

APPENDIX C
SUMMARIES OF ITS FIELD OPERATIONAL TESTS

OPERATIONAL TESTS AND FUNDING SUMMARY

Project Summary	Location	Funding	
		Federal ITS	Total Cost
ADVANCED METROPOLITAN TRAVEL MANAGEMENT SYSTEMS			
Advanced Traffic Management Systems (ATMS)			
FAST-TRAC This test will combine ATMS (SCATS traffic adaptive control system) and ATIS (Siemens Ali-Scout route guidance and driver Information system) for improved traffic flow. Traffic control will be provided using Autoscope video image processing technology. Infrared beacons will be installed at critical locations in the network to provide for a continuous exchange of real time traffic and route guidance information with specially equipped vehicles.	Oakland County, MI	\$56,410,000	\$70,512,500
Integrated Ramp Metering/Adaptive Signal Control This test will evaluate the effects of balancing traffic flow between I-5/1-405 and the parallel arterial streets and the various transportation management agencies to optimize their strategies to improve traffic flow. This project will integrate an existing centrally controlled freeway ramp meter system with an arterial signal system consisting of existing signal controllers, a new advanced traffic controller, and a candidate adaptive control measure.	Irvine (Orange County, CA)	\$2,617,000	\$3,271,250
ITS for Voluntary Emissions Reduction This test will evaluate real-time emissions information to drivers using infrared roadside emissions sensors and a variable message sign at a freeway entrance ramp. The test also provides education material about the fuel savings and air quality benefits of well tuned vehicles. The effectiveness of offering free or subsidized vehicle tune-ups will also be evaluated.	Denver, CO	\$304,663	\$498,358
Mobile Communications System This project will test and evaluate the use of a portable detection and surveillance system for highway construction, special events, and incident locations. Specially equipped trailers will be placed at temporary traffic congestion locations.	Orange County, CA	\$2,459,430	\$3,679,690
Montgomery County ATMS This project will enhance Montgomery County's ATMS to provide integrated transit and traffic capabilities.	Montgomery County, MD	\$1,060,000	\$1,860,000
Multi-jurisdictional Live Aerial Video Surveillance Sys. II This test evaluated live video transmission from fixed-wing aircraft to county and State traffic management centers and the feasibility of transmitting live video to mobile command centers.	Montgomery County, MD	\$645,000	\$645,000
North Seattle ATMS This project will explore methods for adjacent traffic signal systems to share loop detector and operational data to improve operations across boundaries and between adjacent systems.	North Seattle, WA	\$3,500,000	\$4,375,000

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<p>San Antonio Transguide This test documents the San Antonio advanced traffic management system design rationale and goals, evaluates the system's success in meeting the design goals, and evaluates the digital communication network for cost effectiveness and benefits versus "traditional" transportation data communication systems. An additional element of this test is the on-line evaluation and comparison of several incident detection algorithms.</p>	San Antonio, TX	\$1,049,654	\$1,485,966
<p>Satellite Communications Feasibility This project will evaluate the use of VSAT (very small aperture terminal) satellite as the communications medium for four stationary closed-circuit television (CCTV) cameras and a mobile CCTV camera and communication platform</p>	I-95 in Philadelphia, PA	\$2,220,000	\$2,800,000
<p>SCOOT Adaptive Traffic Control System This test will Implement the SCOOT in an area of the City of Anaheim's traffic control system so that it can be evaluated for its effectiveness as an adaptive signal timing control package. SCOOT automates the data collection process and then automatically optimizes traffic signal timing based on real-time traffic conditions</p>	Anaheim, CA	\$1,153,927	\$2,438,427
<p>Spread Spectrum Radio Traffic Interconnect This test will evaluate the use of spread spectrum radio as a traffic signal communications device within the Los Angeles ATISAC signal system. The radios will be tested in a network of signals to determine their ability to reliably reroute communications links, work in a variety of geographies, and provide for large-scale communications</p>	Los Angeles, CA	\$2,629,075	\$3,866,685
<p>Ada County Travel Demand Mgmt Emissions Detection This test will evaluate the feasibility of using remote sensing technology to monitor vehicle emissions Active infrared roadside emissions detection technology will be used to determine the relative contributions of in-county and out-of-county vehicles to mobile-source emissions.</p>	Ada County, ID (Boise)	\$253,000	\$319,000
<p>Connecticut Freeway Advanced Traffic Mgmt. Systems This ATMS project evaluated the use of roadside mounted radar detectors in combination with closed circuit television (CCTV) for incident detection and verification The ATMS uses 44 radar detectors (wide- and narrow-beam) and compressed video.</p>	Hartford, CT	\$600,000	\$1,380,000
<p>Evaluating Environmental Impacts of IVHS Using LIDAR This test will combine Light Detection and Ranging (LIDAR) technology for wide area emissions detection with active infrared technology for roadside emissions detection to evaluate any Improvements in air quality due to implementing traffic responsive control strategies for events at a sports complex</p>	Minneapolis and St Paul, MN	\$500,000	\$766,847

