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Advanced Public Transportation Systems Deployment in the United States

Year 2002 Update

Final Report
June 2003

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This report documents work performed under the Federal Transit Administration's Advanced Public Transportation Systems (APTS) Program, a program structured to undertake research and development of innovative applications of advanced navigation, information, and communication technologies that most benefit public transportation.

This report is a compilation of existing and planned deployments of APTS technologies and services. The information was gathered during the Summer and Fall of 2002 and was provided primarily via the Internet by persons at each transit agency. A total of 549 agencies provided information for this study. Only those agencies with existing or planned APTS systems are included in this report.

14. SUBJECT TERMS
Intelligent Transportation Systems (ITS), Advanced Public Transportation Systems (APTS), Advanced Technology Transit Applications, Transit Information Systems, Transit Communications Systems, Transit Control Systems, Automated Vehicle Location, Automated Passenger Counters, Automated Fare Payment, Transit Vehicle Probes, Vehicle Component Monitoring, Traffic Signal Priority, ITS Integration, Transportation Management Centers

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Year 2002 Update

June 2003

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METRIC/ENGLISH CONVERSION FACTORS

ENGLISH TO METRIC

LENGTH (APPROXIMATE)

1 inch (in)	=	2.5 centimeters (cm)
1 foot (ft)	=	30 centimeters (cm)
1 yard (yd)	=	0.9 meter (m)
1 mile (mi)	=	1.6 kilometers (km)

AREA (APPROXIMATE)

1 square inch (sq in, in^2)	=	6.5 square centimeters (cm^2)
1 square foot (sq ft, ft^2)	=	0.09 square meter (m^2)
1 square yard (sq yd, yd^2)	=	0.8 square meter (m^2)
1 square mile (sq mi, mi^2)	=	2.6 square kilometers (km^2)
1 acre = 0.4 hectare (he)	=	4,000 square meters (m^2)

MASS - WEIGHT (APPROXIMATE)

1 ounce (oz)	=	28 grams (gm)
1 pound (lb)	=	0.45 kilogram (kg)
1 short ton = 2,000 pounds (lb)	=	0.9 tonne (t)

VOLUME (APPROXIMATE)

1 teaspoon (tsp)	=	5 milliliters (ml)
1 tablespoon (tbsp)	=	15 milliliters (ml)
1 fluid ounce (fl oz)	=	30 milliliters (ml)
1 cup (c)	=	0.24 liter (l)
1 pint (pt)	=	0.47 liter (l)
1 quart (qt)	=	0.96 liter (l)
1 gallon (gal)	=	3.8 liters (l)
1 cubic foot (cu ft, ft^3)	=	0.03 cubic meter (m^3)
1 cubic yard (cu yd, yd^3)	=	0.76 cubic meter (m^3)

TEMPERATURE (EXACT)

[(x-32)(5/9)] °F = y °C

METRIC TO ENGLISH

LENGTH (APPROXIMATE)

1 millimeter (mm)	=	0.04 inch (in)
1 centimeter (cm)	=	0.4 inch (in)
1 meter (m)	=	3.3 feet (ft)
1 meter (m)	=	1.1 yards (yd)
1 kilometer (km)	=	0.6 mile (mi)

AREA (APPROXIMATE)

1 square centimeter (cm^2)	=	0.16 square inch (sq in, in^2)
1 square meter (m^2)	=	1.2 square yards (sq yd, yd^2)
1 square kilometer (km^2)	=	0.4 square mile (sq mi, mi^2)
10,000 square meters (m^2)	=	1 hectare (ha) = 2.5 acres

MASS - WEIGHT (APPROXIMATE)

1 gram (gm)	=	0.036 ounce (oz)
1 kilogram (kg)	=	2.2 pounds (lb)
1 tonne (t)	=	1,000 kilograms (kg)
	=	1.1 short tons

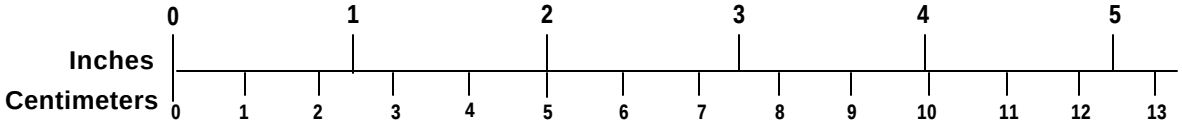
VOLUME (APPROXIMATE)

1 milliliter (ml)	=	0.03 fluid ounce (fl oz)
1 liter (l)	=	2.1 pints (pt)
1 liter (l)	=	1.06 quarts (qt)
1 liter (l)	=	0.26 gallon (gal)
1 cubic meter (m^3)	=	36 cubic feet (cu ft, ft^3)
1 cubic meter (m^3)	=	1.3 cubic yards (cu yd, yd^3)

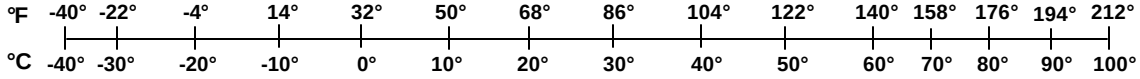
TEMPERATURE (EXACT)

[(9/5) y + 32] °C = x °F

QUICK INCH - CENTIMETER LENGTH CONVERSION



QUICK FAHRENHEIT - CELSIUS TEMPERATURE CONVERSION



For more exact and or other conversion factors, see NIST Miscellaneous Publication 286, Units of Weights and Measures. Price $2.50 SD Catalog No. C13 10286 **Updated 6/17/98**

PREFACE

The research for this report was conducted by the Service and Operations Assessment Division, Office of System and Economic Assessment, Volpe National Transportation Systems Center, Research and Special Programs Administration, U.S. Department of Transportation under the sponsorship of the Advanced Public Transportation Systems Division, Office of Mobility Innovation, Federal Transit Administration, U.S. Department of Transportation. Funding was provided by the Intelligent Transportation Systems Joint Program Office, Federal Highway Administration, U.S. Department of Transportation. This report is the fourth in a series of biennial reports tracking the existing and planned deployments of Advanced Public Transportation Systems (APTS) technologies and services in the United States.

Appreciation goes to EG&G Services staff of Nguyen Kha who made the contacts with all of the agencies outside of the 78 largest metropolitan areas and began the transfer of the on-line data to spreadsheets before being called to active duty; to Steve Pax who provided technical assistance; to Rebecca Bergquist who completed the transfer of the database to spreadsheets and produced the report data tables; and to Richard Anderson who managed the EG&G Services effort. Appreciation also goes to Steve Gordon of Oak Ridge National Laboratory and Juan Noltenius and Andrew Dixson of SAIC for supplying the survey method and instrument, the data for the 78 largest U.S. metropolitan areas, and for use of the server on which the survey responses were stored. Finally, appreciation goes to all the agencies that supplied information for this report.

LEGEND

Service Type	
FR	Fixed Route
DR	Demand Response
LR	Light Rail
HR	Heavy Rail
CR	Commuter Rail
FB	Ferry Boat

Status	
X or Other Letter	Operational System
[X or Other Letter]	Planned System
Any Number	# of Existing Vehicles Involved
[Any Number]	# of Planned Vehicles Involved

Advanced Communications	
DIG	Digital Radio
TR	Trunked Radio

Vehicle Probes	
F	On Freeways
A	On Arterials

Automated Transit Information	
P	Pre-Trip
W	Terminal/Wayside
I	In-Vehicle

Multi-Modal Traveler Information	
T	Transit
H	Highway

Automated Fare Payment	
MS	Magnetic Stripe Card
SC	Smart Card

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SECTION 1. INTRODUCTION

The information contained in this report was collected by personnel at the Volpe National Transportation Systems Center (Volpe) and the Oak Ridge National Laboratory and SAIC during the Summer and Fall of 2002. This Advanced Public Transportation Systems (APTS) deployment tracking survey was conducted over the Internet, to the extent possible, for Year 2002. Previous surveys were conducted by mail, facsimile, or over the telephone.

Most agencies were able to complete the survey online. Agencies that did not have Internet access or who did not feel comfortable filling out the survey online submitted surveys by mail or by facsimile. The survey method and instrument was developed by the Oak Ridge National Laboratory/SAIC team (Oak Ridge) as part of a larger ITS deployment tracking effort.

As in the year 2000 survey, Oak Ridge collected APTS deployment data for jurisdictions containing 50,000 persons or more within the 78 largest metropolitan areas of the United States. Volpe collected data on APTS deployments in the remainder of the United States. Since the transit deployment questions for the 18 APTS elements tracked by this survey were identical for both the largest and smaller metropolitan areas, nationwide deployment statistics are available for the first time for all APTS systems.

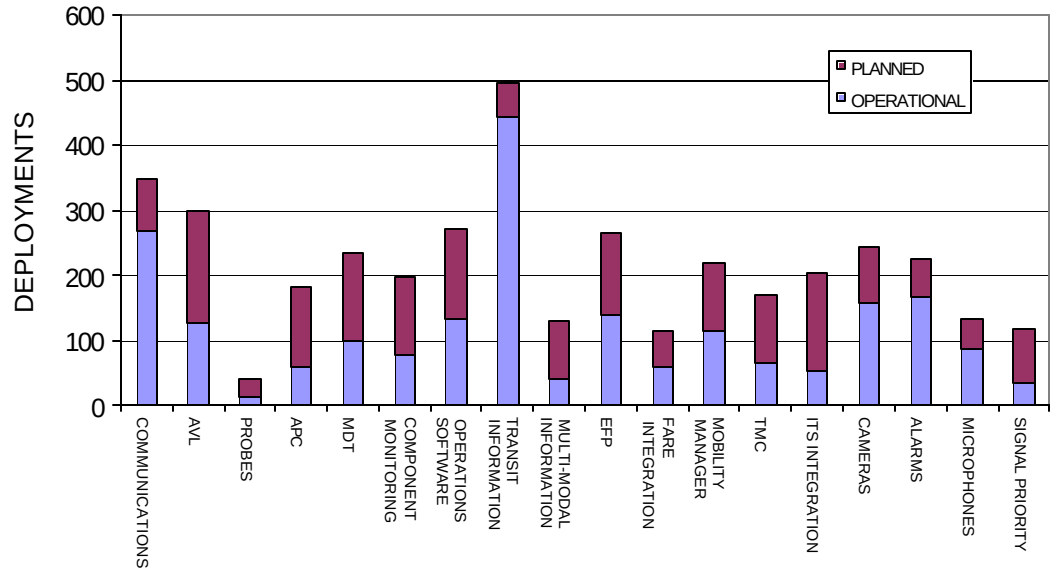
Agencies surveyed consisted primarily of those that report information to the National Transit Database Program. A total of 593 agencies completed surveys in 2002. Oak Ridge received survey responses from 243 agencies. Volpe received survey responses from 350 agencies. It is recognized that this represents perhaps only about half of the transit operations that exist in the U.S., particularly in jurisdictions outside of the 78 largest metropolitan areas.

The data contained in the report tables are only as accurate as the information provided by the agency contacts and have not been verified by Volpe. Responding agencies with no existing or planned APTS systems are not listed in the report tables.

SECTION 2. SUMMARY OF APTS DEPLOYMENTS

Summary statistics for deployment of 18 APTS elements are shown in this Section. (See Appendix A for definitions of these elements as used in this report.) Figure 2-1 displays the number of responding transit agencies with operational and planned *(i.e., expected to be operational by 2005)* deployments of the 18 APTS elements.

Figure 2-1. Current and Planned Deployments



The 2002 survey found that the *most widely deployed* APTS element was Automated Transit Information (445 agencies). Advanced Communications (267 agencies) was next. The *least widely deployed* APTS element was Vehicle Probes (13 agencies). No other element was currently deployed by fewer than 36 agencies nor by more than 168 agencies. The APTS element with *the greatest number of planned deployments* was Automatic Vehicle Location (172 agencies). The APTS element with *the least number of planned deployments* was Vehicle Probes (28 agencies). The remaining elements were planned by no fewer than 45 agencies nor by more than 149 agencies. When combining operational and planned deployments, the number of agencies varied from a low of 41 for Vehicle Probes to a high of 495 for Automated Transit Information. More than half of the agencies had operational or planned Automated Transit Information, Advanced Communications, Advanced Operations Software, and Automatic Vehicle Location systems. Except for Vehicle Probes, all other APTS

elements were being operated or planned by at least 19% of all agencies surveyed.

Where pertinent and available, the summary tables also contain the number of agency deployments by specific technologies as well as the number of service types these agencies operate with APTS systems or technologies. Table 2-1, for example, shows that 348 transit agencies operate, or are planning to operate, 97 trunked, 90 digital, and 161 trunked and digital communications systems. Table 2-3 reveals that 300 transit agencies operate, or are planning to operate, 499 service types employing Automatic Vehicle Location. Figures 2-2 through 2-10 show graphically the number of APTS systems deployed or planned as revealed in the 1995, 1998, 2000, and 2002 surveys. (See Appendix B for the actual numbers in each of the years.) Data from prior years were collected for only nine of the 18 APTS elements for the entire U.S. Percentage increases between survey periods where these same data were obtained are also shown in tables in this Section.

The Section 2 table statistics showing the number of agency deployments are presented in three columns. The first column contains the data collected by the Oak Ridge team on the existing or planned APTS deployments in jurisdictions containing 50,000 persons or more within the 78 largest metropolitan areas of the U. S. The second column contains the data collected by the Volpe National Transportation Systems Center (Volpe) on the existing or planned APTS deployments in the remainder of the U.S. The third column contains the sum of the Oak Ridge and Volpe data.

The operational and planned status numbers in Section 2 tables will sum to the transit agency total. However, the breakdowns by service type or location often exceed the transit agency total because of the number of agencies with a technology installed on more than one mode. If an agency is operating an APTS technology but is upgrading to a more advanced technology in the same category (e.g., from trunked only to trunked *and* digital communications) it was counted only once and counted as operational. If an agency is operating a technology in more than one service type (e.g., fixed route buses and demand responsive service), it was counted as one agency, but with multiple service types.

Summaries by APTS element are as follows.

Advanced Communications

Advanced Communications encompasses digital and trunked radio systems as opposed to analog and regular (non-trunked) systems.

Table 2-1 contains the 2002 deployment survey results. Figure 2-2 and Table 2-2 show the survey to survey period changes in deployments.

Table 2-1. Advanced Communications			
	78 Largest Metropolitan Areas	**Remainder of the United States**	**United States Total**
Transit Agency Totals	142	206	348
Status			
Operational	99	168	267
Planned	43	38	81
Technology			
Trunked Only	41	56	97
Digital Only	44	46	90
Trunked and Digital	57	104	161

Figure 2-2. Advanced Communications Systems

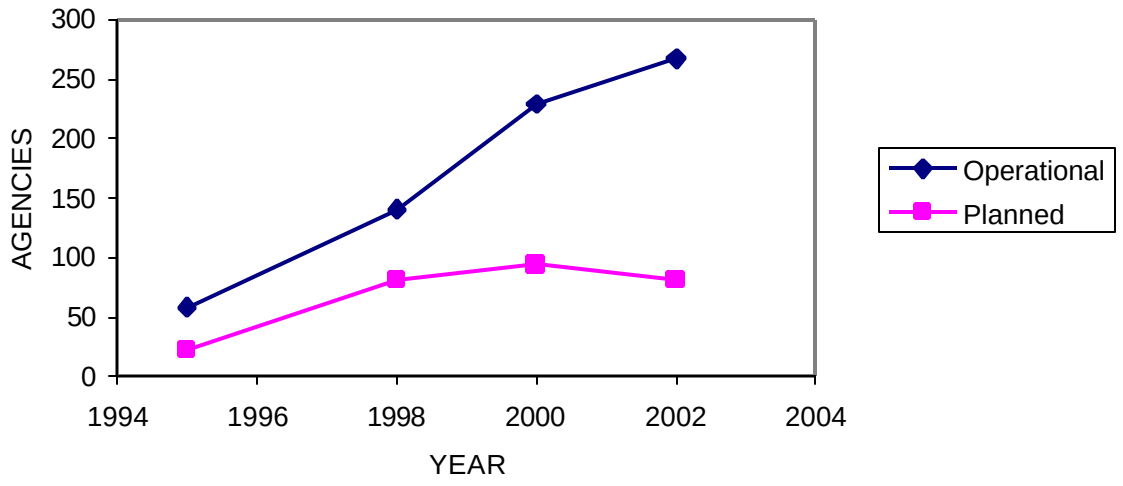


Table 2-2. Percent Change in Advanced Communications				
	1995-1998	1998-2000	2000-2002	1995-2002
Operational	141%	64%	17%	360%
Planned	268%	16%	-14%	268%
Total	176%	46%	8%	335%

Advanced Communications ranked 2nd of the APTS elements in both the total number of agencies with operational systems (45% of agencies) and in the total number of agencies with operational plus planned systems (59% of agencies) in the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 41% of the agencies in the 78 largest metropolitan areas versus 48% of agencies in the rest of the U.S. reporting operational Advanced Communications systems. When planned systems are added, these percentages increase to 58% and 59% respectively.

Figure 2-2 shows a substantial number of Advanced Communications systems already deployed or planned. Consequently, the percent change in agencies with operational and especially with planned systems dropped off from 2000 to 2002. Nevertheless, Table 2-2 shows an increase from 1995 to 2002 of well over 300% for operational and operational plus planned systems.

Automatic Vehicle Location

Automatic Vehicle Location (AVL) is the determination of a vehicle's position using technologies such as Global Positioning System (GPS), Signposts, Ground-Based Radio, or Dead-Reckoning. Previous surveys revealed that GPS is the overwhelming method of choice for new installations. Even some agencies that had installed other methods are upgrading to GPS.

Table 2-3 contains the 2002 deployment survey results. Figure 2-3 and Table 2-4 show the survey to survey period changes in deployments.

Table 2-3. Automatic Vehicle Location

	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	144	156	300
Status			
Operational	82	46	128
Planned	62	110	172
Service Type Totals	243	256	499
FR	122	126	248
HR	5	0	5
LR	16	3	19
DR	87	121	208
CR	9	1	10
FB	4	5	9

AVL ranked 7th of the 18 APTS elements in total number of agencies with operational systems (22% of agencies) and 3rd in total number of agencies with operational plus planned systems (51% of agencies) in 2002. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 34% of the agencies in the 78 largest metropolitan areas versus 13% of agencies in the rest of the U.S. reporting operational AVL systems. When planned systems are added, these percentages increase to 59% and 45% respectively. The AVL element had the largest number of planned systems of any of the APTS elements, almost two-thirds of these outside of the 78 largest metropolitan areas.

Figure 2-3. Automatic Vehicle Location Systems

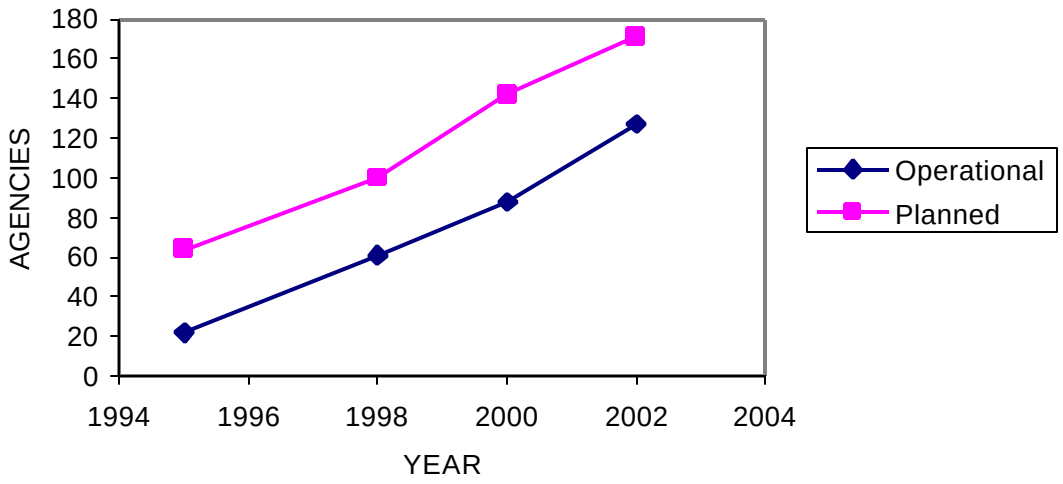


Table 2-4. Percent Change in Automatic Vehicle Location				
	1995-1998	1998-2000	2000-2002	1995-2002
Operational	177%	44%	45%	482%
Planned	56%	42%	21%	169%
Total	87%	43%	30%	249%

Figure 2-3 shows fairly steady growth in the number of agencies with operational and planned AVL systems from 1995 to 2002. Table 2-4 reveals a large percentage increase in operational systems over the 1995-2002 period, due in large part to the fact that that there were few systems operational in 1995.

