGE	DENTED	RUSTED	FADED	CHIPPED	SCRATCHED	OTHER
Top of Car							
Engine Hood							
Grille							
Front Bumper							
Left Front Fender							
LF Door & Rocker Panel							
LR Door & Rocker Panel							
Left Rear Fender							
Trunk Deck							
Rear Bumper							
Right Rear Fender							
RR Door & Rocker Panel							
RF Door & Rocker Panel							
Right Front Fender							

INTERIOR

ITEM	NO DAMAGE	SOILED	TORN	WORN	OTHER
Front Seat					
Rear Seat					
Headliner					
Front Mat/Rug					
Back Mat/Rug					

MISC.

ITEM	WORKING ORDER	ITEM	WORKING ORDER
Lights	☐ YES ☐ NO	W/Wipers	☐ YES ☐ NO
Horn	☐ YES ☐ NO	Speedometer	☐ YES ☐ NO

SEAT BELTS
Does condition and/or location indicate belts are being used? ☐ YES ☐ NO

DATE AND MILEAGE OF LAST OIL CHANGE

1. *Use back of form for remarks and recommendations*
2. *Send to fleet manager – Home Office*

INSPECTED BY

DATE *(Mo.-Yr.)* (13-16)

M-7382 REV. 9-72 PRINTED IN U.S.A.

NORTHWEST CENTER FOR THE RETARDED
PREVENTIVE MAINTENANCE AND SAFETY INSPECTION

License No. _____ Date: _____

Facility Name: _____ Mileage _____ P.O. No. _____

Last 'T' Date _____ Last 'T' Mileage _____

1. Remove and Inspect Spark Plugs _____
2. Take Compression Readings and Record

_____ 1 Dry	_____ 1 Wet
_____ 2	_____ 2
_____ 3	_____ 3
_____ 4	_____ 4
_____ 5	_____ 5
_____ 6	_____ 6
_____ 7	_____ 7
_____ 8	_____ 8

3. Replace Points and Condensor _____
4. Check Air Gap (Electronic) _____
5. Check Distributor Shaft Play _____
6. Check Distributor Cap and Rotor _____
7. Check and Test Spark Plug Wires with OHM-Meter _____
8. Check Coil _____
9. Check Control Box (Electronic) _____
10. Check Primary Ignition Wiring _____
11. Check and Lube Heat Riser Valve _____
12. Set Dwell _____Degrees
13. Set Timing _____Degrees_____TDC
14. Check Air Cleaner _____
15. Check PCV Valve and Clean Engine Breather _____
16. Check Choke Operation _____
17. Adjust Carburator Idle Mixture _____
18. Adjust Low Idle to Manufacturer's Specifications _____
19. Record Vacuum Reading at 1,000 RPM

    _____ In. Hg. Acceptable? _____
20. Check Accelerator Pump _____
21. Check Trhottle Operation _____
22. Road Test _____

_____

NORTHWEST CENTER FOR THE RETARDED
CERTIFIED BRAKE INSPECTION (HYDRAULIC BRAKES)
(every 12 months 15,000 miles)

Date:_____ Date of last brake repair:_____

Lic. No. _____ Facility _____ P.O. No._____ Mileage _____

1. Road Test - Report any unusual conditions:_____

_____

2. Remove wheels and drums (do NOT blow out brake components with air)

3. Check wheel seals for leakage - report condition _____

4. Inspect brake drums - report condition

   A. Cracks/heat checks _____

   B. Pitting/grooves _____

   C. Bell mouthed condition _____

   D. Other _____

5. Mike all drums and record readings:

   L.F._____ R.F. _____ L.R. _____ R.R. _____

6. Inspect brake lining - report condition:

   A. Unequal wear _____

   B. Excessive wear _____

   C. Cracking _____

   D. Looseness to shoe _____

7. Record lining thickness (Measure to the rivet, using a tread depth gauge). Record depth in 32nds of an inch:

   L.F._____/32nd R.F._____/32nd L.R._____/32nd R.R._____/32nd

8. Replace lining when required to meet factory specifications

9. Inspect brake components - report condition:

   A. Wheel cylinders for leakage _____

   B. Springs _____

   C. Backing plates _____

   D. Adjusting mechanisms _____

   E. Hydraulic hoses and lines to wheel cylinder _____

   _____

10. Lubricate shoe contact surface on backing plates and wheel bearings to meet factory specifications _____

11. Before installing drums, work must be inspected and approved:

_____
Shop Foreman - Signature of Approval

12. Reinstall drums and wheels

13. Bleed and adjust brakes

15. Road Test

Completed by: _____

Certified by: _____
(Supervisor Signature)

NORTHWEST CENTER FOR THE RETARDED

INSPECTION (BI-MONTHLY)

DATE: _____ Date of last inspection: _____

Lic.No. _____ Facility: _____ P.O. No. _____ Mileage: _____

Check ("✓") EACH item that meets inspection standards.
Mark ("X") EACH item that NEEDS ATTENTION, and provide an explanation at the end of the sectio
Sign at the end of EACH completed section.

