PB98-113251

ANALYSIS OF COMPUTER CAPABILITIES OF PACIFIC NORTHWEST PARATRANSIT PROVIDERS

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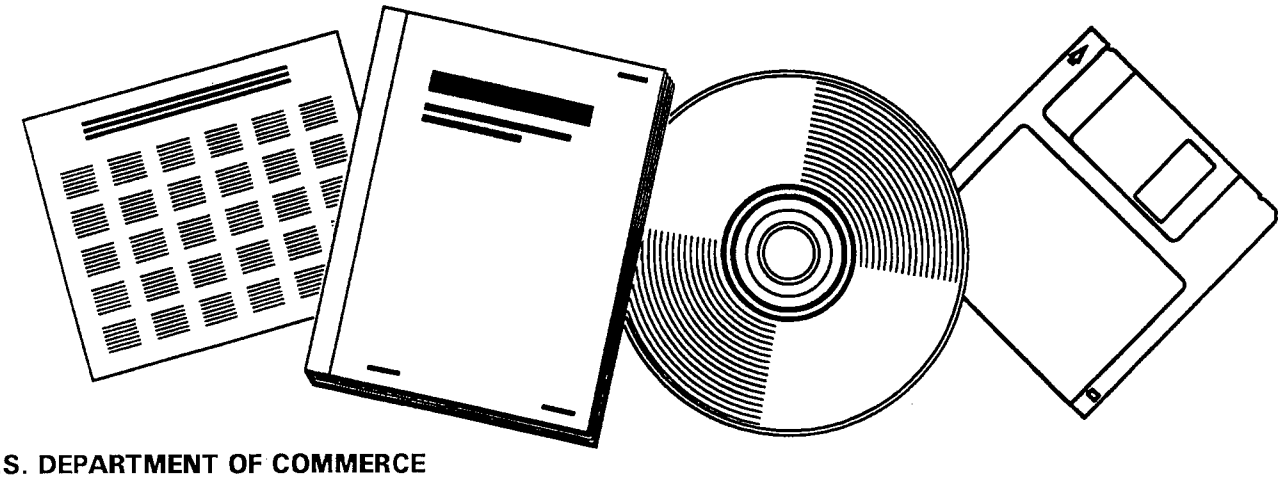

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

Transportation Northwest

Analysis of Computer Capabilities of Pacific Northwest Paratransit Providers

Washington • Oregon • Idaho • Alaska

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16. Abstract

The major project objectives are to quantify the computer capabilities and to determine the computerization needs of paratransit operators in the Northwest, and to create a training program to assist paratransit operators in developing realistic specifications for computer software and hardware that meets their specific needs. The project will use three different surveys of paratransit agencies, paratransit funding agencies, and paratransit software vendors to determine the computer capabilities and needs. The result of the survey will be used to prepare workshops that will be presented at a number of geographic locations in the Northwest.

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ACKNOWLEDGMENTS

The research described in this report was performed by Oregon State University and by ParaTransit Professionals. Oregon State University was the primary contractor for the study. The Principal Investigator (P.I.) for the project was Dr. Katharine M Hunter-Zaworski, who has been the P.I. for a number of transit related research projects at Oregon State University. Guidance and additional support was provided by Mr. Park Woodworth in the development of the questionnaire and the computer training sessions. Funding for the project was provided through the Transportation Northwest Regional Center at the University of Washington.

INTRODUCTION

PROBLEM STATEMENT

The problem addressed by this study is, "What are the training needs of paratransit agencies in the procurement and use of software?" To address this question, a survey was conducted. The computer survey was addressed to paratransit agencies who use, or will use paratransit software. This report documents the findings of the survey sent to the paratransit agencies. A second aspect of the project was the development of workshops and training sessions for paratransit operators.

In October of 1995 a personal computer survey was distributed to paratransit providers in Oregon, Washington, Idaho, and Alaska. Funding for this study was provided through the Transportation Northwest Regional Center at the University of Washington. ParaTransit Professionals, located in West Linn, Oregon, wrote the survey, and Oregon State University was responsible for the data analysis. The survey was used to determine the existing computer usage and technical ability of paratransit providers, and to determine what upgrades or developments in computer hardware and software might help improve paratransit operations. The survey has also determined what types of additional training the agencies would benefit from most.

Workshops on computerization in paratransit agencies were given at the Technology Sharing Program of the 14th National Conference on Accessible Transportation & Mobility, October 22-23, 1994 in Tampa, Florida, and at the Technology Sharing Program of the 7th International Conference on Mobility and

Transport for Elderly and Disabled People, July 14-16, 1995, in Reading, England. These two workshops were used to develop training programs for the paratransit providers in the Pacific Northwest.

PURPOSE AND OVERVIEW OF THE STUDY

There are over 700 paratransit operations or systems in the Pacific Northwest and only a handful of the largest systems have substantially computerized their paratransit operations. Many of those that currently use computer programs are considering new purchases since improvements in hardware and software make systems out-of-date within a few years. With the continual decrease in hardware and software costs, it will be more cost effective for most of the paratransit systems to automate many of their management and operational tasks over the next few years.

Very few paratransit operators have staff available who are skilled in software specification or procurement. Of the few that have skilled personnel available, most do not have staff that can keep up to date with the latest technology that is available. For these reasons it would be very valuable if a procurement guide and training workshop were available to assist these programs in:

- Determining their individual needs.
- Developing unique requests for proposals to incorporate their software and hardware needs.
- Reviewing available software for conformance to their needs.

Another opportunity that exists is the standardization of certain components of a computer system. Each state has specific reporting requirements tied to the federal

and state resources which it allocates. Additionally, many of the paratransit programs provide transportation services to various social service programs such as Medicaid Title 19, Older American's Act and mental health. Finally the American with Disabilities Act (ADA) established specific requirements for paratransit programs. It would be desirable to standardize as many of the reporting requirements as possible and to provide all operators with a standardized electronic reporting format that would connect to the databases used by the providers.

SUMMARY OF RESEARCH APPROACH

A survey was developed for use in this study. The survey was sent to 200 paratransit agencies throughout the Pacific Northwest. The survey gathered information on what levels of computer usage and expertise already exist, and what additional software and hardware is desired. This report will cover the collection and analysis of the data from the survey. A copy of this survey is located in Appendix 1.

The information obtained from the surveys is incorporated into training documents and workshop materials. Specifically, the survey results provide information on the level of understanding of computers by paratransit operators, and this has provided an indication of the level of sophistication and information needed for the workshops. This will enable paratransit providers to understand and evaluate their needs and to choose specifications that will meet those needs. For example, the specifications for scheduling software for each paratransit system can vary by a large amount based on how the system is operated. Even the smallest systems can benefit by computerizing some of the scheduling functions, such as keeping a customer's eligibility file and sorting ride requests by day and time.

As systems get larger there are additional computerization requirements. Other functions that can benefit from computerization include: vehicle maintenance records, operator schedules, record keeping, and accounts payable and receivable. The larger systems may use new advancements in GIS software, such as automated mapping, automatic vehicle location (AVL) instrumentation, mobile data terminals (MDT's),

automatic vehicle scheduling and fixed route trip planning functions. To meet the needs of all these providers, a training program should quickly review all the possible features and then let individual programs select the components that fit their needs.

SUMMARY OF DATA ANALYSIS

Of the 200 surveys mailed to paratransit agencies across the Northwest, sixty-six were returned, for a 33% return rate. About 64% of the responses came from agencies in Oregon, 26% from Washington, 8% from Alaska, and 3% from Idaho. The data from the surveys were entered into Microsoft Access and analyzed using Microsoft Excel. Appendix 2 shows the full results from the data analysis.

AGENCY INFORMATION

The first part of the survey determined information about each of the paratransit agencies. The main items of information about the agencies are; 1) the types of paratransit services they provide, and 2) the size of their operation.

SERVICE PROVIDED

Three main modes of operations are provided by the paratransit agencies. These include fixed route, fixed route deviation, and demand responsive. A majority of the service provided, 72%, is demand responsive service. A little over 30% of the agencies also provide some other type of service. These other services included tours, airport transfers, subscription service, dial-a-ride, and taxi service.

Fixed route deviation services provides paratransit users with more flexibility and mobility than regular fixed route or demand responsive services alone. In a fixed route deviation service, a vehicle operates along a fixed route, making scheduled stops along the way. Vehicles will deviate from the route, however, to pick up or drop off passengers upon request. The vehicle then returns to the fixed route at the point at

which it departed to accommodate the request. This type of service shortens the walking distance and reduces the vehicles used. The number of paratransit agencies providing fixed route deviation service is significant. It demonstrates the integration of fixed route deviation services with normal paratransit and fixed route services.

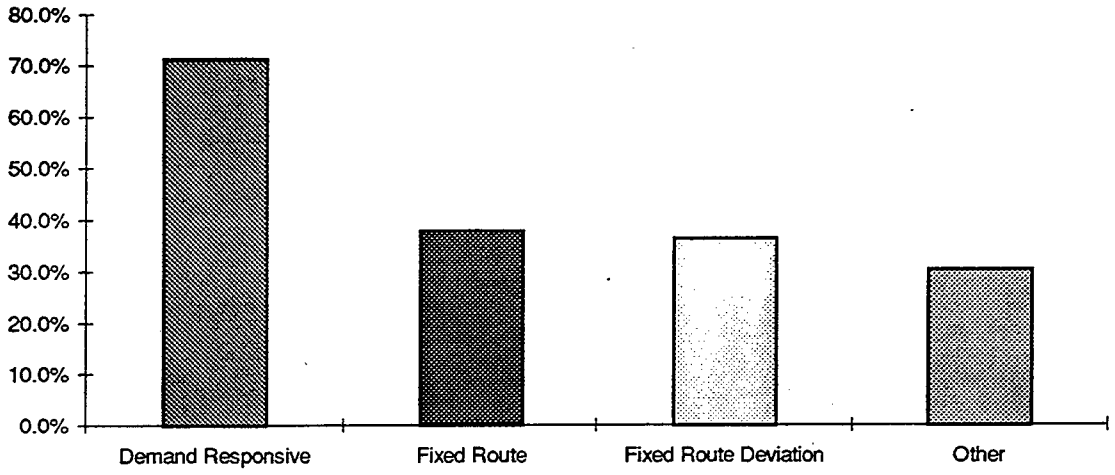


Figure 1: Types of service provided

AGENCY SIZE

The size of paratransit agencies range from small taxi services to large inter-city operations. To determine the size of the agency, questions about the number of customers served and the number of vehicles operated were asked. Approximately 51% of the agencies have fewer than 200 total customers that they serve, and about 5% serve populations greater than 100,000 people. More than 72% of the agencies responding operate fewer than 10 vehicles. This indicated that the majority of paratransit agencies in the Pacific Northwest are operating in small or rural communities. In many of these communities there is no parallel fixed route service.