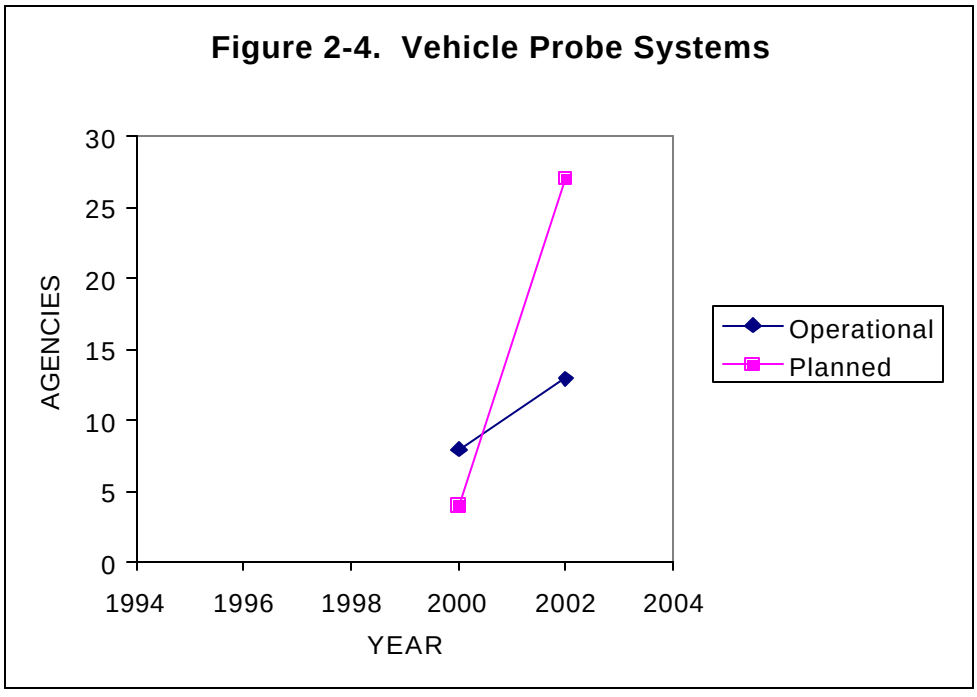
Vehicle Probes

A Vehicle Probe is an AVL-equipped vehicle that is used to provide information for the calculation of travel times and speeds on roadway facilities.

Table 2-5 contains the 2002 deployment survey results. Figure 2-4 shows the survey to survey changes from 2000 to 2002, the only years for which Vehicle Probe data was collected for the entire U.S.

Table 2-5. Vehicle Probes

	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	21	20	41
Status			
Operational	8	5	13
Planned	13	15	28
Location			
Freeway Only	0	3	3
Arterial Only	8	8	16
Freeway & Arterial	13	9	22



Only a few Vehicle Probe systems have been deployed or are planned. Vehicle Probes ranked last of the 18 APTS elements in both the total number of agencies with operational systems (2% of agencies) and in the total number of agencies with operational plus planned systems (7% of agencies) in the 2002 survey. Only 8 agencies (3% of agencies) in the 78 largest metropolitan areas and 5 agencies (< 2% of agencies) in the rest of the U.S. reporting operational Vehicle Probe systems. When planned systems are added, these percentages increase to 9% and 6% respectively.

Just over half of the operational or planned Vehicle Probe systems are intended to collect travel condition information on both freeways and arterials.

Automatic Passenger Counters

Automatic Passenger Counters (APCs) are devices that count passengers as they enter and exit the transit vehicle or system. The most prevalent counting technology is infrared beams.

Table 2-6 contains the 2002 deployment survey results. Figure 2-5 and Table 2-7 show the survey to survey period changes in deployments.

Table 2-6. Automatic Passenger Counters

	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	96	88	184
Status			
Operational	43	17	60
Planned	53	71	124
Service Type Totals	123	117	240
FR	93	83	176
HR	0	0	0
LR	12	2	14
DR	15	27	42
CR	3	1	4
FB	0	4	4

APCs ranked tied for 13th of the APTS elements in total number of agencies with operational systems (10% of agencies) and 12th in the total number of agencies with operational plus planned systems (31% of agencies) according to responses to the 2002 survey. The comparison between deployments inside and outside

the 78 largest metropolitan areas showed 18% of the agencies in the 78 largest metropolitan areas and 5% of the agencies in the rest of the U.S. reporting operational APC systems in 2002. When planned systems are added, these percentages increase to 40% and 25% respectively.

Figure 2-5. Automatic Passenger Counter Systems

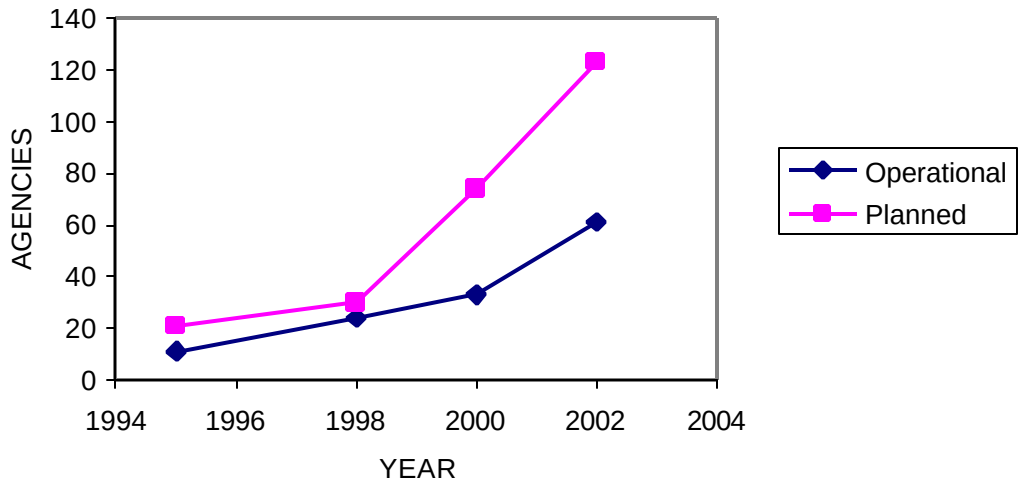


Table 2-7. Percent Change in Automatic Passenger Counters

	1995-1998	1998-2000	2000-2002	1995-2002
Operational	118%	38%	82%	445%
Planned	43%	147%	68%	490%
Total	69%	98%	72%	475%

Figure 2-5 shows a larger increase in the number of agencies planning APC systems between 1998 and 2002 than those with operational systems. Table 2-7 reveals an increase in agencies in both operating and planning categories of more than 400% over the 1995-2002 period, due principally to the small number of systems operational or planned in 1995.

Mobile Data Terminals

Mobile Data Terminals (MDTs) are wireless devices that can send and receive information over a wireless data network. MDTs typically have a small screen

that displays messages sent by the dispatch center and a series of buttons that can be pushed to send preset messages to the dispatch center.

Table 2-8 contains the 2002 deployment survey results, the first year for which MDT data was collected.

Table 2-8. Mobile Data Terminals			
	78 Largest Metropolitan Areas	**Remainder of the United States**	**United States Total**
Transit Agency Totals	106	128	234
Status			
Operational	58	42	100
Planned	48	86	134
Service Type Totals		198	198
FR	79	87	166
HR	1	0	1
LR	7	3	10
DR	71	103	174
CR	2	1	3
FB	1	4	5

MDTs ranked 9th of the APTS elements in total number of agencies with operational systems (17% of agencies) and 7th in the total number of agencies with operational plus planned systems (40% of agencies) in 2002. The comparison between deployments inside and outside the 78 largest metropolitan areas showed 24% of the agencies in the 78 largest metropolitan areas and 12% of the agencies in the rest of the U.S. reporting operational APC systems. When planned systems are added, these percentages increase to 44% and 37% respectively.

Vehicle Component Monitoring

Vehicle Component Monitoring is the remote collection, in real time, of vehicle conditions such as engine temperature, oil pressure, tire pressure, etc.

Table 2-9 shows the 2000 deployment survey results. Figure 2-6 and Table 2-10 show the survey to survey period changes in deployments.

Vehicle Component Monitoring ranked 11th of the APTS elements both in the total number of agencies with operational systems (13% of agencies) and in the

total number of agencies with operational plus planned systems (34% of agencies) according to responses to the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 19% of the agencies in the 78 largest metropolitan areas versus 9% of agencies in the rest of the U.S. reporting operational Vehicle Component Monitoring systems. When planned systems are added, these percentages increase to 40% and 29% respectively.

Table 2-9. Vehicle Component Monitoring

	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	96	103	199
Status			
Operational	47	32	79
Planned	49	71	120
Service Type Totals	149	167	316
FR	84	90	174
DR	47	70	117
LR	6	2	8
HR	5	0	5
CR	4	1	5
FB	3	4	7

Figure 2-6. Vehicle Component Monitoring Systems

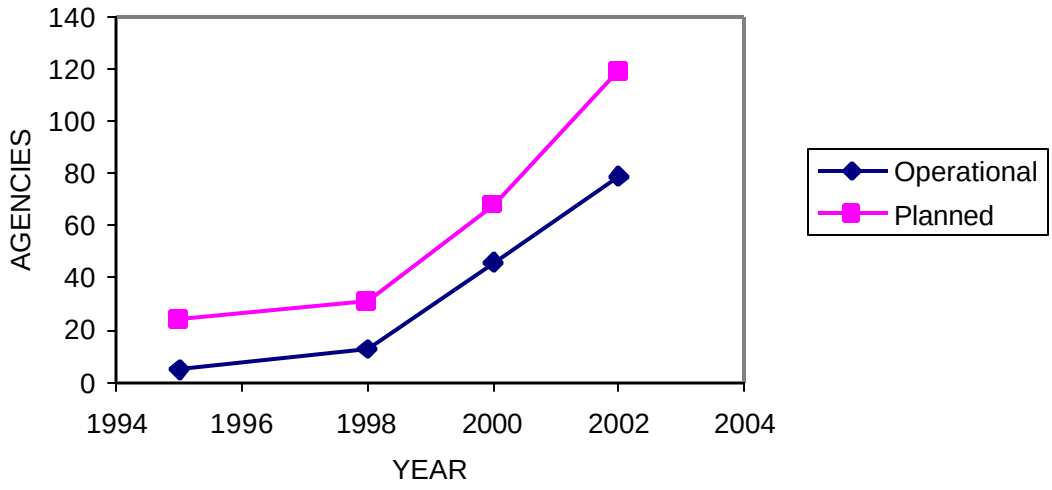


Table 2-10. Percent Change in Vehicle Component Monitoring				
	1995-1998	1998-2000	2000-2002	1995-2002
Operational	160%	254%	72%	1480%
Planned	29%	119%	76%	400%
Total	52%	159%	75%	586%

Figure 2-6 shows fairly even growth in both operational and planned Vehicle Component Monitoring systems from 1998 to 2002. Table 2-10 reveals a substantial increase in agencies planning Vehicle Component Monitoring systems, but a huge increase in operational deployments over the 1995-2002 period, primarily due to the small number of systems operational or planned in the early years.

Automated Operations Software

Automated Operations Software encompasses computer programs that collect, process, and/or analyze real-time operational information in ways that will assist transit agencies in providing improved service or in reducing service cost.

The agency responses to the 2002 survey question regarding Automated Operations Software are inconsistent with results from the 2000 survey. Based upon the premise that the more recent information submitted online would be more reliable than previous survey information obtained over the telephone, the number of operational systems were clearly overstated for 2000. Consequently, the 2002 responses were used to recompute the 2000 summary statistics in instances in which agencies claimed to have had Automated Operations Software in 2000 but who now indicate they either do not have Automated Operations Software or will have it by 2005. On that basis, the year to year comparison appears reasonable.

Table 2-11 shows the 2002 deployment survey results. Figure 2-7 and Table 2-12 show the survey to survey deployment changes, as adjusted.

Automated Operations Software ranked 6th of the APTS elements in the total number of agencies with operational systems (24% of agencies) and 4th in the total number of agencies with operational plus planned systems (52% of agencies) in 2002. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 37% of the agencies in the 78 largest metropolitan areas versus 16% of agencies in the rest of the U.S. reporting operational Automated Operations Software systems. When planned systems are added, these percentages increase to 63% and 45% respectively.

Table 2-11. Automated Operations Software			
	78 Largest Metropolitan Areas	**Remainder of the United States**	**United States Total**
Transit Agency Totals	137	148	285
Status			
Operational	80	52	132
Planned	57	96	153
Service Type Totals	231	233	464
FR	112	102	214
HR	5	0	5
LR	15	2	17
DR	93	125	218
CR	5	0	5
FB	1	4	5

Figure 2-7. Automated Operations Software

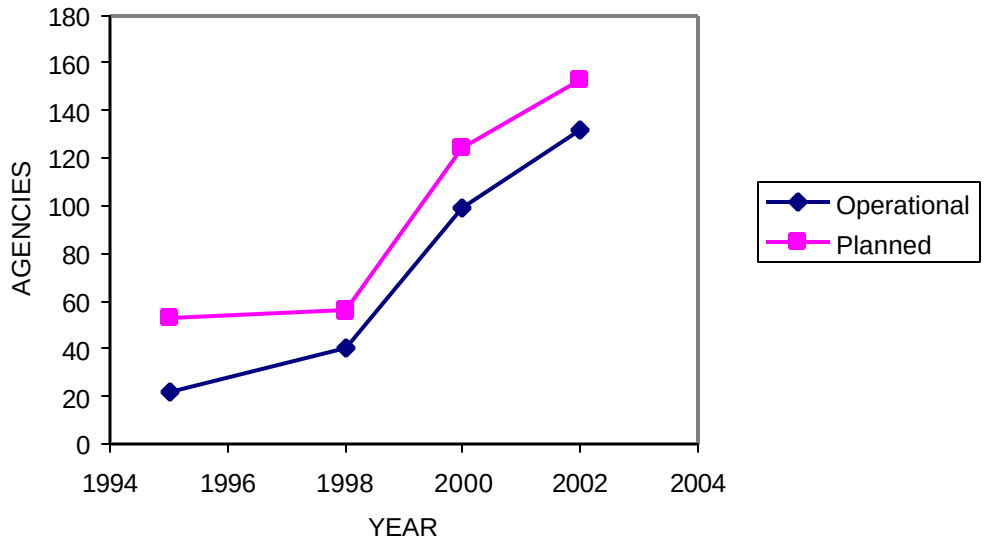


Figure 2-7 shows similar growth in both operational and planned Automated Operations Software systems from 1998 to 2000. The rate of growth declined between 2000 and 2002, possibly because most of the agencies that want Automated Operations Software have already installed it or are in the process of

doing so. Table 2-12 reveals a large increase in agencies operating Automated Operations Software systems from 1995 to 2002, about twice the percentage increase in operational plus planned systems. The number of agencies with AVL/Computer Assisted Dispatching systems account for a large percentage of Automated Operations Software system existing and planned deployments.

Table 2-12. Percent Change in Automated Operations Software				
	1995-1998	1998-2000	2000-2002	1995-2002
Operational	82%	148%	33%	500%
Planned	6%	121%	23%	189%
Total	28%	132%	28%	280%

Automated Transit Information

Automated Transit Information as defined for this report is any method of disseminating to the public, without human involvement, a minimum of route, schedule, and fare information for fixed route service and service area, service hours, and fare information for demand responsive service. Some agencies also provide trip planning, and/or real-time schedule adherence or arrival information by automated means. Distribution methods can include automated telephone (including 511 systems) and cellular phone, Internet Web Site, television, pagers, personal digital assistants, kiosks, e-mail, personal computer communications, automated announcements and variable message signs inside and outside transit vehicles, and monitors at stops or stations. These have been arranged as pre-trip, wayside, and in-vehicle systems for presentation purposes in the tables in Sections 3 and 4.

Table 2-13 shows the 2002 deployment survey results. Figure 2-8 and Table 2-14 show the survey to survey deployment changes.

Automated Transit Information ranks 1st of the APTS elements both in terms of the total number of agencies with operational systems (75% of agencies) and in the total number of agencies with operational plus planned systems (84% of agencies) according to responses to the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 72% of the agencies in the 78 largest metropolitan areas versus 77% of agencies in the rest of the U.S. reporting operational Automated Transit Information systems. When planned systems are added, these percentages increase to 77% and 88% respectively.

Table 2-13. Automated Transit Information			
	78 Largest Metropolitan Areas	**Remainder of the United States**	**United States Total**
Transit Agency Totals	186	309	495
Status			
Operational	174	271	445
Planned	12	38	50
Service Type Totals	171	425	596
FR	90	254	344
HR	12	0	12
LR	19	2	21
DR	36	158	194
CR	10	2	12
FB	4	9	13
Location			
Pre-Trip	186	309	495
Wayside	136	163	299
In-Vehicle	120	137	257

Figure 2-8. Automated Transit Information Systems

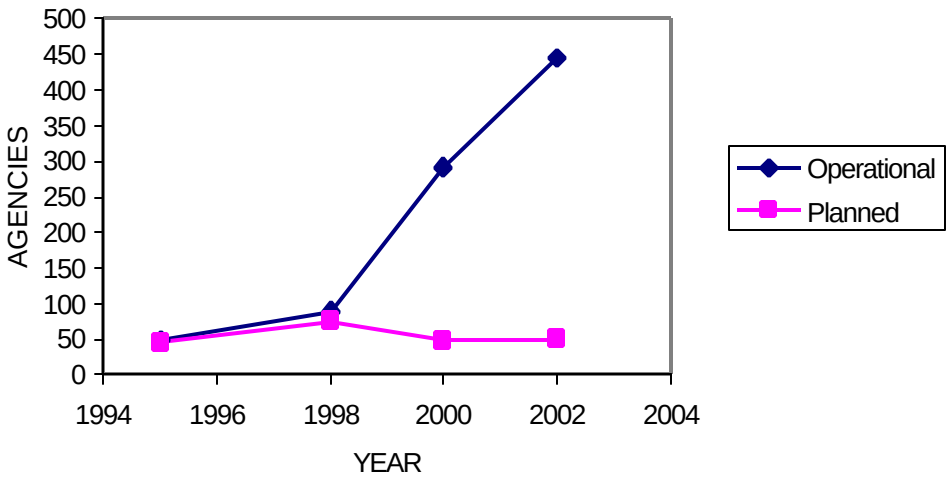


Table 2-14. Percent Change in Automated Transit Information				
	1995-1998	1998-2000	2000-2002	1995-2002
Operational	85%	227%	53%	827%
Planned	67%	-36%	4%	11%
Total	76%	107%	46%	432%

Figure 2-8 shows fairly steady growth in the number of agencies with installed Automated Transit Information systems from 1998 to 2002 while the number of planned systems declined. The decline in planned systems is due to the high number of agencies that already provide Automated Transit Information. Most of those that do not provide Automated Transit Information are very small agencies. Analysis of the survey responses shows that Internet Web pages account for a large portion of the Automated Transit Information available. Table 2-14 shows the disparity between the very large increase in operational systems and the low level of planned systems.

Multi-Modal Traveler Information

Multi-Modal Traveler Information is information presented to the public via a distribution medium which also includes information on other transit agencies' services or other transportation modes.

Table 2-15 shows the 2002 deployment survey results. Multi-Modal Traveler Information deployments were only tracked outside of the 78 largest metropolitan areas in 2000, so nationwide comparisons with previous years are not possible.

Table 2-15. Multi-Modal Traveler Information			
	78 Largest Metropolitan Areas	**Remainder of the United States**	**United States Total**
Transit Agency Totals	71	68	139
Status			
Operational	26	16	42
Planned	45	52	97
Mode			
Transit only	29	21	50
Highway only	7	8	15
Transit & Highway	25	39	64

Multi-Modal Traveler Information ranks 16th of the APTS elements in terms of the total number of agencies with operational systems (7% of agencies) and 14th in the total number of agencies with operational plus planned systems (23% of agencies) in 2002. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 11% of the agencies in the 78 largest metropolitan areas versus 5% of agencies in the rest of the U.S. reporting operational Multi-Modal Traveler Information systems. When planned systems are added, these percentages increase to 29% and 19% respectively.

The number of agencies reporting operational or planned Multi-Modal Traveler Information systems increased by 66% (from 41 to 68 agencies) outside of the 78 largest U.S. metropolitan areas from 2000 to 2002.

Electronic Fare Payment

Electronic Fare Payment (EFP) consists of payment schemes by which riders pay for trips through a monthly pass, by having the fare for trips deducted from a stored value magnetic stripe or smart card, or by a credit card.