(This form may be used for pre-delivery inspection)

PRE-ROAD TEST		(✓) O.K.	(X) Needs Att'n
1.	Start Engine	( )	( )
2.	Test horn - check gauges (engine "cold")	( )	( )
3.	Check engine protection or alarm system	( )	( )
4.	Does choke operate properly?	( )	( )
5.	Check pedal travel (brakes)	( )	( )
6.	Test parking and emergency braking system	( )	( )
7.	Does throttle operate properly?	( )	( )
8.	Check heater, defroster and fan operation	( )	( )
9.	Inspect windshield condition	( )	( )
10.	Check wiper and washer operation	( )	( )
ROAD TEST			
11.	Test gear shift operation	( )	( )
12.	Check steering control	( )	( )
13.	Check speedometer operation	( )	( )
14.	Check odometer operation	( )	( )
15.	Check gauges (engine "hot")	( )	( )
16.	Check engine - Run smoothly? Unusual noises? Vibrations?	( )	( )
17.	Test headlights - high beam/low beam	( )	( )
18.	Test turn signals	( )	( )
19.	Test emergency 4-way flasher	( )	( )
20.	Test brake lights	( )	( )
21.	Test tail, clearance and back-up lights	( )	( )
22.	Test interior lights	( )	( )
23.	Check first-aid kit - is it sealed?	( )	( )
24.	Check for 3 flares or 3 reflectors - Secured?	( )	( )
25.	Check fire extinguisher-Charged? Certified? Secured?	( )	( )
26.	Check window mechanisms and operation	( )	( )
27.	Inspect interior cleanliness	( )	( )

Signature: _____

AROUND BUS INSPECTION (KEY OFF)			
1.	Inspect mirrors - glass condition and mounting	( )	( )
2.	Inspect body condition - paint, lettering	( )	( )
3.	Check all doors	( )	( )

Signature: _____

	(✓) O.K.	Needs Att'n
UNDER HOOD INSPECTION - ENGINE OFF ("COLD") FLUID LEVEL - ADD AS REQUIRED		
1. Check engine oil level	( )	( )
2. Check coolant level and anti-freeze protection	( )	( )
3. Inspect brake master cylinder	( )	( )
4. Check power steering		
A. Fluid level	( )	( )
B. Mounting	( )	( )
C. Belt deterioration	( )	( )
D. Hoses	( )	( )
5. Check Battery		
A. Fluid level - terminals	( )	( )
B. Hold-downs secure? Battery box	( )	( )
6. What fluids were added: (Circle) above		

Signature: _____

REMOVE AIR CLEANER HOUSING		
1. Check carburator and choke controls and linkage	( )	( )
2. Check fuel inlet for leakage	( )	( )
3. Check all vacuum hoses and connections	( )	( )
4. Check crankcase ventilation system - PCV valve	( )	( )
5. Check temperature and oil sending units and wires	( )	( )
6. Inspect ignition wire condition	( )	( )
7. Inspect distributor cap and check coil connections	( )	( )
8. Check alternator - mounting, terminals, etc.	( )	( )
9. Check all drive belts - deterioration	( )	( )
- Adjustment	( )	( )
- Alignment	( )	( )
10. Check heater hoses and clamps	( )	( )
11. Check upper radiator hoses and clamps	( )	( )
12. Check water pump bypass hose	( )	( )
13. Check water pump shaft - for end or side play	( )	( )
14. Check emission pump and hoses	( )	( )
15. Check exhaust system - visible from topside	( )	( )

Signature: _____

LIFT FRONT AXLE OFF GROUND		
1. Check kingpin play	( )	( )
2. Check front wheel bearing play	( )	( )

Signature: _____

UNDERSIDE INSPECTION (BUS LIFTED)		
1. Check steering system - thorough check for leaks	( )	( )
A. Test torque one steering box mounting bold and record (ft/lbs( )	( )
B. Check flex coupling bolts	( )	( )
2. Check steering linkage for looseness	( )	( )
A. Tie rods and idler arm	( )	( )
B. Power assist linkage and cylinder	( )	( )
3. Check steering stop adjustment	( )	( )
4. Test torque one (of 4) FRONT spring U-bolt and (record (ft./lbs.) _____		
5. Check shock absorbers for leakage and proper mounting	( )	( )

		(√) O.K.	(x) Needs Att'n
UNDERSIDE INSPECTION (BUS LIFTED) (continued)			
6.	Check FRONT spring leaves for breakage	( )	( )
7.	Check FRONT spring, front and rear mounting cond.	( )	( )
8.	Check Stemco seal level for leakage	( )	( )
9.	Test torque one (of 4) REAR spring U-bolt and record (ft./lbs.) _____	( )	( )
10.	Check REAR shock absorbers for leakage and mounting	( )	( )
11.	Check REAR spring leaves for breakage	( )	( )
12.	Check REAR spring, front and rear mounting condition	( )	( )