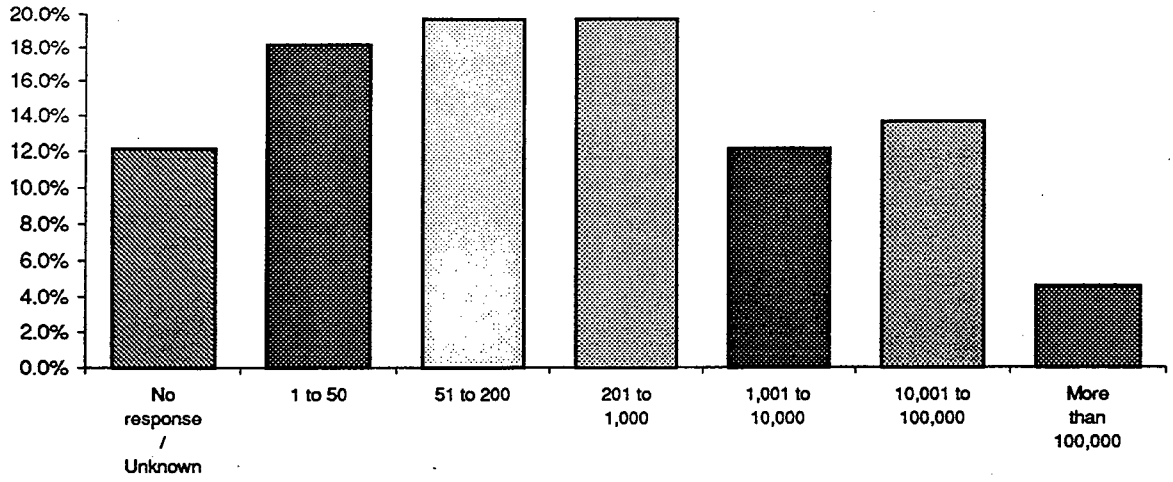


Figure 2: Total customers

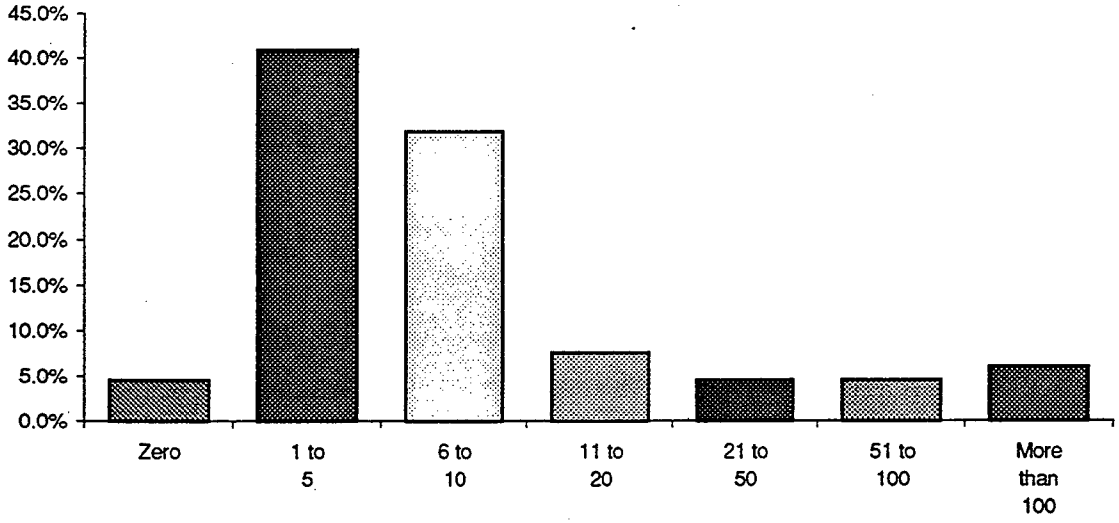


Figure 3: Vehicles operated

COMPUTER CAPABILITIES AND USAGE

The second part of this survey asked questions about the computer usage and capabilities of each agency. These questions addressed four areas of concern;

1) The number of agencies that operate computers and the number of computers operated

2) The technical ability within the agency

3) The types of computer hardware each agency uses

4) The different operating systems and software applications each agency uses

COMPUTER USAGE

The first questions of this section of the survey address the number of agencies with computers and the number of computers operated. Nearly 94% of the agencies responding operate at least one computer, and almost 29% operate more than five computers. Four of the sixty-six agencies (6%) that responded do not operate any computers.

The second question addresses the technical ability of the paratransit agency's staff. The technical ability within the agencies surveyed ranges from no computer experience to expert programming and troubleshooting. Three of the four agencies that do not operate computers are the only agencies without computer experience. The remaining agencies have at least one staff person with some computer experience. Of these, about 35% have staff that can install and run programs, about 35% have staff that can do some programming and troubleshooting, and about 11% have staff that can handle expert programming or troubleshooting.

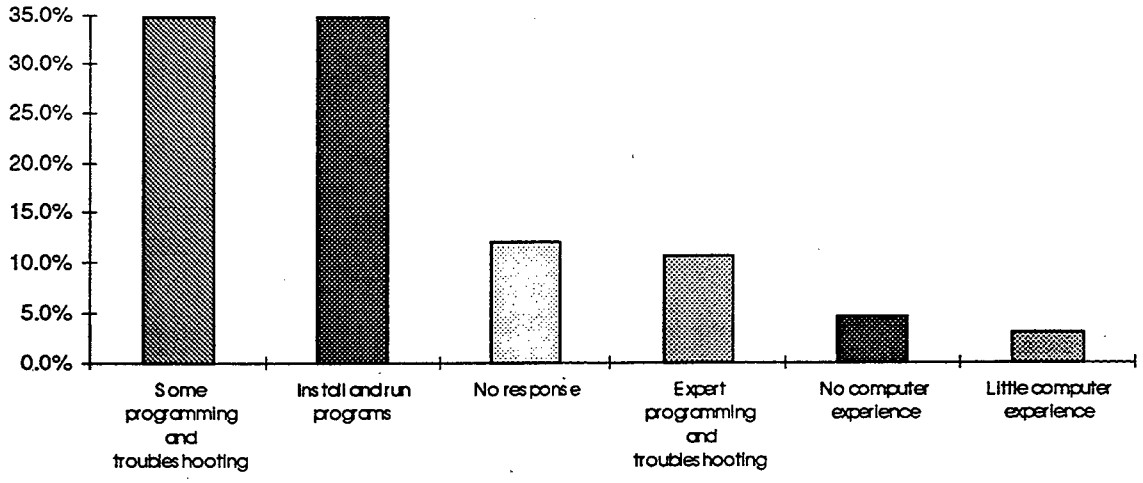


Figure 4: Technical ability

HARDWARE

The third set of questions examined the computer hardware used among the paratransit agencies. Since no data about computers was collected for agencies without computers, the remaining information pertains only to those agencies that operate computers. Several questions were asked about the type of hardware being used. These questions included networking information, the type of central processing unit (CPU) in the agency's best computers, the size of the agency's largest hard drive, and whether they have a modem and Internet access.

The use of networked computer systems is fairly low among the responding agencies. Only about 21% of the agencies are currently using networked systems. The remaining agencies are working with standalone units. Several agencies showed interest, however, in networking their computers for easier access to information and programs.

A majority of the agencies, 73%, are running computers with at least a 486 processor or faster. About 10% of the agencies, though, did not know what kind of processor they had in their computers. The number of agencies who are not familiar with their computer hardware is an indication of their level of understanding of computers. This level of understanding carries over into their level of knowledge on the size of hard drives as well.

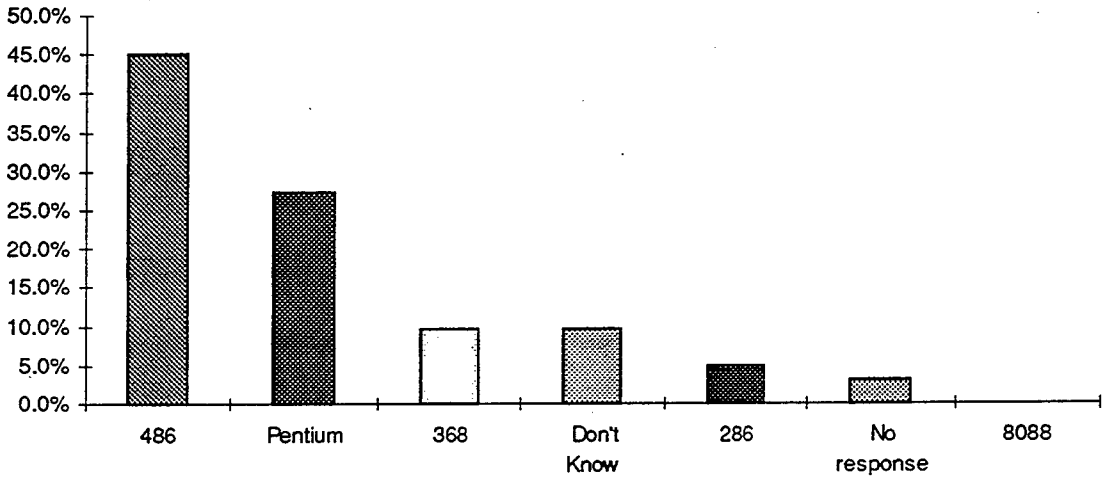


Figure 5: CPU

The size of hard drives each agency owns varies from less than 80 megabytes to over 800 megabytes. About 11% of the agencies have hard drives smaller than 80 megabytes and about 18% of the agencies have hard drives larger than 800 megabytes. Almost 20% of the agencies do not know the size of hard drive in their computers.

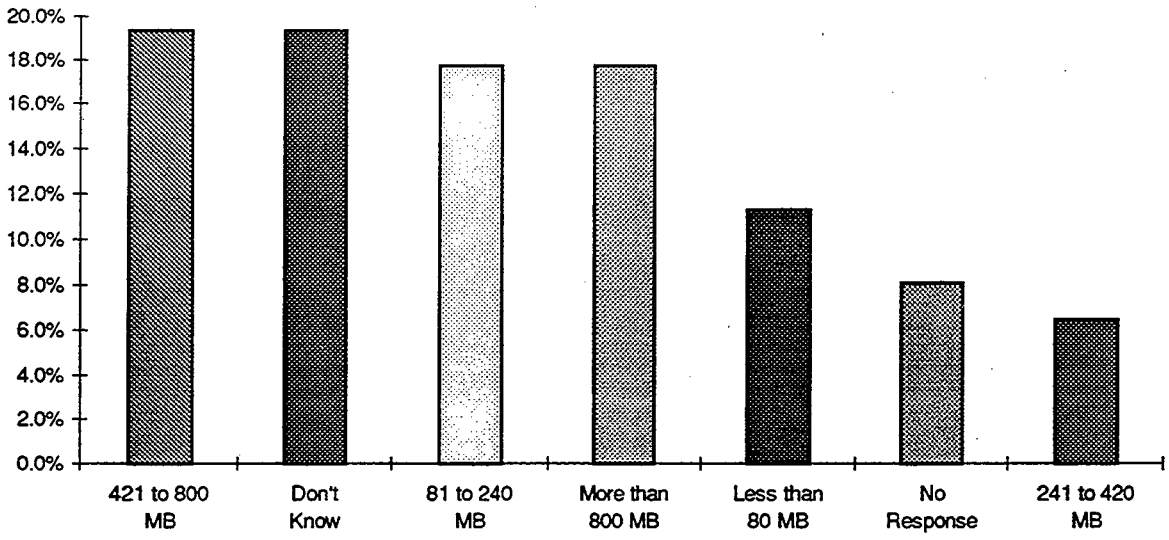


Figure 6: Hard drive size

A majority of the agencies have modems with their computers, 65%, but only a few of them have access to the Internet, 21%. Several of the agencies, however, showed some interest in getting Internet access, either now or sometime in the future.

SOFTWARE

Along with hardware owned, the agencies were also asked about the software being used. This included both the operating systems and applications that each agency is using.

All of the agencies are operating IBM or compatible computers with either DOS, Windows, or a combination of the two as their operating system. This is a significant result that none of the agencies are operating Macintosh computers. Almost 73% of the agencies have DOS on their computer as a primary operating system. About 77% of the agencies are running Windows as either a shell, Windows 3.x, or as

an operating system, Windows 95. When operating Windows as a shell, the computer must also be simultaneously running an operating system such as DOS. Windows 95 is an independent operating system and does not require DOS. About 13% of the agencies are running another operating system, such as UNIX or VAX terminals. Those agencies that are using other operating systems indicated the desire to upgrade to Windows or DOS systems. The use of compatible operating systems makes the development of training programs and procurement of new paratransit software easier.

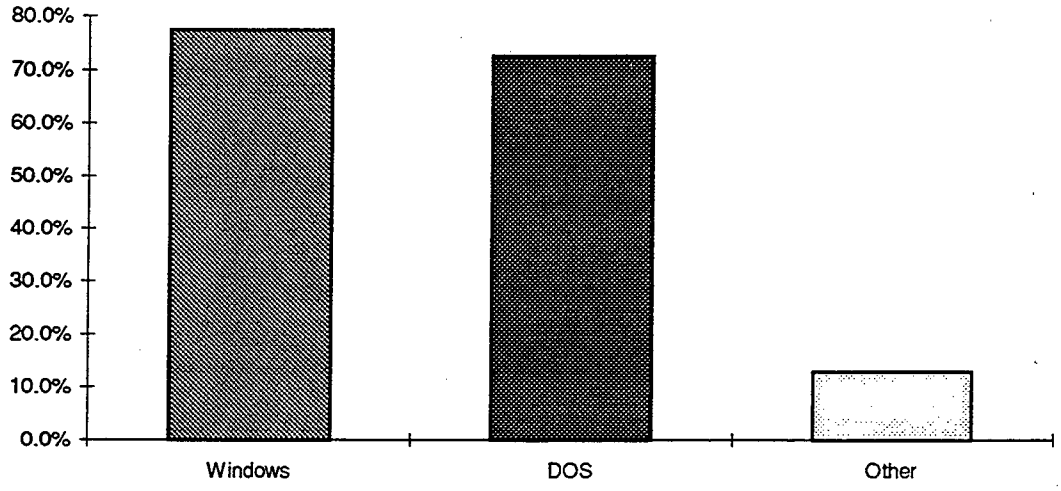


Figure 7: Operating system

There are several computer applications being used by the various agencies. The most widely used application is word processing, with nearly 97% of the agencies indicating its use. Table 1 shows the different applications and the percentage of agencies using each application.