Table 2-16 shows the 2002 deployment survey results. Figure 2-9 and Table 2-17 show the survey to survey deployment changes.

Table 2-16. Electronic Fare Payment

	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	132	136	268
Status			
Operational	75	64	139
Planned	57	72	129
Technology			
Magnetic Stripe	49	66	115
Smart Card	29	34	63
Mag Stripe & Smart Card	54	36	90
Service Type Totals	207	203	410
FR	121	127	248
HR	11	0	11
LR	16	2	18
DR	49	69	118
CR	8	1	9
FB	2	4	6

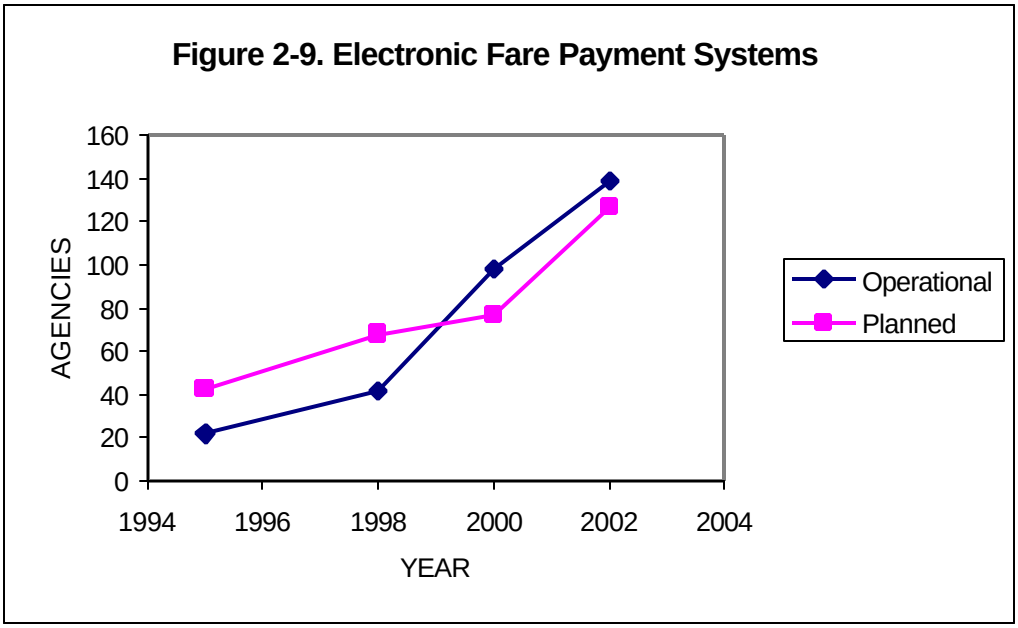


Table 2-17. Percent Change in Electronic Fare Payment				
	1995-1998	1998-2000	2000-2002	1995-2002
Operational	91%	133%	42%	532%
Planned	58%	13%	68%	200%
Total	69%	59%	53%	312%

EFP ranks 5th of the APTS elements both in terms of the total number of agencies with operational systems (24% of agencies) and in the total number of agencies with operational plus planned systems (45% of agencies) in 2002. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 31% of the agencies in the 78 largest metropolitan areas versus 18% of agencies in the rest of the U.S. reporting operational EFP systems. When planned systems are added, these percentages increase to 54% and 39% respectively.

As was the case for several other APTS elements, there was fairly steady growth in agencies operating EFP systems between 1998 and 2002. The growth in agencies planning EFP systems matched the operational growth between 2000 and 2002 after dropping off between 1998 and 2000. The increase in operational deployments from 1995 to 2002 was well over 500%, again due to the low number deployed in 1995.

Multi-Carrier Fare Integration

Multi-Carrier Fare Integration consists of two or more transit agencies on which the same electronic payment media can be used to pay fares.

Table 2-18 shows the 2002 deployment survey results. Multi-Modal Traveler Information deployments were only tracked outside of the 78 largest metropolitan areas in 2000, so nationwide comparisons with previous years are not possible.

Table 2-18. Multi-Carrier Fare Integration

	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	74	41	115
Status			
Operational	43	17	60
Planned	31	24	55

Multi-Carrier Fare Integration ranked tied for 13th of the APTS elements in terms of the total number of agencies with operational systems (10% of agencies) and 17th in the total number of agencies with operational plus planned systems (19% of agencies) according to responses to the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 18% of the agencies in the 78 largest metropolitan areas versus 5% of agencies in the rest of the U.S. reporting operational Multi-Carrier Fare Integration systems. When planned systems are added, these percentages increase to 31% and 12% respectively.

The number of agencies reporting operational or planned Multi-Carrier Fare Integration increased by 78% (from 23 to 41 agencies) outside of the 78 largest U.S. metropolitan areas from 2000 to 2002.

Mobility Manager

Transit agencies that handle the travel requests or the dispatching of vehicles for multiple agencies (e.g., social service agencies, Health and Human Service agencies, other transit agencies, etc.) are considered Mobility Managers.

Table 2-19 shows the 2002 deployment survey results. Mobility Manager deployments were only tracked outside of the 78 largest metropolitan areas in 2000, so nationwide comparisons with previous years are not possible.

Table 2-19. Mobility Manager			
	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	74	142	216
Status			
Operational	35	80	115
Planned	43	62	105

Mobility Manager ranks 8th of the APTS elements in terms of the total number of agencies with operational systems (19% of agencies) and 9th in the total number of agencies with operational plus planned systems (37% of agencies) according to responses to the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 14% of the agencies in the 78 largest metropolitan areas versus 23% of agencies in the rest of the U.S. reporting operational Multi-Carrier Fare Integration systems. When planned systems are added, these percentages increase to 32% and 41% respectively.

The number of agencies reporting operational or planned Mobility Manager systems increased by 61% (from 88 to 142 agencies) outside of the 78 largest U.S. metropolitan areas from 2000 to 2002.

Transportation Management Centers

A Transportation Management Center (TMC) is a facility that houses personnel that control both transit vehicles and highway vehicles or equipment (e.g., transit vehicles, incident management vehicles, traffic signals, variable message signs, etc.).

Table 2-20 shows the 2002 deployment survey results. TMC deployments were only tracked outside of the 78 largest metropolitan areas in 2000, so nationwide comparisons with previous years are not possible.

Table 2-20. Transportation Management Centers			
	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	87	84	171
Status			
Operational	46	20	66
Planned	41	64	105

TMCs rank 12th of the APTS elements in terms of the total number of agencies with operational systems (11% of agencies) and 13th in the total number of agencies with operational plus planned systems (29% of agencies) according to responses to the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 19% of the agencies in the 78 largest metropolitan areas versus 6% of agencies in the rest of the U.S. reporting operational TMCs. When planned systems are added, these percentages increase to 36% and 24% respectively.

The number of agencies reporting operational or planned TMCs increased by 663% (from 11 to 84 agencies) outside of the 78 largest U.S. metropolitan areas from 2000 to 2002.

ITS Integration

ITS Integration is a situation in which agencies share infrastructure (e.g., computer systems, communication lines), coordinate operations (e.g., common control strategy), or share information in real time via electronic means.

Table 2-21 shows the 2002 deployment survey results. Integration deployments were only tracked outside of the 78 largest metropolitan areas in 2000, so nationwide comparisons with previous years are not possible.

Table 2-21. ITS Integration

	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	90	114	204
Status			
Operational	23	32	55
Planned	67	82	149

ITS Integration ranks 15th of the APTS elements in terms of the total number of agencies with operational systems (9% of agencies) and 10th in the total number of agencies with operational plus planned systems (34% of agencies) in 2002. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 10% of the agencies in the 78 largest metropolitan areas versus 9% of agencies in the rest of the U.S. reporting operational ITS Integration. When planned systems are added, these percentages increase to 37% and 33% respectively.

The number of agencies reporting operational or planned ITS Integration increased by 36% (from 84 to 114 agencies) outside of the 78 largest U.S. metropolitan areas from 2000 to 2002.

Surveillance Cameras

Surveillance Cameras have been placed on transit vehicles for the recording or real-time observation of on-board activities.

Table 2-22 shows the 2002 deployment survey results. Surveillance Camera deployments were only tracked outside of the 78 largest metropolitan areas in 2000, so nationwide comparisons with previous years are not possible.

Table 2-22. Surveillance Cameras

	78 Largest Metropolitan Areas	Remainder of the United States	United States Total
Transit Agency Totals	93	152	245
Status			
Operational	72	86	158
Planned	21	66	87

Surveillance Cameras rank 4th of the APTS elements in terms of the total number of agencies with operational systems (27% of agencies) and 6th in the total number of agencies with operational plus planned systems (41% of agencies) in 2002. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 30% of the agencies in the 78 largest metropolitan areas versus 25% of agencies in the rest of the U.S. reporting operational Surveillance Camera systems. When planned systems are added, these percentages increase to 38% and 43% respectively.

The number of agencies reporting operational or planned Surveillance Camera systems increased by 132% (from 66 to 152 agencies) outside of the 78 largest U.S. metropolitan areas from 2000 to 2002.

Silent Alarms

A Silent Alarm consists of a concealed button near the vehicle operator's position that can be pressed to send a signal to the dispatch center that an on-board emergency situation exists which prevents the operator from using the radio.

Table 2-23 shows the 2002 deployment survey results. Silent Alarm deployments were only tracked outside of the 78 largest metropolitan areas in 2000, so nationwide comparisons with previous years are not possible.

Table 2-23. Silent Alarms			
	78 Largest Metropolitan Areas	**Remainder of the United States**	**United States Total**
Transit Agency Totals	101	125	226
Status			
Operational	83	85	168
Planned	18	40	58

Silent Alarms rank 3rd of the APTS elements in terms of the total number of agencies with operational systems (28% of agencies) and 8th in the total number of agencies with operational plus planned systems (38% of agencies) according to responses to the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 34% of the agencies in the 78 largest metropolitan areas versus 24% of agencies in the rest of the U.S. reporting operational Silent Alarm systems. When planned systems are added, these percentages increase to 42% and 36% respectively.

The number of agencies reporting operational or planned Silent Alarm systems increased by 34% (from 93 to 125 agencies) outside of the 78 largest U.S. metropolitan areas from 2000 to 2002.

Covert Microphones

Covert Microphones are microphones that are hidden from public view which allow dispatchers to listen to what is happening on-board a transit vehicle after the vehicle operator has pressed the Silent Alarm button.

Table 2-24 shows the 2002 deployment survey results. Covert Microphone deployments were only tracked outside of the 78 largest metropolitan areas in 2000, so nationwide comparisons with previous years are not possible.

Covert Microphones rank 10th of the APTS elements in terms of the total number of agencies with operational systems (15% of agencies) and 15th in the total number of agencies with operational plus planned systems (23% of agencies) according to responses to the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 19% of the agencies in the 78 largest metropolitan areas versus 13% of agencies in the rest of the U.S.

reporting operational Covert Microphone systems. When planned systems are added, these percentages increase to 26% and 20% respectively.

Table 2-24. Covert Microphones			
	78 Largest Metropolitan Areas	**Remainder of the United States**	**United States Total**
Transit Agency Totals	64	70	134
Status			
Operational	45	44	89
Planned	19	26	45

The number of agencies reporting operational or planned Covert Microphone systems increased by 688% (from 17 to 134 agencies) outside of the 78 largest U.S. metropolitan areas from 2000 to 2002. This high percentage increase is likely due to the increase in AVL/Computer Assisted Dispatching systems which often included Covert Microphones.

Traffic Signal Priority

Traffic Signal Priority systems are those signal systems that provide an advanced or extended green signal phase for approaching transit vehicles that request priority.

Table 2-25 shows the 2002 deployment survey results. Figure 2-10 and Table 2-26 show the survey to survey deployment changes.

Table 2-25. Traffic Signal Priority			
	78 Largest Metropolitan Areas	**Remainder of the United States**	**United States Total**
Transit Agency Totals	69	49	118
Status			
Operational	29	7	36
Planned	40	42	82
Service Type Totals		61	61
FR	59	47	106
LR	17	2	19
DR	9	12	21

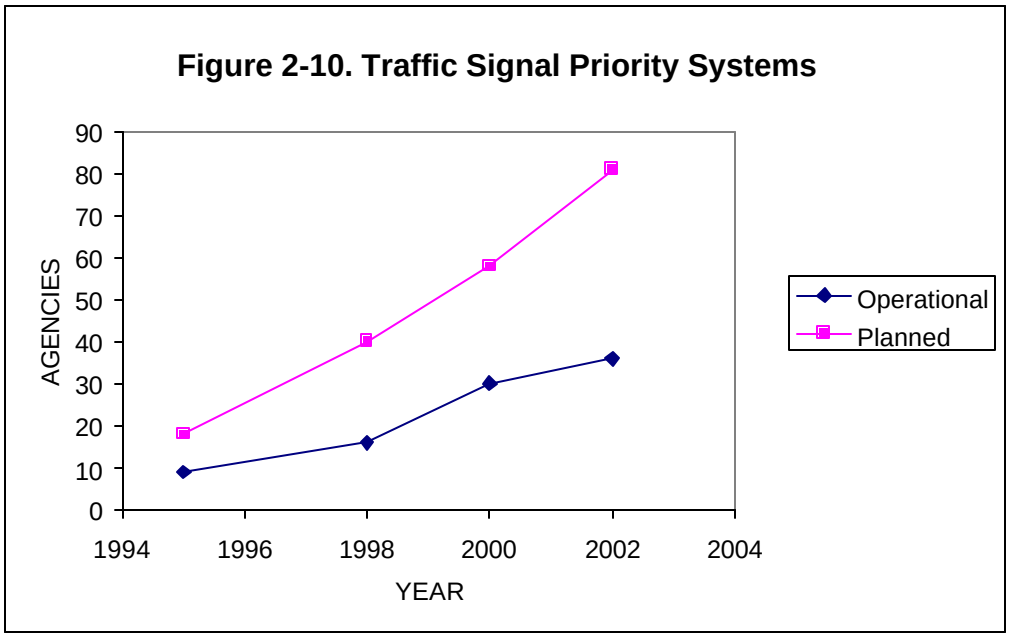


Table 2-26. Percent Change in Signal Priority				
	1995-1998	1998-2000	2000-2002	1995-2002
Operational	78%	88%	20%	300%
Planned	122%	45%	40%	350%
Total	107%	57%	33%	333%

Traffic Signal Priority ranks 17th of the APTS elements in terms of the total number of agencies with operational systems (6% of agencies) and 16th in the total number of agencies with operational plus planned systems (20% of agencies) according to responses to the 2002 survey. Comparing deployments inside and outside the 78 largest metropolitan areas reveals 12% of the agencies in the 78 largest metropolitan areas versus 2% of agencies in the rest of the U.S. reporting operational Traffic Signal Priority systems. When planned systems are added, these percentages increase to 28% and 14% respectively.

Figure 2-10 shows a slightly increasing growth rate between 1995 and 2002 in agencies planning Traffic Signal Priority systems, while agencies operating Traffic Signal Priority systems exhibits a more uneven, and slightly lower, growth rate. The percentage increase from 1995 to 2002 in operational and planned deployments is 300% or more, again starting from the low numbers in 1995.

SECTION 3. APTS DEPLOYMENT BY TRANSIT AGENCY IN THE UNITED STATES' 78 LARGEST METROPOLITAN AREAS

Table 3 presents the information collected by the Oak Ridge/SAIC team for transit agencies residing in jurisdictions of 50,000 persons or more within the 78 largest metropolitan areas in the U.S. A total of 243 transit agencies were surveyed. All of these agencies which have installed, or are planning to install, any of the APTS elements are listed in the Table. As indicated in the Legend, entries enclosed by brackets signify elements either in the implementation or planning stage and are expected to be operational by the year 2005. All other entries indicate operational elements.

The agencies are arranged alphabetically, first by state abbreviation and then by agency name. Table 4 lists the number of vehicles or vessels operated by each agency (directly or by contract) in each service type. Also, where possible and appropriate, the number of vehicles, vessels, stations, or terminals currently equipped with each APTS technology, or which will be so equipped by 2005, are included. Where numbers are not available or applicable, letters signify that the agency has deployed, or will deploy, that technology.

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Birmingham-Jefferson County Transit Authority	Birmingham	AL	FR	77	TR,DIG							P,W		[MS 68] [SC 77]		[X]	X	[X]				
			DR	22							22			[MS 18] [SC 22]								
Central Arkansas Transit Authority	North Little Rock	AR	FR	65	TR,[DIG]	[65]		[8]	[65]		[65]	P,W,[I]		MS 65 [SC 65]		X		X	X	[X]	[X]	[3]
			LR	0 [3]		[3]					[3]			[SC 8]								
			DR	15 [20]		[20]			[20]		[20]			[SC 20]								
Glendale Dial-A-Ride	Glendale	AZ	FR	4 [5]	TR,[DIG]	[5]	[A]	[5]		[5]	[5]	P,[W],I	[T]	MS 4[5] [SC 5]	X	[X]	[X]	[X]	[X]	X		
			DR	15 [18]		[18]			15 [18]	15 [18]	[18]			[SC 18]								
Mesa City	Mesa	AZ	FR	49	TR,[DIG]	[49]			[49]		[49]	P,[W,I]	[T]	MS 49	X			[X]	X	[X]	[X]	
Peoria Transit	Peoria	AZ	FR	0 [3]								P,I		[MS 3]								
			DR	9 [10]		[10]			[10]	[10]	[10]											
Phoenix Transit System	Phoenix	AZ	FR	600 [700]	[DIG]	[700]		[80]	[700]		[700]	P,W,I	[T,H]	MS 600[700] [SC 600]	X		X	[X]	X	X	X	[56]
			DR	115 [150]		115 [150]			[150]		115 [140]			[MS 140] [SC 140]								
Sun Cities Area Transit System	Sun City	AZ	DR	14 [15]	TR																	

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Sun Tran	Tucson	AZ	FR	199	DIG	199		40	199	199	199	P,W,I	T,H	MS 199		[X]	X	X	X	X		[199]
Surprise Dial-A-Ride	Surprise	AZ	DR	3	TR,DIG													[X]				
VanTran	Tucson	AZ	DR	64 [70]		64 [70]			64 [70]		64 [70]	P	[T]		X	X		X				
AC Transit	Oakland	CA	FR	800		800		125	800	800	800	P,W,[I]	T				X		X	X		2
Access Services Incorporated	Los Angeles	CA	DR	373 [663]	DIG				333 [663]		333 [663]	P		MS 150[663] [SC 663]			X	[X]				
Alameda Ferry Services	Alameda	CA	FB	3 [4]		[4]						P										
Antelope Valley Transit Authority	Lancaster	CA	FR	36 [45]	DIG,[TR]	[45]		[45]	[45]	[45]	[45]	P,W,[I]	[H]	[MS 45]				[X]	X	[X]	[X]	
			DR	9 [12]		[12]		[12]	[12]	[12]	[12]											
Arcadia Transit	Arcadia	CA	DR	18	TR,DIG	18					18	P				X						
Central Contra Costa	Concord	CA	FR	131	[DIG]	112 [131]				131	131			[MS 131] [SC 131]	X				X			
			DR	56 [65]																		
Commerce City Municipal Buslines	Commerce	CA	FR	12 [14]								P,W					X					
			DR	3 [5]																		

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Corona City Dial-A-Ride	Corona	CA	FR	5 [8]		[8]		[8]	[8]	[8]	[8]	P,W	T				X					
			DR	9		[9]		[9]	[9]	[9]	[9]											
Culver City Municipal Bus Lines	Culver City	CA	FR	43 [63]	TR,[DIG]	43 [63]		43 [63]	43 [63]	43 [63]	43 [63]	P,[W,I]		MS 43 [SC 63]	X				[X]	[X]		[20]
Fairfield/Suisun Transit (FST)	Fairfield	CA	FR	26 [41]	[DIG]	[41]			[41]	[41]	[41]	P,W,[I]			X			[X]	X	[X]	X	[41]
			DR	13 [21]		[21]			[21]	[21]	[21]											
Fresno Area Express	Fresno	CA	FR	108 [114]		108 [114]		4	108 [114]	108 [114]	108 [114]	P,W,I	[T]						X	X	X	
			DR	25 [31]		25 [31]			25 [31]	25 [31]	25 [31]											
Golden Empire Transit (GET)	Bakersfield	CA	FR	79 [80]	TR,[DIG]	[80]	A	[80]	[80]		[80]	P		MS 79[80]			X	[X]	X	X	X	
			DR	14		[14]		[14]	[14]		[14]											
La Mirada City Transit	La Mirada	CA	DR	12 [13]		[13]				[13]	[13]	P,W										
Laguna Beach Municipal Transit Lines	Laguna Beach	CA	FR	12	DIG							P,W										
Livermore/Amador Valley Transit	Livermore	CA	FR	71	TR	71		71	71	71	71	P,W,I	[T,H]	[MS 71] [SC 71]	[X]	X	[X]		X	X	X	71
			DR	18		18		18	18	18	18			[MS 18] [SC 18]								18

