

**SmartRoute Systems**

141 Portland Street Suite 8100 Cambridge MA 02139 T 617 494 8100 F 617 494 8186 <http://www.smarttraveler.com>

# SmartRoute

S Y S T E M S ► U P D A T E

## America On-line Partners With SmartRoute Systems

**A**merica On-Line, the nation's largest on-line service, has teamed up with SmartRoute Systems in Boston to provide traffic and transit information to AOL members through "Digital City - Boston." SmartRoute Systems' SmarTraveler service is accessible to commuters to receive up-to-the-minute traffic and transit information on a route specific basis. AOL members are able to type in keyword "SmarTraveler" and point-and-click to read current traffic conditions for the route they choose, and even see camera images of major congestion choke points on roads throughout Greater Boston.

Sponsored by the Massachusetts Department of Transportation, the free SmarTraveler audiotext service is currently accessible from any touch-tone telephone — (617) 374-1234 or \*1 on a cellular — and has been a tremendous success for commuters in eastern Massachusetts. Putting traveler information services in cyberspace represents a major advancement for the dissemination of SmartRoutes Systems' SmarTraveler service. Although details are confidential, SmartRoute Systems and AOL anticipate that new SmarTraveler traveler information products will soon follow.

In addition to the AOL offering of SmarTraveler,



Internet surfers can also access SmarTraveler information on the World Wide Web.

SmartRoute Systems has reached an agreement with Boston.com (a subsidiary of the Boston Globe) that allows users who access the popular Boston.com site to easily reach the SmarTraveler service. People can also go directly to the SmarTraveler Web site by the following URL: (<http://www.smartraveler.com>).

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SPRING 1996 VOL II, NO 1

### SmarTraveler Web Site

<http://www.smartraveler.com>



*Bob Smith (third from left), Vice President of Digital Cities for America On-Line, at the America On-Line/SmarTraveler launch with SmartRoute Systems executives John Liebesny, David Stein, and Steve Crosby.*

# Geotek and SmartRoute Systems Form Alliance

Geotek Communications, the wireless communications company, and SmartRoute Systems have reached an agreement where the two companies will develop enhanced traveler information services that will be transmitted over the Geotek network. The intent of the venture is to provide Geotek's CVO customers with a broad array of SmartRoute's traveler information, which includes route specific traffic conditions, turn-by-turn street directions, actual airline arrival and departure times, and dynamic route guidance, among other services. The initial target market that the companies will pursue is commercial vehicle operators that have dispatch centers and fleets of vehicles on the roadways. The service will be offered in Boston beginning in May and will expand to new cities.

Yaron Eitan, President and CEO of Geotek, said, "SmartRoute's content delivered over the technically advanced Geotek network continues to position us as much more than a commodity-like wireless provider. We continue to be responsive to the needs of the market by providing this valuable information to our users."



*David Stein, Executive Vice President of SmartRoute Systems, and Jonathan Crane, President of Geotek Communications, at the announcement of the Geotek/SmartTraveler service.*

"We are very excited to be working with Geotek," said Steve Crosby, Chairman and CEO of SmartRoute Systems, "Geotek customers will soon benefit by having timely, accurate, and useful traveler information that has never been available. It will help fleets reduce costs by improving efficiency in their mobile operations."

Geotek Communications, of Montvale, New Jersey, has network interests in the United States, United Kingdom, Germany, Portugal, and Spain. The company provides wireless voice and data services—based on a powerful spread spectrum radio technology called FHMA—to commercial businesses that require real-time communication to manage their mobile work force.



*Geotek's Enhanced Mobile Workstation gives full data and voice communication in an easy-to-read format for SmartTraveler services.*

## A Notable Quote for ATIS

“What are we missing now? We're missing time. Time is our greatest asset, our most valuable commodity now. Time arbitrage will drive this world. Many technology vendors to be successful in the home will give me time, will give some time back to me.”

George Forrester Colony  
President, Forrester Research

# SmarTraveler Services Remain Hot During Cold Winter

## Boston Update

### SmarTraveler Calls

SmarTraveler audiotext usage broke all records during the blustery Winter of 96 with 269,946 calls in January, 344,059 calls in February and 256,351 calls in March. Calls in the first quarter of 1996 totaled 870,356 representing a 309%

increase over first quarter 1995 - and are now running at a rate of nearly 5,000,000 annually.

addition to the dramatic increase in usage, independent research indicates that 98% of new users continue to use the service. And there's good news for SmartRoute Systems' cellular partners — 89% of cellular users make a fee for service call from their mobile phone as a result of information they receive from SmarTraveler.



*New SmarTraveler Highway Signs*

increase over first quarter 1995 - and are now running at a rate of nearly 5,000,000 annually.