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		Federal ITS	Total Cost
Multi-jurisdictional Live Aerial Video Surveillance Sys. I This test evaluated live video transmission from a gyro-stabilized camera mounted on helicopters for use in observing, evaluating, and properly managing major highway incidents and situations of a public safety nature.	Fairfax County, VA	\$355,000	\$355,000
Smart Call Box The project will test the feasibility of using the Smart Call Boxes to collect traffic census data, obtain traffic counts, flows and speeds for incident detection; report information from roadside weather information systems; control changeable message signs, and control roadside closed-circuit television cameras.	San Diego, CA	\$915,000	\$1,607,600
TRANSMIT (TRANSCOM) This test evaluates the use of automatic vehicle identification (AVI) technology as an incident detection tool. The system consists of AVI "tag" readers, which allow vehicles equipped with transponders to serve as traffic probes to identify potential incidents by comparing actual to predicted travel times between readers.	Rockland County, NJ/Bergen County, NJ	\$2,750,000	\$3,437,500
Advanced Traveler Information Systems (ATIS)			
Atlanta Traveler Information Systems Kiosk Project This project builds upon the Atlanta Regional Advanced Transportation Management System infrastructure to test and evaluate provision of travel information through electronic, Interactive kiosks and other devices at such sites as welcome centers, major transfer points, and other gathering points such as hotels.	Georgia: Statewide with a concentration in the Atlanta Metropolitan Area	\$4,000,000	\$5,000,000
Atlanta Driver Advisory System This test will evaluate the benefits of en route traveler advisory and traveler services information using FM subcarrier wide area communications systems and applications of the 220 Mhz frequency pairs All elements are planned to be integrated into Atlanta's advanced traffic management system	Atlanta Metropolitan Area	\$7,236,916	\$9,097,803
Boston Smart Traveler The project tested the public acceptance and potential traffic impacts of a telephone-based audiotext traffic information service.	Boston, MA	\$1,860,000	\$3,395,000
TravTek This test provided traffic congestion information, motorist services ("yellow pages") information tourist information, and route guidance to operators of 100 test vehicles, rented through AVIS, that were equipped with In-vehicle TravTek devices. Route guidance reflected real time traffic conditions in the TravTek traffic network.	Orlando, FL	\$4,200,000	\$12,000,000

IMPLEMENTATION OF THE NATIONAL ITS PROGRAM: 1996 REPORT TO CONGRESS

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<p>ADVANCE This test evaluates an infrastructure to support dynamic route guidance. The Traffic Information Center combines real-time information from equipped vehicles and other sources. The Traffic Information Center then transmits this processed information to the equipped vehicles where it is used to develop a preferred route. The routing information is presented to the driver through voice instructions and in the form of arrows depicting the required turning movements.</p>	Northwest suburbs of Chicago, IL	\$21,000,000 (Includes funding for transitioning to ITS Priority Corridor initiative)	\$31,000,000
<p>DIRECT This test will evaluate several alternative low cost methods of communicating advisory information to motorists. These include use of the Radio Data System (RDS), television subcarrier, Automatic Highway Advisory Radio (AHAR), Low Power Highway Advisory Radio (HAR), and cellular phones.</p>	Along sections of I-75, and I-94 within the city of Detroit.	\$2,500,000	\$4,200,000
<p>Denver, CO Hogback Multi-Modal Transfer Center This project proposes to provide a multi-modal transfer center on I-70 near the western edge of the metro area for travelers bound for the rural recreational areas west of Denver as well as downtown Denver.</p>	Denver, CO	\$300,000	\$600,000
<p>Genesis This project will evaluate an ATIS that uses personal communication devices (PCDs) to distribute transit and traffic information. With transit and traffic data, Genesis is able to provide the urban traveler with current data relevant to a chosen trip mode and route.</p>	Minneapolis/St. Paul, MN	\$4,069,000	\$5,666,000
<p>Railroad Crossing Vehicle Proximity Alert System Phase I The Vehicle Proximity Alert System is designed to warn drivers of priority vehicles (emergency vehicles, school buses, hazardous material haulers) about the presence of approaching trains at rail-highway grade crossings.</p>	Pueblo, CO	Phase I - \$600,000 Phase II - \$400,000	\$1,000,000
<p>Railroad Highway Crossing — Long Island, NY This project will support the development of a prototype integrated uniform warning system for use at rail-highway grade crossings.</p>	Long Island, NY	\$3,875,000	\$4,843,750
<p>Seattle Wide-Area Information for Travelers/Bellevue This project will test delivery of traveler information via three devices: the Seiko Receptor Message Watch, an in-vehicle FM subcarrier radio, and a palm-top computer. This project will also expand service currently available under the Bellevue Smart Traveler project.</p>	Seattle, WA	\$4,527,000	\$7,200,000
<p>Travinfo The test will implement a comprehensive, region-wide traveler information system, capable of supplying a broad array of devices and users with transportation information both before and during trips. Multi-modal transportation information centers will integrate transportation information from a wide variety of sources and make the information available to the general public, public agencies, and commercial (value-added) vendors.</p>	San Francisco Bay area, CA	\$5,072,000	\$7,347,000