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Long Beach Public Transportation Company	Long Beach	CA	FR	220 [260]		220 [260]		25 [55]	220 [260]	220 [260]	220 [260]	P,W,I	[T,H]	[MS 260] [SC 260]	X		[X]	[X]	[X]	X	X	
			DR	26 [35]							26 [35]											
			FB	0 [3]		[3]			[3]	[3]												
Los Angeles County Metropolitan Transp. Authority/MTA	Los Angeles	CA	FR	2274 [2400]	[TR,DIG]	940 [2400]	F,A	60 [2400]	[2400]	[2400]	940 [2400]	P,[I]	T,[H]	[SC 2400]	X	X	[X]	X	X	X		103 [378]
			HR	102 [104]						102 [104]				[SC 22]								
			LR	95 [121]						95 [121]				[SC 48]								69 [95]
Montebello Bus Lines	Montebello	CA	FR	73 [75]	[DIG]	[75]			[75]	[75]	[75]	P,[W,I]		MS 65 [SC 75]	X		X	[X]	X	X	X	[75]
			DR	5		[5]			[5]	[5]	[5]											
Napa County Transit	Napa	CA	FR	26		19					19	P,I	[T]	[SC 23]	[X]				X	X		19
			DR	15 [16]							15 [16]											
Norwalk Transit System	Norwalk	CA	FR	28 [38]		[38]		[38]		[38]	[38]	P,W,I		MS 28[38] [SC 38]	X	X	X	[X]	[X]	X		
			DR	7 [10]										MS 7[10] [SC 10]								

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Orange County Transportation Authority	Orange	CA	FR	567 [675]	TR,DIG	542 [675]		70 [100]	542 [675]		542 [675]	P,W,I	T,H	MS 542[675] [SC 675]			X			X	X	[60]
			DR	238		[238]			[238]		[238]			[MS 238]								
Sacramento Regional Transit District (RT)	Sacramento	CA	FR	229 [275]	TR			[106]				P,W,[I]		MS 229[261] [SC 261]			[X]	[X]	X	X		80 [275]
			LR	36 [97]										SC 30[46]								36 [97]
San Diego Transit Corporation	San Diego	CA	FR	316 [350]	TR,[DIG]		[F,A]	[80]	316 [350]	316 [350]	316 [350]	P,[W,I]	T,[H]	[SC 350]	[X]	[X]	[X]	X	X	X	X	[50]
			DR	16																		
San Diego Trolley Incorporated	San Diego	CA	FR	530 [590]	TR	[300]						P,W,I		[MS 590] [SC 590]						X		2
			LR	123 [154]		[123]								[MS 60] [SC 60]								
Santa Clara Valley Transportation Authority	San Jose	CA	FR	491 [600]		6 [600]		[100]	6 [600]		6 [600]	P,W,I	T,H	SC 34	[X]			X	X	X	X	[70]
			LR	53 [80]		[80]		[20]	[80]	3 [80]	[80]											53 [80]
Santa Cruz Metropolitan Transit	Santa Cruz	CA	FR	80 [86]	[DIG]	80 [86]						P,I		MS 79[86]						X		
			DR	58 [70]																		
Santa Monica Municipal Bus Lines	Santa Monica	CA	FR	197 [210]		197 [210]	[F,A]	[210]	[210]	[210]	[210]	P,W,I		MS 197[210] [SC 210]	X	X		[X]	X	X	[X]	

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Santa Rosa City	Santa Rosa	CA	FR	29								P		[SC 29]	[X]				X	[X]	[X]	24 [29]
Simi Valley Transit	Simi Valley	CA	FR	9 [10]	[TR]	9 [10]		9				P,W,I		SC 9[10]								
			DR	8 [10]		8 [10]			[10]		[10]											
Sonoma County Transit	Santa Rosa	CA	FR	54 [62]	[TR,DIG]	54 [62]					54 [62]	P,W,[I]			X				X	X	X	6
			DR	10 [14]		[14]					10 [14]											
South Coast Area Transit	Oxnard	CA	FR	44 [46]		44 [46]		44 [46]				P,W		SC 44[46]	X				[X]		[X]	
			DR	19 [23]		19 [23]																
Southern California Regional Rail Authority	Los Angeles	CA	CR	144 [191]	DIG	[37]			37		[144]	P,W,[I]			[X]							
Torrance City Transit System	Torrance	CA	FR	52	TR	[52]		[52]	[52]	[52]	[52]	P,[W,I]	[T]	[MS 52] [SC 52]	X		[X]		X	X	X	[52]
			DR	6		[6]								[MS 6] [SC 6]								
Victor Valley Transit Authority	Hesperia	CA	FR	21 [27]	[TR,DIG]	[27]			[27]	21 [27]	[27]	P		MS 14[27]	[X]	[X]		[X]	[X]		[X]	
			DR	26		[26]			[26]		[26]											

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Western Contra Costa Transit	Pinole	CA	FR	33 [37]	DIG	[37]	A					P	T	[SC 37]	X	X	X					[35]
			DR	12 [14]										[SC 14]								
Greeley City-The Bus	Greeley	CO	FR	13								P				[X]	[X]					
			DR	6																		
Regional Transportation District (RTD)	Denver	CO	FR	1126 [1130]		1126 [1130]					1126 [1130]	P,W,I		[MS 1130]		X	X		X	X	X	
			LR	49 [83]		49 [83]		[83]						[MS 15]								
			DR	186 [200]																		
Connecticut Department of Transportation(CT)	Newington	CT	FR	651 [711]	[TR,DIG]	[50]				[50]	[50]	P,W,[I]	[T,H]	MS 432 [SC 700]	[X]	[X]	X	[X]	X	X		[60]
			DR	260 [300]		[50]			60 [110]	[50]	[50]			[SC 50]								
			CR	408 [448]										[MS 35]								
Connecticut Transit	Hartford	CT	FR	228 [258]	TR,[DIG]	[258]		[258]		[258]	[258]	P,W		MS 228[258] [SC 258]	X				X	X		
Connecticut Transit-New Haven	Hartford	CT	FR	112	TR,[DIG]	[112]		[112]		[112]	[112]	P,W		MS 112 [SC 112]	X				X	X		
Connecticut Transit-Stamford(CT)	Hartford	CT	FR	52	TR,[DIG]	[52]		[52]		[52]	[52]	P,W		MS 52 [SC 52]					X	X		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Greater Hartford Transit District	Hartford	CT	DR	150 [165]	[TR,DIG]	[50]			[50]	[50]	60 [75]	P,[I]	[T,H]			X		[X]				[50]
Greater New Haven Transit District	Hamden	CT	FR	4 [8]	[DIG]					4 [8]	4 [8]	P,[W,I]				[X]		[X]				
			DR	42 [55]		42 [55]			[30]		42 [55]			[SC 55]								
Middletown Transit District	Middletown	CT	FR	9	DIG	[9]		[9]		[9]		P,[W],I			X				X	X		
			DR	20						[9]	12											
Norwalk Transit District/Westport Transit Lines(CT)	Norwalk	CT	FR	36	DIG							P,[W]		[SC 33]		[X]	[X]		X	X		
			DR	30							30											
Stamford Dial-A-Ride(CT)	Stamford	CT	DR	9 [12]	TR,[DIG]			[4]	[2]	[12]	[4]	P,[I]										
Washington Metropolitan Area Transit Authority	Washington	DC	FR	1444 [1715]	[TR,DIG]	[1715]		164 [435]	[1715]	164 [435]	[1715]	P,W,I	T	MS 1444[1715] [SC 1715]	[X]	[X]		[X]	X		X	[50]
			HR	818 [954]		818 [954]					818 [954]			MS 83[86] SC 83[86]								
			DR	178 [300]		38 [300]			38 [300]		38 [300]			[MS 300]								
Advanced Transportation Solutions	Miami	FL	DR	259												X	X	[X]				

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Broward County Mass Transit	Pompano Beach	FL	FR	255 [285]	[DIG]	255 [285]		[75]		255 [285]	255 [285]	P,[W]	[T,H]	MS 255[285] [SC 285]	[X]	[X]	[X]	[X]	X	X		[100]
			DR	480 [525]																		
			FB	5 [15]																		
Hillsborough Area Regional Transit Authority	Tampa	FL	FR	176 [181]	[DIG]	[181]		[20]	176 [181]	[181]	176 [181]	P,W,I		MS 176[181]			[X]	X	X	X	X	
			LR	0 [8]		[8]		[8]	[8]													
			DR	25 [30]		25 [30]			[30]													
Miami-Dade Transit Authority	Miami	FL	FR	585	TR,[DIG]	585	F,A	585		585	585	P,[W],I	[T]		X	[X]	[X]	[X]				
			HR	136		136				136	136			MS 21[22]								
			LR	29		29				29	29			MS 22[23]								
Palm Tran operated by Florida Transit Management Incorporated	West Palm Beach	FL	FR	106	TR	[106]	A	[106]	[106]	[106]	[106]	P,[W],I	T,H	MS 106 [SC 106]			[X]		X			
Pasco County Public Transportation (PCPT)	Port Richey	FL	FR	13 [17]	TR,DIG						[17]	P,W								[X]		
			DR	32 [35]							32 [35]											

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Pinellas Suncoast Transit Authority	Clearwater	FL	FR	173 [180]	TR	[160]			[160]	[160]	[160]	P,[I]		MS 173[180] SC 173[180]	X				X	X	X	
			DR	175 [200]																		
Sarasota County Transportation	Sarasota	FL	FR	39 [50]	TR,DIG	[50]		[6]		[20]		P,[W,I]		[MS 50] [SC 50]		[X]				X		
			DR	32 [40]		[40]			[20]		[20]											
Tri County Commuter Rail Authority	Pompano Beach	FL	CR	23 [28]	[DIG]	15 [20]			15 [20]			P,W,I	[T]	MS 1 [SC 18]	[X]	[X]	X	[X]				
Douglas County Rideshare	Douglasville	GA	DR	23 [32]								P										
Metropolitan Atlanta Rapid Transit Authority MARTA	Atlanta	GA	FR	703	[TR,DIG]	242 [703]		75 [703]		203 [703]	703	P,W,[I]	T,[H]	MS 703 [SC 703]		[X]	X	X				23 [100]
			HR	238 [338]										MS 36[38] [SC 38]								
			DR	91 [125]																		
Oahu Transit Services (The Bus)	Honolulu	HI	FR	528 [550]	[TR]	142 [550]		28 [120]	[550]	[550]	[550]	P,[W],I		[SC 550]			X			X	[X]	[60]
			DR	114 [120]		40 [120]			40 [120]	40 [120]	105 [120]			[SC 120]								

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Chicago Transit Authority (CTA)	Chicago	IL	FR	1872 [2000]		1555 [2000]		10 [212]	1555 [2000]	[2000]	1555 [2000]	P,W,I	T,H	MS 1872[2000] SC 1872[2000]	X	[X]	[X]	[X]	X	X	X	[200]
			HR	1100						133	133			MS 138 SC 138								
			DR	0 [50]		[50]																
Cook-DuPage Transportation	Chicago	IL	DR	148 [160]	DIG	148 [160]			148 [160]		148 [160]											
Northeast Illinois Regional Commuter RR Corporation	Chicago	IL	CR	1080 [1195]		261 [300]						P,W,I		MS 50			[X]					
PACE	Arlington Heights	IL	FR	650 [670]	TR,[DIG]	10 [450]		75 [155]	10 [450]		10 [450]	P,[W,I]	[T,H]		X	[X]		[X]	[X]	X	[X]	36 [450]
			DR	345 [350]										[MS 350] [SC 350]								
East Chicago Transit	East Chicago	IN	FR	6		6					6	I										
			DR	3		[3]					3											
Gary Public Transportation Corporation	Gary	IN	FR	18 [29]	[DIG]	[29]	[F,A]		[29]	18 [25]	[29]	P,[W]	[T,H]	[MS 29] [SC 25]		[X]	[X]	[X]				
			DR	2 [4]						2 [4]				[MS 4] [SC 4]								2 [4]
Hammond Transit System	Hammond	IN	FR	12 [13]	TR,DIG	[13]			[13]	[13]	[13]	P,W,[I]		[MS 13]		[X]		[X]	X	X		5 [13]

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Indianapolis Public Transportation	Indianapolis	IN	FR	145 [150]	TR,[DIG]	[150]		144 [150]		142 [150]		P,[W,I]		MS 142[150]		[X]	[X]		X			5 [15]
			DR	55 [65]		[35]		44 [65]		45 [65]	[65]											
LCEOC, Inc.	Hammond	IN	DR	38 [55]	[DIG]	[55]			[55]		[55]			[MS 55] [SC 55]			X					
North Township of Lake County Dial-A-Ride	Hammond	IN	DR	3 [4]																		
Northern Indiana Commuter	Chesterton	IN	CR	56 [66]		[66]						P,W,I										
Opportunity Enterprises Incorporated	Valparaiso	IN	DR	22 [25]	DIG							[P]										
Portage Township Transportation	Portage	IN	DR	1																		
Wichita Metropolitan Transit Authority	Wichita	KS	FR	51	TR,[DIG]	[51]		[51]	[51]	[51]	[51]	P,[W,I]	[T]	[MS 51] [SC 51]		[X]	[X]	[X]	X	[X]		[51]
			DR	20		[17]		[17]	[17]	[17]	[17]											
Transit Authority of River City (TARC)	Louisville	KY	FR	268	DIG	[260]					[260]	P,[W]				[X]			X			
			DR	78							78											
Capital Transportation Corporation	Baton Rouge	LA	FR	77	TR,DIG						[20]	P,[W],I		[MS 77]		X	[X]		[X]			[10]
			DR	8		[8]					[8]			[MS 8]								

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Louisiana Transit Company, Incorporation	Metairie	LA	FR	31	DIG,[TR]	[31]	[F,A]	[31]	[31]	[31]	[31]	P,[I]		MS 31	[X]		[X]	[X]	[X]	[X]	[X]	
Louisianna Department of Transportation - Crescent City Connection Division	New Orleans	LA	FB	6	TR																	
Regional Transit Authority	New Orleans	LA	FR	366	TR,DIG	366	[F,A]	[366]	[366]	[366]	[366]	P,[W,I]	T,[H]				[X]		X	X	X	[66]
			LR	43 [66]		43 [66]		[66]	[43]	[66]	[66]											
			DR	40		40		[40]	[40]	[40]	40											
St. Bernard Parish Government	Chalmette	LA	FR	7		[7]					[7]	P,[W,I]							X			
Westside Transit Lines	Gretna	LA	FR	34	TR	[34]		[34]	[34]	[34]	[34]	P,W,[I]		[SC 34]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	
Greater Attleboro-Taunton Regional Transit Authority (GATRA)	Attleboro	MA	FR	29 [34]	[TR,DIG]	21 [34]			21 [34]	[20]	21 [34]	P,W,[I]	[T]	MS 25[30] [SC 25]	[X]	X		[X]	[X]	[X]		
			DR	63 [68]		32 [50]			32 [50]	[30]	32 [50]			[MS 30] [SC 30]								
Pioneer Valley Transit Authority	Springfield	MA	FR	197	[DIG]	[197]	[F,A]	[40]	[197]	[197]	[197]	P,[W,I]	[T,H]	MS 182[197]		X	[X]	[X]	X	X	X	[6]
			DR	110 [125]																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Frederick County Transit	Frederick	MD	FR	11 [22]	TR						[22]	P		[SC 15]	[X]	[X]						
			DR	27 [30]							[26]											
Harford County Transportation	Abingdon	MD	FR	13 [15]	[DIG]							P		[SC 15]	[X]			[X]				
			DR	16 [18]										[SC 18]								
Howard Area Transit Service (HATS)	Laurel	MD	FR	25 [30]	TR,DIG	24		[4]				P,[W,I]		[SC 30]	X							
Mass Transit Administration (MTA)	Baltimore	MD	FR	880	TR	550 [868]		25 [100]			380 [868]	P,W,I	T	[MS 880] [SC 880]	X			[X]	X	X	X	
			HR	100																		
			LR	53		53																53 [53]
			DR	20							20			MS 20 SC 20								
Montgomery County - Ride On	Rockville	MD	FR	321 [331]		227 [241]		[20]	227 [241]		227 [241]	P,W,I	T	[SC 321]	X	X	X	X	X	X	X	8 [25]
Ann Arbor Transportation Authority	Ann Arbor	MI	FR	86		86		13 [30]	86	86	86	P,W,I	[H]	MS 86 [SC 86]		X			X	X	X	[86]
			DR	9		9			9	9	9			MS 9 [SC 9]								[9]

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Grand Rapids Area Transit Authority	Grand Rapids	MI	FR	93 [110]	TR	[110]	[A]	[110]		[110]	[110]	P,W,I		[MS 110] [SC 110]		[X]		[X]	X	[X]		25
			DR	47 [65]		[65]		[65]	[65]	[65]	[65]			[MS 65] [SC 65]								
SMART	Troy	MI	FR	300	TR	300	A	[50]	300	300	300	P,[W,I]		MS 300 [SC 300]	[X]	X	X	X		X	X	
			DR	100		100			100	100	100											
Metro Transit	Minneapolis	MN	FR	927 [955]	TR,DIG	260 [955]		50 [100]	52 [955]	52 [955]	260 [955]	P,[W]	T	MS 927[955] [SC 955]	[X]	X	X	[X]	X	X	X	[50]
			LR	0 [25]		[25]		[25]			[25]			[MS 17] [SC 12]								[25]
Bi-State Development Agency	St. Louis	MO	FR	500				40 [50]		[10]	[10]	P,[W,I]		MS 500		X	X		X			
			LR	65 [99]				65 [99]						MS 9[35]								
			DR	90 [110]					90 [110]													
Kansas City Area Transit Authority	Kansas City	MO	FR	218 [306]	[TR]	218 [306]			218 [306]	218 [306]	18 [47]	P,W,I	[T,H]	MS 218[306] [SC 306]		X	[X]	[X]	X	X	[X]	
			DR	0 [25]		[25]																
Capital Area Transit	Raleigh	NC	FR	53 [56]	DIG							P		MS 53[56]	X		[X]	X	X			
			DR	12										MS 12								

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Chapel Hill Transit	Chapel Hill	NC	FR	83 [100]	[DIG]	30 [100]		[100]				P,[W]		MS 83[100]								
			DR	8 [10]		[10]			[10]	[10]	[10]											
Charlotte Area Transit System (CATS) (Charlotte DOT)	Charlotte	NC	FR	285 [360]	TR,DIG	[360]		[360]	[360]	[360]	[360]	P,W,I			X	[X]			X	X	X	
			DR	77 [91]		77 [91]			77 [91]		77 [91]											
Durham Area Transit	Durham	NC	FR	43 [63]	DIG	43 [63]		[63]	[63]	43 [63]	[63]	P,W,I	[T]	[SC 63]	[X]	[X]	[X]		[X]			[40]
			LR	40							[40]											
			DR	0 [40]		[40]			[40]													
Gastonia Transit	Gastonia	NC	FR	6	[DIG]							P										
			DR	2																		
Greensboro Transit Authority	Greensboro	NC	FR	23 [30]	DIG	[30]		[30]				P,[W],I		MS 23[30]	X	[X]						
			DR	24 [26]		[26]		[26]			24 [26]											
High Point Transit	High Point	NC	FR	16	TR,DIG			[8]		[16]		P		[MS 16] [SC 16]	X				[X]	[X]		
			DR	6																		

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Triangle Transit Authority	Research Triangle Pk	NC	FR	68	TR	68			68		68	P,[I]	[T]	[MS 68]	[X]		X	[X]				
			DR	5 [12]		5 [12]			5 [12]		5 [12]											
Winston-Salem Transit Authority	Winston-Salem	NC	FR	58 [62]		58 [62]			58 [62]		58 [62]	P,[W],I	[T,H]	MS 58[62]	[X]	[X]	[X]	[X]	X	X		
			DR	19 [25]		19 [25]			19 [25]		19 [25]											
Omaha Transit Authority	Omaha	NE	FR	130 [140]	[DIG]	124 [140]			124 [140]	124 [140]	124 [140]	P,[W]	[H]	[SC 140]		[X]	[X]	[X]	[X]	X	X	[10]
			DR	17 [21]		17 [21]			17 [21]	17 [21]	17 [21]											
Academy Lines Incorporated(NJ)	Hoboken	NJ	FR	435 [460]		45 [75]						P,[W,I]		[MS 75]								
New Jersey Transit Corporation(NJ)	Newark	NJ	FR	2005	TR,[DIG]	300		8				P,W,I							X	X		3
			LR	46 [100]		46 [100]		1 [22]		46 [100]	28 [56]											
			DR	157 [219]		[219]																
			CR	746 [941]										MS 1[2]								
Port Authority Trans-Hudson (PATH)	Jersey City	NJ	FR	62	[TR]	62						P,W,I	[T,H]		X	X	X	X				
			HR	281										MS 13 [SC 13]								