Signature: _____

UNDER ENGINE INSPECTION

1.	Check lower radiator hose and clamps	( )	( )
2.	Check auto. trans. cooler lines at radiator for leaks	( )	( )
3.	Check freeze plugs	( )	( )
4.	Check exhaust manifold	( )	( )
	A. Leakage and cracks	( )	( )
	B. Looseness, other	( )	( )
5.	Check exhaust heat riser operation	( )	( )
6.	Check valve cover gaskets for leaks	( )	( )
7.	Check for other engine leakage - Specify:		
8.	Check fuel pump and connections for leaks	( )	( )
9.	Check starting motor mounting bolts	( )	( )
10.	Check starting motor electrical connections	( )	( )
11.	Check automatic transmission cooler lines (at trans.)	( )	( )
12.	Check automatic transmission for leakage	( )	( )
13.	Check condition of transmission - mounted parking brake, lining thickness - linkage	( )	( )
14.	Check U-Joints for looseness - specify/location:		
15.	Check slip yoke for looseness	( )	( )
16.	Check drive shaft condition	( )	( )
17.	Check all yokes for proper alignment	( )	( )
18.	Check drive shaft center bearings	( )	( )
19.	Check for leakage at carrier assembly	( )	( )
20.	Check differential fluid level	( )	( )
21.	Check open vent	( )	( )
22.	Check exhaust pipes and hangers	( )	( )
23.	Check mufflers and clamps	( )	( )
24.	Check tail pipes and hangers	( )	( )
25.	Check fuel lines - FROM PUMP TO TANK -- Leakage, Routing and hose cracking	( )	( )
26.	Check fuel tanks for leaks	( )	( )
27.	Check fuel tank mounting and straps	( )	( )
28.	Check condition of wiring along frame rails - -- Properly fastened?	( )	( )

Signature: _____

	(✓) O.K.	(X) Needs Att'n
HYDRAULIC BRAKE INSPECTION		
1. Check all hydraulic lines for routing, leakage and cracking	( )	( )
2. Check all backing plates and wheel cylinders for leakage	( )	( )
3. PERFORM COMPLETE BRAKE ADJUSTMENT	( )	( )

Signature: _____

BODY TO CHASSIS MOUNTING INSPECTION

1. Inspect all body hold down bolts	( )	( )

Signature: _____

TIRE INSPECTION

FRONT

1. Check condition - cuts, sidewalls, etc.	( )	( )
2. Measure and record tread depth:	( )	( )
L._____/32 R._____/32	( )	( )

REAR

1. Check condition - cuts, sidewalls, etc.	( )	( )
2. Measure and record tread depth:		
L._____/32 R._____/32		

Signature: _____

AIR PRESSURE

1. Inflate all tires to specifications	( )	( )
2. Install valve caps	( )	( )
3. Check axle flange and lug nuts	( )	( )

Signature: _____

LOWER BUS

1. Load Test battery	( )	( )
2. Perform starter draw voltage test - record:		
Drop _____ Test _____ Volts _____		

Signature: _____

START ENGINE

1. Perform charging system output - record:		
Amps: _____ Volts: _____		
2. Check automatic transmission fluid level - add as required	( )	( )
3. Recheck choke and throttle linkage operation	( )	( )
4. Recheck PCV valve and all vacuum lines	( )	( )
5. Reinstall air cleaner and remove test equipment		
6. Close hood and ROAD TEST		

DEFECTS NOTED IN ROAD TEST

_____

_____

_____

Signature: _____

INSPECTION COMPLETED BY: _____

CERTIFIED BY: _____
(Supervisor Signature)

NORTHSHORE MULTI SERVICE CENTER

VAN MAINTENANCE RECORD

License No: _____

Model: _____

Driver: _____

Mechanic: _____

3,000 MILE

Date: _____

1) Change Oil	_____
2) Check Transmission Fluid	_____
3) Check Coolant	_____
4) Check Brake Fluid	_____
5) Check Air Filter	_____
6) Check Steering Fluid	_____
7) Check Transmission for proper operation	_____
8) Check Brakes	_____
9) Check Tires	_____
10) Check Wheel Chair Lift Grease & oil parts as needed	_____
11) Check Belts, tighten if needed	_____
12) Check Steering Mount	_____
13) Check U-joints	_____
14) Check Suspension	_____
15) Check Underbody for leaks	_____

REMARKS:

Transportation Coordinator to receive this form immediately after service work.

Repairs involving major expenditures to be reviewed with Transportation Coordinator for approval.