APPENDIX C - SUMMARIES OF ITS FIELD OPERATIONAL TESTS

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Trilogy This test will provide traveler information through three different communications techniques: the Radio Broadcast Data System-Traffic Message Channel (RBDS-TMC), an FM subcarrier, and a high-speed RF subcarrier similar to STIC system. These devices will provide end users with area and route-specific en-route advisories on the highway operating conditions in the Twin Cities Metropolitan Area.	Twin Cities Metropolitan Area, MN	\$2,776,000	\$4,080,000
CAPITAL – DC Cellular Surveillance This test makes extensive use of the existing cellular infrastructure for both area-wide surveillance and communications to determine the: accuracy of geolocation data; accuracy and completeness of traffic information; usefulness of passive statistical processing for measuring volume and incidents; criteria for selecting roadways that can be monitored by these techniques; systems' capabilities; costs for deployment; public acceptance, and usefulness of information dissemination to fleet vehicles.	Washington, DC Metropolitan Area	\$5,531,733	\$7,229,418
TravLink This project will implement an ATIS/APTS along the I-394 corridor extending from the downtown area. The project will provide real-time transit schedule and traffic information through a combination of kiosks and terminals at work, home, shopping centers, and transit stations.	Minneapolis/St. Paul, MN	\$3,604,000	\$6,669,000
ADVANCED PUBLIC TRANSPORTATION SYSTEMS			
LYNX Passenger Travel Planning System This cooperative agreement is to support the efforts of the Central Florida Regional Transportation Authority (LYNX) to develop a transit component for their Passenger Travel Planning System.	Central FL	\$240,000	\$300,000
Miami Real-time Passenger Information System This project will support the efforts of the Metro-Dade Transit Agency (MDTA) to provide customers with an automated trip planning capability, including real-time on-line route and schedule information.	Metropolitan Dade County, FL	\$400,000	\$400,000
Northern Virginia Regional Fare System This system will integrate the fare collection operations of separate commuter rail, bus, and rail-commuter operations.	Northern VA	\$400,000	\$4,000,000
Blacksburg Traveler Information System This project will operationally test a rural transit traveler information system that will make the transit system easier to use and more reliable for the user	Blacksburg, VA	\$240,000	\$477,024
Suburban Mobility Authority for Regional Transportation (SMART) Project Project includes a Dispatch System with automated reservations, scheduling and dispatch for paratransit operations, and an Automatic Vehicle Location System to allow tracking the fleet	Detroit, MI	\$12,000,000	\$15,000,000

IMPLEMENTATION OF THE NATIONAL ITS PROGRAM: 1996 REPORT TO CONGRESS

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<p>URICA (Urban/Rural Intelligent Corridor) This project will use AVL technology for real-time scheduling, which will allow automated reservations, dispatching, and billing services.</p>	Albuquerque, NM	\$2,000,000	\$2,500,000
<p>Winston-Salem Mobility Management — Phase II This project will support the efforts of city of Winston-Salem, NC, to operationally test the mobility management concept by extending the mobility management service throughout the paratransit fleet of 19 vehicles, and linking the service of 58-vehicle fixed-route operations.</p>	Winston-Salem, NC	\$240,000	\$300,000
<p>Houston Smart Commuter This project will evaluate a real-time traffic and transit information system. The test includes: assessment of the market potential to increase bus, vanpool, and carpool use by providing traffic information, bus choices, and carpool options to travelers at home and work; identify feasible, cost-effective technologies; various ways of gathering and distributing information; and project's administrative requirements and projected costs.</p>	Houston, TX	\$2,500,000	\$5,000,000
<p>Ann Arbor Smart Bus This project will evaluate an on-board bus communication and navigation system, a central control system, and a "Smart Card" fare collection system. The on-board system monitors actual performance in regard to route, location, speed, and status of mechanical systems.</p>	Ann Arbor, MI	\$303,000	\$2,442,500
<p>Advanced Fare Payment Media II This project will evaluate a computerized system for integrating various advanced fare media technologies and processing systems, including on-board electronic transit fare and data collection, and on-site travel support services such as congestion pricing, parking management, and data collection.</p>	Los Angeles, CA	\$25,290	\$300,000
<p>California Smart Traveler This project consist of two components: (1) Los Angeles Smart Card will test the use of smart cards for express transit services as well as for parking and other services at employment sites, and (2) Orange County Smart Intermodal system will test a real-time information system that will include special event information.</p>	Los Angeles and Orange Counties, CA	\$1,520,000	\$3,290,000
<p>Washington, DC Advanced Fare Media This project tests a fare collection system that allows WMATA passengers to use the same fare media to pay for metrorail, metrobus, and parking. The contractor will develop, install, and demonstrate a contactless, smart-card-based fare collection system.</p>	Washington, DC Metropolitan Area	\$1,000,000	\$1,000,000
<p>CTA (Chicago) Smart Bus This project will evaluate the process of creating a Bus Service Management System, which includes an Automatic Vehicle Location (AVL) system, a computer-assisted dispatch and control system, real-time passenger information signs, and a traffic signal preemption system.</p>	Chicago, IL	\$490,000	\$3,640,000