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Port Authority Transit Corporation	Lindenwold	NJ	HR	121		121						P,[W,I]		MS 13			X					
Sun Tran	Albuquerque	NM	FR	126	TR	[126]		[20]			[126]	P,W,I	[T]				X	[X]				[126]
			DR	55 [60]		55 [60]			55 [60]	55 [60]	55 [60]											
Regional Transportation Commission/Citizens Area Transit	Las Vegas	NV	FR	294 [296]	TR	294 [296]		[100]	294 [296]	[296]	[296]	P,[W]					[X]			X	X	[40]
			DR	140 [150]		140 [150]			140 [150]	[128]	[140]											
Blue Bird Coach Lines/Niagara Scenic Bus Lines	North Tonawanda	NY	FR	1								P										
Capital District Transit Authority (CDTA)	Albany	NY	FR	235	[DIG]	[235]	[F,A]	25	[235]	235	[235]	P,[W,I]	[H]	MS 235		X	X	X		X	[X]	[25]
			DR	31 [35]		[35]		[5]	[35]	31 [35]	25 [35]			MS 31[35]								
Central New York Regional Transit Authority	Syracuse	NY	FR	182	DIG	182	[F,A]	30	182	182	182	P,W	[H]	MS 182		X	X	[X]	X	X		
			DR	22		22			22	22	22			MS 22								
Clarkstown Mini-Trans	Nanuet	NY	FR	10	TR							P,W										
Huntington Area Rapid Transit (HART)	Huntington Station	NY	FR	13		[13]					[13]	P		[MS 13]	[X]							
			DR	9		[9]					[9]			[MS 5]								

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Long Beach City	Long Beach	NY	FR	12								P,W	T	MS 12			X					
			DR	2																		
Long Island Rail Road	Jamaica	NY	CR	1100 [1240]		2 [1240]		[300]		[300]		P,W,I	[T,H]									
Metro-North Railroad MTA	New York	NY	CR	900 [1200]		[300]				377		P					X					
MTA Long Island Bus	Garden City	NY	FR	333 [347]		333 [347]		29 [100]		325 [347]	333 [347]	P,[W],I	[T]	MS 333[347]	X	X		X		X		
			DR	79 [90]		79 [90]			79 [90]		79 [90]											
New York City DOT	New York	NY	FR	1300	TR,DIG	[100]						P	[T,H]	MS 1300[1289]	X							
			FB	7																		
New York City Transit Authority (MTA)	Brooklyn	NY	FR	4528	TR							P,W,[I]		MS 4528	X							
			HR	6000										MS 468								
			DR	200																		

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Niagara Frontier Transportation Authority	Buffalo	NY	FR	322	TR	322		41 [57]	322	322	322	P,[W]		[MS 322]		[X]	X		X	X	X	27 [27]
			LR	27				[27]	27		[27]											
			DR	26 [36]		26 [36]			26 [36]	26 [36]	26 [36]			[MS 36]								
Putnam County Transit	Carmel	NY	FR	8	[DIG]																	
			DR	2																		
Queens Surface Corporation	Flushing	NY	FR	337	TR							P		MS 337	X		X					
Regional Transit Service Incorporated & Lift Line Incorporated	Rochester	NY	FR	252		252			252	252	252	P		MS 252		X	[X]		[X]	X	X	[252]
			DR	40		[40]			[40]	[40]	[40]											
Rockland Coaches Incorporated	Westwood	NY	FR	98	TR							P			X	X		X				
Suffolk County	Yaphank	NY	FR	143 [160]	TR,[DIG]	[160]		[160]		[160]	[160]	P,[W,I]	[T,H]	[MS 160]			X	[X]				
			DR	34 [46]		[46]			[46]	[46]	[46]			[MS 46]								
Village of Spring Valley Bus	Spring Valley	NY	FR	2	DIG							P										

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Westchester County	White Plains	NY	FR	357		[357]		[357]	[357]	[357]	308 [357]	P,[W],I	[T]	[MS 357] [SC 357]	[X]		[X]	[X]	X	X	X	
			DR	60																		
Campus Bus Service	Kent	OH	FR	16								P,W,I						[X]				[16]
			DR	6																		[5]
COTA	Columbus	OH	FR	300 [325]	TR	300 [325]		30 [50]	300 [325]	[325]	300 [325]	P,W,I	[T,H]	MS 300[325] [SC 325]		[X]	[X]	X	X	X	X	[325]
			DR	48 [62]		48 [62]			48 [62]	[62]	48 [62]			[SC 62]								
Greater Cleveland Regional Transit	Cleveland	OH	FR	756 [725]	[TR,DIG]	500 [725]		151	500 [725]	500 [725]	500 [725]	P,W,[I]		MS 756[725]								[725]
			HR	60		60			60	60	60			MS 14								
			LR	48		48			48	48	48			MS 6						X	X	[48]
			DR	97		97			97	97	97											[97]
Laketran	Grand River	OH	FR	37 [39]		[20]			20 [39]	[20]	20 [39]	P				[X]						
			DR	65 [75]		[75]				[75]												

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Lorain County Transit	Lorain	OH	FR	25 [30]	[DIG]	[10]					[10]	P,I			X							
			DR	18 [20]		[10]					[10]											
Metro Regional Transit Authority	Akron	OH	FR	139 [145]		5 [145]		13 [145]	5 [145]	[145]	5 [145]	P,[W,I]		MS 139[145]	X		[X]		X	X	X	
			DR	145 [170]		67 [80]		[80]	67 [80]	[80]	67 [80]			MS 45[80]								
Miami Valley Regional Transit	Dayton	OH	FR	229		225		40	225	225	225	P,[W,I]		MS 229				[X]	X	X	X	
			DR	69		55			55 [69]	55 [69]	55 [69]											
Southwest Ohio Regional Transit Authority (SORTA)	Cincinnati	OH	FR	433 [600]	TR	433 [600]	F,A		433 [600]		433 [600]	P,[W,I]	[T,H]	MS 433[600] [SC 600]	[X]		X	[X]	X	X	X	
			LR	0 [1]		[1]					[1]			[MS 1] [SC 1]								
			DR	51 [60]		51 [60]					51 [60]											
Springfield City Area Transit	Springfield	OH	FR	11								P,I										
			DR	6																		
Toledo Area Regional Transit Authority (TARTA)	Toledo	OH	FR	175 [180]	[DIG]	[180]			[180]			P,[W]		MS 175[180]								
			DR	32 [40]		[40]			[40]		[40]											

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Western Reserve Transit Authority	Youngstown	OH	FR	43		43					43	P		[MS 43]		[X]		[X]	[X]			
			DR	6		6					6			[MS 6]								
Central Oklahoma Transit	Oklahoma City	OK	FR	85 [93]	[TR]	12 [93]		[30]		[30]	12 [93]	P,[W,I]		MS 85[93]		X	[X]					
			DR	18 [22]		[22]			[22]		18 [22]			[MS 22]								
Metropolitan Tulsa Transit	Tulsa	OK	FR	84	TR,DIG			5				P,W				X	[X]	X		X		
			DR	32					5 [30]													
Tri-County Metropolitan Transportation District of Oregon	Portland	OR	FR	701 [752]	TR	701 [752]	[A]	419 [529]	701 [752]		701 [752]	P,W,[I]	[T,H]			[X]	X	X	X	X	X	701 [752]
			LR	78 [105]		78 [105]		[28]			78 [105]											78 [105]
			DR	186 [215]		186 [215]			186 [215]		186 [215]											
Beaver County Transit Authority	Rochester	PA	FR	28 [30]		28 [30]		28 [30]	28 [30]	28 [30]	28 [30]	P,W,[I]	[T,H]	[MS 30] [SC 30]	[X]	[X]	[X]			X	X	[28]
			DR	23		4 [23]		4	4 [23]	4 [23]	4 [23]											
Cumberland-Dauphin-Harrisburg	Harrisburg	PA	FR	72 [77]								P,W,[I]								X		
			DR	6																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
G G & C Bus Company Incorporated	Washington	PA	FR	4 [5]								P,[I]								X		
			DR	22 [25]																		
Lackawanna County Transit System (COLTS)	Scranton	PA	FR	30		30			30	30	30	P,[W],I								X		
Lehigh and Northampton	Allentown	PA	FR	79 [85]								P,[W],I		MS 79[85]		X	[X]			X		
			DR	112 [120]		[120]			[120]	[120]	[120]			[MS 120]								
Luzerne County Transportation	Kingston	PA	FR	38	TR							P,W,I										
Port Authority of Allegheny County	Pittsburgh	PA	FR	1032								P,W,I		[SC 245]		[X]	X	[X]	X	X		28
			LR	43 [63]										[MS 12] [SC 50]								
			DR	170 [180]																		
Southeastern Pennsylvania Transportation Authority (SEPTA)	Philadelphia	PA	FR	1349	TR	150 [1349]		2 [100]	1349	1250	1349	P,W,I	H	MS 1250						X	X	
			HR	379		220 [379]				220 [379]	379			MS 63								
			LR	233 [185]		[185]					167 [185]			MS 2								120 [120]
			DR	500		[500]			345 [500]		500			MS 345								

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Southeastern Pennsylvania Transportation Authority (SEPTA)	Philadelphia	PA	CR	349 [352]	TR	[3]				[3]	349 [352]	P,W,I	H									
Westmoreland County Transit	Greensburg	PA	FR	27 [30]	[DIG]	[30]						P						[X]		X		
Rhode Island Public Transit Authority	Providence	RI	FR	236	[TR]	[19]		10 [33]		[19]	[19]	P,W	[T,H]	[SC 236]			X	[X]		[X]	[X]	
			DR	104																		
			FB	1 [2]		[1]				[1]	[1]											
Charleston Transit Administration	Charleston	SC	FR	59	TR					59		P,W,I		MS 58 [SC 58]					X			
			DR	17						17				[MS 17] [SC 17]								
Greenville Transit Authority (GTA)	Greenville	SC	FR	22 [30]	TR,DIG					15 [30]		P,W		MS 15 [SC 15]					[X]	[X]		
			DR	4 [6]																		
Spartanburg Area Regional Transit Agency (SPARTA)	Spartanburg	SC	FR	11	DIG							P									X	
Spartanburg County Transportation Services	Spartanburg	SC	DR	30 [42]	[DIG]	[42]			[42]			P				[X]		[X]				

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Knoxville Transportation Authority	Knoxville	TN	FR	88 [105]	TR,DIG			[20]	[20]	[20]	[20]	P,[W,I]		SC 3[20]			[X]					
			DR	12 [20]					[15]	[15]	[15]			MS 12[15]								
Memphis Area Transit Authority	Memphis	TN	FR	194 [225]	DIG	[150]		[30]		[10]	[150]	P,I		SC 194[225]								
			LR	14 [19]												X			X			14 [19]
			DR	63 [75]		63 [75]		[30]		[30]	63 [75]			SC 63[75]								
Metropolitan Transit Authority	Nashville	TN	FR	145 [160]	[DIG]	[160]						P,W,I		[MS 160] [SC 160]			[X]	[X]	X	X		[145]
			LR	0 [4]																		
			DR	36 [45]		[45]					36 [45]			[MS 45] [SC 45]								[45]
			CR	0 [1]		[1]					[1]			[MS 1] [SC 1]								
Austin Capital Metropolitan Transportation Authority	Austin	TX	FR	395 [428]	TR,DIG	[428]		22 [93]	[428]	[428]	[428]	P,[W],I		[MS 428]				[X]	X	X		
			DR	105 [108]		[108]			[108]	[108]	[108]											

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Dallas Area Rapid Transit (DART)	Dallas	TX	FR	862 [865]	[DIG]		[F,A]	22 [865]			[865]	P,[W,I]	[T,H]	[SC 865]	[X]			[X]	[X]	X		[20]
			LR	95 [115]				[95]			[115]			[SC 31]								24 [100]
			DR	180 [200]		180 [200]			180 [200]		[200]			[SC 200]								[20]
			CR	31				[31]			[31]			[SC 9]								
Denton City Manager	Denton	TX	FR	4 [8]	TR							P,[W,I]					[X]	[X]				
			DR	6																		
Fort Worth Transportation Authority (The T)	Fort Worth	TX	FR	137 [150]	TR	10 [150]		[150]		[150]	[150]	P,[W,I]	T,H	[SC 137]	X	X	X	[X]				[137]
			DR	100 [150]		[150]				[150]	[150]			[SC 150]								[150]
			CR	33 [36]		[36]		[36]		33 [36]	[36]			[SC 36]								
Grand Prairie City	Grand Prairie	TX	DR	11	TR,DIG												X					
Lewisville Dial-A-Ride	Lewisville	TX	DR	9	TR,DIG							P			[X]	[X]		[X]				
Mesquite City Transit	Mesquite	TX	DR	16								P										

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Metro Transit Authority	Houston	TX	FR	1478 [1600]	TR	[1600]		[240]	1478 [1600]		1478 [1600]	P,W,[I]		MS 1478[1600] [SC 1600]			X			X	X	[1100]
			LR	0 [18]		[18]		[18]	[18]		[18]			[MS 16] [SC 16]								[18]
			DR	118 [200]		118 [200]			118 [200]		118 [200]											
Sun Metro-El Paso City	El Paso	TX	FR	159 [170]	TR,[DIG]	159 [170]	[F,A]	15	159 [170]	159	159	P,[W,I]		[SC 159]			[X]			X	X	
			DR	80		80			80	[80]	80			[SC 80]								
VIA Metropolitan Transit	San Antonio	TX	FR	493	TR	493		50	493	493	493	P,I		[SC 493]					X	[X]	X	
			DR	210		210			210	210	210											
Utah Transit Authority	Salt Lake City	UT	FR	509 [600]	[TR,DIG]	[600]		50 [110]	509 [600]		509 [600]	P,W,I	H	[MS 600]				X	X	X	X	20 [50]
			LR	33 [80]		33 [80]		[80]	33 [80]		33 [80]			[MS 23]								33 [80]
			DR	104 [110]		[110]			104 [110]		104 [110]			[MS 110]								
Fairfax Connector Bus System	Fairfax	VA	FR	161 [204]	TR,[DIG]	[204]		[80]	[80]		[204]	P,W	T,H	[SC 204]	X	X				[X]	[X]	[2]
			DR	111 [125]							[125]			[SC 125]								

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Petersburg Area Transit	Petersburg	VA	FR	9 [15]	[DIG]	[2]		[2]	[2]	[2]		P,[W,I]	[T]	[MS 15] [SC 15]	[X]		X	[X]	[X]		[X]	
			DR	2 [3]										[MS 3] [SC 3]								
Potomac and Rappahannock Transportation Commission	Woodbridge	VA	FR	66 [75]	TR,DIG	[75]					66 [75]	P		[SC 75]	[X]			[X]		X		
			DR	16 [20]		16 [20]			16 [20]		16 [20]			[SC 20]								
Clark County Public Transportation Benefit Area Authority	Vancouver	WA	FR	113 [162]	TR,DIG	[162]		[23]	[123]	[123]	[162]	P,[W,I]	[T,H]			[X]	X	[X]	X	X	X	[114]
			DR	50		[50]		[50]	[50]	[50]	[50]											
Everett Transit	Everett	WA	FR	41 [43]	TR							P,W,[I]	T	MS 7[43] [SC 5]					X	X		
			DR	14 [17]							14 [17]											
King County Metro	Seattle	WA	FR	1248 [1320]		1248 [1320]		165 [200]	1248 [1320]	[1000]	1248 [1320]	P,W	T	MS 1248[1320] [SC 1320]	X	[X]		X	X	X		253 [1320]
Kitsap Transit	Bremerton	WA	FR	103 [133]	TR,DIG							P,W		[SC 109]	[X]	X		X				63 [70]
			DR	48 [52]							48 [52]											
			FB	3										[SC 3]								
Pierce County Ferry Operations	Tacoma	WA	FB	2								P										

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Pierce Transit	Tacoma	WA	FR	230	[TR,DIG]	[230]		[230]	[230]		[230]	P,[W]	[T,H]	[SC 230]		X			[X]	X	[X]	230
			DR	108		[108]			108		[108]			[SC 108]								
Seattle Monorail Transit	Seattle	WA	CR	8	TR,DIG							P,W,I						[X]				
Snohomish County Public Transportation	Everett	WA	FR	308 [338]	DIG			[30]	[30]			P	T	[SC 338]		[X]		[X]				46 [300]
			DR	51 [55]										[SC 55]								
Snohomish County Senior Services	Mukilteo	WA	DR	52 [75]	TR	[75]					[75]					[X]						
Sound Transit	Seattle	WA	FR	134 [192]	TR	82 [192]		30 [60]	[162]	[82]	82 [192]	P,[W,I]	T	MS 119	X		X	X				[70]
			LR	0 [3]																		
			CR	24 [69]																		
Washington State Ferries	Seattle	WA	FB	29 [33]		29 [33]				29 [33]		P,W	T,H		[X]		X	X				
Belle Urban System-Racine	Racine	WI	FR	38 [45]	DIG	[45]		[45]	[45]		[45]	P,[W,I]							[X]	X	[X]	
			DR	17																		

Table 3. APTS Deployment by Transit Agency Inside the United States' 78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatice Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Kenosha Transit	Kenosha	WI	FR	44 [56]	[TR,DIG]			[56]	[56]		[56]	P,[I]						[X]				
			LR	1 [3]																		[3]
			DR	6 [8]																		
Milwaukee County Transit System	Milwaukee	WI	FR	555 [530]	TR	555 [530]	A	35	555 [530]		555 [530]	P,[W,I]					X	[X]	X	X	X	[100]
			DR	476 [500]		[140]			[140]		[140]											
Waukesha City Metro Transit	Waukesha	WI	FR	30 [33]	TR,DIG	[33]				[33]	[33]	P,[W]	[T]	MS 20[33]	X			[X]		[X]	[X]	
			DR	3 [5]		[5]			[5]	3 [5]	[5]			[MS 5]								

SECTION 4. APTS DEPLOYMENT BY TRANSIT AGENCY OUTSIDE OF THE 78 LARGEST METROPOLITAN AREAS IN THE UNITED STATES

Table 4 presents the APTS information collected by the Volpe National Transportation Systems Center for the transit agencies in the National Transit Database that responded to the deployment tracking survey and which were not surveyed by the Oak Ridge/SAIC team plus a few other selected agencies. A total of 350 transit agencies responded to the survey. All of these agencies which have installed one or more of the APTS elements are listed in the Table. As indicated in the Legend, entries without brackets indicate operational elements. Entries enclosed by brackets signify elements that are expected to be operational by the year 2005.

The agencies are arranged alphabetically, first by state abbreviation and then by agency name. Table 4 lists the number of vehicles or vessels operated by each agency (directly or by contract) in each service type. Also, where possible and appropriate, the number of vehicles, vessels, stations, or terminals currently equipped with each APTS technology, or which will be so equipped by 2005, are included. Where numbers are not available or applicable, letters signify that the agency has deployed, or will deploy, that technology.

As discussed in Section 2, entries in the table for an agency could have been changed from the survey response if it was clear that an error in the agency response had been made through a mistake or a misinterpretation of a question.