Word Processing	96.8%	Analysis	40.3%
Customer Database	77.4%	Ride Scheduling	38.7%
Accounting	59.7%	Vehicle Database	37.1%
Payroll	56.5%	Vehicle Maintenance	37.1%
Personnel Records	48.4%	Ride Orders	21.0%
Billing For Rides	40.3%	Operator Database	17.7%

Table 1: Computer applications

COMPARISON OF AGENCIES

The usage of computers and the technical ability among the different agencies varied from one agency to the next. The following two comparisons were made about the paratransit agencies; 1) the size of agency and the number of computers operated, and 2) the size of agency and the technical ability within that agency. Because of the large amount of no responses for the number of total customers served, the number of vehicles operated will be used as the indicator of agency size. When looking at each individual relationship, using regression analysis, there is found to be very little correlation between the size of an operation and the computer capabilities of that agency. With an R^2 equal to 1.0 indicating a perfect correlation of data, the R^2 values for the two comparisons fall well short. Figures 8 and 9 below show the two comparisons and corresponding R^2 values for each comparison. This is significant for the development of the computer training workshops, because it indicates that the smaller paratransit operations are not the only agencies that needed to be targeted for the workshops.

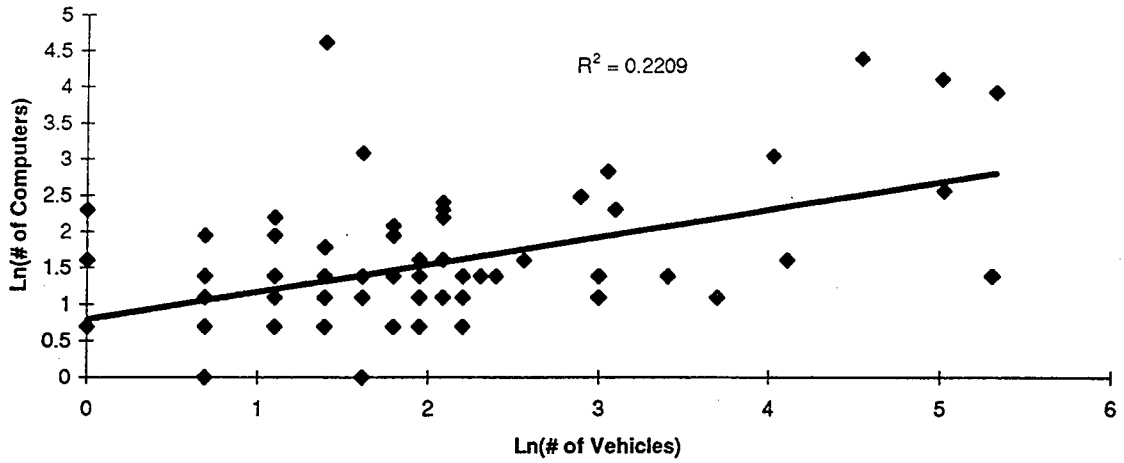


Figure 8: Number of computers and number of vehicles operated

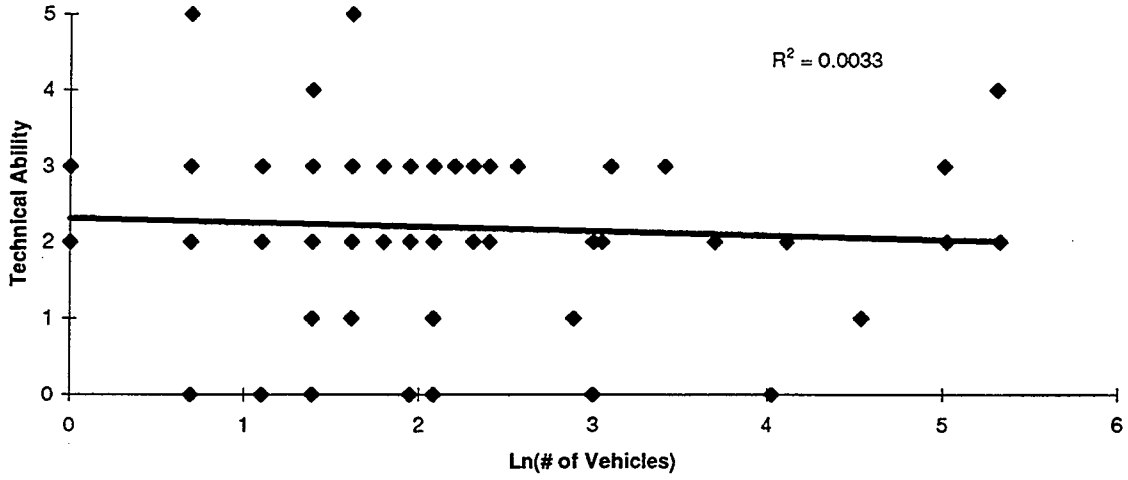


Figure 9: Technical ability and number of vehicles operated

(Technical ability ranges from 1 being expert to 5 being no computer experience, 0 is no response).

RECOMMENDATIONS

The main purpose of this study was to determine the computer usage and technical ability of paratransit agencies in the Pacific Northwest, and to determine the areas where the agencies are lacking in training and facilities. Based on the findings from the questionnaire, there are a few areas where computer training and assistance would most benefit the operations of the paratransit agencies. These areas include general knowledge of computers and upgrading computer systems, software packages, modem usage, and networking.

The following questions should be addressed in a training program for the paratransit agencies. Answers to these questions will provide the information required to increase the level of computer ability within the paratransit agencies.

- **What computer hardware and software does the agency have, and what upgrades would be useful?**

  Several of the respondents were unfamiliar with the computer equipment their agency was operating. Without a working knowledge of what equipment they currently have, it is very hard to make decisions about what upgrades are needed. Different agencies may also require different products depending upon the service provided and the size of the operation.

- **What are the benefits of using standardized software packages, and specialized paratransit software packages?**

  There are several specialized software packages that would be useful to operating a paratransit agency. These packages include client databases,

vehicle databases, trip request databases, vehicle operator databases, map databases and mapping software, billing systems, communications, and several others. By standardizing this software, two main things can be accomplished. First, it will make the development of training materials easier, and second it will allow the software manufacturers to continually develop these programs, making them more efficient.

- **What are the benefits of having a modem and access to services such as the Internet?**

  There are numerous benefits to having a modem and access to the Internet. The main benefit being communications. With an increase in the number of people with computers and access to email, there are limitless possibilities. Agencies could use the Internet to communicate with other agencies, or users of the paratransit services could use email to send in requests for service. With the use of a modem, paratransit agencies could file reports with state and federal agencies electronically. This would reduce the time and paper required to manually file these reports.

- **What are the benefits of networking the agency's computer systems?**

  One of the main benefits to networking is interagency communication. With a networked system, the transfer and sharing of information becomes extremely easy. It would be possible for multiple people in an agency to use a particular database without having it loaded on each individual machine. This also frees up valuable disk space needed to store the database on each machine.

- **What kind of assistance is available to the paratransit agencies to help reorganize the computer systems in operation?**

  Many smaller agencies may be unable to afford upgrades to their computer systems. In order to achieve the level of computer usage and expertise that is desired, funding will most likely be needed. A final section in the training program would be help in obtaining funding for computers and equipment upgrades.

- **At what level of expertise should the training program be focused?**

  Not all agencies will require the same amount of training, and it might not be a good idea to aim the training only at one level of competency. For this reason, it would be nice to rank the agencies in terms of the amount of training they will require. This would allow the development of two separate training manuals depending on the needs of the agencies, possibly one manual for agencies who have little or no computer expertise, and one for those agencies that have a relatively well maintained computer operation. The training programs could then have different sessions for each level of expertise.

As an aid to develop a training program, other programs and conferences were studied. Appendix 3 contains an agenda for the Technology Sharing Program of the 7th International Conference and on Mobility and Transport for Elderly and Disabled People. This conference served as a guide to developing the training program for paratransit agencies in the Pacific Northwest.

CONCLUSION

This study has answered the question addressed about the existing computer usage and technical ability of paratransit agencies in the Pacific Northwest. The data obtained in this study has provided the needed information about what areas of computer knowledge need increased development. With the information from the study and information from other paratransit conferences and workshops, a computer training program for paratransit agencies was developed. The training program will help increase the knowledge of computers within the agency, and the benefits of networking and modem usage. This training program will bring the level of computer knowledge up to a standard level in all paratransit agencies, allowing for more efficient use of the computer technology that is available.

BIBLIOGRAPHY

1. EG&G Dynatrend and Crain & Associates, Inc. Transit Operations for Individuals with Disabilities. *Transit Cooperative Research Program Report 9*, TRB, National Research Council, Washington, D.C., 1995.

APPENDIX

APPENDIX 1: QUESTIONNAIRE

APPENDIX 2: DATA ANALYSIS RESULTS

APPENDIX 3: AGENDA FOR THE TECHNOLOGY SHARING PROGRAM OF THE 7TH INTERNATIONAL CONFERENCE ON MOBILITY AND TRANSPORT FOR ELDERLY AND DISABLED PEOPLE

PERSONAL COMPUTER QUESTIONNAIRE
FOR
PUBLIC TRANSPORTATION PROVIDERS IN THE NORTHWEST

Name of Transportation Provider: _____

Address: _____
_____
_____

Provider Telephone Number(s): Phone ( ) _____ Fax ( ) _____

Name of person responding: _____
Telephone of person responding: Phone ( ) _____ Fax ( ) _____

If your operation is a department or section of a larger organization, but functions independently on a day-to-day basis, please answer the questions as they relate to the transportation part of the larger organization.

1. How many vehicles (including spares) does your system operate? _____

2. How many rides per day do you provide? _____

3. How many total customers do you serve? _____

4. Check the following modes in which you operate: fixed-route _____, fixed-route deviation _____, demand responsive _____, other _____.

5. If questions 1 through 4 need clarification or your system only does part of the operation, please explain. _____
_____
_____
_____
_____
use additional sheets if necessary

6. How many personal computers (i.e.. PC's and/or Macs) does your agency use? If the number is large a rough estimate is acceptable. If the number is zero, answer question 7 and then return the questionnaire. _____

7. How would you characterize the technical ability of the most computer capable person(s) on your staff? (Check one) Expert programmer and troubleshooter _____, Can do some programming and troubleshooting _____, Can install and use programs _____, Has a little experience using computers _____, Has no experience with computers _____.

8. Check off all of the following purposes for which the computers are regularly used:

Word Processing	_____	Analysis	_____
Customer Database	_____	Personnel Records	_____
Ride Orders	_____	Payroll	_____
Ride Scheduling	_____	Operator Database	_____
Billing for rides	_____	Accounting	_____
Vehicle Database	_____		
Vehicle Maintenance	_____		

9. What operating system(s) do you use? DOS _____, Windows _____, Other (please name) _____, Don't know _____. Have you or do you intend to, upgrade to Windows 95 in the next year or two. Yes _____, No _____, Don't know _____.

10. Please describe the computer hardware which is available to your agency. (check one) none _____, one or two PCs _____, three to ten PCs not connected by a network _____, three to ten PCs connected by a network _____, more than 10 PCs _____.

11. What type of CPU (or compatible) is used in your best computer(s)? (check one) Pentium _____, 486 _____, 386 _____, 286 _____, 8088 _____, don't know _____.

12. About how large is the hard disk on your best computer(s)? (check one) 80 megabytes or less _____, 81-240 megabytes _____, 241-420 megabytes _____, 421-800 megabytes _____, over 800 megabytes _____, don't know _____.

13. Do you have a modem in one or more of your computers? Yes _____, No _____

14. Do you have access to the NET? Yes _____, No _____. If yes, please provide address.

    _____

15. What desires or plans do you have to upgrade your computer hardware, software or staffing in the next two years? What assistance would you like to help you upgrade?