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<p>Dallas Smart Vehicle Operational Test This test will evaluate the effectiveness of implementing an Integrated Radio System that includes automatic vehicle location on 823 transit buses, 200 mobility impaired vans, and 142 supervisory and support vehicles.</p>	Dallas, TX	\$8,400,000	\$10,500,000
<p>Delaware County Ridetracking This project will develop and evaluate an automated identification and billing system for paratransit service, using advanced technology for the identification of passengers, the accounting and billing data collected on each passenger trip, the reporting required for coordination with various transportation suppliers, and internal performance monitoring.</p>	Delaware County, PA	\$200,000	\$200,000
<p>Detroit Transportation Center Transit Information This project will provide real-time traffic condition information to dispatch centers of public transit agencies in the Detroit area.</p>	Detroit, MI	\$50,000	\$100,000
<p>Los Angeles Smart Traveler This project will demonstrate access to real-time and other reliable sources of transportation information that can be used to examine high-occupancy vehicle travel options. Kiosks using audiotex and videotex will be used to provide the information which will include transit, paratransit, and rideshare options</p>	Los Angeles, CA	\$470,000	\$940,000
<p>Winston-Salem Mobility Management This project will evaluate a mobility management system involving automated scheduling and demand-responsive, shared-ride transit for the young, elderly, and disabled who are unable to use fixed-route transit. The project will extend the transportation service to fixed-route transit, ridesharing, and taxis used by the general public.</p>	Winston-Salem, NC	\$220,000	\$275,000
<p>MTA Baltimore Smart Bus This project involves implementation of an Automatic Vehicle Location (AVL) system to provide bus status information to the public while simultaneously improving bus schedule adherence and labor productivity. The system will be expanded to include all 900 Baltimore transit buses. Global Positioning System (GPS) inputs are replacing LORAN-C for vehicle location.</p>	Baltimore, MD	\$6,500,000	\$8,100,000
<p>Smart Flexroute Integrated Real-time Enhancement Systems (SAFIRES) This test will evaluate an enhanced, ridesharing-route deviation transportation system integrated with conventional transit and ridesharing in the Northern Virginia suburbs of Washington, DC, including Prince William and Stafford Counties. The system will provide on-demand service through an audiotex request system which uses scheduling software similar to that of the taxi industry</p>	Northern VA	\$1,184,460	\$3,243,583

IMPLEMENTATION OF THE NATIONAL ITS PROGRAM: 1996 REPORT TO CONGRESS

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<p>Rogue Valley Mobility Manager This project will demonstrate the Mobility Manager concept to integrate transportation users, providers, and funding sources. Advanced electronic technology will be used to record financial transactions and will include magnetic-stripe farecards. The initial phase will focus on providing transportation service to the elderly and disabled who are unable to use fixed route transit.</p>	Medford, OR	\$380,000	\$775,900
<p>Sacramento Real-Time Ride Matching This project will use a geographic information system (GIS) to provide single-trip or multiple-trip real-time ridesharing information</p>	Sacramento, CA	\$204,000	\$825,000
<p>Santa Clara County Smart Paratransit This project will use global positioning system (GPS) technology for automatic vehicle location (AVL) operation of a paratransit system in conjunction with bus, light-rail, and train operation. The service provided will allow disabled travelers to request specific transportation service.</p>	Santa Clara County, CA	\$425,000	\$850,000
<p>Seattle (Bellevue) Smart Traveler This project examines ways in which mobile communications, such as cellular phones, and information kiosks can be used to make ridesharing (carpooling and vanpooling) more attractive and is evaluating a Traveler Information System.</p>	Metropolitan Seattle, WA	\$100,000	\$245,000
<p>Dallas Area Rapid Transit Personalized Public Transit This test will evaluate a combination of fixed and flexible transit routes in the Dallas area. Fixed route transit vehicles will be able to pick up off-route passengers based on scheduling allowances and convenience of point of pick-up.</p>	Dallas, TX	\$391,560	\$391,560
<p>Denver Rapid Transit District (RTD) Passenger Information Display System This project will utilize the data gathered from the Automatic Vehicle Locator (AVL) system, currently being installed on all RTD buses, to provide information to video monitors regarding estimated bus departure times for waiting bus passengers.</p>	Denver, CO	\$1,000,000	\$2,000,000
<p>Wilmington, DE Smart DART This project will test smart card technology in a transit application in Wilmington, Delaware. A smart card fare collection system will be developed for the Wilmington bus fleet.</p>	Wilmington, DE	\$1,191,424	\$2,179,155
<p>NY City Metro Transportation Authority Travel Information System This test will evaluate the effectiveness of providing comprehensive traffic and transit information at kiosks at bus stops and on buses. The system will use data generated by the GPS bus locating system to display real-time travel information.</p>	New York, NY	\$3,000,000	\$5,029,460
<p>Norfolk Mobility Manager This project operationally tested and evaluated how transit and paratransit user subsidies improved transportation services available to low-income transit riders</p>	Norfolk, VA	\$500,000	\$600,000