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Anchorage Public Transportation (People Mover)	Anchorage	AK	FR	50 [58]	TR,DIG	[58]		[58]	[58]	[58]	[58]	P,[W]	[T,H]	[MS 58] [SC 58]		X		X	X	X		[58]
			DR	32 [38]		[38]		[38]	[38]	[38]	[38]			[MS 38] [SC 38]								
MACS and VANTRAN	Fairbanks	AK	FR	7 [10]	[DIG]	[10]			[10]	[10]		P,[W,I]				[X]		[X]		X		
			DR	4 [6]		[6]			4 [6]	[6]												
Anniston Express	Anniston	AL	FR	3 [4]	DIG							[P]										
			DR	3																		
Autauga County Rural Transportation	Prattville	AL	DR	12																		
Gadsden Trolley Company	Gadsden	AL	FR	7		[7]		[7]		[7]	[7]	P						[X]	[X]	X		
			DR	11 [15]		[15]				[15]	[15]											
Huntsville Transit	Huntsville	AL	FR	11	TR	[11]						P,W				[X]						
			DR	13 [14]		[14]																
Lee-Russell Council of Governments	Opelika	AL	FR	7 [8]				[7]		[7]		P,W,I										
			DR	[15]		[10]		[10]		[5]												

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Metro Transit System	Mobile	AL	FR	31 [37]	TR,[DIG]	[37]	F,A	[37]	[37]	[37]	[37]	P,[W,I]	[T,H]	[MS 37] [SC 37]	[X]	[X]	[X]	[X]	[X]	[X]	[X]	[5]
			DR	5		[5]		[5]	[5]	[5]	[5]			[MS 5] [SC 5]								[1]
			FB	[2]		[2]		[2]	[2]	[2]	[2]			[MS 2] [SC 2]								
Montgomery Area Transit System	Montgomery	AL	FR	21	DIG							P,[W,I]	[T,H]			[X]	[X]	[X]	X	[X]		[21]
			DR	29																		[29]
Northwest Alabama Council of Local Governments	Muscle Shoals	AL	DR	33	DIG			[5]				P				X	[X]					
Wiregrass Transit Authority	Dothan	AL	DR	15							15	P										
Fort Smith Public Transit	Fort Smith	AR	FR	13 [16]	TR,DIG			[16]	[16]	[16]		P,[W,I]	[T,H]	MS 13[16]		X	[X]	[X]	[X]	X		
			DR	5 [7]				[7]	[7]	[7]				MS 5[7]								
Intra City Transit	Hot Springs	AR	FR	3 [5]	TR,DIG	[5]				[5]		P,[W]										
			DR	3 [7]		[7]			[7]	[7]	[7]			[MS 7]								
Ozark Transit Authority	Springdale	AR	FR	4 [8]	TR,DIG			4 [8]				P,[I]				[X]	[X]					
			DR	30																		
Pine Bluff Transit	Pine Bluff	AR	FR	6	TR							P						[X]	[X]			
			DR	1																		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
University of Arkansas (Razorback Transit)	Fayetteville	AR	FR	12 [18]								P,[I]										
			DR	3 [5]																		
Benicia Transit	Benicia	CA	FR	7							[7]	P,W					[X]					
			DR	6							[6]											
Camarillo Area Transit	Camarillo	CA	FR	1 [2]		[2]		1 [2]	1 [2]			P,W	T	SC 1[2]	X	X		[X]				
			DR	2 [4]		[4]		2 [4]	2 [4]					SC 2[4]								
			CR	1				1	1													
Chico Area Transit System	Chico	CA	FR	14 [15]	TR							P		[MS 15]	[X]	X		[X]	[X]			
			DR	8 [10]																		
City of El Monte Transportation Services Division	El Monte	CA	FR	9								P,[I]								X		
			DR	6		6			6		6											
City of Riverside Transportation	Riverside	CA	DR	22 [24]		22 [24]			22 [24]	22 [24]		P,[W],I		[SC 24]	X	X		[X]				
Davis Community Transit	Davis	CA	DR	2	DIG							P					[X]					
Emery-Go-Round	Emeryville	CA	FR	7 [10]		7 [10]	A	[10]		7 [10]	[10]	P,W,I	T,H				[X]	[X]	X			[10]
			DR	[2]		[2]		[2]		[2]	[2]											[2]

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Foothill Transit	West Covina	CA	FR	299 [310]	TR,DIG							P,W		MS 299 [SC 310]	X		X			X	X	
Glendale Transit	Glendale	CA	FR	30 [35]		20 [35]			20 [35]	20 [35]	20 [35]	P,W,[I]	[H]	MS 30[35] [SC 35]	[X]	X	X	X	[X]	[X]	[X]	20 [35]
			DR	6		[6]			[6]	[6]	[6]			[SC 6]								
Healdsburg Transit	Healdsburg	CA	FR	1								P,I					[X]					
			DR	1																		
Lodi Transit	Lodi	CA	FR	7 [9]	TR,DIG							P,I	[T,H]				X	[X]	X			
			DR	14 [18]																		
Lompoc Transit	Lompoc	CA	FR	4 [10]		[10]						P,[I]				X					[X]	
			DR	2 [3]		[3]																
Mendocino Transit Authority	Ukiah	CA	FR	15 [18]	[TR,DIG]	[18]	[A]		[18]	[18]	[18]	P,[W]	[T,H]			[X]		[X]	X			
			DR	8 [12]		[12]			[12]	[12]	[12]											
Merced County Transit (The Bus)	Merced	CA	FR	18 [27]	TR	[27]		[27]	[27]	[27]	[27]	P,W,I	[T]	[MS 27] [SC 27]					[X]	[X]		
			DR	15 [18]		[18]		[18]	[18]	[18]	[18]			[MS 18] [SC 18]								
Modesto Area Express	Modesto	CA	FR	43 [48]	TR	[40]		[3]				P,[W,I]							X	[X]		
			DR	11							11											

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Omnitrans	San Bernardino	CA	FR	189 [211]	[DIG]	[211]		21	[211]	[211]	[211]	P,W	T	MS 189 [SC 211]	[X]				X	X	X	
			DR	100 [111]		[111]			[111]	[111]	[111]			[SC 111]								
Outreach and Escort, Inc	San Jose	CA	DR	300	DIG	300			300	3	300					X	X	X				[3]
Petaluma Transit	Petaluma	CA	FR	8	TR,[DIG]							P,[W]										
			DR	4 [5]																		
Redding Area Bus Authority	Redding	CA	FR	13	TR							P,W		MS 13						X		
Rio Vista Transit	Rio Vista	CA	DR	1	DIG																	
Riverside Transit Agency	Riverside	CA	FR	165 [182]	TR,[DIG]	[182]		[114]			[125]	P,[W,I]	T	MS 114[125] [SC 125]	[X]				X	X		
			DR	56 [62]		[62]			[62]		[62]											
Roseville Transit	Roseville	CA	FR	16 [28]	TR	[28]		[28]	[28]	[28]	[28]	P,[W,I]	[T]	[MS 28]			X	X				
			DR	10 [15]		[15]		[15]	[15]	[15]	[15]			[MS 15]								
San Benito County Ride Share	Hollister	CA	FR	7 [9]								P										
			DR	11 [18]																		
San Joaquin Regional Transit District	Stockton	CA	FR	114 [130]	TR,DIG	114 [130]		51 [65]	111 [127]	111 [127]	111 [130]	P,[W],I		MS 114[130] [SC 20]		X		[X]	X	X	X	
			DR	40 [50]		40 [50]			[50]	[50]	[50]			[MS 50]								

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
San Luis Obispo Regional Transit Authority	San Luis Obispo	CA	FR	19	TR	19			19	19	19	P,W		MS 19						X		
Santa Barbara Metropolitan Transit District	Santa Barbara	CA	FR	90 [105]		[105]	[F,A]		[105]	[105]	[105]	P,W		MS 90[105]			[X]	X		X		
Santa Clarita Transit	Santa Clarita	CA	FR	64 [71]	[TR,DIG]	[71]	[F,A]	[71]	[71]	[71]	[71]	P,[W,I]	[T,H]	[SC 71]	[X]	X	[X]	[X]	X		X	
			DR	14 [15]		[15]			[15]	[15]	[15]											
Santa Maria Area Transit	Santa Maria	CA	FR	14								P,[W,I]				[X]			[X]	X		
			DR	8 [10]							8 [10]											
Stanislaus Regional Transit	Modesto	CA	FR	6 [8]				[8]			2 [3]	P,W	[T,H]	[MS 8]	[X]	X		X	[X]	X		
			DR	5 [7]				[7]	4		5 [7]			[MS 7]								
Thousand Oaks Transit	Thousand Oaks	CA	FR	6 [7]	DIG	6 [7]		6 [7]		5 [7]		P,W	T	SC 6[7]	X			X				
			DR	9 [11]																		
Tri-Delta Transit	Antioch	CA	FR	56 [60]	DIG							P	T	[SC 60]	X	X	[X]	[X]	X	X	X	[50]
			DR	16 [18]		[18]			[18]	[18]	[18]			[SC 18]								
Union City Transit	Union City	CA	FR	15 [17]	TR,DIG							P	T			[X]	[X]		X			
			DR	5 [7]																		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
UniTrans	Davis	CA	FR	42 [46]	TR							P	[T]				X					[30]
			DR	3																		
Vacaville City Coach	Vacaville	CA	FR	12		[12]						P,[W,I]							[X]			
			DR	5		[5]																
Ventura County Transportation Commission	Ventura	CA	FR	94 [100]		94 [100]		94 [100]	94 [100]	94 [100]	94 [100]	P,W	T,[H]	SC 94[100]	[X]	X	[X]	X	X	X		
			DR	50 [55]		8 [10]		8 [10]	8 [10]	8 [10]	8 [10]			SC 8[10]								
Yolo County Transportation District (Yolobus)	Woodland	CA	FR	35 [44]	TR,DIG	[44]			[10]	[10]		P,W,[I]		[SC 44]	[X]				X			[44]
			DR	8 [12]		[12]			[4]		[12]			[SC 12]								
Yuba-Sutter Transit	Marysville	CA	FR	22 [25]	TR							P										
			DR	15																		
Avon/Beaver Creek Transit	Avon	CO	FR	12 [14]	DIG							P										
City of Pueblo Transit	Pueblo	CO	FR	16 [18]	TR,DIG							P,W,I										
			DR	7 [10]																		
Eagle County Regional Transportation Authority	Gypsum	CO	FR	30	[TR,DIG]	[30]		[30]	[30]	[30]	[30]	P,[W]	[T,H]	[MS 30]		[X]		[X]	[X]	[X]		
			DR	1 [2]		[2]			[2]	[2]	[2]			[MS 2]								

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Grand Valley Transit	Grand Junction	CO	FR	28 [30]								P										
			DR	5																		
Roaring Fork Transportation Authority	Glenwood Springs	CO	FR	99		[10]		[10]				P							[X]		[X]	
			DR	2																		
Springs Transit	Colorado Springs	CO	FR	63 [85]	TR,[DIG]	[85]	[F]		[85]	[85]	[85]	P,[W,I]	[T,H]	MS 63[85] [SC 85]			[X]		[X]	X		[2]
Transfort Dial-A-Ride	Fort Collins	CO	FR	24	TR,DIG				[24]		[24]	P,W,I	T	[MS 24]	[X]	[X]		[X]	[X]	X	[X]	
			DR	19		19			19	19	19			MS 19								
Dattco	New Britain	CT	FR	6										MS 6 SC 6	X	X	[X]			X		
Greater Bridgeport Transit Authority	Bridgeport	CT	FR	56		[56]			[56]	[56]	[56]	P,[W,I]	[T,H]	[MS 56]	X			[X]	[X]	[X]	[X]	
			DR	22 [24]																		
Housatonic Area Regional Transit	Danbury	CT	FR	27 [35]	DIG			[35]	[35]			P,[W,I]	[T]	[MS 35] [SC 35]				[X]		[X]		[35]
			DR	35 [45]		[45]				[45]	[45]											
Milford Transit District	Milford	CT	FR	7 [8]		[8]				[8]		P,[W],I				X						
			DR	14		[14]				[14]												

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Northeast Transportation Company	Waterbury	CT	FR	40								P,W,I		MS 40	X	X				X		
			DR	32 [36]																		
Southeast Area Transit District	Norwich	CT	FR	25 [30]	[TR,DIG]							P,[W]		MS 25[30] [SC 30]	X	X		[X]	[X]	X	[X]	
			DR	4 [6]										[MS 6] [SC 6]								
The New Britain Transportation Company	Berlin	CT	FR	10								P,I		MS 10 SC 10	X	[X]		[X]				
Valley Transit District	Derby	CT	DR	16	DIG,[TR]	[16]			[16]	[16]	[16]	P										
Delaware Transit Corporation (DART First State)	Dover	DE	FR	181 [184]	TR,DIG	181 [184]	[F,A]	25	181 [184]	181 [184]	181 [184]	P,W,I	T,H	[MS 181] [SC 181]		[X]	X	X	X	X	X	[181]
			DR	208 [228]		208 [228]			208 [228]	208 [228]	208 [228]			[MS 228] SC 208[228]								
Bay County Transit	Panama City	FL	FR	5 [9]	TR,DIG							[P]				X		[X]				
			DR	40		[20]			[20]		[20]											
Council on Aging of Martin County	Stuart	FL	DR	21 [35]	TR,DIG	[35]			[35]	[35]	[35]	P				X						
Escambia County Area Transit	Pensacola	FL	FR	38								P		MS 38					X			
Indian River Council on Aging	Vero Beach	FL	FR	8	TR,DIG							P,[W]				[X]						
			DR	10 [18]																		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Lee County Transit	Ft Myers	FL	FR	43 [48]	TR			[8]		[8]		P,W,[I]		MS 43[48]				X		X		
			DR	26 [36]		[36]			[36]		[36]											
Manatee County Area Transit	Bradenton	FL	FR	19 [22]	TR,DIG							P,W					[X]					
			DR	20 [25]																		
Okaloosa County Transit	Fort Walton Beach	FL	FR	3 [8]								P,[W]				X			[X]			
			DR	39 [42]																		
Regional Transit System	Gainesville	FL	FR	74 [105]	TR,DIG	[23]	[F,A]	[23]		[23]	[23]	P,W,I					[X]	X	[X]	[X]		[10]
Ride Solution	Palatka	FL	DR	33 [35]		33 [35]			33 [35]	[35]	33 [35]	P	[T]	MS 33[35]		X		[X]				
Space Coast Area Transit	Cocoa	FL	FR	18 [22]	TR	5 [18]			[22]	[22]	[22]	P,[W,I]		[MS 22] [SC 22]	[X]	X		[X]	X			
			DR	22 [30]		[30]			[30]	[30]	[30]			[MS 30] [SC 30]								
St. Lucie County Community Services	Fort Pierce	FL	FR	3 [6]	TR	[6]			[6]	[6]	[6]	P,[I]				X		[X]				
			DR	37		[37]			[37]	[37]	[37]											
TalTran	Tallahassee	FL	FR	58 [60]	TR,DIG			[5]						MS 58[60] [SC 60]		X		[X]	X			
			DR	17																		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Volusia County Transportation Authority (VOTRAN)	South Daytona	FL	FR	53 [58]	TR,[DIG]	[58]		[58]	[58]	34 [58]	[58]	P,[W,I]		[SC 58]			[X]		X	X	X	
			DR	58 [65]		[65]			[65]	[65]	[65]			[SC 65]								
Albany Transit System	Albany	GA	FR	7 [10]								P		MS 7[10]		X						
			DR	4 [5]																		
Athens Transit System	Athens	GA	FR	23 [26]	TR							P,[W],I		[MS 15]		[X]						
			DR	5																		
Augusta Public Transit	Augusta	GA	FR	23 [26]	TR,DIG	[26]				[26]	[26]	P,[W]		MS 23[26] SC 23[26]			[X]		[X]			[26]
			DR	6 [7]		[7]			[7]	[7]	[7]											[7]
			FB	[1]		[1]				[1]	[1]			[MS 1] [SC 1]								
Chatham Area Transit Authority	Savannah	GA	FR	62	TR,[DIG]						[62]	P,W,I		MS 61		X				X		
			FB	[2]																		
Cobb Community Transit	Marietta	GA	FR	60 [109]	TR,DIG	[109]		[109]	[109]	[109]	[109]	P,[W,I]	[T,H]	MS 60 [SC 109]	[X]	[X]	[X]	[X]				
			DR	18 [23]		[23]			[23]	[23]	18 [23]			[SC 23]								

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
METRA Transit System	Columbus	GA	FR	18 [20]	TR,DIG	[20]		[20]	[20]	[20]	[20]	P,[W]		MS 18[20] SC 18[20]		X	[X]		[X]			[20]
			LR	[2]		[2]		[2]	[2]	[2]	[2]			[MS 2] [SC 2]								[2]
			DR	5 [7]		[7]		[7]	[7]	[7]	[7]			MS 5[7] SC 5[7]								[7]
Rome City Transit Department	Rome	GA	FR	22					22			P				X		[X]	X			
			DR	1 [2]					1 [2]													
University of Georgia (Campus Transit)	Athens	GA	FR	45	TR	[45]		45	[45]		[45]	P,[W]					X			X		
			DR	6		[6]			[6]		[6]											
Bettendorf Transit System	Bettendorf	IA	FR	7	TR,DIG							P,[I]					X		X		X	7
			DR	1																		[1]
Coralville Transit System	Coralville	IA	FR	9 [10]	[TR]							P		[MS 10]	[X]							
			DR	2										[MS 2]								
Davenport CitiBus	Davenport	IA	FR	20															X		[X]	
Dubuque-Keyline Transit	Dubuque	IA	FR	12	DIG	[12]		[12]			[12]	P,[W]		[SC 12]		X		X	[X]	[X]		
			DR	8		[8]			[8]		[8]			[SC 8]								
Five Seasons Transportation	Cedar Rapids	IA	FR	72	TR,DIG	72			72		72	P,W				[X]			X	X		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Iowa City Transit	Iowa City	IA	FR	21 [22]	TR,DIG							P		MS 21[22] [SC 22]	[X]				[X]			
			DR	10		10			10	10	10											
Metropolitan Transit Authority of Black Hawk County	Waterloo	IA	FR	19	TR							[P]									X	
			DR	20																		
Sioux City Transit System	Sioux City	IA	FR	28 [30]	TR,[DIG]	28 [30]		[28]	[20]	[28]		P,W,[I]	[T,H]	[MS 10] [SC 1]		[X]	[X]	[X]	X	X	X	[25]
			LR	[4]		[4]		[2]	[4]	[4]				[SC 1]								[4]
			DR	14		[14]		[14]	[14]	[14]				[MS 5]								[5]
			FB	[2]		[2]		[2]	[2]	[2]				[MS 2] [SC 2]								
Siouxland Regional Transit System	Sioux City	IA	DR	42 [45]	TR,DIG	[20]					[45]	P,[W]					[X]					
University of Iowa, CAMBUS	Iowa City	IA	FR	28 [33]	TR,[DIG]							P,[W]	[T]		X			[X]				
			DR	5																		
Pocatello Regional Transit	Pocatello	ID	FR	12 [13]	TR,DIG	[13]		[13]	[13]	[13]	[13]	P,[W,I]		[SC 13]		X			[X]	[X]		[13]
			DR	21 [23]		[23]			[23]	[23]	[23]			[SC 23]								
Bloomington-Normal Public Transit System	Bloomington	IL	FR	15								P										

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Champaign-Urbana Mass Transit District	Urbana	IL	FR	89	TR	[89]		[89]	89	[89]	[89]	P,[W,I]							X	X	X	[89]
			DR	4 [5]		[5]			4 [5]	[5]	[5]											
City of Pekin Municipal Bus	Pekin	IL	FR	2								P,I		SC 2		[X]		[X]				
Decatur Public Transit System	Decatur	IL	FR	20	TR,DIG							P										
			DR	3 [4]																		
Greater Peoria Transit (CityLink)	Peoria	IL	FR	52 [56]		[56]		[56]	[56]		[56]	P,[W],I		[SC 56]					X	X	X	
			DR	22 [25]		22 [25]			[25]		22 [25]											
Madison County Transit District	Granite City	IL	FR	76	TR,DIG	[76]	[F,A]	[20]		[76]		P		[SC 76]	[X]				[X]	[X]		
			DR	30		[30]			[30]	[30]	[30]			[SC 30]								
River Valley Metro Mass Transit District	Kankakee	IL	FR	6 [11]	[TR,DIG]							[P]		[MS 11]						[X]		
			DR	2 [4]										[MS 3]								
Rock Island County Mass Transit (METROLINK)	Rock Island	IL	FR	59		[59]		[59]	[59]	[59]	[59]	P,W,I	[H]			X	[X]	[X]	X		X	[25]
			DR	9		[9]			[9]	[9]	[9]											
			FB	2 [3]		[3]		[3]	[3]	[3]	[3]											