As of March 1, 1996, SmarTraveler-Boston transitioned from an operational test to a fully deployed program of the Massachusetts Highway Department (MHD). In addition to operating the SmarTraveler audiotext service, MHD will be looking to SmartRoute Systems and the SmarTraveler operations center to execute other ITS initiatives such as the operation of regional VMS signs and incident management.

Users of SmarTraveler continue to give the service rave reviews. In

## VMS and Incident Management

In November 1995, the MHD installed 18 permanent SmarTraveler highway signs in eastern Massachusetts. The signs remind cellular phone users to call SmarTraveler by dialing \*1. The installation of these signs is a recent example of the Massachusetts Highway Department's commitment to the unique SmarTraveler public/private partnership.

SmarTraveler now serves as a gateway to all traveler information in eastern Massachusetts. Through collaboration with the MBTA,

**SEE PAGE 4**

## Secretary Pena Cites

# ***SmarTraveler***

## As Prototype of National Program

On January 10, USDOT Secretary Federico Pena launched a major new ITS initiative.

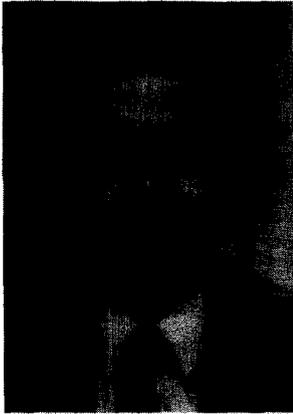
Operation TimeSaver is an initiative to cut daily travel time in congested metropolitan areas by 15%, by building Intelligent Transportation Infrastructure (ITI) across the United States.

In his speech, Pena cited just three prototypical projects where transportation planners are laying the foundation for the ITI, including SmarTraveler:

"In Boston, commuters are using SmarTraveler communications systems to get current traffic information over home phones and car phones. 59% of users said the service has saved them time."

Operation TimeSaver, designed to use telecommunications and computer technologies to enhance intra-regional travel, demonstrates yet again the viability of the SmartRoute System approach to ITS and the appeal of the SmarTraveler database to consumers.

# New Appointments at SmartRoute Systems



*Paul Hamnett, newly-appointed Vice  
President of Engineering at  
SmartRoute Systems.*

Paul Hamnett, formally Director of Platform Engineering for MCI/ Newscorp Online Services and Delphi Internet Services, has been named Vice President of Engineering at SmartRoute Systems in Cambridge, MA.

In this newly-created position Mr. Hamnett will report to the Chairman and CEO Steve Crosby. His responsibilities will include managing the entire development process for the company's growing family of products and services. In particular, he will focus on developing and fostering technology relationships with

partner companies for: In-vehicle navigation systems; Wireless communications; Broadband networks; and Multimedia Platforms.

"Mr. Hamnett has an outstanding track record as an leader and results oriented technologist in both multimedia and networking mediums" Mr. Crosby said. "His abilities and talents will be well suited to overseeing the development of state-of-the-art, interactive SmarTraveler systems that will delight and inform consumers as they continue to make this new Advanced Traveler Information an integral part of their everyday lives."

John Liebesny, President of SmartRoutes, observed that "the arrival of Paul Hamnett indicates the importance the SmarTraveler service places on its engineering superiority, and its recognition of the importance of continued technical innovation as the service expands its range of services, platforms of delivery and geographic availability."

Also joining SmartRoute Systems recently is Todd Palumbo as Engineering Manager. In this role, Mr. Palumbo is directly responsible for

the design, development and support of the current and next generation SmarTraveler information services. Mr. Palumbo came to SmartRoutes from Calypso Software Systems in Manchester, NH, where he worked on developing systems and application management tools.

## SMARTRAVELER SERVICE FROM PAGE 3

Massport, Caravan for commuters and the Central Artery, SmarTraveler provides users the option to directly connect to all area transportation information lines.

## Cincinnati Update

Usage of the Cincinnati SmarTraveler service continues to climb as well. With 73,744 calls in January, 46,848 calls in February and 73,646 calls in March, usage is up 35% over the last quarter of 1995 - and continues to run well ahead of usage for the comparable early months of SmarTraveler services in Boston.

In addition, SmarTraveler personnel are making nearly 100 calls a month to local transportation agencies to enhance the detection and verification functions of the region's Incident Management.

YES! Please put my name on your mailing list for the quarterly SmartRoute Systems Update newsletter.

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Organization: \_\_\_\_\_ Fax: \_\_\_\_\_

Address: \_\_\_\_\_ E-mail: \_\_\_\_\_

**SmartRoute**  
SYSTEMS ▶

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# SmartRoute

S Y S T E M S ► U P D A T E

## Cincinnati Off to Record Pace

**C**incinnati's new *SmarTraveler* program, launched on June 28, continues to be immensely popular for people in Greater Cincinnati and northern Kentucky.