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ADVANCED RURAL TRANSPORTATION SYSTEMS (ARTS)			
Travel-Aid This project will use variable speed limit signs, variable message signs, and in-vehicle communications and signing equipment to improve safety along a 40-mile stretch of I-90 across Snoqualmie Pass, a rural area prone to snow, ice, and poor visibility.	Snoqualmie Pass, WA	\$1,828,525	\$4,900,000
Idaho Storm Warning System The purpose of this test is to investigate various sensor systems that could provide accurate and reliable visibility and weather data, and to use these data to provide general warnings, speed advisories, and possible road closure information to travelers on a section of I-84 in southeast Idaho.	Interstate-84 in Southeastern Idaho	\$804,500	\$1,231,900
Advanced Rural Transportation Information and Coordination This project will coordinate the communications systems of several public agencies (highway, state patrol, and transit) by establishing a centralized communication site. Improvements are expected in response time to accident and road condition emergencies, and real-time vehicle status and schedule information will be provided.	Itasca and St. Louis Counties, MN	\$903,000	\$1,542,000
TransCal This project will evaluate the integration of road, traffic, transit, weather, and value-added traveler services information sources from across the entire geographic region. Land line and cellular telephone, and wireless FM subcarrier networks will be used to transport information to and from travelers via telephones, personal digital assistants, in-vehicle navigation/display devices, interactive kiosks, etc. The project will also include a satellite-based Mayday system that will provide low-cost coverage within the corridor.	California and Nevada	\$3,303,000	\$7,355,000
Advanced Transportation Weather Information System This project is to provide an evaluation and demonstration of how current technologies in meteorological analysis and forecasting can be effectively used to produce precise spatial and temporal weather information for integration into an Advanced Transportation Information System for safer and more efficient operations.	N Dakota and S Dakota	\$750,000	\$1,641,044
Herald En-Route Driver Advisory via AM Subcarrier This project tests the dissemination of important traveler information in difficult-to-reach, remote, rural areas using a subcarrier on an AM broadcast station	Colorado and Iowa	\$200,000	\$380,000
COMMERCIAL VEHICLE OPERATIONS (CVO)			
Dynamic Truck Speed Warning for Long Downgrades This project provides for the installation of a weigh-in-motion station to determine the weight of each truck passing the site and installation of loops to determine vehicle speed. The vehicles will be advised of the safe speed using variable message signs.	I-70, Straight Creek Pass, CO	\$195,000	\$243,000

IMPLEMENTATION OF THE NATIONAL ITS PROGRAM: 1996 REPORT TO CONGRESS

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<p>Advantage I-75 The project will facilitate motor-carrier operations by allowing transponder-equipped and properly documented trucks to travel any segment along the entire length of I-75 at mainline speeds with minimal stopping at weigh/inspection stations. Electronic clearance decisions at downstream stations will be based on truck size and weight measurements taken upstream and on computerized checking of operating credentials in each State</p>	I-75 in Florida, Georgia, Tennessee, Kentucky, Ohio, Michigan, and Ontario, Canada	\$8,400,000	\$17,532,308
<p>HELP/Crescent This project was a multistate, multinational research effort to design and test an integrated heavy vehicle monitoring system that uses Automatic Vehicle Identification (AVI), Automatic Vehicle Classification (AVC), and Weigh-In-Motion (WIM) technology</p>	British Columbia, Washington, Oregon, California, Arizona, New Mexico, Texas	\$5,850,000	\$7,500,000
<p>PASS (OR) The project examined integrating Automatic Vehicle Identification (AVI), Weigh In Motion (WIM), Automated Vehicle Classifications (AVC) and On-Board Computers (OBC) to identify, weigh, classify, and direct selected heavy vehicles in advance of weigh stations and ports-of-entry</p>	Ashland Port-of-Entry, Northbound I-5, OR	\$350,000	\$572,000
<p>On-Board Automated Mileage Test (IA) This project will test and evaluate the effectiveness of using the Global Positioning System (GPS) and first-generation on-board computers to record the miles driven within a State for fuel tax allocation purposes in a manner acceptable to State auditors.</p>	Iowa-Minnesota-Wisconsin	\$1,068,239	\$1,068,239
<p>Out-of-Service Verification Operational Tests This project proposes a system of automatic, real-time out-of-service verification among several commercial vehicle inspection sites along a 252-mile section of westbound I-90/94. Using video identification equipment, a database would be created containing key out-of-service data on specific vehicles.</p>	Minnesota, Wisconsin, and Idaho	\$1,016,000	\$1,219,200
<p>Electronic One-Stop Shopping Operational Tests This project will demonstrate a microcomputer-based vehicle one-stop credential purchasing process that will reduce public and private sector time and costs, streamline administrative processes and speed turn-around times, improve consistency and uniformity; extend access and availability, and ensure all commercial vehicle operators uniform access to one-stop shopping without causing substantial expenditures or establishment of new bureaucracies</p>	Arkansas, Colorado, New Mexico, Texas, California, Arizona, Iowa, Minnesota, Nebraska, Wisconsin, Kansas, Missouri, Illinois, South Dakota	\$4,525,937	\$7,874,856
<p>Electronic Clearance for International Borders This project will demonstrate the commercial vehicle electronic clearance at international borders, including proper identification of Mexican and Canadian motor carriers by using innovative Intelligent Transportation Systems technologies</p>	Otay Mesa, CA, Detroit, MI, Buffalo, NY, Nogales, AZ, Santa Teresa, NM	\$11,640,000	\$19,000,000