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Rockford Mass Transit District	Rockford	IL	FR	39		[4]				[4]	[4]	P,[W,I]		MS 39					[X]			
			DR	25		[25]			[25]	[25]	25											
Springfield Mass Transit District	Springfield	IL	FR	50		[50]		[50]			[50]	P,[W]							X			
			DR	14 [15]		[15]		[15]			[15]											
Bloomington Public Transportation Corporation	Bloomington	IN	FR	37 [40]	TR	[40]					[40]	P							[X]			
			DR	6 [7]		[7]					[7]											
City Bus	Lafayette	IN	FR	65 [75]	TR	[50]			[50]	[50]	[50]	P,[W,I]						[X]	[X]	[X]	[X]	
			DR	5 [8]																		
City of Anderson Transportation	Anderson	IN	FR	8																		
			DR	10																		
Fort Wayne Public Transportation Corporation (Citilink)	Fort Wayne	IN	FR	33 [38]	TR,DIG	33 [38]						P,[W,I]		MS 33[38] SC 33[38]		X		X	X	X	X	
			DR	11 [14]		11 [14]			[14]													
Heart City Rider	Elkhart	IN	DR	5	[DIG]	[5]		[5]			45 [50]	P		[MS 50] [SC 50]		[X]		X				
Kokomo/Howard County Governmental Coordinating Council	Kokomo	IN	DR	25 [30]	[TR,DIG]	[30]		[30]	[30]	[30]	[30]	P,[W]		[SC 30]		[X]	[X]	[X]				

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Metropolitan Evansville Transit System	Evansville	IN	FR	27	DIG				27	27		P,W				X			X		X	
			DR	15					15	15	15											
Michiana Area Council of Government	South Bend	IN	FR	6 [8]	[DIG]	[8]						P,[I]		[MS 8]			X			[X]		
			DR	35 [38]		[10]			[10]					[MS 15]								
Muncie Indiana Transit System	Muncie	IN	FR	33	[TR]	30 [33]		[5]	30 [33]	30 [33]	30 [33]	P,[W,I]		MS 30[33]					X	X	X	[30]
			DR	14		14			14	14	14			MS 14								
South Bend Public Transportation	South Bend	IN	FR	52	[DIG]					52		P,W,I		MS 52 [SC 52]					X	X	X	
			DR	8						8												
Terre Haute Transit Utility	Terre Haute	IN	FR	6 [8]								P,I				[X]	[X]	[X]	[X]		X	
			DR	3 [5]																		
Johnson County Transit	Olathe	KS	FR	30 [33]	TR,DIG	[33]		[5]	[33]	[33]		P,[W,I]	[T]	[MS 33]	X		[X]	[X]		[X]		
			DR	46 [48]		29 [48]		[5]	29 [48]	29 [48]	29 [48]			[MS 10]								
Topeka Metropolitan Transit	Topeka	KS	FR	26 [29]		[5]		[5]				P				X		X	X		X	
			DR	15 [16]																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Ashland Bus System	Ashland	KY	FR	4								P										
			DR	2 [4]																		
Henderson Area Rapid Transit	Henderson	KY	FR	6								P										
			DR	3																		
LEXTRAN	Lexington	KY	FR	50 [80]		[40]			50	[50]		P,[W]		SC 50[75]					[X]			
			DR	30 [45]		[35]				[35]												
Owensboro Transit System	Owensboro	KY	FR	6	DIG					5		P										
			DR	3		3					3											
Transit Authority of Northern Kentucky	Ft. Wright	KY	FR	101 [115]	TR	101 [115]	F,A		101 [115]	101 [115]	101 [115]	P,[W]	T,H	MS 101[115]	X		X	X	X	X	X	
			DR	22 [26]		22 [26]			22 [26]	22 [26]	22 [26]			MS 22[26]								
City of Alexandria (ATRANS)	Alexandria	LA	FR	8	TR							P,I							X		X	
			DR	3 [4]																		
CityBus of Greater Lafayette	Lafayette	LA	FR	18	TR,[DIG]	[18]				[18]	[18]	P,[W,I]		MS 18 [SC 16]			[X]	X	X	X	X	
			DR	5																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Lake Charles Transit System	Lake Charles	LA	FR	6 [10]	TR			[2]				P,[W,I]	[T,H]			[X]			X			[10]
			DR	2				[1]														
Monroe Transit System	Monroe	LA	FR	18 [19]	DIG							P,I										
			DR	2 [4]																		
Shreveport Transit System	Shreveport	LA	FR	45	TR,DIG	[45]				[45]		P,[I]		MS 45				[X]	X	X		
			DR	12		[12]				[12]	[12]											
Terrebonne Parish Good Earth Transit System	Houma	LA	FR	6	TR							P							X		X	
			DR	1																		
Berkshire Regional Transit Authority	Pittsfield	MA	FR	16 [20]								P,[W,I]				X	[X]			[X]		[20]
			DR	19 [25]					[10]		[10]											
Brockton Area Transit Authority	Brockton	MA	FR	52	TR,DIG							[P]		MS 44		X			X	X		[44]
			DR	44		[33]			[33]		33											
Cape Ann Transportation Authority	Gloucester	MA	FR	21								P,W,[I]		[SC 21]		X						
			DR	12										[SC 12]								

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Cape Cod Regional Transit Authority	Dennis	MA	FR	23 [35]	[TR,DIG]	23 [35]			23 [35]	23 [35]	23 [35]	P,W,[I]	T,[H]	MS 23[35] SC 23[35]		X	[X]	[X]		X	X	
			DR	65 [70]		65 [70]			65 [70]	65 [70]	65 [70]			MS 65[70] SC 65[70]								
Lowell Regional Transit Authority	Lowell	MA	FR	40 [46]		[15]				[15]	[15]	P		MS 36[42]		X						
			DR	34 [36]																		
Montachusett Regional Transit Authority	Fitchburg	MA	FR	24 [27]	[DIG]							P,I	[T,H]			X						
			DR	78 [98]		15 [50]		15 [50]	15 [50]		15 [50]											
Southeastern Regional Transit Authority	New Bedford	MA	FR	52 [50]	TR,DIG	[50]		[50]		[50]	[50]	P,[I]		[MS 50]		[X]	[X]		X			
			DR	20 [26]		[26]		[26]		[26]	[26]			[MS 26]								
Worcester Regional Transit Authority	Worcester	MA	FR	55								P,W							X			
			DR	140							140											
Allegany County Transit	Cumberland	MD	FR	9								P							[X]			
Annapolis Transit	Annapolis	MD	FR	18 [21]	TR,DIG	[21]			[21]		[21]	P,[W]	[T]	[MS 21] [SC 21]	[X]	[X]	[X]	[X]	[X]			
			DR	3 [4]		[4]			[4]		[4]			[MS 4] [SC 4]								
Transit Services of Frederick County	Frederick	MD	FR	10 [24]								P		[SC 24]	[X]							
			DR	28 [32]																		

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Washington County Transportation Department	Hagerstown	MD	FR	14	TR							P,W		[SC 14]	[X]	[X]		[X]				
			DR	4																		
Bangor Area Comprehensive Transportation System	Bangor	ME	FR	10 [14]								P										
Casco Bay Island Transit District	Portland	ME	FB	5	DIG	[5]		[5]			[5]	P,[W,I]	[T,H]		[X]			[X]				
Chebeague Transportation Co.	Chebeague Island	ME	FR	3								P										
			FB	2																		
Coastal Trans	Rockland	ME	FR	1 [3]																		
			DR	20 [22]																		
CYR Bus Line	Old Town	ME	FR	1		1						P										
Downeast Transportation	Ellsworth	ME	FR	17 [23]	DIG	17		17	17		17	P,W,I	H									
Frye Island Ferry	Frye Island	ME	FB	2								P										
Greater Portland Transit District	Portland	ME	FR	21 [26]	TR,[DIG]	[26]		[26]	[26]	[26]	[26]	P,W,[I]	T	[MS 26] [SC 26]	[X]	[X]	[X]	[X]	[X]	X		[26]
Kennebec Valley Community Action Program	Waterville	ME	FR	4								P				X						
			DR	16 [18]										[SC 5]								
Monhegan Boat Line	Port Clyde	ME	FB	2	[DIG]				[1]			P,W,[I]		[MS 1] [SC 1]		[X]						

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South Portland Bus Service	South Portland	ME	FR	7 [8]	DIG	[8]			[8]		[8]	P,[W],I	T,[H]					[X]				
The Regional Transportation Program	Portland	ME	DR	36 [45]	[DIG]	[12]			[12]		36 [45]	P,[I]	[T,H]	[SC 12]		X		X				
Waldo County Transportation	Belfast	ME	FR	1								P										
			DR	10																		
Western Maine Transportation Services (Pine Tree Transit)	Mexico	ME	FR	8 [9]								P				X						
			DR	28 [31]																		
York County Community Action Corp.	Sanford	ME	DR	23 [25]								P				X						
Battle Creek Transit	Battle Creek	MI	FR	15 [17]	TR	15 [17]			15 [17]		15 [17]	P,[W,I]		[MS 17]					[X]	X	X	
			DR	11		11			11		11			[MS 11]								
Bay Metro Transportation Authority	Bay City	MI	FR	34	TR,DIG							P							X			
			DR	25																		
Blue Water Area Transit	Port Huron	MI	FR	12	TR						12	P,W				[X]						
			DR	27 [38]							27 [38]											
Capital Area Transportation Authority	Lansing	MI	FR	108 [149]	[TR,DIG]							P,I				X						

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Jackson Transportation Authority	Jackson	MI	FR	11 [13]		[13]					[13]	P,[W,I]		MS 11[13] SC 11[13]		X			X	[X]		
			DR	43 [48]		[48]			[48]		[48]											
Kalamazoo Metro Transit System	Kalamazoo	MI	FR	40 [42]	TR,[DIG]	[42]			[42]	[42]	[42]	P,[W]				[X]		[X]	X	X		
			DR	6		[6]			[6]	[6]	[6]											
Macatawa Area Express (MAX)	Holland	MI	FR	6 [10]								P				[X]	[X]	[X]				
			DR	11																		
Mass Transportation Authority	Flint	MI	FR	224 [90]	TR	[90]	[F]	[5]	[90]	[90]	[90]	P,[W]	[T,H]	SC 224[90]					X	X	X	
			DR	154 [175]		[175]			[175]	[175]	[175]			[SC 175]								
Muskegon Area Transit	Muskegon	MI	FR	18	TR							[P]				[X]						
			DR	6					[5]		6											
Niles Dial-A-Ride	Niles	MI	DR	8 [9]								P										
Saginaw Transit Authority Regional Services	Saginaw	MI	FR	72 [80]	TR,[DIG]	[15]	[F]	[80]	[80]	[80]	[80]	P,[W,I]		[MS 80] [SC 80]		[X]	[X]	[X]	X	[X]		
			DR	36 [46]		[15]		[46]	[46]	[46]	[46]											
Twin Cities Area Transportation Authority	Benton Harbor	MI	FR	2	DIG	2																
			DR	17		17																

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Duluth Transit Authority	Duluth	MN	FR	72	TR,DIG	72		10	72	72	72	P,W,I	[T,H]	[SC 72]		[X]	X	[X]	X	X	X	
			DR	10 [13]		10 [13]			10 [13]	10 [13]	10 [13]											
Mankato Heartland Express	Mankato	MN	FR	13					12													
			DR	3																		
Moorhead Metro Area Transit	Moorhead	MN	FR	8	TR							P		[MS 2]		X		X	[X]			[4]
			DR	3		[2]			[2]		2											
Rochester City Lines	Rochester	MN	FR	34 [41]								P,[W]		[SC 41]		[X]			X			[41]
			DR	4 [6]							[6]			[SC 6]								
St. Cloud Metropolitan Transit Commission	St. Cloud	MN	FR	30 [33]		[33]					[33]	P,[I]		MS 30[33]			X	[X]	[X]	X	[X]	30 [33]
			DR	14 [20]		14 [20]			14 [20]		14 [20]			MS 14[20]								[20]
City of St. Joseph Transit	St. Joseph	MO	FR	[21]	TR	[21]			[21]	[21]	[21]	P,[I]						X	[X]	[X]	[X]	
			DR	21		21			[21]	21	21											
City Utilities of Springfield	Springfield	MO	FR	23 [25]	[TR,DIG]							P		[MS 25]					[X]	X		
			DR	5										[MS 5]								

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Columbia Transit System	Columbia	MO	FR	17	DIG				17			P							X		X	
			DR	8																		
Jefferson City Transit	Jefferson	MO	FR	16								P							X			
			DR	6																		
City of Jackson Transit System (Jatran)	Jackson	MS	FR	27	TR,[DIG]	[27]		[27]	[27]	[27]		P,[W,I]	[H]	MS 27 [SC 27]		[X]	[X]		[X]	X		[27]
			DR	9 [12]		[12]				[12]	9 [12]											
Coast Transit Authority	Gulfport	MS	FR	20 [22]	DIG							P,W				[X]						
			DR	19																		
Hattiesburg Mass Transit System	Hattiesburg	MS	FR	4 [6]				[1]			[4]	P,[W,I]		[MS 3]		[X]	[X]					
			DR	3				[2]			[2]			[MS 2]								
Billings Metropolitan Transit	Billings	MT	FR	23 [25]	TR																	
			DR	15																		
Great Falls Transit District	Great Falls	MT	FR	17	TR							P								X		
Asheville Transit System	Asheville	NC	FR	19 [20]	TR,DIG			[7]				P,W							X			[10]

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Fayetteville Area System of Transit	Fayetteville	NC	FR	16	TR,DIG	[16]		[16]	[16]		[16]	P,[W],I		MS 16 [SC 8]		X	[X]		X	[X]		
			DR	14		[14]			[14]		[14]			MS 8[14] [SC 8]								
Greenville Area Transit	Greenville	NC	FR	6 [7]								P,[W,I]	[T,H]									
Piedmont Wagon Transit System	Hickory	NC	FR	4 [7]	TR,DIG	[7]				[7]	[7]	P,I	[T,H]	[MS 7] [SC 7]		[X]	[X]	[X]	[X]	[X]	[X]	[7]
			DR	2 [3]		[3]				[3]	[3]			[MS 3] [SC 3]								
Rocky Mount Transit	Rocky Mount	NC	FR	6	TR							P	[T,H]			X	X	X		X	X	
			DR	3																		
Wilmington Transit Authority	Wilmington	NC	FR	16 [21]	TR,DIG	[16]				[16]	[16]	P,[I]	[H]	[MS 16]				[X]		[X]	[X]	
			DR	2																		
Bis-Man Transit Board	Bismarck	ND	FR	[5]							[5]	P,[W]										
			DR	25 [28]							25 [28]											
Grand Forks City Bus	Grand Folks	ND	FR	16 [18]	DIG	[16]		[16]	[16]	4 [16]	[4]	P,[W],I		[MS 14]				[X]	X			6 [12]
StarTRAN	Lincoln	NE	FR	46	TR			5				P						[X]				
			DR	9																		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Community Transportation Services	Claremont	NH	FR	4								P										
			DR	2 [3]																		
Concord Area Transit	Concord	NH	FR	4 [6]	DIG,[TR]	[6]		[6]		[6]	[6]	P,[W,I]	[T]	[MS 6]	[X]	X	[X]	[X]	[X]	[X]	[X]	
			DR	4 [6]		[6]		[6]	[6]	[6]	4 [6]			[MS 6]								
Cooperative Alliance For Seacoast Transportation	Dover	NH	FR	17 [20]		[20]			[20]		[20]	P				X			[X]			
			DR	1 [2]		[2]			[2]		[2]											
Greater Laconia Transit Agency	Gilford	NH	FR	3	DIG							P		[MS 3]		X						
			DR	3										[MS 3]								
HCS Community Care Inc.	Keene	NH	FR	3								P				X						
			DR	2																		
Manchester Transit Authority	Manchester	NH	FR	13	TR,[DIG]							P		[MS 13]						[X]		
			DR	2 [4]										[MS 4]								
Nashua Transit System (Citybus)	Nashua	NH	FR	6	TR,DIG							P,W				[X]	[X]					
			DR	9																		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
North Country Transportation	Berlin	NH	FR	1 [2]	TR,[DIG]							P				[X]		[X]				
			DR	7																		
DeCamp Commuter Services	Montclair	NJ	FR	80								P,I							X		X	
Lakeland Bus Lines, Inc.	Dover	NJ	FR	79 [83]	DIG				75 [78]			P,I				X			X			
Olympia Trails Bus Company	Elizabeth	NJ	FR	35 [40]	DIG							P				[X]			[X]			
Roadrunner Transit	Las Cruces	NM	FR	17	TR							P							[X]	X		
			DR	13																		
Santa Fe Trails Transit System	Santa Fe	NM	FR	25								P,W,I				[X]						
ATC/VanCom Paratransit	North Las Vegas	NV	FR	304 [350]	TR,DIG	302 [348]		70 [100]	302 [348]	302 [348]	302 [248]	P,W		MS 304[350]			X		X	X	X	[200]
			DR	127 [140]		127 [140]		127 [140]	127 [140]		127 [140]											[100]
Regional Transportation Commission of Washoe County (Citifare)	Reno	NV	FR	70 [73]	TR	[73]		5 [70]	5 [70]	[70]	[70]	P,[W,I]	[T,H]	MS 70[73]				X	X	X	X	[70]
			DR	38 [40]		[40]			3 [40]	[40]	[40]			[MS 40]								
Atlantic Express Transportation Group, Inc.	Staten Island	NY	FR	50	TR									MS 34	X							
			DR	200																		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Broome County Transit	Vestal	NY	FR	43	DIG			43				P		[MS 43]			[X]	[X]	X	X	[X]	
			DR	10																		
Chemung County Transportation Services Transit System	Elmira	NY	FR	21	TR,[DIG]							P,[W,I]	[T,H]			[X]	[X]	[X]				
			DR	8																		
City of Rome Transit Department	Rome	NY	FR	5	TR																	
			DR	2																		
Dutchess County Mass Transportation Division	Poughkeepsie	NY	FR	26	TR							P,W							X			
			DR	20																		
Greater Glens Falls Transit System	Queensbury	NY	FR	12			[A]					P,W,[I]				[X]				[X]		
			DR	2 [4]																		
Lester Lines	Wallkill	NY	FR	2								P				[X]	[X]	[X]				
New Windsor-Cornwall Dial-A-Bus	New Windsor	NY	DR	3																		
Newburgh-Beacon Bus Corporation	Newburgh	NY	FR	3 [5]	TR,[DIG]	[5]		[5]	[5]	[5]		P,W,[I]		[MS 5] [SC 5]	[X]			[X]	[X]	[X]		
Poughkeepsie Transit System	Poughkeepsie	NY	FR	10 [9]	DIG							P							X			

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Progressive Transportation of Clinton, Inc	Plattsburgh	NY	FR	8 [10]								P				X		[X]				
			DR	2 [4]																		
Tompkins Consolidated Area Transit	Ithaca	NY	FR	47 [48]	[TR,DIG]	47 [48]			[10]		[48]	P,[W]	[T]	MS 47[48] [SC 48]		[X]	[X]	[X]	X	X		[25]
			DR	4 [8]		[8]			[8]		[8]			[MS 8]								
Utica Transit Authority	Utica	NY	FR	33						26 [33]		P				X						
			DR	5																		
Allen County Regional Transit Authority	Lima	OH	FR	10								P									X	
			DR	4 [6]																		
Chillicothe Transit System	Chillicothe	OH	FR	7								P				X						
			DR	3																		
Middletown Transit	Middletown	OH	FR	4	DIG							P,W,I				[X]	[X]					[4]
			DR	1 [2]																		
Newark-Heath Taxi Token Program	Newark	OH	FR	3																		
			DR	35																		