    _____
    _____
    _____
    _____
    _____

    use additional sheets if necessary

If you have any questions about this questionnaire please contact Park Woodworth at the address or phone number on the cover letter. If you want to provide additional or clarifying information, please feel free to attach additional pages.

Please return in the enclosed envelope which is addressed to Transportation Research Institute, Merryfield Hall 100, OSU, Corvallis, Oregon 97331-4304.

Analysis of Data from Nothwest Paratransit Agencies

Total # of Agencies Responding	66
# of Agencies With Computers	62
# of Agencies Without Computers	4

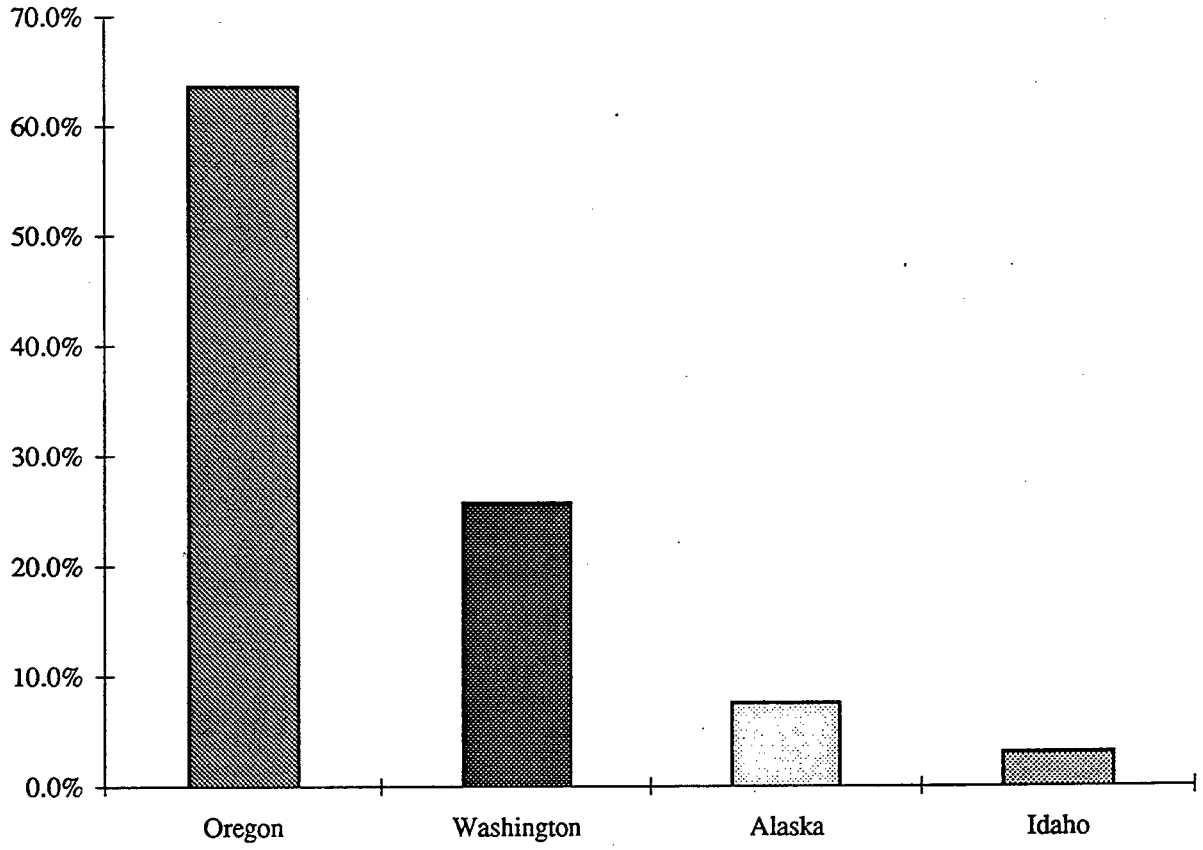
Transportation Provider	City	State
Access Alaska	Fairbanks	AK
CARE-A-VAN	Juneau	AK
Ketchikan Gateway Borough	Ketchikan	AK
Senior Citizens of Kodiak, Inc.	Kodiak	AK
Wasilla Area Seniors, Inc.	Wasilla	AK
Regional Public Transportation, Inc.	Lewiston	ID
Link Transportation Systems, Inc.	Moscow	ID
Albany Transit System	Albany	OR
Mid-Valley Rehabilitation, Inc.	Amity	OR
Community Connection of Baker County	Baker City	OR
Baker County Trans Advocacy Program	Baker City	OR
CAC Transportation, Inc.	Bend	OR
Bend Dial-A-Ride	Bend	OR
Harney County Senior Center, Inc.	Burns	OR
Cannon Beach Shuttle	Cannon Beach	OR
Open Door	Corvallis	OR
Corvallis Transit System	Corvallis	OR
Soutn Lane Wheels	Cottage Grove	OR
Lane Transit District	Eugene	OR
Special Mobility Services	Eugene	OR
Grant County Transportation Dist	John Day	OR
DHR Volunteer Program	John Day	OR
Klamath Basin Senior Citizens Council	Klamath Falls	OR
Lake Oswego Adult Community Center	Lake Oswego	OR
City of Lebanon Dial-a-Bus Program	Lebanon	OR
Yamco Transit	McMinnville	OR
DHR Volunteer Program	Medford	OR
South Clackamas Transportation District	Molalla	OR
Molalla Senior Center	Mollalla	OR
Seniors of Mosier Valley*	Mosier	OR
Lincoln County Transit	Newport	OR
Nyssa Senior Citizens Van*	Nyssa	OR
Volunteer Transportation, Inc.	Portland	OR
Volunteers of America of Oregon	Portland	OR
Larson Transportation Services, Inc.	Portland	OR

Transportation Provider	City	State
American Red Cross	Portland	OR
Dept. of Human Resources Volunteer Program	Prineville	OR
Douglas County Special Transportation	Roseburg	OR
Salem Area Mass Transit	Salem	OR
Willamette Valley Passenger Rail Project	Salem	OR
Oregon Department of Transportation	Salem	OR
Garten Foundation	Salem	OR
Columbia County Transportation	St. Helens	OR
Wheels of Joy*	Sublimity	OR
Sweet Home Senior Center	Sweet Home	OR
Tillamook Transportation TAC	Tillamook	OR
South Metro Area Rapid Transit	Wilsonville	OR
City of Woodburn	Woodburn	OR
The Rogers Counseling Center	Clarkston	WA
Council on Aging and Human Services	Colfax	WA
Lincoln County Counseling Center	Davenport	WA
Okanogan County Senior Center	Omak	WA
Prosser Rural Transit	Prosser	WA
Palouse Industries	Pullman	WA
Highline West Seattle Mental Health Transportation Department	Seattle	WA
Quality Cabulance Co.	Seattle	WA
Seattle Farwest Service Corp.	Seattle	WA
Evergreen Taxi Service	Shelton	WA
Spokane Cab	Spokane	WA
Spokane Transit Authority	Spokane	WA
Skamania County Senior Center	Stevenson	WA
Yakima Nation Area Agency on Aging*	Toppenish	WA
Clark County PTBA (C-Tran)	Vancouver	WA
Valley Transit	Walla Walla	WA
Klickitat County Senior Services & Mt. Adams Transportation Services	White Salmon	WA

*Agencies without computers

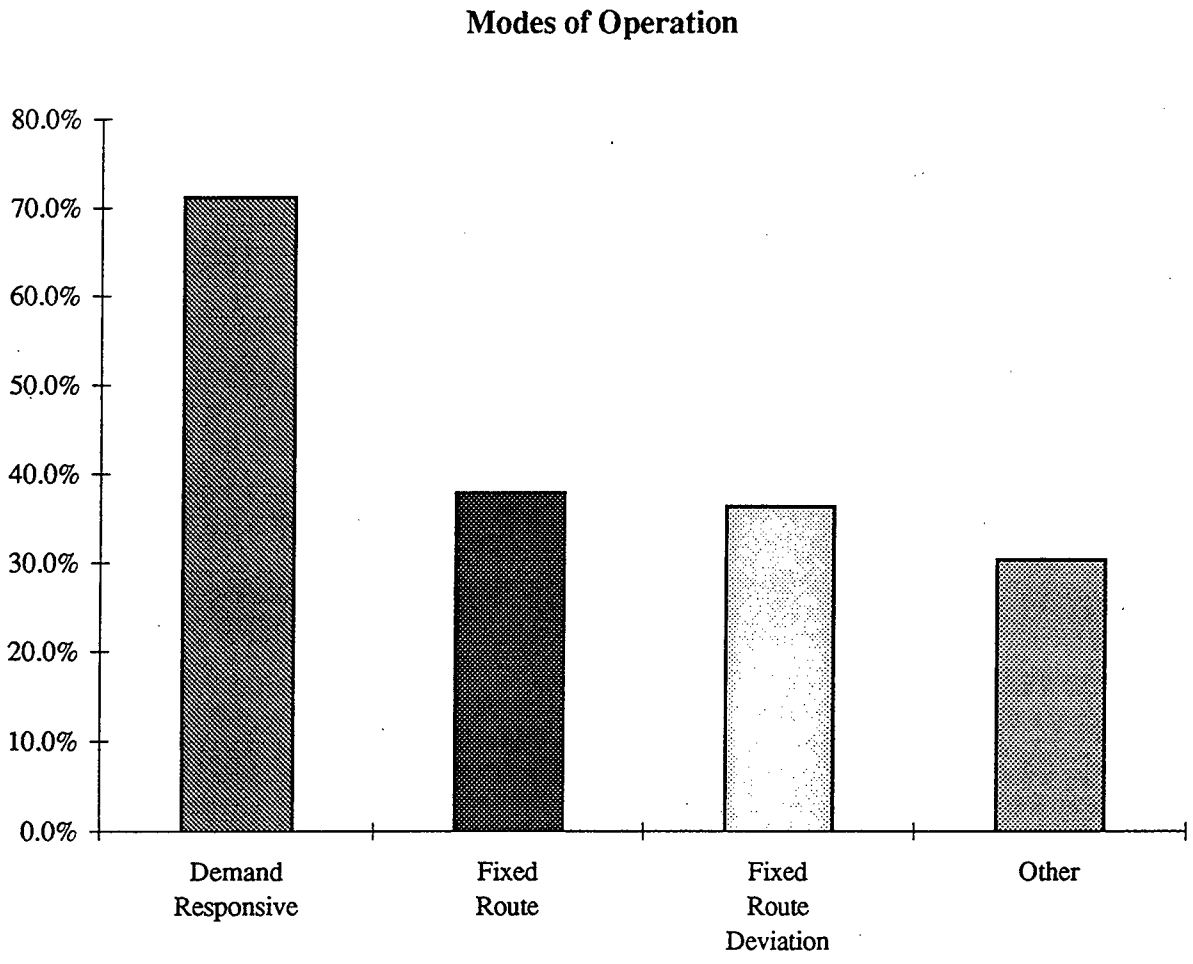
State	# Of Agencies	% Of Agencies
Oregon	42	63.6%
Washington	17	25.8%
Alaska	5	7.6%
Idaho	2	3.0%

Agencies by State



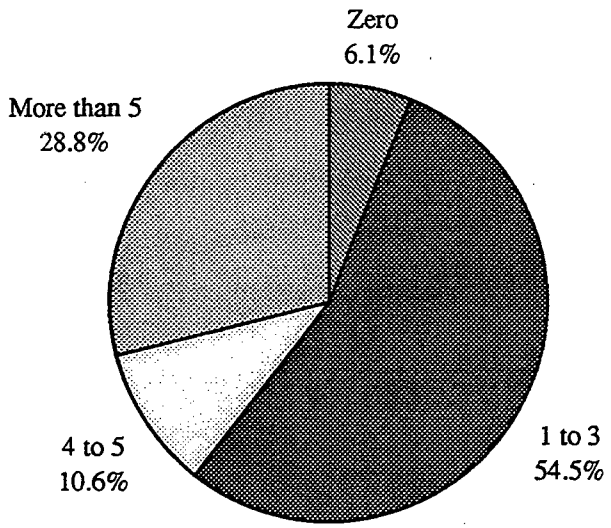
Data For All Agencies:

Modes of Operation	# of Agencies	% of Agencies
Demand Responsive	47	71.2%
Fixed Route	25	37.9%
Fixed Route Deviation	24	36.4%
Other	20	30.3%

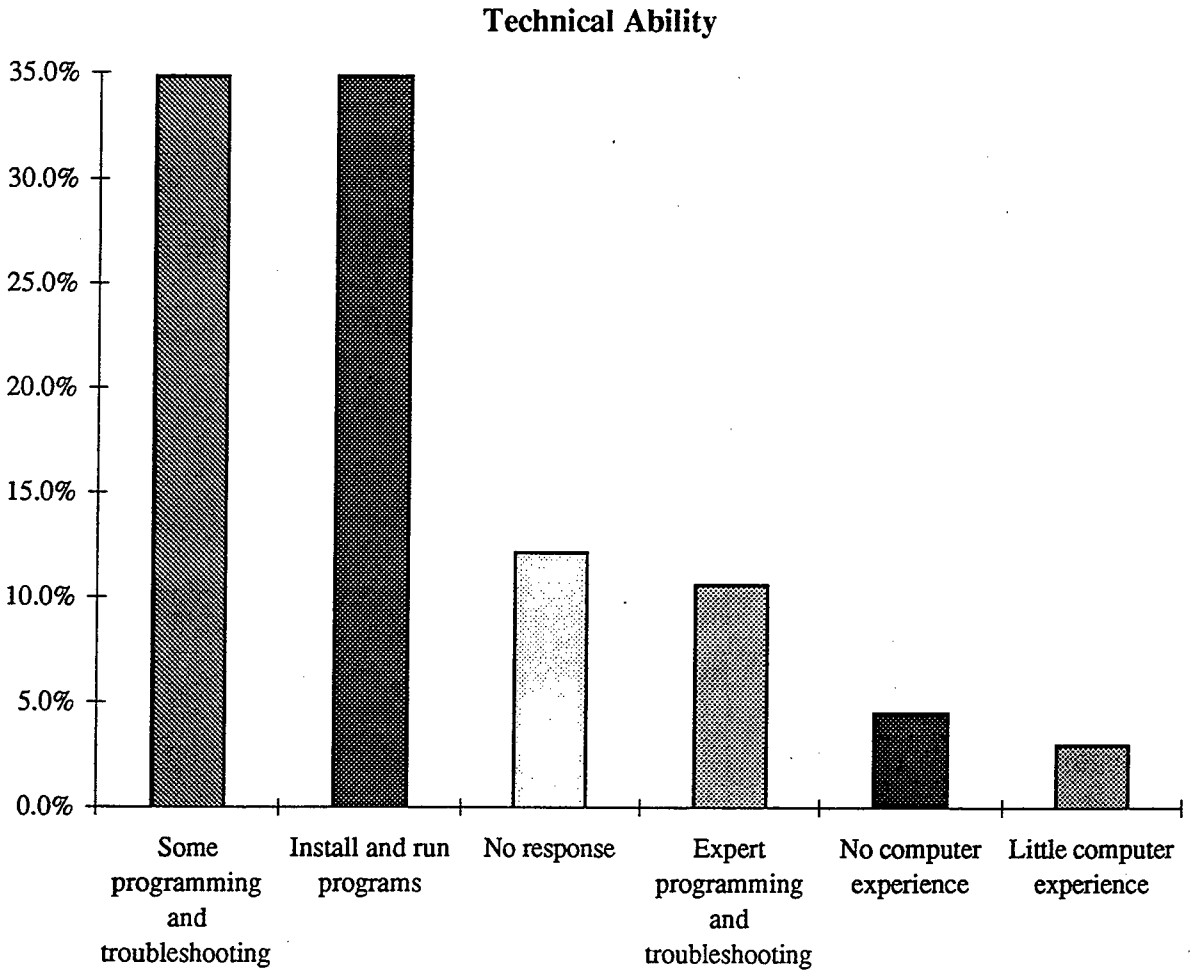


Number of Computers	# of Agencies	% of Agencies
Zero	4	6.1%
1 to 3	36	54.5%
4 to 5	7	10.6%
More than 5	19	28.8%

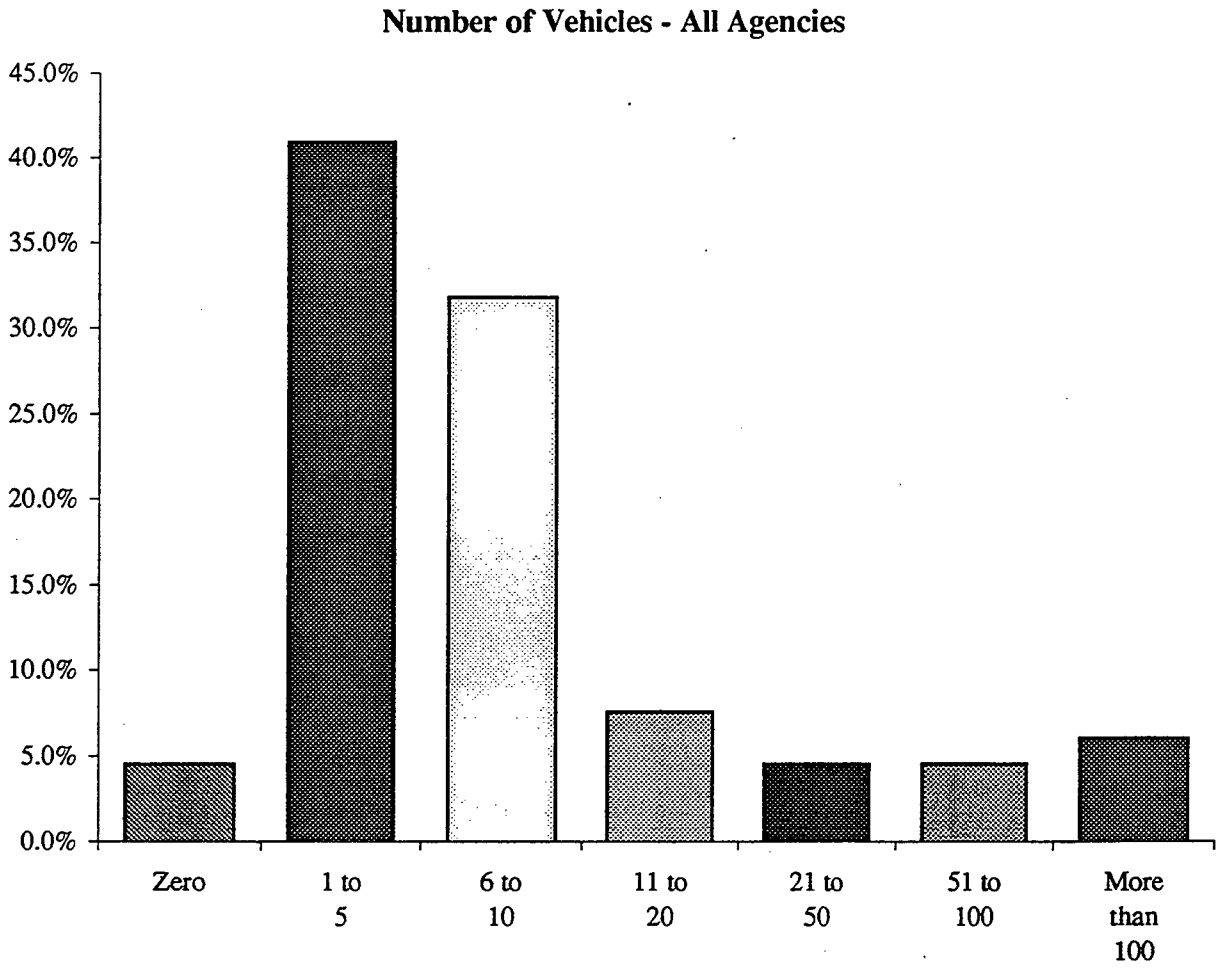
Number of Computers - All Agencies



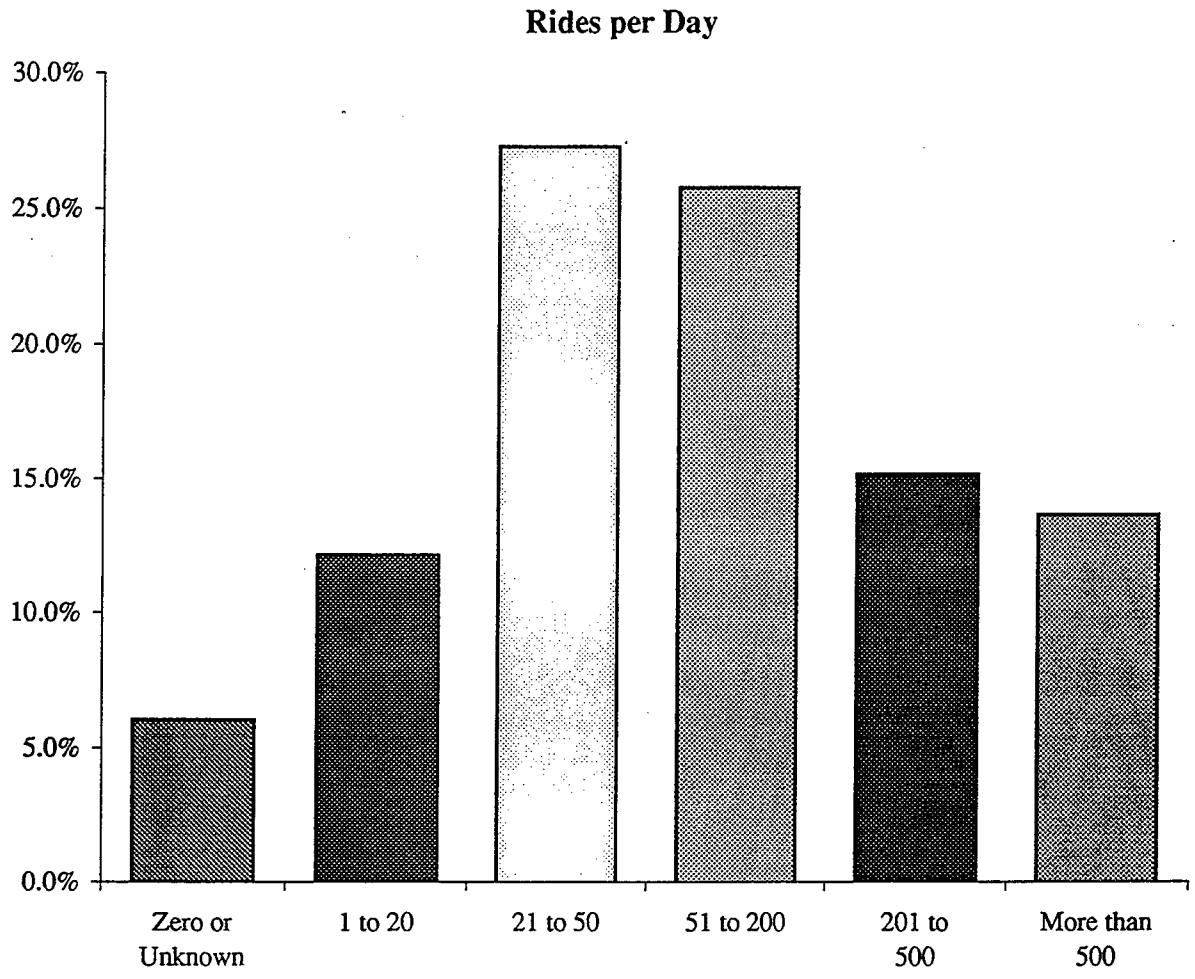
Technical Ability	# of Agencies	% of Agencies
Some programming and troubleshooting	23	34.8%
Install and run programs	23	34.8%
No response	8	12.1%
Expert programming and troubleshooting	7	10.6%
No computer experience	3	4.5%
Little computer experience	2	3.0%