Legend:

✔ = Completed

X = Needs attention later. (See remarks)

NORTHSHORE MULTI SERVICE CENTER

VAN MAINTENANCE RECORD

License No: _____

Model: _____

Driver: _____

Mechanic: _____

6,000 Miles
3,000 Inspection Plus

Date: _____

1) Rotate Tires _____

2) Check Shocks _____

3) Check Exhaust System _____

4) Check Timing _____

5) Check Choke _____

6) Check Windshield Wipers _____

7) Check Windshield Washer _____

8) Check All Doors for proper operation _____

9) Check Spark Plugs _____

10) Check Battery Voltage
Clean Corrosion _____

11) Replace Air Filter _____

12) Replace Oil Filter _____

13) Lube Job _____

Transportation Coordinator to receive this form immediately after service work.

Repairs involving major expenditures to be reviewed with Transportation Coordinator for approval.

Legend:

✓ = Completed

X = Needs attention later. (See remark)

NORTHSHORE MULTI SERVICE CENTER

VAN MAINTENANCE RECORD

License No: _____

Model: _____

Driver: _____

Mechanic: _____

12,000 Mile
3,000 + 6,000 Plus

Date: _____

1)	Change Spark Plugs	_____
2)	Check Wheel Bearings - Repack	_____
3)	Tune-Up	_____
4)	Check Instruments (Gauges)	_____
5)	Check Heater, Defroster	_____
6)	Road Test for all systems	_____
7)	Check EGR and ECS System	_____
		_____
		_____
		_____
		_____
		_____
		_____
		_____
		_____
		_____

Transportation Coordinator to receive this form immediately after service work.

Repairs involving major expenditures to be reviewed with Transportation Coordinator for approval.

Legend:

✓ = Completed

X = Needs attention later. (See remarks)

III. VEHICLE MAINTENANCE LOG FORMS

UNITED CEREBRAL PALSY OF KING-SNOHOMISH COUNTIES

BUS MAINTENANCE RECORDS

W.U.T.C. REQUIREMENTS

YEAR: _____

LUBRICATION	Date/Mileage	3,000	6,000	9,000	12,000	15,000
Bus I						
Bus II						
Bus III						
Bus IV						
Bus V						
Bus VI						
Bus VII						
Bus VIII						

TUNE-UP 12,000 miles	Mileage Date	Mileage Date	Mileage Date	Mileage Date	BRAKES	Mileage Date	Mileage Date	Mileage Date	Mileage Date
Bus I					Bus I				
Bus II					Bus II				
Bus III					Bus III				
Bus IV					Bus IV				
Bus V					Bus V				
Bus VI					Bus VI				
Bus VII					Bus VII				
Bus VIII					Bus VII				

Bus Maintenance Records
W.U.T.C. Requirements

WHEEL BEARINGS	Mileage Date	Mileage Date	Mileage Date	Mileage Date	TRANSMISSION	Mileage Date	Mileage Date	Mileage Date	Mileage Date
Bus I					Bus I				
Bus II					Bus II				
Bus III					Bus III				
Bus IV					Bus IV				
Bus V					Bus V				
Bus VI					Bus VI				
Bus VII					Bus VII				
Bus VIII					Bus VIII				

POWER STEERING FLUID	Mileage Date	Mileage Date	Mileage Date	Mileage Date	U-JOINTS	Mileage Date	Mileage Date	Mileage Date	Mileage Date
Bus I					Bus I				
Bus II					Bus II				
Bus III					Bus III				
Bus IV					Bus IV				
Bus V					Bus V				
Bus VI					Bus VI				
Bus VII					Bus VII				
Bus VIII					Bus VIII				

UNITED CEREBRAL PALSY OF KING-SNOHOMISH COUNTIES

TIRE REPLACEMENT RECORD

YEAR:____	MILEAGE	L.F.	R.F.	L.R.	R.R.	DATE
Bus I						
Bus II						
Bus III						
Bus IV						
Bus V						
Bus VI						
Bus VII						
Bus VIII						

1979
Rev. 3/81

	MILEAGE	GALS GAS	GAS COST AMT	MI PER GAL	COST PER MI	COST PREV MAIN	REP	TIRES & TUBES	OTHER	MILES	TOTAL COST FUEL MAIN	COST PER MI
TOTAL												
TOTAL												
TOTAL												
TOTAL												
TOTAL												

GCS-T-FORM 7-FEB.80
Grant Co. Seniors

REPAIRS ON VEHICLE

Okanogan Seniors

DATE	MILEAGE	REPAIR DESCRIPTION	ITEMIZED COST	TOTAL COST

MAINTENANCE RECORD
Vehicle Identification No.
License No.

Maintenance Performed	Date	Mileage	Serviced by: Name & Address

MAINTENANCE RECORD
Vehicle Identification No.
License No.

Maintenance Performed	Date	Mileage	Serviced by: Name & Address

Benton/Franklin Red Cross

VEHICLE MAINTENANCE RECORD

Maintained in Vehicle Files

VEHICLE MAKE AND YEAR	MODEL	CO. NO.

LUBRICATION RECORD				REPAIR RECORD		
Date	Odometer Mileage	(Please Check) Lub.	Oil Chg.	Date	Odometer Mileage	Description of Work Done

C-15568 NEW 2-72 PRINTED IN U.S.A.