Callers dialing *SmarTraveler* in this region have swamped the SmartRoute Systems audiotext system. At nearly 50,000 calls per month, Cincinnati is comparable to the initial call counts of Boston's *SmarTraveler*, despite being only 40% of the Boston Metropolitan region.

"The response has been tremendous, and we're delighted," says Bob Bross, SmartRoute's Cincinnati Operations Director. "Commuters are actually calling our office praising the service," he adds.

*SmarTraveler* in Cincinnati allows commuters to call 333-3333 from any touchtone phone, or 311 from

their Ameritech or Cellular One mobile phone, to reach *SmarTraveler*—where Traffic Managers operate a high-tech network of remote control cameras, radio and cellular phone-equipped drivers, aircraft, radio monitors and computerized traffic systems. Travelers then select a specific route from the *SmarTraveler* audio menu and hear a detailed description of the current traffic conditions on their routes, travel times and—if appropriate—suggested alternatives.

*SmarTraveler* in Cincinnati is also a direct connection to schedule information on busses and airport shuttle service and carpools. It's all designed to help local drivers avoid traffic tie-ups, to help facilitate smooth traffic flow through the area and to help reduce traffic accidents, fuel consumption, and hydrocarbon/nitric oxide emissions.

"*SmarTraveler* is phase one of Greater Cincinnati and northern Kentucky's new Advanced Regional

Traffic Interactive Management & Information System (ARTIMIS)," said Kentucky Secretary of Transportation Don C. Kelly at *SmarTraveler's* official  
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Cincinnati Operations Center for *SmarTraveler*.

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## Dial 311 For *SmarTraveler*

One of the major barriers to teaching travelers to use the *SmarTraveler* ATIS has been identifying and promoting a single memorable telephone number. When *SmarTraveler*-Boston was launched in 1993, there were three numbers: 374-1234 for landline, \*1 for NYNEX Mobile, and \*ST1 for Cellular One. Two of the numbers are difficult to remember, and the three numbers are impossible to market in a coordinated advertising campaign.

Attempting to address this problem, SmartRoute Systems

**SEE PAGE 5**

## Secretary Peña Tours SmartRoute's Headquarters

In May, U.S. Secretary of Transportation, Federico Peña, visited SmartRoute Systems in Cambridge for a tour of the Transportation Operations Center, which serves both the public and private sectors.

Secretary Peña observed the *SmartTraveler* project which, in partnership with the Massachusetts Highway Department and the Federal Highway Administration, began as the nation's first operational test of a fully-deployed Advanced Traveler Information Service (ATIS). The project is uniquely focused on the public acceptance for up-to-the-minute traffic and transit information in a real world environment.

"*SmartTraveler* is one of the few two or three projects in the country which has this technology, and today, we spoke about the possibility of using this kind of system in Washington, D.C.," commented Peña.

Following the tour and presentation of the project, discussions with Secretary Peña involved SmartRoute Systems' development of new technologies and expansion



*Secretary Peña Views SmartRoute's ATIS Operations.*

to new markets, including the recent launch of *SmartTraveler* in the Cincinnati metropolitan area.

"This kind of system that I have seen today is quite helpful. I think it has great promise for the country," commented Peña. "I am very impressed with this technology

because if we can essentially encourage people to spread out their driving behavior and avoid being on the highway during times of congestion . . . that will have a significant reduction on demand; it will have a very positive environmental impact," commented Peña.

**R**ecently, an independent market research firm, selected by the Massachusetts Highway Department, conducted extensive market research of callers using the *SmartTraveler* service. Here are the survey results . . .

97% will *use* it again

85% rate the service "**8**" or **better** on a scale of "10"