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ITS/CVO Greenlight Project The Oregon ITS/CVO Green Light Project will improve the safety and efficiency of commercial vehicle operations and increase the performance of the highway system.	Oregon	\$20,000,000	\$25,500,000
National Institute for Environmental Renewal (NIER) This project is designed to demonstrate the feasibility of utilizing computerized emergency response information, including telecommunications technologies, to provide hazardous materials information to emergency response units.	Phase I — Mayfield, PA; Phase II — Los Angeles, CA	\$4,000,000	\$4,000,000
Operation Respond This project is designed to provide an electronic link with 911 operators and participating carriers during the initial response to hazardous materials accidents	Various locations	\$1,540,000	\$3,015,000
Roadside MCSAP Computer System (200 sites) This Congressionally mandated project has the goal of providing, by December 31, 1996, electronic access to carrier safety data and driver license status from at least 100 MCSAP inspection sites, to be expanded to 200 sites by mid-1997.	Various locations	\$2,000,000	\$3,600,000
ADVANCED VEHICLE CONTROL AND SAFETY SYSTEMS (AVCS)			
Puget Sound Help Me (PuSHME) Mayday System This test will assess operational, institutional, and technological requirements for implementing a regional mayday system that would allow a driver to send immediate notification of an incident, its location, and need for assistance to a response center.	Seattle, WA	\$1,400,000	\$2,500,000
Colorado Mayday System This project will evaluate the use of GPS for vehicle location and cellular phone for two-way communications in order to provide emergency and non-emergency assistance to travelers operating in an area of over 12,000 square miles in north-central Colorado. The test will involve up to 2,000 vehicles equipped with a low-cost location device called TIDGET.	Central-Northeast Colorado	\$2,439,654	\$3,832,286
Field Operational Test Program of an Automated Collision Notification System for Emergency Notification This project is an operational field test of an advanced in-vehicle system that determines that a serious collision has occurred and automatically summons Emergency Medical Services (EMS) response.	Erie County, NY	\$3,070,563	\$3,933,658
Intelligent Cruise Control Field Operational Test This field operational test will evaluate the performance and user acceptance of a system that permits a vehicle to automatically maintain a safe speed and distance between itself and preceding vehicles	Michigan	\$2,800,000	\$3,500,000

LIST OF ACRONYMS

- **AHAR** - Automatic Highway Advisory Radio
- **AM** - Amplitude Modulation
- **ARTS** - Advanced Rural Transportation Systems
- **ATCS** - Advanced Traffic Control System
- **AVI** - Automatic Vehicle Identification
- **AVL** - Automated Vehicle Location
- **CAD** - Computer Aided Dispatch
- **CCTV** - Closed-Circuit Television
- **CDPD** - Cellular Digital Packet Data
- **CMS** - Changeable Message Sign
- **DSRC** - Dedicated Short Range Communications
- **EDI** - Electronic Data Interchange
- **ETC** - Electronic Toll Collection
- **EVL** - Electronic Vehicle Log
- **FM** - Frequency Modulation
- **GPS** - Global Positioning System
- **GUI** - Graphical User Interface
- **HAR** - Highway Advisory Radio
- **IR Sensor** - Infrared Sensor
- **LEOSS** - Low Earth Orbiting Satellite System
- **LIDAR** - Light Detection and Ranging
- **LP HAR** - Low Power Highway Advisory Radio
- **LPR** - License Plate Reader
- **MIST** - Management Information System for Transportation
- **OPAC** - Optimization Policy for Adaptive Control
- **PC** - Personal Computer
- **PDA** - Personal Digital Assistant
- **RF** - Radio Frequency
- **RWIS** - Roadway Weather Information System
- **SCA** - Sub-Carrier Authorization
- **SCATS** - Sydney Coordinated Adaptive Traffic System
- **SCOOT** - Split-Cycle Offset Optimization Technique
- **TATS** - Traveler Advisory Telephone System
- **TLD** - Transponder Loading Device
- **VMS** - Variable Message Signs
- **VRC** - Vehicle to Roadside Communications
- **WIM** - Weigh In Motion