Obtained from ... Senior Services of Snohomish Co.

STANDARD FLEET SERVICE—DAILY RECORD

FS-4

MONTH	EQUIP. No.				EQUIP. No.				EQUIP. No.			
	MILEAGE	FUEL	MOTOR OIL	GEAR LUBS.	MILEAGE	FUEL	MOTOR OIL	GEAR LUBS.	MILEAGE	FUEL	MOTOR OIL	GEAR LUBS.
DATE		Gals. or Cost	Gals. or Cost	Lbs. or Cost		Gals. or Cost	Gals. or Cost	Lbs. or Cost		Gals. or Cost	Gals. or Cost	Lbs. or Cost
1												
2												
3												
4												
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22												
23												
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25												
26												
27												
28												
29												
30												
31												
TOTAL												
MILEAGE END OF MO.												
MILEAGE FIRST OF MO.												
MILEAGE FOR MONTH												

VEHICLE MAINTENANCE LOG

VAN # IRG 488

PRICE	MILEAGE	DATE	WORK PERFORMED	
$908.54	97984	5-29-81	overhaul (see invoice)	Floyd G
$560.81	98179	6-4-81	Tires 4	Sams Tires
$120.27		6-9-81	1500 mile check resistor ign. box door seal rubber	Floyd 1181
$ 26.34		6-29-81	Thermostate,gasket replaced	Sams T 393328
$ 97.98	99669	7-1-81	Radiator overhauled (see invoice)	Floyd G. 1198
$ 63.64 $ 59.58		7-15-81 7-15-81	PREVENTATIVE MAINTENANCE OIL	Floyd G. Floyd G..

VAN IRG 488

INVENTORY OF
MAINTENANCE COSTS
1981

VEHICLES	MILEAGE	DESCRIPTION	NAME	COST	INVOICE #
IRG 488					
5-14-81	97728	6,000 mile check	Bob L	$ 16.24	
5-29-81	97984	over haul	Floyd G	$908.54	
6-4 -81	98179	4 tires,stems,balanced	sams tires	$560.81	
6-9 -81	98448	1,500 mile check.Repair ingtion,coil,repair,door.	Floyd G	$120.27	1181
6-30-81	99669	Thermastate,gasket replasted.	Sams tires	$ 26.34	393328
7-15-81		PREVENTATIVE MAINTenance	Floyd G.	$ 59.58	
7-15-81		OIL	Floyd G.	$ 63.64	

VEHICLE # VAN II

SEATTLE INDIAN HEALTH BOARD

Vehicle Preventive Maintenance Report

DATE	MILEAGE	2000 MI.				8,000 MI		12000 MI.		15000 MI.			WHERE SERVICED	PRICE
		OIL CHANGE	OIL FILTER	AIR FILTER	LUBRICATION	BRAKE SERVICE	CHECK WHEELBEARINGS	ROTATE TIRES	TUNE ENGINE	TRANSMISSION	PCV VALVE	CHANGE OIL IN REAR AXLE		
5/81	7995	✓	✓		✓			✓		✓			BEACON SHELL	$ 24.03
29/81	11532					✓							BEACON SHELL *	116.04
11/81	12258					✓							BEACON SHELL BRAKES ADJUSTED	NO CHARGE
14/81	12527	✓	✓	✓	✓				✓				BEACON SHELL	98.52
12/81	14884	✓	✓		✓								BEACON SIEGL	25.61

SEATTLE INDIAN HEALTH BOARD

Miscellaneous Vehicle Repair and Expense

Vehicle # VAN II

DATE	MILEAGE	DESCRIPTION	WHERE PURCHASED	PRICE
3/4/81	07980	2 quarts 10/40 oil	BHUCKS AUTO TOW ACCC—SEATTLE	$3.50
3/9/81	08039	Repair drive shaft.	BEACON SHELL	86.84
3/10/81	08096	Blinkers repaired	BEACON SHELL	$2.11
3/17/81	08782	1 QUART 10+ OIL	BEACON SHELL	1.68
3/2/81	09994	1 QUART OIL	BEACON SHELL	1.65
3/13/81	10588	1 quart oil	BEACON Shell	1.69
3/27/81	11400	1 quart oil	BEACON Shell	1.69
4/30/81	11557	Replaced valve quick seals Replaced Drag link	BBC Dodge Buick	Under Warranty

IV. DRIVER TRAINING MATERIALS

WHATCOM COUNTY SPECIALIZED TRANSPORTATION SYSTEM
ROAD KNOWLEDGE AND SKILLS
DRIVERS PERFORMANCE
ROAD TEST

A. Moving into Traffic from Curb	YES	NO
1. Use of Rear-View Mirror		
2. Turn Signals to Enter Traffic		
3. Check of Rear Clearance		
4. Steady Acceleration		X