68% *reduced frustration* as a result of *SmartTraveler* information

67% found *desired* information

63% *avoided* traffic problems

59% *saved* time

51% experienced *improved* arrival time

49% report direct *influence* on travel decisions

**ATIS**  
**Market**  
**Research**

## ConnDOT, SmartRoutes Assist In Special Olympics

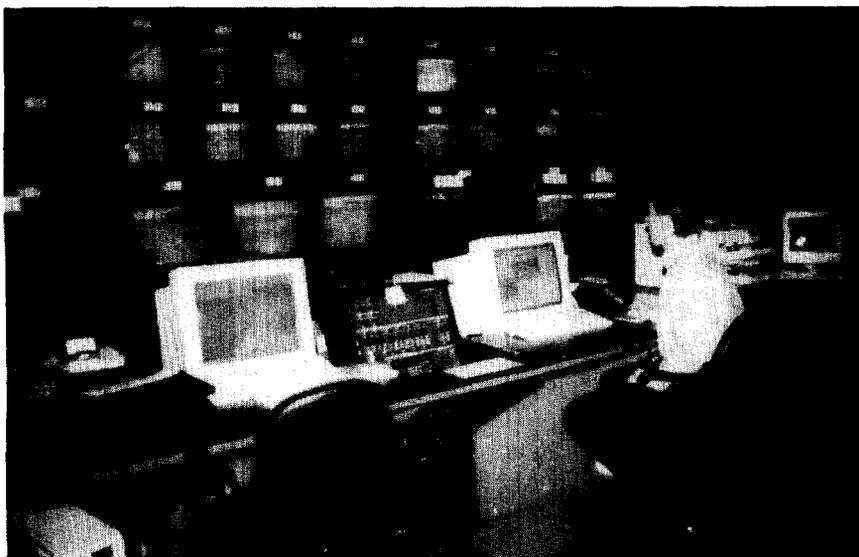
The first two weeks in July were especially hectic for SmartRoutes personnel operating the Bridgeport Traffic Management Center for ConnDOT. For those two weeks, the population of the New Haven area swelled as 10,000 Special Olympics athletes and hundreds of thousands of spectators jammed the Yale Bowl for the 1995 Special Olympics World Games. Successful traffic management was key to making these games a memorable event, and the Bridgeport Traffic Management Center was up to the challenge. Bill Stoeckert, the Manager of Highway Operations for ConnDOT, noted the performance of the SmartRoute team by thanking them for "not only contributing to the success of the Games, but for your daily efforts and accomplishments in bringing recognition and success to the Department's Incident Management Program."

The Bridgeport Traffic Management Center was opened in January 1995 and operates under a contract between ConnDOT and SmartRoute Systems. The system consists of 91 video cameras along a 56-mile stretch of I-95 between the New York border and Branford. These cam-

eras can tilt and zoom and pan for 360° coverage at each site. Two hundred sixteen radar detectors along this same road segment gauge average speeds and can process lane-specific vehicle counts. variable message signs are installed through the state of Connecticut, primarily on the major highways such as I-95, I-84 and I-91.

The Center's Incident Management system is connected to all of these surveillance and display systems. The system processes the data from the video and radar sensors and automatically determines if there is an incident on the monitored segment of roadway. If there is, the system is programmed for the camera at the incident site to automatically survey the area and display this on 1 of the 33 monitors back at the Operations Center.

SmartRoute Systems' Operations staff, now alerted to an incident, then present appropriate information for drivers via the variable message signs. Such driver information can include the type of incident, where it has occurred, the delay time, lane or road closures, and alternate routes.



ConnDOT's Traffic Management Center Operated by SmartRoute Systems.

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### HEAR FOR YOURSELF!

Call Boston  
***SmartTraveler***  
at (617) 374-1234

OR

Call Cincinnati  
***SmartTraveler***  
at (513) 333-3333

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### On the Net

On July 10, SmartRoute Systems began a new chapter of conveying corporate information by creating a page on the Internet's World Wide Web. The online page is dedicated to information about SmartRoute's own *SmartTraveler* service and other SmartRoute Systems services, company history, and future developments.

The SmartRoute Systems web page features recorded audio from the *SmartTraveler* service, as well as video clips featuring recorded images from CCTV cameras used by *SmartTraveler's* Traffic Managers to gather traveler information. Also featured are 10-, 15- and 30-second video clips of *SmartTraveler* TV advertisements broadcast in the Boston area.

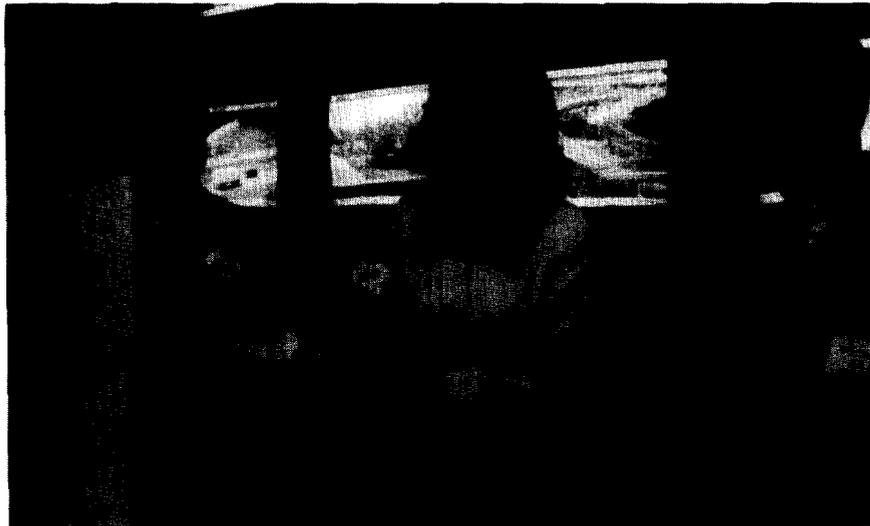
The URL for the SmartRoute Systems web page is <http://www.smartroute.com/smartroute>. Stop by anytime!