TRAFFIC CONTROL/INCIDENT MANAGEMENT

OPERATIONAL TEST	ENABLING TECHNOLOGIES						
	MIST/OPAC	SCATS	SCOOT	2070 Controllers	Vehicle Tracking (Cellular)	Traffic Probes	Aerial Surveillance
ADVANCE						•	
ALTERNATE BUS ROUTING						•	
ANAHEIM ATCS			•				
AUSCI			•				
CAPITAL					•		
DIVERT							
FAST-TRAC		•				•	
ICTM		•					
IRM/ASC	•			•			
M-JLAVSS (MD and VA)							•
TRANSMIT						•	

INTERNATIONAL BORDER CROSSING

OPERATIONAL TEST	ENABLING TECHNOLOGIES										
	AVI - DSRC/MRC	AVI - LPR	WIM	EDI	EVL	On-board Sensors	Electronic Cargo Seals	TLD	GPS	VMS	ETC
EPIC	•	•	•	•			•			•	
IBEX	•		•	•	•	•	•	•			
MONY/MI	•		•	•						•	•
MONY/NY	•		•	•						•	•

TRAFFIC SURVEILLANCE SYSTEMS

OPERATIONAL TEST	ENABLING TECHNOLOGIES				
	Video (CCTV, Machine Vision)	RF (Microwave, DSRC)	Infrared	Acoustic (Ultrasonic)	Magnetic (Inductive Loops)
ADVANCE		①			●
ALTERNATE BUS ROUTING		● ①			
ANAHEIM ATCS	●				●
AUSCI	●				
BORMAN ATMS		●	●	●	●
CAPITAL		①			
FAST-TRAC	●		①		
M-JLAVSS I	●				
M-JLAVSS II	●				
MOBILE COMM	●				
TRANSGUIDE	●				●
TRANSMIT		①			

① Probe Vehicle Functionality

EN-ROUTE TRAVELER INFORMATION SYSTEMS

OPERATIONAL TEST	ENABLING TECHNOLOGIES										
	Traffic Surveillance		Vehicle Location				Communications				
	Probe Vehicles	Fixed Detectors	Satellite GPS	Differential GPS	IR Beacons	RF DSRC	IR Beacons	Dedicated RF	FM Subcarrier	HAR	Cellular
ADAS	●	●	●			●		●	●		
ADVANCE	●	●	●	●				●			
DIRECT		●	○					●	●	●	●
FAST-TRAC	●	●			●		●				
GENESIS		●						●			
SWIFT		●							●		
TRANSCAL		●	●						●		●
TRAVEL-AID		●	●					●			
TRAVINFO		●							●		
TRILOGY									●		

○ For Data Collection Only

PRE-TRIP PLANNING SYSTEMS

OPERATIONAL TEST	ENABLING TECHNOLOGIES									
	Traffic Surveillance		Vehicle Location				Communications			
	Probe Vehicles	Fixed Detectors	Satellite GPS	Differential GPS	IR Beacons	RF DSRC	Dedicated RF	FM Subcarrier	Cellular	Landline
ADAS	•	•	•			•	•	•		
ADVANCE	•	•	•	•						•
ATLANTA KIOSK		•								•
GENESIS		•					•			
SWIFT		•						•		
TRANSCAL		•	•					•	•	•
TRAVINFO		•						•		•
TRAVLINK	•		•		•					•
TRILOGY								•		

HAZMAT

OPERATIONAL TEST	ENABLING TECHNOLOGIES					
	PC-Based Databases	Electronic Data Exchange	DSRC	Transponders/Cargo Tags	Cellular Communications	Geolocation (GPS)
OPERATION RESPOND	•	•				
TRANZIT XPRESS	•	•	•	•	•	•

TRANSIT SYSTEMS

OPERATIONAL TEST	ENABLING TECHNOLOGIES							
	Mobile/In-Vehicle Unit	DSRC	Wireless Communications	AVL	ASD/CAD	Kiosk	VMS	Terminal Dial-In
ALTERNATE BUS ROUTING	•	•	•					
ARTIC	•		•	•				
SMART APTS			•	•	•			
TRAVLINK	•	•	•	•		•	•	•

OUT-OF-SERVICE SYSTEMS

OPERATIONAL TEST	ENABLING TECHNOLOGIES								
	License Plate Reader	Automatic Vehicle Identification	Video Vehicle Identification System	Pen Based Information Systems	Kiosk - (Information System)	RF Local Area Network	Dedicated Land Line	Expert System	Videotape
IDAHO OOS		•	•	•	•	•		•	
WI/MN OOS	•						•	•	•