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Portage Area Regional Transportation Authority	Kent	OH	FR	7 [12]		[12]			[12]	[12]	[12]						[X]		[X]	[X]		
			DR	25 [35]		[35]			[35]	[35]	[35]											
Richland County Transit	Mansfield	OH	FR	10								P				X		X				
			DR	3																		
Stark Area Regional Transit Authority	Canton	OH	FR	49	[TR,DIG]							P,[W],I						[X]				
			DR	42																		
Steel Valley Regional Transit Authority	Steubenville	OH	FR	5								P										
			DR	2																		
Lawton Area Transit System	Lawton	OK	FR	10 [12]	TR,DIG					3		P										
Lane Transit District	Eugene	OR	FR	101 [103]		19 [103]	[F,A]	19 [103]	19 [103]	19 [103]	19 [103]	P,[W,I]		[SC 103]		[X]		[X]	X	X	[X]	[6]
Rogue Valley Transportation District	Medford	OR	FR	21 [27]	DIG	[27]	[A]	[27]	[27]	[27]	[27]	P,[W,I]				[X]		[X]		X	[X]	[27]
			DR	44 [55]							[55]											
Salem Area Mass Transit District	Salem	OR	FR	69 [75]	TR	[36]		[15]		[36]	[36]	P,W,I	[T]			X		X	[X]	X		
Altoona Metro Transit (AMTRAN)	Altoona	PA	FR	28	TR,DIG							P,W,I										
			DR	1																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Area Transportation Authority of N. Central Pennsylvania	Johnsonburg	PA	FR	17 [20]	[TR,DIG]	[20]	[A]	[20]	[20]	[20]	[20]	P,[W,I]	[H]	[SC 20]		X			[X]	[X]		[20]
			DR	68 [65]		[65]			[65]	[65]	[65]			[SC 65]								[65]
Berks Area Reading Transportation Authority	Reading	PA	FR	52								P,W,I		MS 52		X		[X]		X		
			DR	35 [38]																		
Cambria County Transit Authority	Johnstown	PA	FR	25	DIG	[25]						P,W,I		MS 25		X						
			DR	2		[2]					[2]			MS 2								
Centre Area Transportation Authority	State College	PA	FR	56	[TR,DIG]	[50]		[50]		[50]		P,W,[I]		[MS 56]					[X]	[X]	[X]	[44]
			DR	4																		
Erie Metro Transit Authority	Erie	PA	FR	65	TR														X	X		
			DR	40																		
Mid Mon Valley Transit Authority	Charleroi	PA	FR	24 [26]	TR,DIG			[26]	14 [26]		[26]	P,W,[I]		[MS 14]	[X]			[X]	[X]			
			DR	2							[2]											
Pottstown Urban Transit	Pottstown	PA	FR	8								P,[I]										
			DR	2																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Red Rose Transit Authority	Lancaster	PA	FR	43		43						P,W,[I]						[X]	[X]	X		
			DR	38		[38]																
Shenango Valley Shuttle Service	Hermitage	PA	FR	4	[TR]	4			[4]	[4]		P,W,I		[MS 4]		X	[X]		[X]	X		
			DR	1		1			[1]	1	[1]			MS 1								
Williamsport Bureau of Transportation (City Bus)	Williamsport	PA	FR	25 [30]	DIG,[TR]	2 [30]		[30]	25 [30]		[30]	P,W,I		MS 25[30] [SC 30]		[X]			X	X		
			DR	2 [4]							[4]											
York County Transportation Authority (Rabbit Transit)	York	PA	FR	34 [36]		[36]		[12]	[36]		[36]	P,[W,I]		[MS 36] [SC 36]		X		[X]		X	[X]	
			DR	37 [42]		[42]			[42]		[42]											
Aiken County Transit System	West Alken	SC	FR	4 [6]												X	[X]	X				
			DR	4																		
Anderson Transit Authority	Anderson	SC	FR	3 [4]																		
Charleston Area Regional Transportation Authority	Charleston	SC	FR	46 [66]	TR,DIG	[66]			[66]		[66]	P,W,[I]	[T,H]	MS 46[66]			[X]	[X]	X	X		[66]
			DR	13 [16]		[16]			[16]		[16]			MS 13[16]								
Columbia Area Transit System	Columbia	SC	FR	43 [49]	TR,[DIG]	[49]		[49]			[49]	P,W,I		MS 43[49] [SC 49]					[X]	[X]		
			DR	17 [22]		[22]					[22]			[MS 22]								

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Pee Dee Regional Transportation Authority	Florence	SC	FR	6 [4]		[4]			[4]		[4]	[P]				[X]	[X]	[X]	[X]	[X]		
			DR	130 [140]		[140]			[140]		[140]											
Santee Wateree Regional Transportation Authority	Sumter	SC	FR	15 [20]	[TR,DIG]	[7]				[2]	[7]	P,[W]				X	[X]	[X]	[X]	[X]	[X]	
			DR	59 [65]		[20]					[20]											
Spartanburg County Transportation	Spartanburg	SC	DR	34	DIG	[10]			[10]		34	P				X	[X]					
Waccamaw Regional Transportation Authority (Lymo)	Conway	SC	FR	43 [125]	[TR,DIG]	[20]		[20]	[20]	[20]	[20]	P,W,I	[H]	[MS 20] [SC 20]					[X]	[X]	[X]	[20]
			DR	23 [75]		[20]		[20]	[20]	[20]	[20]											
Rapid Transit System	Rapid City	SD	FR	6	TR,[DIG]	[6]	[A]				[6]	P,W,I	[T,H]						[X]			
			DR	12		[12]					[12]											
Sioux Falls Transit	Sioux Falls	SD	FR	27	[TR,DIG]		[A]					P				[X]		[X]		[X]		
			DR	21		[21]			[21]		[21]											
Bristol Tennessee Transit	Bristol	TN	FR	4															X			
			DR	2																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Chattanooga Area Regional Transit Authority	Chattanooga	TN	FR	67 [71]	TR	[71]		[4]	[71]	[71]	[71]	P,W,[I]				[X]	[X]	[X]	[X]	X	[X]	54
			LR	2		[2]			[2]		[2]											
			DR	15		[15]			[15]	[15]	15											
Clarksville Transit System	Clarksville	TN	FR	13 [17]	TR,[DIG]	[17]						P		[MS 17]					X	X		
			DR	8 [12]		[12]				[12]	[12]			[MS 12]								
Jackson Transit Authority	Jackson	TN	FR	14 [15]	[DIG]			[10]				P					[X]		[X]			
			DR	6 [8]		[4]		[4]			[4]											
Johnson City Transit System	Johnson	TN	FR	6	TR							P,I					[X]					
			DR	8 [9]																		
Kingsport Area Transit Service	Kingsport	TN	FR	4 [2]	DIG							P							X			
			DR	5																		
Mountain Line	Missoula	TN	FR	19								P,I		MS 19								
			DR	4																		
Amarillo City Transit System	Amarillo	TX	FR	12	TR,DIG							P							[X]			
			DR	4 [6]																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Beaumont Municipal Transit System	Beaumont	TX	FR	16 [23]								P							X		X	
			DR	7 [9]																		
Brownsville Urban System	Brownsville	TX	FR	16 [22]	TR	[22]		[22]	[22]		[22]	P,[W,I]	[T,H]	[MS 22]			[X]	[X]		X		[7]
			DR	8 [12]		[12]			[12]		[12]											
Citibus	Lubbock	TX	FR	56 [66]	TR,[DIG]							P,I		[MS 52]			X					
			DR	27		25			25		25			[MS 27]								
City of Arlington, HANDITRAN	Arlington	TX	DR	17								P					[X]					
City of Longview Transportation	Kilgore	TX	FR	0 [8]	TR,DIG							P										
			DR	4																		
CityLink	Abilene	TX	FR	20 [26]	TR	[13]						P						[X]		X		
			DR	17 [25]		[17]			[25]		[25]											
Grand Prairie Transit Services	Grand Prairie	TX	DR	11								P										
Mesquite City Transit	Mesquite	TX	DR	10 [14]					[14]	[14]	[14]	P						X				
Port Authur Transit	Port Authur	TX	FR	5																		
			DR	4																		

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Regional Transportation Authority	Arlington	TX	FR	80		80		80	80	80	80	P,[W,I]	[T,H]									
			FB	1																		
San Angelo Street Railroad Company	San Angelo	TX	FR	7 [8]	TR							P,I					X					
			DR	8 [9]																		
Temple Transit	Temple	TX	FR	18 [23]	TR			[23]	[23]			P,I				X			X			
			DR	26 [29]					[29]													
Texoma Area Paratransit System	Sherman	TX	DR	17 [20]								P,W				[X]	[X]	[X]				
The District	Bryan	TX	FR	18	TR																	
			DR	50																		
The Gulf Coast Center (Connect Transportation)	Galveston	TX	DR	30 [33]	DIG	[33]			[33]		[33]	[P]				[X]						
Waco Transit	Waco	TX	FR	16 [20]	TR							P		[MS 20]		[X]			[X]	X	X	
			DR	8 [10]																		
Wichita Falls Transit System	Wichita Falls	TX	DR	12								P										
Logan Transit District	Logan	UT	FR	16 [18]	TR,[DIG]	[18]			[18]		[18]	P,[W]				X		X	X	[X]	X	[18]
			DR	6		[6]			[6]		[6]											

Table 4. APTS Deployment by Transit Agency Outside the United States' '78 Largest Metropolitan Areas

Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Alexandria Transit Company (DASH)	Alexandria	VA	FR	44 [51]	TR,DIG	[3]						P	[T]	[SC 51]	X							
Blacksburg Transit	Blacksburg	VA	FR	45 [50]		[50]		[50]	[50]	[50]	[50]	P,[W],I	[T,H]	[MS 50]		[X]	[X]	X		X		
			DR	5 [7]		[7]			[7]	[7]	[7]			[MS 7]								
Bristol Virginia Transit	Bristol	VA	FR	3								P				X						
			DR	1 [2]																		
Danville Mass Transit	Danville	VA	FR	6	TR,DIG							P						X		[X]		
			DR	4		[2]																
Greater Lynchburg Transit Company	Lynchburg	VA	FR	18 [21]	[TR,DIG]	5 [21]				[21]	[21]	P,[W],I		MS 18[21] [SC 21]				[X]	[X]	X		[21]
			DR	3 [5]		[5]			[5]	[5]	[5]			MS 3[5] [SC 5]								
Greater Roanoke Transit Company	Roanoke	VA	FR	40 [42]	[TR,DIG]							P		[MS 42]						X		
JAUNT	Charlottesville	VA	DR	72		10 [72]			10 [72]		72	P				X		X				
Loudoun County Commuter Bus Service	Leesburg	VA	FR	15 [20]		[20]					[20]	P,[W,I]		[SC 20]	X	[X]						
Virginia Railway Express	Alexandria	VA	CR	73	TR,DIG	22				22		P,I		SC 18	[X]		X	[X]				
Williamsburg Area Transport	Williamsburg	VA	FR	3 [12]	[DIG]							P,[W,I]	[T,H]	[MS 10]	X			[X]			[X]	
			DR	2 [3]																		

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Addison County Transit Resources	Middlebury	VT	FR	3 [5]								P,W				X	[X]					
			DR	5 [7]																		
Advance Transit	Wilder	VT	FR	25 [28]	[TR]						[8]	P								X		
Brattleboro BeeLine	Brattleboro	VT	FR	1				[1]				P,W,I					[X]				X	
			DR	1																		
Chittenden County Transportation Authority	Burlington	VT	FR	42 [50]	[TR,DIG]	[50]		[50]	[20]	[50]	[50]	P,[W,I]		MS 42[50]					X		X	[50]
			DR	[15]																		
Fort Ticonderoga Ferry	Shoreham	VT	FB	1								P,W				X						
Green Mountain Express	Bennington	VT	FR	4 [6]	DIG					4 [6]	[6]	P,W				X		X	[X]			
			DR	18 [22]							[22]											
Lake Champlain Ferries	Burlington	VT	FB	8								P,W										
Rural Community Transportation	St. Johnsbury	VT	FR	8 [10]						3 [4]		P,I				X						
			DR	12 [16]						12 [16]												
Town & Village Bus	Chester	VT	FR	12 [15]			F,A					P										
			DR	7 [10]																		

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Ben Franklin Transit	Richland	WA	FR	44 [52]		4 [12]						P,W	[T,H]						X	X		12 [52]
			DR	59 [67]					59 [67]		59 [67]											
Community Urban Bus Service	Longview	WA	FR	5 [6]								P,W										
			DR	8 [9]																		
CTRAN	Vancouver	WA	FR	105 [113]	TR,DIG	[113]		[113]				P,W	T,H				X	[X]	X	X	X	
			DR	50		[50]			[50]													
Everett Transit	Everett	WA	FR	41 [45]								P,[W]				X		[X]	X	X		
			DR	13 [15]																		
InterCity Transit	Olympia	WA	FR	43 [55]	[DIG]	[55]		[55]	[55]		[55]	P	[T,H]	[MS 55] [SC 55]				[X]	[X]	[X]	[X]	
			DR	24 [28]		[28]			[28]		[28]			[MS 28] [SC 28]								
Lewis Public Transportation Benefit Area	Centralia	WA	FR	8																		
			DR	1																		
Pullman Transit	Pullman	WA	FR	14								P		MS 14								
			DR	4 [5]										MS 4[5]								

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Agency	City	State	Service Type	Vehicle 2002 [2005]	Advanced Communications	Automatic Vehicle Location	Vehicle Probes	Automatic Passenger Counters	Mobile Data Terminals	Vehicle Component Monitoring	Automated Operations Software	Automated Transit Information	Multi-Modal Traveler Information	Automated Fare Payment	Multi-Carrier Fare Integration	Mobility Manager	Transportation Management Center	ITS Integration	Surveillance Cameras	Silent Alarms	Covert Microphones	Traffic Signal Priority
Spokane Transit Authority	Spokane	WA	FR	127 [126]	[TR,DIG]	[126]		[126]	[126]	[126]	[126]	P,W,I		MS 127[126] [SC 126]		[X]	X	[X]	[X]	[X]		
			DR	67		67		[67]	67	[67]	67			[SC 67]								
Valley Transit	Walla Walla	WA	FR	16 [10]		3 [5]			3 [5]		3 [5]	P		MS 3[5]		X			X	X	X	
			DR	7		7			7		7			MS 7								
Whatcom Transportation Authority	Wilmington	WA	FR	38	TR,DIG							P,[W]		MS 38						X		
			DR	38							38											
Yakima Transit	Yakima	WA	FR	21	TR							P,W										
Belle Urban System	Racine	WI	FR	39 [35]	DIG	[35]		[35]	[35]	[10]	[35]	P,[W,I]							[X]	X	[X]	
			DR	12																		
Beloit Transit System	Beloit	WI	FR	12						4 [6]		P,I							X	X		
Chippewa Falls Shared Ride Taxi Program	Chippewa Falls	WI	DR	8 [9]	DIG							P										
Eau Claire Transit	Eau Claire	WI	FR	22 [24]				[24]				P,[W]		[SC 24]		X			X	X	X	
Green Bay Transit	Green Bay	WI	FR	42	TR,DIG							P							X	X	X	
LaCrosse Municipal Transit Utility	LaCrosse	WI	FR	21 [23]	TR							P,[W],I				[X]			X		X	
			DR	6 [9]																		

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Madison Metro	Madison	WI	FR	197	[TR,DIG]	[197]		[95]	[197]	[91]	[197]	P,[W,I]	[H]	[MS 197] [SC 197]		[X]	[X]			X	[X]	
			DR	23		[23]			[23]		23			[MS 23] [SC 23]								
Onalaska Shared Ride Taxi	Onalaska	WI	DR	3 [4]								P,I										1
Oshkosh Transit System	Oshkosh	WI	FR	17								P							[X]			
			DR	28 [30]																		
Sheboygan Transit System	Sheboygan	WI	FR	25	TR,DIG							P							X			
			DR	4																		
Valley Transit	Appleton	WI	FR	25	[TR,DIG]	1	A					P				X		X				
			DR	40					[25]													
Wausau Area Transit System	Wausau	WI	FR	24 [26]								P							X	X		
			DR	5 [6]																		
Mid-Ohio Valley Transit Authority	Parkersburg	WV	FR	18		[18]					[18]	P,[W,I]							X	[X]	X	
			DR	2		[2]					[2]											
Ohio Valley Regional Transportation Authority	Wheeling	WV	FR	13	TR															X		
			DR	2																		

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Tri-State Transit Authority	Huntington	WV	FR	29 [35]		[6]				[6]		P,[W]		[MS 35]					X	X		
Casper Area Transportation Coalition	Casper	WY	FR	[6]	TR,DIG	[6]		[6]	[6]	[6]	[6]	P,W,[I]	[T]			[X]						
			DR	9 [5]		[5]			[5]		[5]											
Cheyenne Transit Program	Cheyenne	WY	FR	11								P										
			DR	5 [7]																		
Southern Teton Area Rapid Transit	Jackson	WY	FR	14 [18]								P		[MS 15] [SC 15]								
			DR	3 [5]																		

APPENDIX A - DEFINITIONS OF TERMS USED

Advanced Communications - digital radio (sound converted into binary information and transmitted across airwaves) and/or trunked radio (a computer selection of an available frequency, as opposed to manual selection or use of pre-set frequency).

Automated Fare Payment - payment schemes by which riders pay for trips by non-paper media (e.g., magnetic stripe card or smart card) purchased in advance or by credit or debit cards.

Automated Operations Software - software that displays automatic vehicle location-equipped vehicle positions, vehicle data, operator data, and communications information on dispatcher monitors; automated control software for light, heavy, or commuter rail systems; automated scheduling software for demand response service. (This category does not include basic run-cutting and scheduling packages for fixed route services which, off-line, develop set schedules for buses and drivers.)

Automated Transit Information - systems that provide information to the public, without human intervention, either on route, schedule, stop, transfer, fare, trip planning, and/or real-time schedule adherence or arrival times for fixed route service or service area, service hours, and fare information for demand responsive service. Dissemination methods can include automated telephone (including 511 systems) and cellular phone, Internet Web Site, television, pagers, personal digital assistants, kiosks, e-mail, personal computer communications, automated announcements and variable message signs inside and outside transit vehicles, and monitors at stops or stations.

Automatic Passenger Counter - an automated means of counting boarding and alighting passengers (e.g., infrared beams or treadle mats placed by the door).

Automatic Vehicle Location - position determination via an automatic technology or combination of technologies, such as Global Positioning System (triangulation of satellite signals), Signposts (beacons at known locations transmit signals picked up by vehicle), Ground-Based Radio (triangulation of radio tower signals), or Dead-Reckoning (vehicle's odometer and compass used to measure new position from previous known position), and typically includes real-time reporting of that location to a control center.

Covert Microphone - a hidden microphone on the vehicle that can be opened by the dispatcher to listen to what is happening on the vehicle during emergency situations.

ITS Integration - the sharing of information on traffic and incidents, the sharing of infrastructure (buildings, computer systems, communications), or coordinated operations with another agency (TMCs, joint development of common control strategy).

Mobile Data Terminal - a wireless device that can send and receive information over a wireless data network. MDTs typically have a small screen that displays messages sent by the dispatch center and a series of buttons that can be pushed to send preset messages to the dispatch center.

Mobility Manager - coordination of travel requests and vehicle dispatching for multiple agencies (e.g., social service agencies, HHS, transit agencies, etc.) Riders or agencies are billed by the Mobility Manager.

Multi-Modal Traveler Information - information made available to the public from a single source covering multiple modes (i.e., transit and traffic or different transit modes operated by multiple transit operators).

Multi-Carrier Fare Integration - any fare structure or payment mechanism which covers more than one provider. This includes cards, tokens, transfers, or other payment media (other than cash) that is accepted by at least two providers (including toll agencies).

Silent Alarm - an emergency signal activated by the vehicle operator pushing a concealed button that alerts the dispatch center to an emergency situation on-board the vehicle.

Surveillance Camera - a camera used to record actions taking place on the vehicle. Images are typically stored for a period of time for subsequent review of incidents.

Traffic Signal Priority - a means of giving transit vehicles priority at traffic signals by advancing the green signal phase or extending the green phase in order to minimize the delay. The priority may be actuated manually (e.g., by the driver pressing a switch on the vehicle) or automatically (e.g., linked to an AVL system).

Transportation Management Center - a facility housing the operations management centers for at least two transportation modes. This might include highway congestion mitigation (e.g., assist in incident management) and transit dispatching.

Vehicle Component Monitoring - continuous automatic remote measurement of vehicle component status (i.e., engine oil pressure, engine temperature, electrical system, tire pressure, etc.).

Vehicle Probe - AVL equipped transit bus data provided to highway agencies for calculation of roadway travel times, travel speeds, and flow conditions.

APPENDIX B - 1995-2002 DEPLOYMENT DATA

Advanced Communications

Survey Year	1995	1998	2000	2002
Operational	58	140	229	268
Planned	22	81	94	81
Total	80	221	323	349

Automatic Vehicle Location

Survey Year	1995	1998	2000	2002
Operational	22	61	88	127
Planned	64	100	142	171
Total	86	161	230	298

Vehicle Probes

Survey Year	1995	1998	2000	2002
Operational			8	13
Planned			4	27
Total			12	40

Automatic Passenger Counters

Survey Year	1995	1998	2000	2002
Operational	11	24	33	61
Planned	21	30	74	123
Total	32	54	107	184

Vehicle Component Monitoring

Survey Year	1995	1998	2000	2002
Operational	5	13	46	79
Planned	24	31	68	119
Total	29	44	114	198

Automated Operations Software

Survey Year	1995	1998	2000	2002
Operational	25	40	107	132
Planned	50	55	135	153
Total	75	95	242	272

Automated Transit Information

Survey Year	1995	1998	2000	2002
Operational	48	89	291	445
Planned	45	75	48	50
Total	93	164	339	495

Automated fare Payment

Survey Year	1995	1998	2000	2002
Operational	22	42	99	139
Planned	43	68	76	127
Total	65	110	175	266

APPENDIX B - 1995-2002 DEPLOYMENT DATA

Traffic Signal Priority

Survey Year	1995	1998	2000	2002
Operational	9	16	30	36
Planned	18	40	58	81
Total	27	56	88	117