# SmartRoute Systems Joins I-95 Corridor Coalition Network

The Massachusetts Highway Department has chosen SmartRoute Systems to serve as the Massachusetts hub of the I-95 Corridor Coalition. SmartRoutes will be one of eight initial nodes connected to a host in Rockville, Maryland, which forms the backbone of the Corridor's "Information Exchange Network." Through a workstation computer located at SmartRoute's facilities in Cambridge, the network will share information among the Corridor's participating agencies. In the first phase such data will include incidents, construction schedules and special event information which may impact adjoining states. Ultimately, a phased-in deployment during the next three years might include up to 70 workstations located in facilities such as traffic operations centers and state police communications systems, for instance.

The I-95 Corridor Coalition, which presently includes states from Maine to Virginia, was formed in 1992 to better coordinate the delivery of transportation services across state jurisdictions. It is funded by ISTEA legislation money. By definition, it includes Route 95 as well as Amtrak, major airports and ports, and other freight and transit elements. Specifically, its mission statement states that: "The I-95 Corridor Coalition serves as a unifying force among its member agencies, focused on a seamless, state-of-the-art, multi-modal transportation network benefiting both travelers and goods movement throughout the Northeast Corridor. Through communication and cooperation, this partnership will serve as a clearinghouse for information regarding operational

**SEE PAGE 5**



*Christine Johnson of FHWA Inaugurates SmarTraveler in Cincinnati.*

**CINCINNATI FROM FRONT PAGE 1** launch ceremony, "We expect ARTIMIS to have a significant impact on the safety, the air quality and the overall quality of life in this area. We're extremely pleased to be able to offer this service to our northern Kentucky citizens, and we're very happy to be able to work with the State of Ohio, OKI (Regional Council of Governments) and our private industry partners to make ARTIMIS a reality."

Ohio Department of Transportation (ODOT) Director Jerry Wray noted that, "The project is an excellent example of what we can

accomplish when states, local jurisdictions and the private sector all work together."

*SmarTraveler* and ARTIMIS are being implemented by the Kentucky Transportation Cabinet, ODOT, and OKI with about \$33 million provided to the states by the U.S. Department of Transportation/Federal Highway Administration under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. TRW Inc. of Cleveland is the project's system manager; SmartRoute Systems is providing the *SmarTraveler* system for TRW.

## SmartRoutes Hits the Road

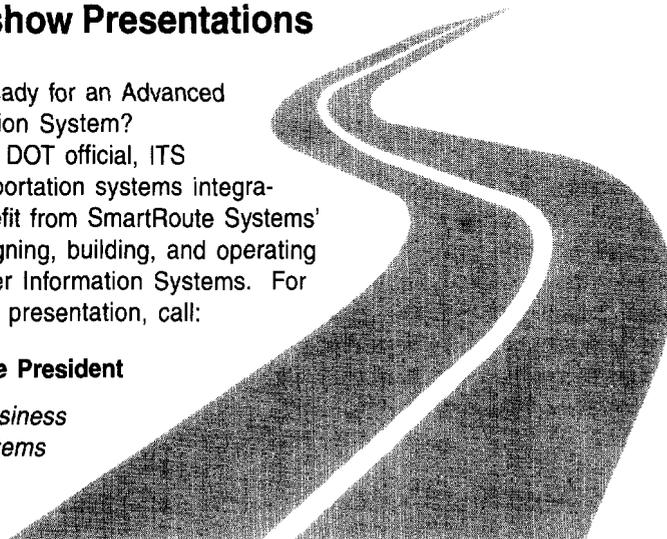
### ATIS Roadshow Presentations

Is your area ready for an Advanced Traveler Information System? Whether you're a DOT official, ITS planner, or transportation systems integrator, you can benefit from SmartRoute Systems' expertise in designing, building, and operating Advanced Traveler Information Systems. For a comprehensive presentation, call:

**Bill Twomey, Vice President**

*Public Sector Business  
SmartRoute Systems*

**(617) 494-8100**



## Free \*1 Cellular Service in Massachusetts

In an effort to offer its patrons value-added cellular telephone service, Cellular One, as of July 1, now offers its Greater Boston subscribers convenient and free access to the *SmartTraveler* audiotext service. Like Bell Atlantic/NYNEX Mobile, Cellular One users can now dial \*1 on their touchtone cellular phones and be connected to location-specific, real-time traffic and transit information available on the *SmartTraveler* audiotext system. This call is now available without airtime or any other service charges. Now all cellular

**\*1**

phone users in eastern Massachusetts can access *SmartTraveler*, at no charge, by simply dialing \*1. The results have been astonishing: Calls to *SmartTraveler* in August alone on Cellular One are up 1400% over the same month last year. For the state of Massachusetts, it was an important and favorable decision on the road to success with *SmartTraveler*. Convenient and free access to ATIS services like *SmartTraveler* help in accomplishing the public policy objectives of reducing traffic congestion and the attendant air pollution.