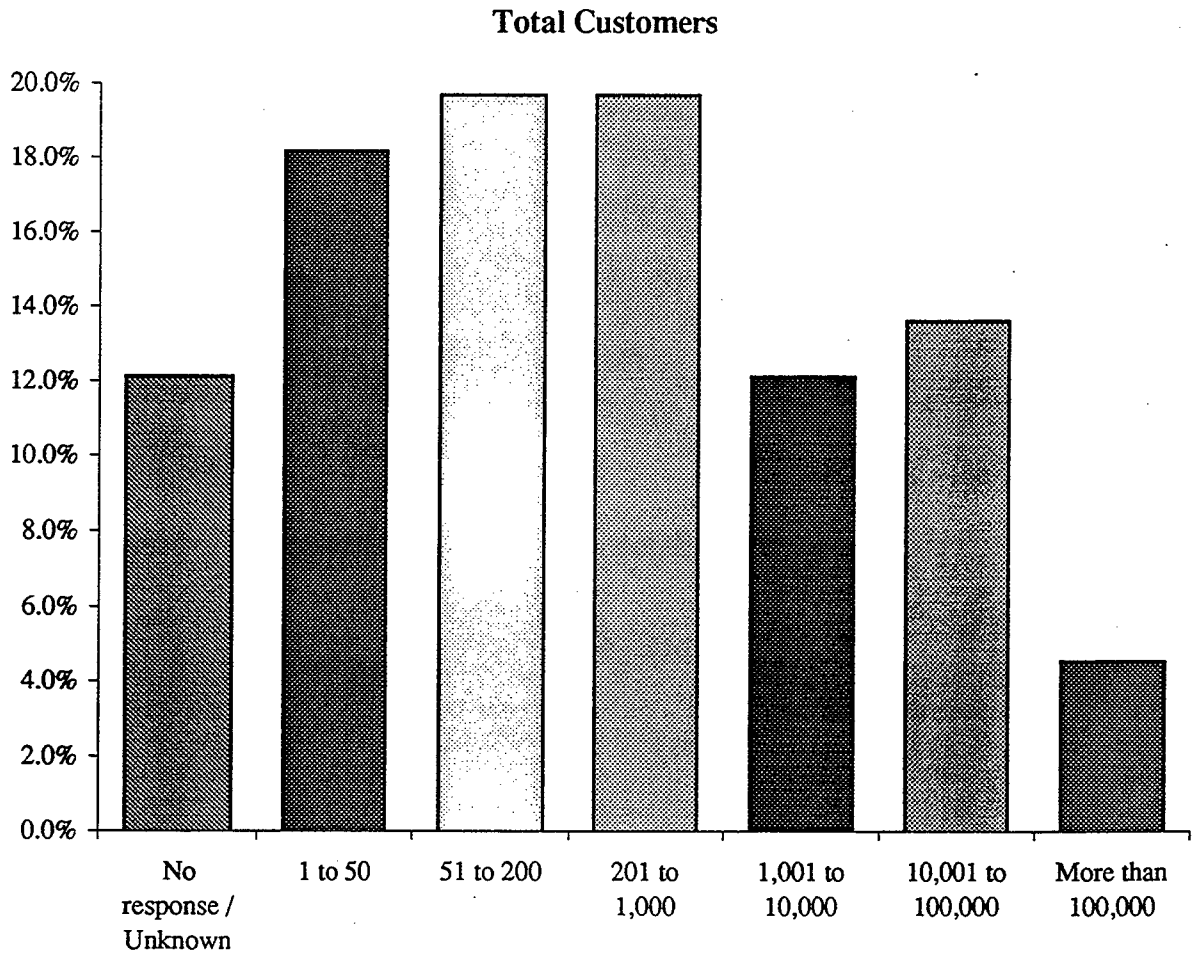
Number of Vehicles	# of Agencies	% of Agencies
Zero	3	4.5%
1 to 5	27	40.9%
6 to 10	21	31.8%
11 to 20	5	7.6%
21 to 50	3	4.5%
51 to 100	3	4.5%
More than 100	4	6.1%



Rides per Day	# of Agencies	% of Agencies
Zero or Unknown	4	6.1%
1 to 20	8	12.1%
21 to 50	18	27.3%
51 to 200	17	25.8%
201 to 500	10	15.2%
More than 500	9	13.6%

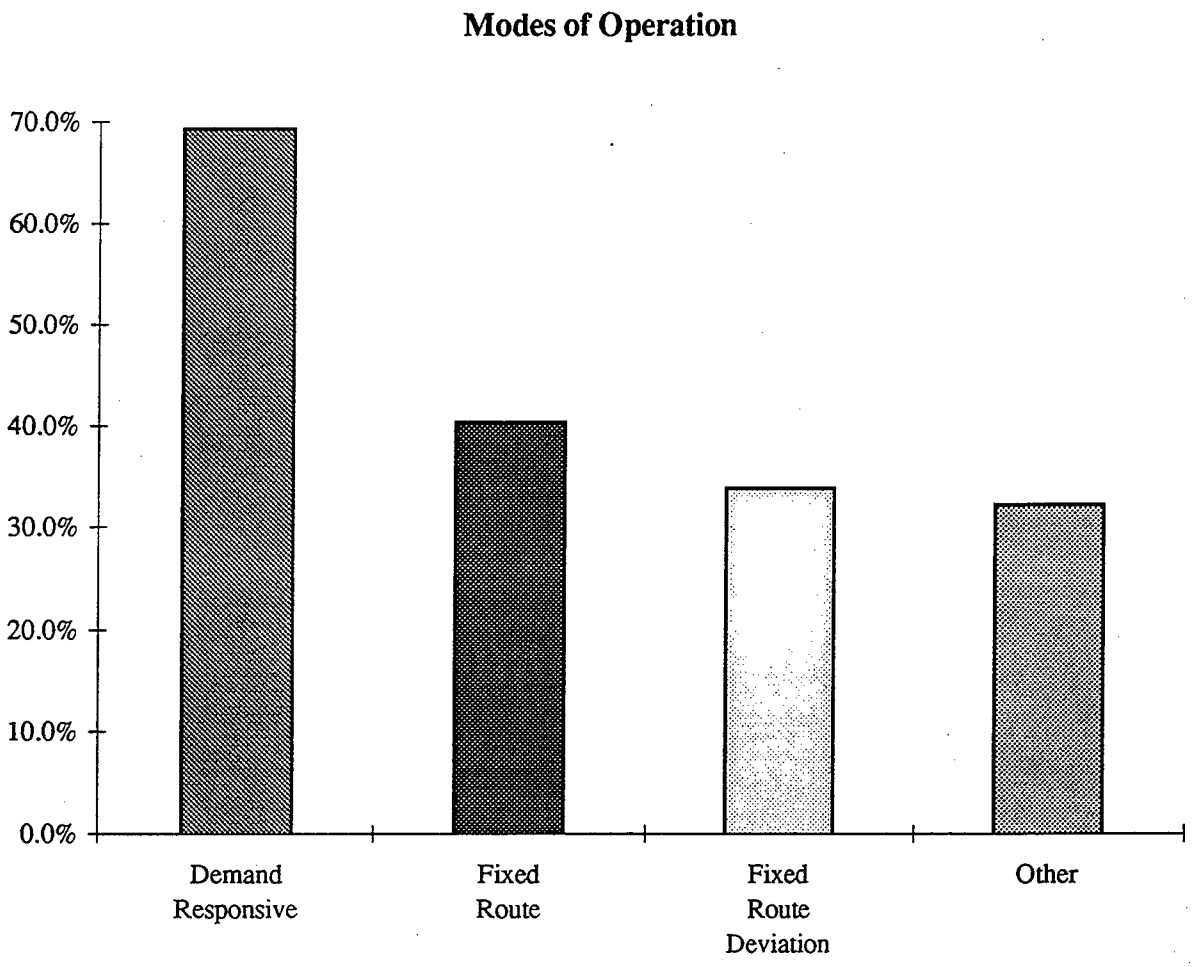


Total Customers	# of Agencies	% of Agencies
No response / Unknown	8	12.1%
1 to 50	12	18.2%
51 to 200	13	19.7%
201 to 1,000	13	19.7%
1,001 to 10,000	8	12.1%
10,001 to 100,000	9	13.6%
More than 100,000	3	4.5%



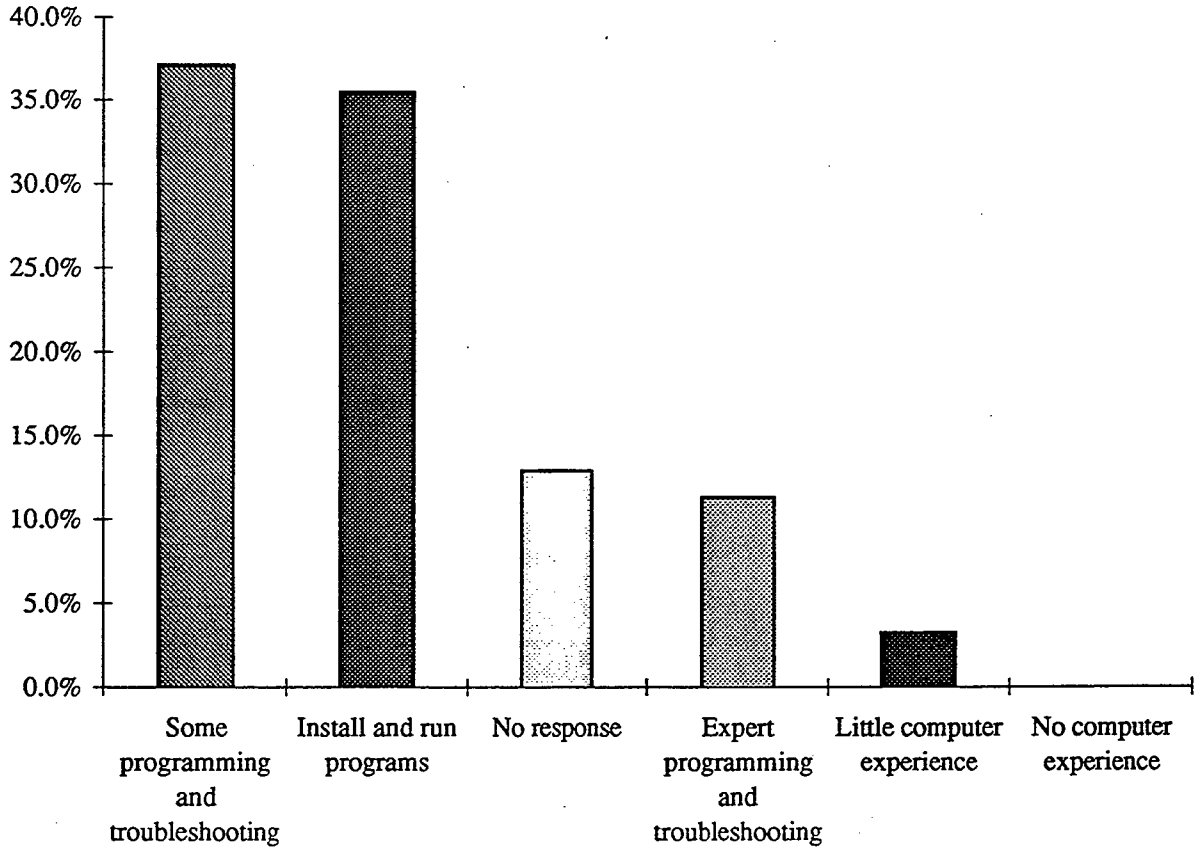
Agencies With Computers

Modes of Operations	# of Agencies	% of Agencies
Demand Responsive	43	69.4%
Fixed Route	25	40.3%
Fixed Route Deviation	21	33.9%
Other	20	32.3%