ADVANCED RURAL TRANSPORTATION SYSTEMS

OPERATIONAL TEST	ENABLING TECHNOLOGIES															
	User Interface					Communications					Weather Measurement		Other			
	In-Vehicle Devices	PDA	Kiosks	TATS	VMS	Satellite/LEOSS	Cellular	AM Subcarrier	FM Subcarrier	RF Voice	Visibility	Roadway Condition	Wind Speed/Direction	Precipitation	GPS	Simulator
ARTIC	●					●				●					●	
GREEN LIGHT*												●				
HERALD	●							●								
IDAHO SWS					●						●		●	●		
SMART CALL BOX							●				●	●	●			
TRANSCAL	●	●	●	●			●		●							
TRAVEL-AID	●				●				●		●	●	●	○	○	

*RWIS - System Not Yet Defined

PDA - Personal Digital Assistant

TATS - Traveler Advisory Telephone System

○ For Evaluation Purposes Only

ELECTRONIC FARE PAYMENT

OPERATIONAL TEST	ENABLING TECHNOLOGIES										
	Automated Vehicle Location	Computer Assisted Dispatching	Automated Service Restoration	Advanced Communication	Automated Information Devices	Silent Alarm	In-Vehicle Surveillance	Automated Passenger Counters	Signal Priority	Component Monitoring	Electronic Fare Payment
ANN ARBOR	●	●		●	●	●		●		●	●
CHICAGO	●	●	●	●	●	●	●	●	●	●	●
DELAWARE											
FARE MEDIA II	●	●			●	●				●	●
SANTA CLARA	●	●									●
WASHINGTON DC											●
WINSTON - SALEM	●	●		●							●

ELECTRONIC SCREENING

OPERATIONAL TEST	ENABLING TECHNOLOGIES					
	Truck ID	Data Processing Configuration			Comm.	
	RF Transponder License Plate Recognition	Centralized Control	Remote Processing	On-board Data	900 MHz	Land-Line
ADVANTAGE I-75	●		●		●	●
GREEN LIGHT	●		●	●		●

EMERGENCY NOTIFICATION SYSTEMS

OPERATIONAL TEST	ENABLING TECHNOLOGIES							
	Location Finding		Communications				Activation	
	GPS	Differential GPS	Dedicated RF	RF via Satellite	Digital Cellular (CDPD)	Analog Cellular	Automatic/Crash Sensing	Manual/Button Box
ADAS		●	●					
ACN	●						●	
COLORADO MAYDAY		●			●	●		●
MAYDAY PLUS	○				○		○	○
PUSH ME	●	●			●	●		●
TRANSCAL	○			○				○

○ Proposed

ONE-STOP SHOPPING

OPERATIONAL TEST	ENABLING TECHNOLOGIES						
	EDI	EFT	Modem	GUI	Existing Legacy System	Existing PC	Dedicated PC
HELP	●	●	●		●	●	
MIDWEST	●	●	●	●	●	●	●
SOUTHWEST	●	●	●	●		●	●

MOTORIST SAFETY

OPERATIONAL TEST	ENABLING TECHNOLOGIES											Other			
	Communications			Sensors											
	Land-Line	Dedicated RF	Cellular	Visibility	Roadway Condition	Wind Speed/Direction	Precipitation	Speed Detection Radar	Video	WIM	AVI	LIDAR	Loop Detectors	Simulator	VMS
ADVANCE	•	•													
DIRECT		•	•												
GENESIS		•													
FAST-TRAC	•	•			•				•		•				
GREEN LIGHT	•	•		•	•	•	•			•	•		•		
IDAHO SWS	•			•		•	•					•			
SMART CALL BOX			•	•	•	•									
TRAVEL-AID	•	•		•	•	•	•	•				•		•	•

EMISSIONS TESTING

OPERATIONAL TEST	ENABLING TECHNOLOGIES				
	LIDAR	Mapping Software (GIS)	Remote Sensing Devices (RSD)	License Plate Recognition (LPR)	Changeable Message Signs (CMS)
LIDAR	•	•			
R-TED			•	•	•
TDM/ED			•	•	

WIRELESS COMMUNICATIONS

OPERATIONAL TEST	ENABLING TECHNOLOGIES								
	Highway Advisory Radio	Cellular	Dedicated RF	Geolocation	Infrared	RF Local Area Network	Spread Spectrum	Subcarrier	VRC
ADAS			•	•				•	
ADVANCE			•	•					
ADVANTAGE I-75									•
ALT BUS RTG							•		•
AMASCOT				•					
ARTIC			①	•					
CAPITAL		•		•					
DIRECT	•	•	•					•	
DIVERT	•								
EPIC									•
FAST-TRAC					•				•
GENESIS			•						
GREEN LIGHT									•
HERALD								•	
IBEX		•		•		•	③		•
IDAHO OOS						•			•
MAYDAY		•		•					
MOBILE COMM							•		
PUSHME		•		•					
SMART CALL BOX		•							
SPREAD SPECTRUM							•		
SWIFT				•				•	
TRANSCAL		•		•				•	
TRANSMIT									•
TRANZIT XPRESS		•		•	②	•			•
TRAVEL-AID			•	•					
TRAVINFO								•	
TRAVLINK			•	•	•				•
TRILOGY				•				•	