### CORRIDOR FROM PAGE 4

management and Intelligent Transportation Systems (ITS) implementation, in order to promote mobility, safety, environmental quality, and movement in the Corridor."

The decision by Massachusetts Highway Department to have SmartRoute Systems manage the data entry and management for the workstation is based in part on the efficiencies gained from the state-sponsored *SmartTraveler*. SmartRoute Systems, which operates the *SmartTraveler* service, already monitors travel conditions - based on real-time and static data - on over 700 miles of roadways in eastern Massachusetts. And the company has established working relationships with many transporta-

tion agencies in the Northeast. As experts in the field of collecting, processing and disseminating advanced traveler information, SmartRoute Systems has had a lengthy and successful history in Intelligent Transportation Systems and Advanced Traveler Information Systems in particular.

The other initial workstations in this first phase of the I-95 Corridor Coalition include sites that are managed by VDOT, Maryland DOT, PennDOT, Transcom, New Jersey Turnpike, New York State Thruway, and ConnDOT. The Cambridge facility of SmartRoute Systems represents the only private company operating as an Information Exchange Network site.

## SmartRoutes Selected in ITS Consulting

Recently, SmartRoute Systems was selected, along with TRW, to prepare an early deployment plan for ITS for the Lexington, Kentucky area. SmartRoute Systems' role in this assignment will be to address issues associated with public/private partnerships and innovative funding options.

Other recent consulting assignments undertaken by SmartRoute

Systems include: The design of a traveler information system for the I-95 Corridor, in association with Loral Aerosys and IBI Group; a study of user needs and marketability of traveler information for the I-95 Corridor as a subconsultant to Urban Engineers and Virginia Tech; and the design of a traveler information system for Yosemite National Park as part of a team headed by National Engineering Technology (NET).

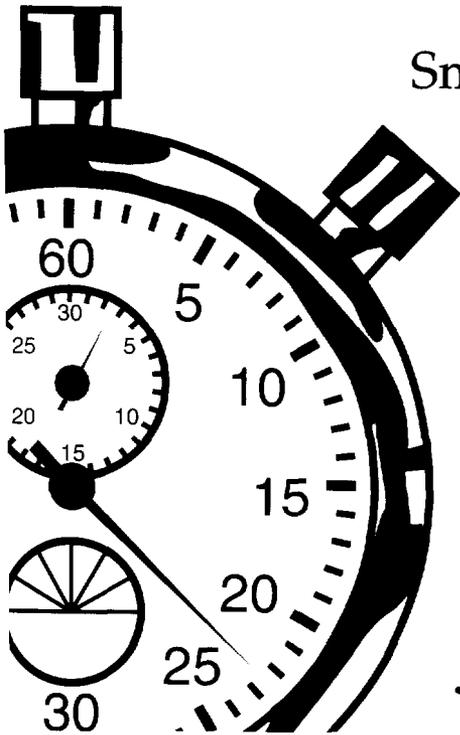
### SMARTTRAVELER FROM PAGE 1

developed the idea of using a single "N11" access number—just like 411 for information and 911 for emergencies—for the delivery of public service traveler information. When the company presented the idea for the Cincinnati *SmartTraveler* service, the client, Kentucky Transportation Cabinet (KYTC), took the ball and ran with it. After a well attended public hearing held by the PUC of Kentucky, the decision was made to assign the 311 landline access code to *SmartTraveler*—a first-in-the-nation designation. Both cellular providers in the Cincinnati area, Ameritech and Cellular One, have already assigned the 311 access code; and SmartRoute Systems is now working with Ohio DOT to get the same designation for the Ohio portion of the Greater Cincinnati area.

...the decision was made to assign the 311 landline access code to *SmartTraveler*...

In the past, local telephone companies have typically reserved use of the N11 designations for the future, generally for services that are non-commercial, and which promote a clear public good. The PUC in Kentucky made the judgment that *SmartTraveler* was such a service, a decision which is expected to be replicated across the country. The heart of Intelligent Transportation Systems (ITS) is the optimal utilization and dissemination of accurate information about traveler conditions and options, inducing travelers to make the most rational use of existing transportation infrastructure and encouraging travelers to move to less congested and more environmentally constructive modes, times and routes of travel. A simple, widely promoted, universal N11 access code as a gateway to such public service traveler information is, evidently, an idea whose time has come.