Comments _____

_____

B. On the Road Driving Ability	YES	NO
1. Acceptable Speed for Road Conditions		
2. Both Hands on Steering Wheel		
3. Ues of Turn Signals Adequate Distance of Turn		
4. Use of Rear-View Mirror in Lane Changes		
5. Even Driving Speed, smoothness in Operation		
6. Even Pressure in Braking for Normal Stops		
7. Compliance of Yield Laws		
8. Turns from Proper Lanes; Turns into Proper Lanes		
9. Anticipates Traffic Problems		
10. Approaches Curbs in Parking without Contacting Tires		
11. Safe Parking, Location Selected, use of Signaling properly in Parking		
12. Obeys Traffic Laws		
13. Cautious Approach for Pick of Curb, standing Passengers		
14. Secures VAN properly when exiting Drivers Seat		
15. Removes the Keys from VAN when Leaving		

Comments _____

_____

C. Knowledge of Vehicles Controls and Safety Equipment — YES / NO / Sometimes

1. Checks Oil, Coolant, Tires, and Signal Lights Prior to Days Work _____
2. Uses Cold Start and Warm Up Procedure _____
3. Checks Location of Fire Extinguisher, First Aid Kit, and Emergency Warning Devices _____
4. Uses Hand-Brake when Securing Vehicle _____
5. Understand all Dashboard Instruments _____
6. Understands Process for Reporting Equipment Malfunction _____
7. Keeps Windows Clear and Debris Clear from Passengers _____
8. Understands Procedures for Installation of Chains _____

D. Demonstrated Knowledge of Operation of Special Equipment — YES / NO / Sometimes

1. Can Operate Hydraulic Lift, Wheelchair _____
2. Understand Boarding Procedures for Wheelchair _____
3. Understand Wheelchair Tie-Downs Procedure _____ X
4. Routinely Examine Safety Factors of all Sepcialized Equipment _____
5. Assist Passengers Boarding and Disembarking _____

E. Demonstrate Knowledge of Communications and System _____ — YES / NO / Sometimes

1. Able to properly use the Radio Equipment _____
2. Understand F.C.C. and other Regulations Governing the Use of the Radio _____
3. Demonstrate Competent Use in Dispatching System _____
4. Understand Safety Precaution of Equipment _____
5. Understand Maintenance Procedure of Equipment _____

F. Personality and Client Relationship YES NO Sometimes

1. Able to Efficiently Communicate with all Passengers _____

2. Understand Mental/Physical Limits of each Client _____

3. Relays Information Pertinent to Client Well-Being _____

4. Displays Courteous Behavior Toward Clients _____

5. Understand Principles of Client Confidentiality _____

6. Controls on-the-job Discussions Involving Clients _____

COMMENTS _____

_____

_____

_____

_____

_____

_____

_____

Driver Tested _____

Date Tested _____

Interviewer _____

8/PT6

LOSS CONTROL PROGRAM

For improved program service delivery, Yakima Valley Transportation-Elderly and Handicapped has a Loss Control Program, which will monitor vans and drivers according to rules as follows:

1. Vehicle Loss Control Coordinator and Committee

Flora Gossett	Operational Manager	Chairman
Jack Riggs	Maintenance Person	Member
George Bentley	Office Staff	Member
Gini Heintzman	Director (if needed)	

DRIVERS

a. Drivers shall have a valid Washington State drivers' license, which will be photographed and one (1) copy be in drivers' file. Second copy goes to Insurance Company, who will receive thorough State report on driving record in State or out.

b. Driver will within (45) forty-five days obtain Intermediate Endorsement on drivers' license.

c. Driver will have medical exam at doctor of his choice (within forty-five (45) days) or will have had a thorough exam by a doctor within ninety (90) days prior to employment with medical okay in writing by the physician. This report will be placed in the employee's file.

d. A yearly physical is desired and suggested.

e. Former mini-van driving experience desired, but not compulsory.

DRIVER TRAINING

a. Training in P.A.T. (Passenger Assistance Techniques), by a Certified Washington State trained official in P.A.T. - as soon as next class is available. These drivers will then be Certified Passenger Assistance

Technicians, which insures Yakima Valley Transportation-Elderly & Handicapped safe, reliable and best trained drivers with Certificates and patches, Washington State approved.

b. Each driver shall receive Policy and Procedure manual and employment kit from Travelers Insurance Company when hired.

c. Drivers shall obtain training and certificate in First Aid and C.P.R. (within forty-five (45) days/as soon as class available.

d. All drivers will be trained in small oxygen tanks and use of same for passenger who needs it to travel. (Although this is not a State requirement, because we are not a Cabulance or Ambulance service, and this type of Handicapped should be transported by Cabulance or Ambulance).

e. Drivers will receive thorough training on Drivers' sheets (proper recording of time and figures) by L.C.P. Committee. Chairman reports to Director.

f. Defensive Driving Classes will be put on for all drivers and L.C.P. Committee at least three (3) times a year, basis by Washington State Patrol - this will be ongoing.

g. Drivers will be monitored on a semi-weekly basis on driving ability and safety procedures on safe use of all equipment and checked on drivers' record sheets by L.C.P. Committee. Chairman reports to Director.

h. Drivers shall attend Drivers' Meetings at least once a quarter.

i. Long-term drivers will be completely evaluated on a six-month basis. New drivers on a three (3) month basis done by L.C.P. Committee and Director.

j. All drivers will be road tested and will be fully informed on their particular schedules and route. The driver will receive route for the following day the afternoon prior to scheduled run.