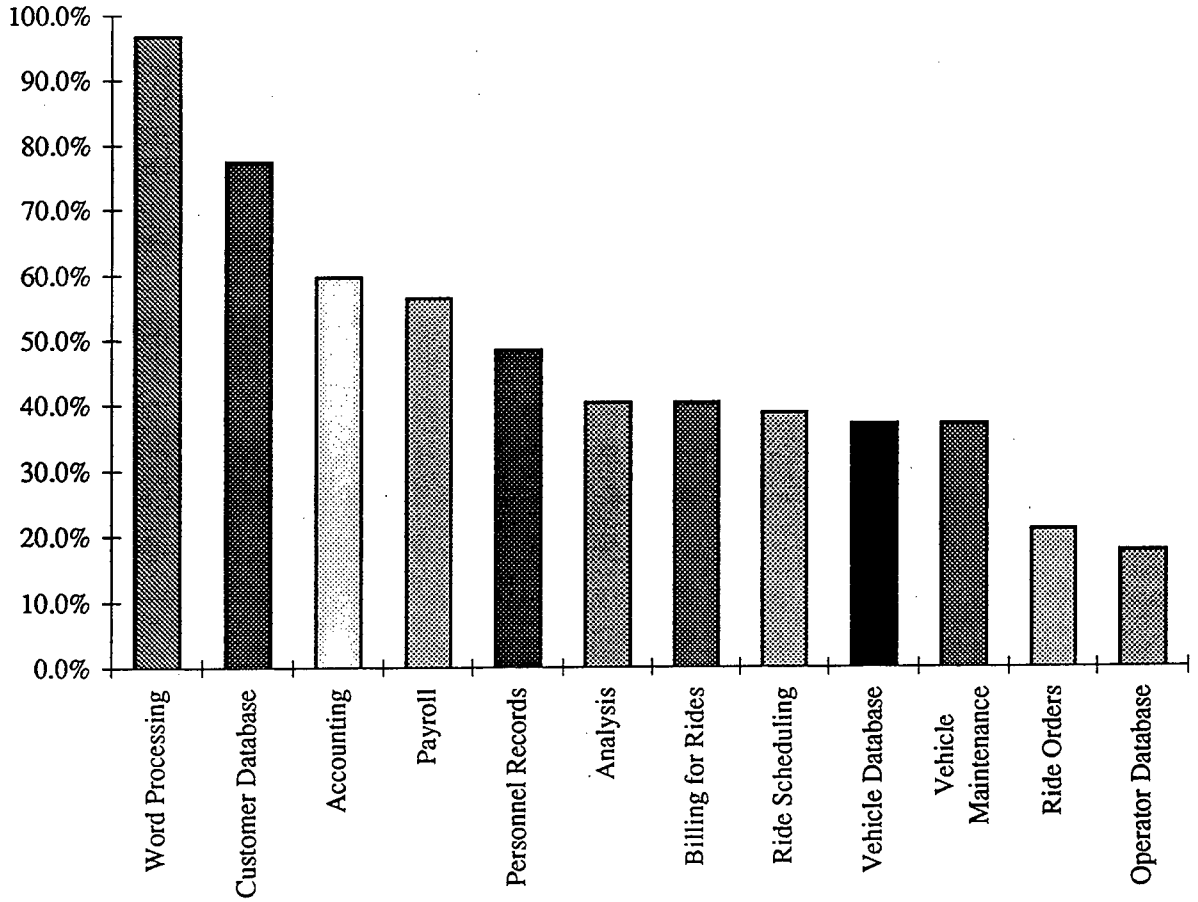
Technical Ability	# of Agencies	% of Agencies
Some programming and troubleshooting	23	37.1%
Install and run programs	22	35.5%
No response	8	12.9%
Expert programming and troubleshooting	7	11.3%
Little computer experience	2	3.2%
No computer experience	0	0.0%

Technical Ability

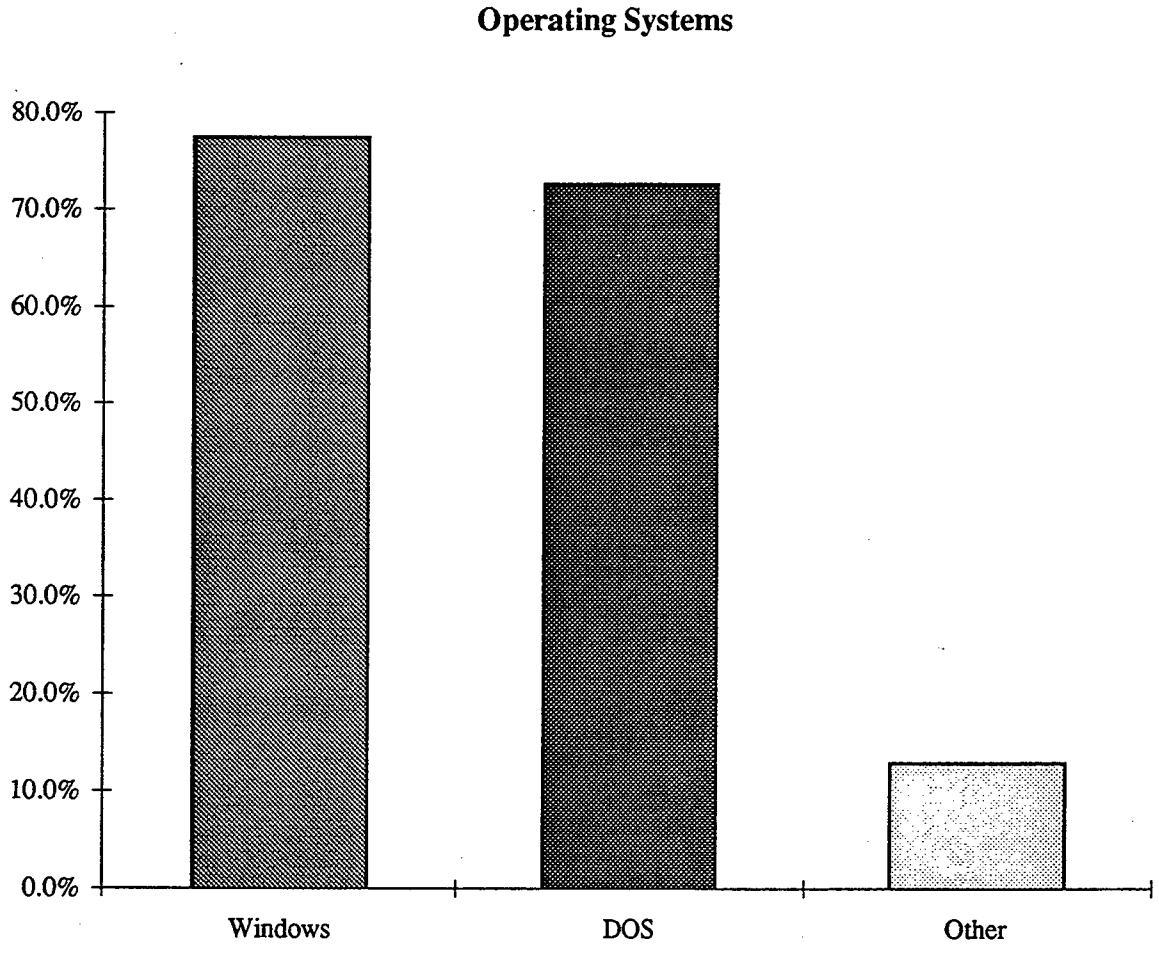


Software Applications	# of Agencies	% of Agencies
Word Processing	60	96.8%
Customer Database	48	77.4%
Accounting	37	59.7%
Payroll	35	56.5%
Personnel Records	30	48.4%
Analysis	25	40.3%
Billing for Rides	25	40.3%
Ride Scheduling	24	38.7%
Vehicle Database	23	37.1%
Vehicle Maintenance	23	37.1%
Ride Orders	13	21.0%
Operator Database	11	17.7%

Software Applications

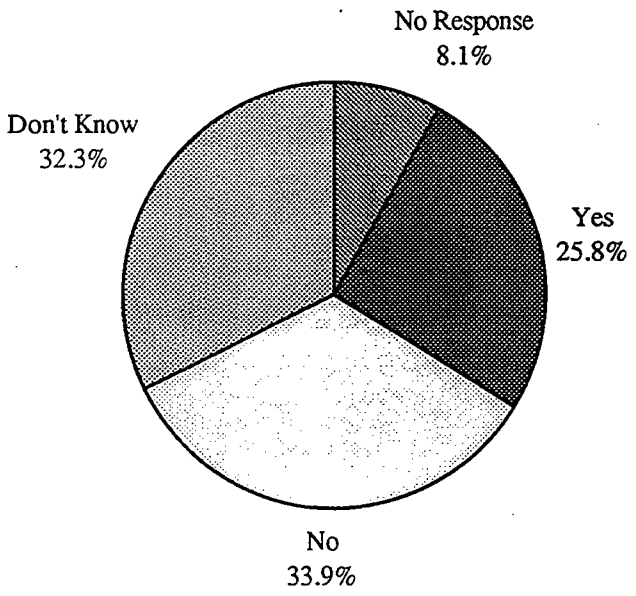


Operating System	# of Agencies	% of Agencies
Windows	48	77.4%
DOS	45	72.6%
Other	8	12.9%

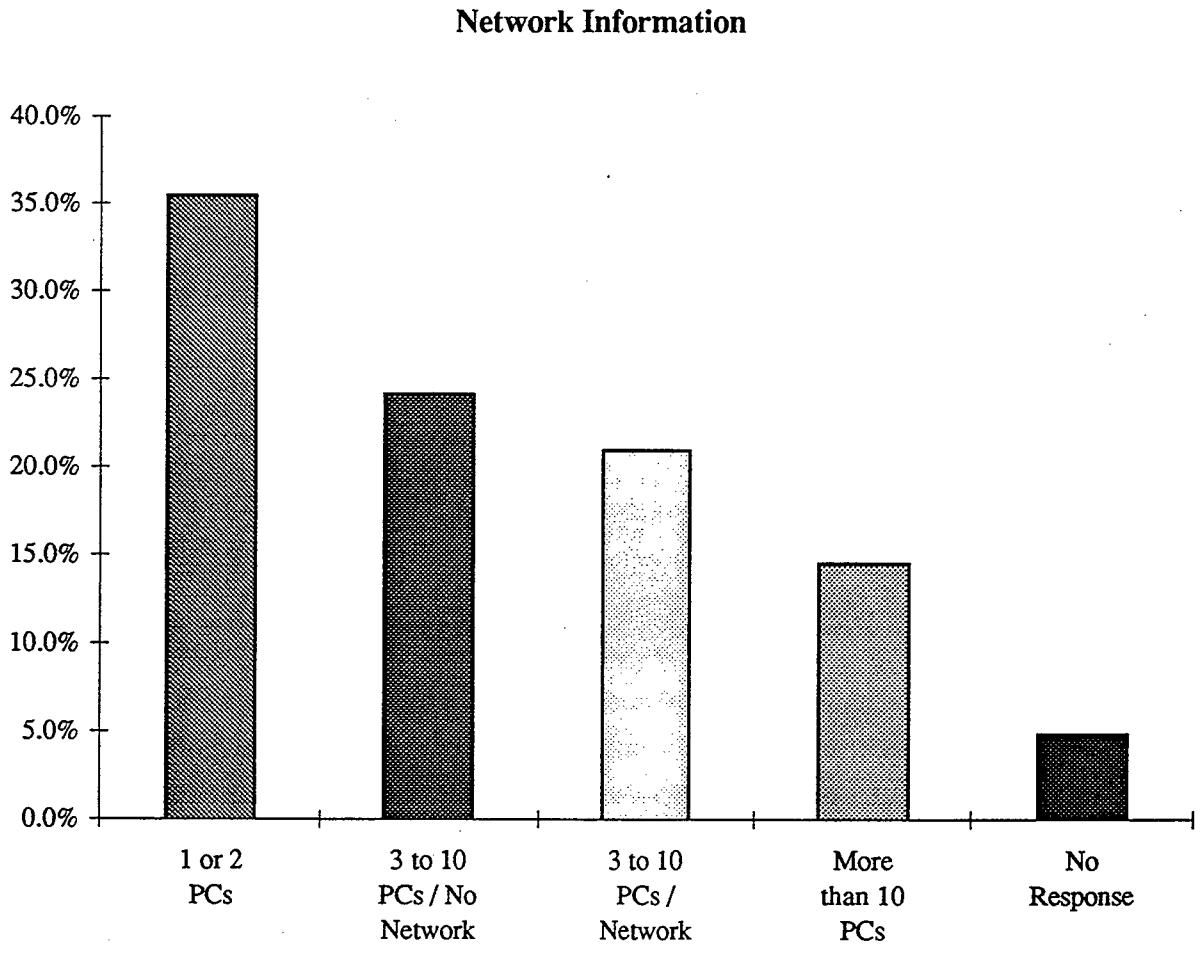


Upgrade to Windows 95	# of Agencies	% of Agencies
No	21	33.9%
Don't Know	20	32.3%
Yes	16	25.8%
No Response	5	8.1%