IN 15,552,000 SECONDS,



SmartRoute Systems can design, build, and begin operating a comprehensive, cost effective, and useful Advanced Traveler Information System in a major metropolitan area. That's about 6 months.

Our customers call that incredible.

We call it **SmartTraveler**

**SmartRoute**  
SYSTEMS ▶

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**FOR IMMEDIATE RELEASE**  
**March 6, 1996**

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**PHONE: (617) 494-8100**  
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**Boston Traffic Moves On-line**  
**SmartRoute Systems and America Online in Digital City Partnership**

Cambridge, MA -- SmartRoute Systems, the Cambridge based traveler information services company, and America Online, the nation's largest on-line service, have teamed up in Boston to provide traffic and transit information to AOL members through "Digital City - Boston".

SmartRoute Systems' *SmarTraveler* service will be accessible to commuters to receive up-to-the-minute traffic and transit information on a route specific basis. AOL members will now be able to point-and-click to read current traffic conditions for the route they choose, and even see camera images of major congestion choke points on roads throughout Greater Boston.

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**FOR IMMEDIATE RELEASE**  
**March 5, 1996**

**CONTACTS: JOHN ROURKE, SMARTROUTE SYSTEMS**  
**PHONE: 617-494-8100**  
**RANDY MILLER, GEOTEK COMMUNICATIONS**  
**PHONE: 201-930-9305**

**SMARTROUTE SYSTEMS & GEOTEK FORM ALLIANCE**

CAMBRIDGE, MA -- Geotek Communications, Inc. (NASDAQ:NNM:GOTK) (Pacific:GEO), the wireless communications company, and SmartRoute Systems, a content provider of traveler information, have reached an agreement where the two companies will develop enhanced information services that will be available over the Geotek digital FHMA™ network. The intent of the venture is to provide Geotek's mobile users with a broad array of SmartRoute Systems traveler information, which includes route specific traffic conditions, turn-by-turn street directions, actual airline arrival and departure times, and dynamic route guidance, among other services. The initial target market that the companies will pursue is commercial vehicle operators that have dispatch centers and fleets of vehicles on the roadways. The service will be offered in Boston beginning in April and will expand to new cities. Geotek estimates the current market for its services will be the more than 2 million small and medium sized businesses operating 27 million vehicles, nationwide.

"The integration of the SmartRoute traveler system into the Geotek service offering continues to position us as much more than a commodity-like wireless provider," said Jonathan Crane, President and CEO of Geotek - US Operations. "Our alliance with SmartRoute fits well with our overall strategy of providing businesses with the information they need to better manage their mobile resources. In addition to the traditional mobile services--telephony, dispatch and paging--we will offer automatic vehicle location, credit card authorization, database query and eventually INTERNET access."

SmartRoute's integrated voice and data services will be easily accessed through the Geotek Mobile Workstation--the first device to combine the features and functionality of a cellular telephone, pager, two-way radio and mobile data terminal into one platform.

"We are very excited to be working with Geotek," said Steve Crosby, Chairman and CEO of SmartRoute Systems, "Geotek's customers will soon benefit by having timely, accurate, and useful traveler information that has never been available. It will help fleets reduce costs by improving efficiency in their mobile operations."

Page 2

SmartRoute Systems, based in Cambridge, Massachusetts, is widely considered the leading provider of Advanced Traveler Information Systems, or ATIS. The company works with other telecommunications providers to disseminate its database of traveler information over telephones, on-line computers, and interactive televisions.

Geotek Communications, Inc. of Montvale, New Jersey, is a wireless telecommunications company focused on technology, equipment and network development and operation. The company's U.S. Operations provide wireless voice and data services to commercial businesses that require real-time communication to manage their mobile work force.

###



COMPANY BACKGROUND

SmartRoute Systems

Cambridge, MA

To mitigate the two billion hours Americans spend in over 181 million cars delayed in traffic jams each year, SmartRoute Systems, the Kendall Square, Cambridge, high-technology venture inaugurated its "real-time, on-demand and location-specific" traffic, transit, road condition and related traveler information system in the Greater Boston area in May 1991. The company launched its second site in Cincinnati on June 28, 1995.