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Regulatory Power Maintained by Washington Utilities Tranpsortation Commission.

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SAFETY AND VAN MAINTENANCE

Each Vehicle is equipped with:

1. First Aid Kit.
2. Required Coast Guard Fire Extinguisher
3. Van Vehicle Accident Reporting Kit.
4. At least three (3) flares in each van.
5. Flashlights (if and when evening runs are in force).
6. Snow tires and chains as required by L.C.P. Committee.
7. L.C.P. Committee will check and maintain above six (6) requirements.
8. Preventative Maintenance supervised and controlled by L.C.P. Committee at contracted service center.

VEHICLE RECORDS

Under supervision and controlled by L.C.P. Committee will have the following in order and in files:

1. I.D. numbers.
2. History of vehicle.
3. Down time due to incident (including all pertinent information, such as driver, cause, etc.).
4. Vehicle equipment check list.
5. Safety check records as deemed necessary by L.C.P. Committee.
6. Our W.U.T.C. Certificate #869 is our annual certification that vehicles and equipment comply with all federal, state, and local laws and regulations. (Spot checks are done throughout the year by a W.U.T.C team without prior notice.)

The Loss Control Program Committee is doing an on-job monitoring, both vans and drivers for continual safety requirements on both.

Reports to Director on weekly basis orally, and a full written report on a monthly basis.

Unforseen challenges shall be reported immediately to Director.

Yakima Valley Transportation - Elderly & Handicapped's Loss Control Program is the finest and most thorough in the State of Washington. The L.C.P. Committee is a group of dedicated, sincere professional people with safety for drivers and passengers plus complete maintenance preventative program their main objective.

YAKIMA VALLEY TRANSPORTATION - ELDERLY & HANDICAPPED
INTER-AGENCY MOTOR POOL FOR THE ELDERLY & HANDICAPPED
2009 SOUTH 64th AVENUE, YAKIMA, WASHINGTON 98903 PHONE (509) 965-0440

DRIVER RESPONSIBILITY STATEMENT

As an assigned driver of the Yakima Valley Transportation - Elderly & Handicapped, I, _____, hereby agree to the following conditions and responsibilities of my employment:

1) To observe and obey the traffic laws and ordinances of Washington State and the City of Yakima and to operate my vehicle in accordance with these and other program guidelines.

2) To conduct a daily inspection of my vehicle (as indicated by checklist) to insure its proper maintenance and the safety of its passengers. All mechanical defects will be reported immediately to obtain clearance for continued operation of vehicle or to arrange for its delivery to a maintenance area. I will maintain an adequate supply of all required forms in my log book and guarantee their proper and timely submission.

3) To consider the safety and well being of my clients at all times by providing careful assistance during all phases of the loading procedure to include escort to and from the van as deemed necessary under prevailing conditions. I will not allow clients to travel without the proper safety restraints, nor may they smoke in the presence of other clients. All loose packages and/or equipment will be stored beneath/behind seats to prevent movement amongst passengers during an emergency.

4) To conduct myself in a manner which encourages the client to participate in, support, and promote continual use of the program. I will endeavor to provide informative answers/directions on request. I am aware of the continual need for client assessment in the field and will discreetly monitor my passengers and their environment to aid in directing assistance where needed.

5) As an employee of a Federally funded program, I am aware that I cannot receive monetary tips in any amount, nor may I solicit contributions. I may encourage donations which I will accept gratefully and turn in daily according to standard procedures.

MAY COMMON SENSE PREVAIL: _____

YAKIMA VALLEY TRANSPORTATION - ELDERLY & HANDICAPPED
INTER-AGENCY MOTOR POOL FOR ELDERLY & HANDICAPPED
2009 SOUTH 64th AVENUE, YAKIMA, WASHINGTON 98903 PHONE (509) 965-0440

Prerequisites: Participant must -

1) have a valid Washington State Vehicle Operator's Permit,
2) have an insurance check and clearance,
3) have qualified for an intermediate endorsement,
4) be willing to commit himself to the 4-hr. instruction course as scheduled.

Objectives:

1) to make the participant aware of his/her area of responsibility as a driver,
2) establish a framework for qualification criteria,
3) establish basic areas of evaluation and instruction,
4) insure conformity and compliance with necessary guidelines and expectations of this program.