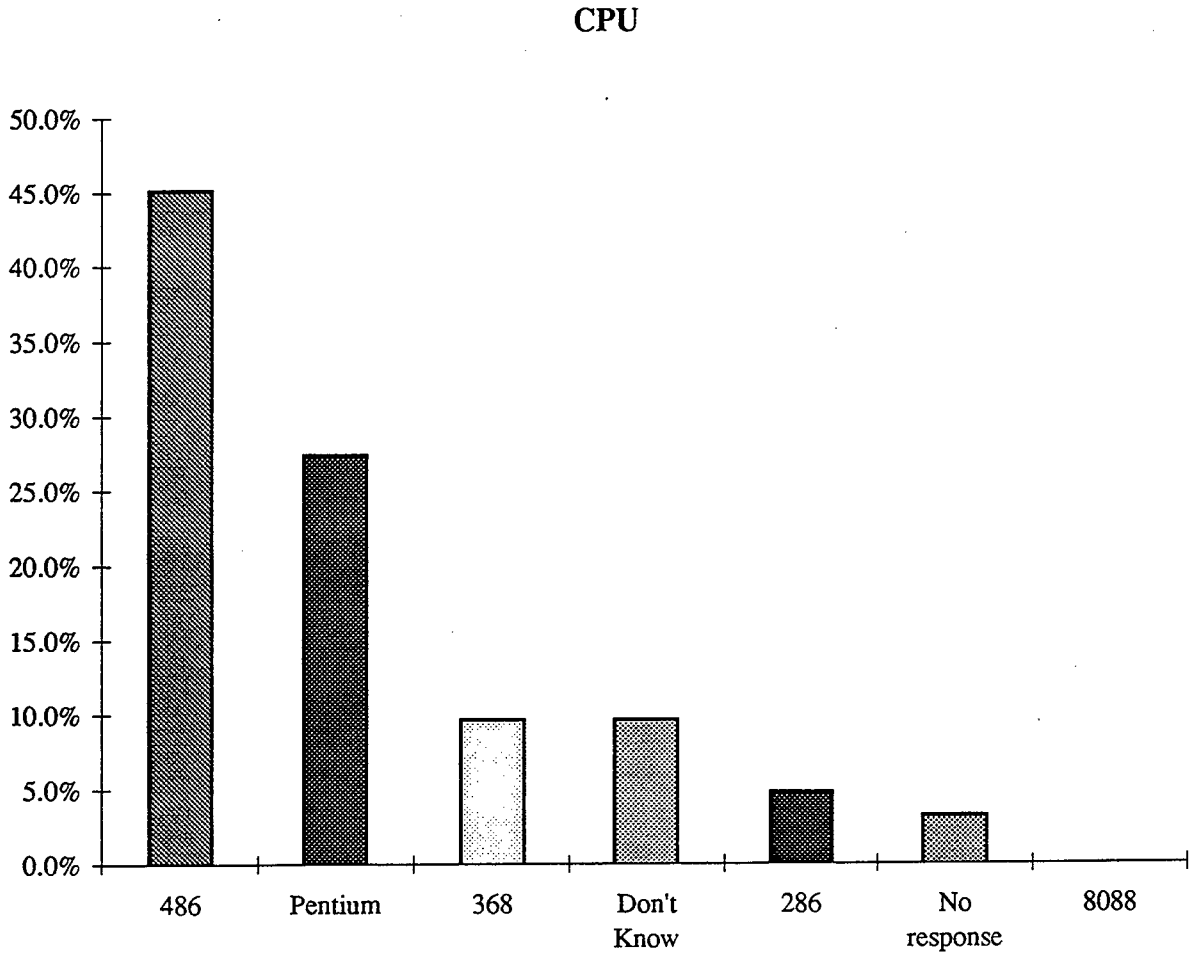
Upgrade to Windows 95



Network Information	# of Agencies	% of Agencies
1 or 2 PCs	22	35.5%
3 to 10 PCs / No Network	15	24.2%
3 to 10 PCs / Network	13	21.0%
More than 10 PCs	9	14.5%
No Response	3	4.8%

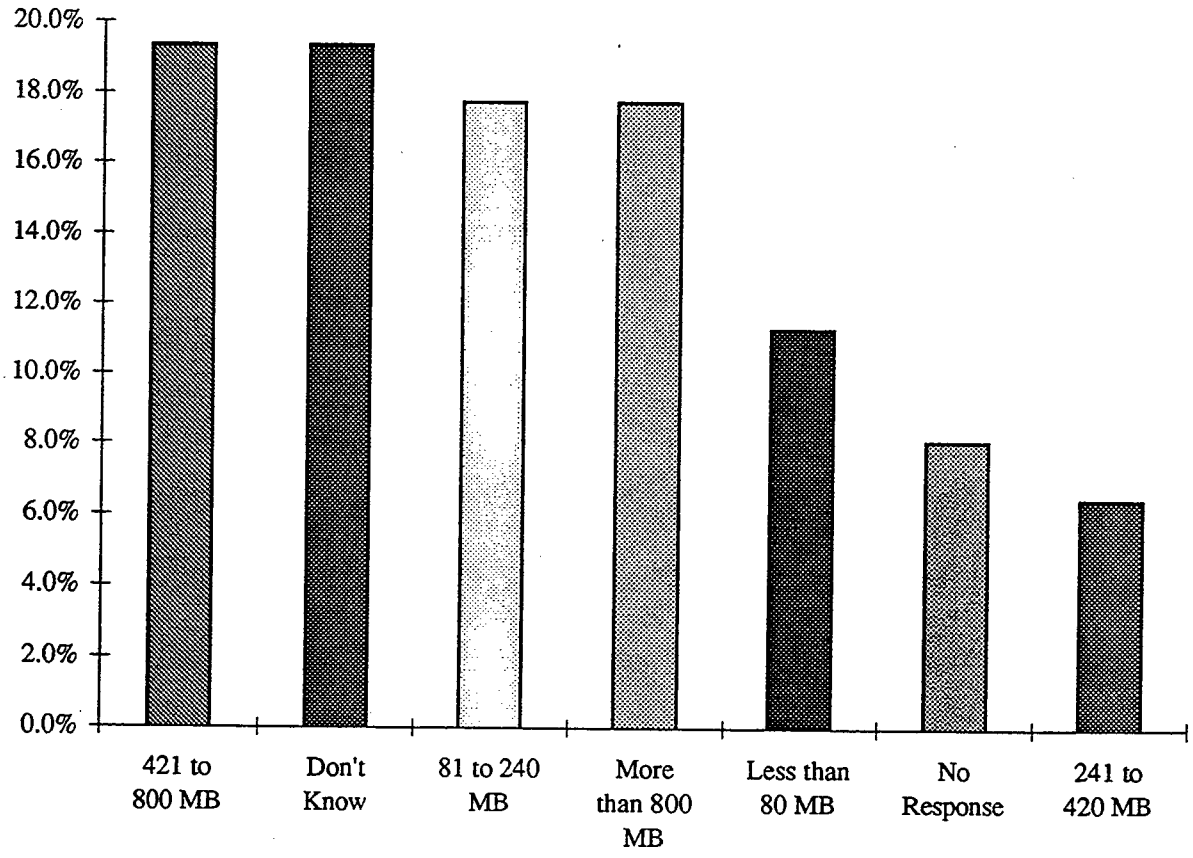


CPU	# of Agencies	% of Agencies
486	28	45.2%
Pentium	17	27.4%
368	6	9.7%
Don't Know	6	9.7%
286	3	4.8%
No response	2	3.2%
8088	0	0.0%



Hard Drive Size	# of Agencies	% of Agencies
421 to 800 MB	12	19.4%
Don't Know	12	19.4%
81 to 240 MB	11	17.7%
More than 800 MB	11	17.7%
Less than 80 MB	7	11.3%
No Response	5	8.1%
241 to 420 MB	4	6.5%

Hard Drive Size



Agencies with Modems	40	64.5%
Agencies with NET Access	13	21.0%

7TH INTERNATIONAL CONFERENCE ON MOBILITY AND TRANSPORT FOR ELDERLY AND DISABLED PEOPLE

Technology Sharing Program

Specialist services

Paratransit software / computer aided routing and dispatch systems controls

July 1995

Moderator, Park Woodworth

Pieces of the paratransit scheduling rfp puzzle

1. Review of what you have and what you want
2. Do you want assistance in the procurement
3. Request for industry comment (rfic)
4. Plan the transition. Do you want assistance
5. Request for proposals (rfp)
6. Pre-proposal conference
7. Proposals submitted
8. Selection process
   Eliminate non-responsive and non-competitive proposers
9. Make onsite visits

10. Negotiate with remaining proposers

11. Best and final offer

12. Installation

13. Testing and changeover

What do you have, and what do you want?

What are the benefits and to whom? Do we want (expect) changes in staffing or efficiency?

1. Call taking
2. Scheduling
3. Dispatching
4. Record keeping
5. Billing

What's available? Request for industry comment (rfic)

System description

1. Service area
   - Square miles
   - Unusual features
2. Customers
   - Number ADA eligible
   - Number that use mobility devices
   - Number of agency clients
3. Rides
   - Total
   - Peak hour
   - Type
     - Door-through-door, curb-to-curb, other
4. Equipment
   - Facilities
   - Vehicles
   - Radios
   - Telephones
   - Computers
5. Ride requests

Information
Total volume
Peak volume

6. Schedule
   Hours of operation

7. Coordination with
   Volunteers
   Taxis

Client database

Name
Address
Geocoded address
Finding/special information
Home phone
Work phone
Order phone
Program id number
Disability info for driver
Emergency medical information
Other information
Emergency contact name
Emergency contact telephone number
Doctor name
Doctor telephone number
Eligibility
  ADA
    full
    limited
  section 18
  agency
Special eligibility information
Date approved
Eligibility termination date
Agency id number
Personal care attendant
Personal care information
Assistance animal
Loading time from home
Information on last ten trips
No show information
Suspension information

Vehicle database

Vehicle number
License
Fleet
    setup for seating (gives capacity)
    other (lift modifications, etc.)
Where garaged
Service status
    connection to maintenance program

Trip request database

Name
Program id number
Travel date
Origin address
Origin geocoded address
Origin telephone number
Destination address
Destination geocoded address
Destination telephone number
Requested time at destination - ADA
Scheduled pickup time
Disability info for driver
Finding / special information
Mobility device
Personal care attendant (pca)
Assistance animal
Friend
Other friends
Fare
Loading time at home
Loading time at destination

All the above information for return trips

Special grouping information

Standing order information
    50% of total ADA rides

Agency rides
    agency code

Ride requester
Ride requester telephone number
Billing code
Purpose

Vehicle operator database

1. Scheduling
   - Name
   - Address
   - Telephone number(s)
   - Commercial drivers license number
     - Expiration date
   - Program certifications
     - Expiration dates
   - Work hours

2. Personnel

3. Training

4. Insurance

Reporting system

All the regular

ADA

number of significantly untimely pickups
- initial trip
- return trip

number of trip denials or missed trips

number of trips with excessive length

Sort the above into those that are and are not used beyond the control of the entity.

Map database

Basic level
- match addresses with Pittmon or other map

Intermediate

geocoded address
geocoded landmarks
who supplies
how update

Advanced
real-time vehicle information
estimated between pickups and drop-offs
automatic vehicle locating
differential GPS

Real-time travel / traffic information

Real-time navigation and route planning

Drivers use geocoded pickup information

Billing system

General agencies
agency name
address
billing address
telephone
rides by client
name
agency client number
date
cost
ride requester
purpose

Title 19 (Medicaid)
doctor
approval number
social security number

Other

Communication

Computer hardware

Operating system - DOS, windows, OS-2, UNIX

Network
- hardware - token ring, Ethernet, others
- software - Novell, others

Printers

Base radio

Mobile radio
- portables
- mobile data terminals (MDT's)

Cellular
- voice
- digitized information

Pagers

SAE 1587 / 1708
- exchange of electronic data between microcomputer systems on vehicles

Phone systems
- capacity
- call separator (automatic attendant)
- tdd
- recorder
- caller id
- auto callback

Other

Conversion of present records

Ownership of programs / map data

Upgrades

Scheduling analysis / what ifs

Planning the transition

1. Procure assistance
2. Develop a plan
3. Who is in charge

4. Involvement with customers, workers (call takers, schedulers, dispatchers, drivers), agencies, management
5. All at once or in stages
6. Customer information
7. Telephone script, telephone capacity (trunk lines, terminals, staff)
8. Scheduling review by schedulers
9. Drivers log and schedule review by drivers
10. Radio script, radio capacity
11. Training
12. Testing
13. Contingency plans
14. All at once or in stages (again)
15. Assistance and / or backup

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