The following is a list of fundamental areas of concern to this instruction course:

Operation: Be capable of operating vehicle under normal work load and driving conditions to include -

1) Basic Driving Skills
   a) movement through city traffic
   b) parking
   c) backing of vehicle
   d) highway driving

2) Use of Hydraulic Lift
   a) loading and unloading of wheelchair client
   b) proper safety precautions
   c) use of wheelchair tie downs

3) Use of side door and step
   a) loading and unloading of ambulatory clients

b) management and control of available storage and seating space

4) Radio Technique

Maintenance: Be knowledgeable of requirements for 1st Echelon Driver Maintenance and capable of performing same to include:

1) Monitoring of these fluid levels
   a) oil
   b) transmission
   c) radiator
   d) windshield wiper
   e) fuel

2) Check for leaking systems
   a) front and rear axle
   b) oil pan
   c) brakes

3) Evaluation of roadworthiness
   a) tire condition and pressure
   b) loose or broken fixtures, i.e. mirrors, bumpers, spare tire, etc.
   c) missing equipment

Reporting: Be knowledgeable of report procedures and demonstrate ability to make correct entries to include:

1) see required log entries
2) reporting of need for repair of vehicle
3) proper handling of donation box and monies collected
4) location and use of accident report forms

Ground Rules: Be knowledgeable of Yakima Valley Transportation - Elderly & Handicapped and program guidelines as regards -

1) driver conduct
2) van use restrictions and limitations
3) emergency procedures

APPENDIX C

INTERVIEW QUESTIONNAIRE

WSDOT
Section 16(b)(2) Operators
Maintenance Survey

Agency: _____ Contact: _____

Phone: _____ Interviewer: _____ Date: _____

---

1. a. How many vehicles are currently being used (and maintained) for client transportation by your program?

   Buses ____ Vans _____ Cars _____

   b. How many of these are reserve vehicles.

2. Please estimate the portion of time your vehicles usually spend in service on the following types of roads:

   a. Congested urban _____%
   b. Uncongested urban _____%
   c. Small urban (under 5,000 pop) _____%
   d. Suburban (paved) _____%
   e. Rural (paved) _____%
   f. Rural (gravel or dirt) _____%
   g. Freeway or major highway _____%

   Do you have any comments that would help explain unusual wear and tear on your vehicles?

3. Please describe how often (on the average) the following maintenance functions are performed in your program: (Use time or mileage, whichever better describes your maintenance schedule.)

	Time Period (Daily, weekly, monthly, etc.)	Mileage (Every 2000, 4000, or so miles)
a. Safety Checks		
1/ Lights and signals		
2/ Brakes		
3/ Tires		
4/ Fluid levels		
5/ Lifts		
6/ Mirrors and windshield wipes		
6/ Other (specify) _____		
b. Preventative Maintenance		
1/ Oil change and lube		
2/ Change filters		
3/ Change belts		
4/ Tire rotation		
5/ Other (specify) _____		

	Time Period (Daily, weekly, monthly, etc.)	Mileage (Every 2000, 4000, or so miles)
c. Major Maintenance		
1/ Tire changes		
2/ Transmission service		
3/ Wheel alignments		
4/ Change break linings		
5/ Engine tune ups		
6/ Total engine overhaul		
7/ Other (specify) _____		

4. Who usually performs the maintenance functions listed above?

	Drivers	Program's Own Shop	Service Station	Local Dealer	Other (Describe)
a. Safety checks					
b. Preventative maintenance					
c. Major maintenance					

5. Why did you select these individuals (or companies) to perform these functions?

a. Safety Checks: _____

b. Preventative Maintenance: _____

c. Major Maintenance: _____

6. Have these individuals or companies satisfactorily performed these functions? Plese explain your experience:

7. Who in your agency supervises the maintenance program? _____

8. Why was that individual chosen? (Check as many as apply)

____ a. Prior experience with maintenance program administration

____ b. Experienced supervisor

____ c. Experienced mechanic

____ d. No other option available

____ e. Other: _____ (Please explain)

9. Do you have a separate maintenance budget? ____ Yes ____ No

10. If yes (to question 9):

    a. How much is that budget for the current year? $_____

    b. Has that budget been sufficient to cover your regular maintenance costs?

    ____ Yes ____ No If No, please explain:

11. If you provide any sort of training or orientation program for drivers to teach them to recognize maintenance problems, please describe the program and indicate how useful you have found it to be.

12. What, if any, major problems have you encountered related to maintaining your vehicles, particularly in the last year or so? Have you come up with any solutions for the problems? Please explain.

13. How satisfied are you with your agency's maintenance program? Are there elements that you would recommend (or not recommend) to other operators? Please explain:

14. Could the WSDOT do anything to assist your agency with its maintenance program?

15. Does your agency have any of the following types of forms? If yet, please attach a copy.

	Forms	Yes	No	Forms attached/ Comments
a.	Maintenance Checklists Safety Checks Preventative Maintenance Major Maintenance			
b.	Instructions, training materials for drivers			
c.	Maintenance budget			
d.	Maintenance expense forms			
e.	Other (explain)			

Thank you for your help

5/PT5

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