Designed around a sophisticated network of live and slow-scan TV cameras located at crucial intersections throughout the metropolitan area; an elaborate network of regularly scheduled two-way radio and cellular phone probes; electronic scanners; fixed-wing aircraft; direct communication links with a number of public agencies; plus an evolving network of over-the-road traffic sensing technologies, the SmartRoute Systems Operation Center collects and manages real-time traffic, transit and other related traveler information in a proprietary network of data fusion and dissemination technologies. Traveler information from the SmartRoute Systems database is presently sold and delivered to the public via landline telephone (POTS), cellular carriers, cable TV, traditional radio and TV, on-line services, commercial vehicle communication systems, and pagers. New delivery systems and joint marketing relationships are being developed for servicing PDAs, alternative telephony providers, high-speed Internet access programming packages, interactive television and in-vehicle navigational devices.

In September of 1992, the Federal Highway Administration and the Massachusetts Highway Department awarded SmartRoute Systems a test of an "Advanced Traveler Information Service". The test was the first in the nation to be funded by the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). The \$3 million (annual) project, called *SmarTraveler*, now operates in collaboration with the Massachusetts Department of Transportation, and remains the only fully deployed, vertically integrated, metropolitan-wide, real-time Advanced Traveler Information Service in the country.

*SmarTraveler-Boston* is accessible from any touch-tone telephone by dialing 617-374-1234 or from any cellular phone by dialing \*1 (no airtime charges apply) and provides direct access to up-to-the-minute, route-specific information for both mass transit and highway travelers. Extensive independent evaluation of *SmarTraveler* has demonstrated the profound impact the service has on traveler behavior, and its ability to reduce congestion and its attendant air pollution.

As the economic and technological model in Boston has proved successful, SmartRoutes is presently developing roll-out strategies for other major metropolitan markets. The *SmarTraveler* system was launched in Cincinnati on June 28, 1995 and SmartRoute Systems will launch the service in 3-5 new cities by the end of 1997.

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SmartRoute Systems' Intelligent Traveler Information System took three years to design and develop, before its initial deployment in 1991. The invention of President and CTO John Liebesny, SmartRoutes is based on extensive research into the potential for -- and constraints on -- using technologies in traffic management; consumer attitudes toward congestion, travel behavior modification, and acceptance of new traveler information technologies; and emerging computer and telecommunications technologies with applicability to traveler information collection, management and dissemination. The proprietary software was developed by Liebesny together with MicroLogic of Waltham, Massachusetts, the developers of the underlying technology used in the LoJack Auto Recovery device. Liebesny has advanced degrees in electrical engineering from MIT and an MBA from Harvard Business School. He held various engineering and product marketing positions at Hewlett Packard and Mitek Surgical Products before founding SmartRoute Systems in 1988.

Chairman and CEO Stephen Crosby joined SmartRoutes in the fall of 1990 after selling his successful enterprise, The Crosby Vandenberg Group, a leader in the publication of cable television and other custom-produced magazines. He holds a JD from Boston University School of Law and a BA from Harvard College. Previously active in Massachusetts politics, he served as campaign manager for Governor Francis W. Sargent and Mayor Kevin H. White of Boston, Legislative Assistant to Lieutenant Governor Donald R. Dwight and Administrative Assistant to Congresswoman Margaret M. Heckler in Washington, DC.

Executive Vice President and *SmartTraveler* Project Director David Stein holds a BA from Bucknell University and an MBA from Boston University. With a background in real estate development, Stein served as project manager for the \$250-million mixed-use CambridgeSide Galleria in Cambridge, Massachusetts. He also founded and served as President of Real Estate Communications, Inc., a publisher of trade magazines in New England and California, before selling his successful enterprise. He developed many of SmartRoutes' operational procedures for congestion management, traffic monitoring and Advanced Traveler Information Services.

SmartRoute Systems is a founding member of ITS America, an organization formed by the federal Department of Transportation, dedicated to encouraging the development of an ITS industry in the US and fostering private sector participation in ITS technology.

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**COMPANY EXPERIENCE**

**SmartRoute Systems**

Cambridge, MA

SmartRoute Systems is one of the country's leading firms in the design, development and deployment of early-stage Intelligent Transportation Systems (ITS) technologies. The company has unique expertise in the design and operations of ITS Traffic Operations Centers; design and deployment of advanced traveler information technologies; rigorous cost/benefit analysis of alternate data collection technologies; and the development and implementation of privatization strategies for ITS. Examples of SmartRoute Systems existing operations include the following:

- SmartRoute Systems is a leading innovator in the design and deployment of "intelligent traveler information systems," delivering interactive traveler information over the electronic "pipes and boxes" comprising the Information Superhighway. Its proprietary systems include multi-tasking management software for controlling interactive audiotext; a scaleable data fusion system; a prototyped traveler information delivery system for broadband, interactive television or personal computer capacity, a delivery mechanism for serving 2-way pagers with traveler information.
- SmartRoute Systems designed and operates the only fully-privatized ITS Traffic Operations Centers (TOCs) in the country, with the capacity to implement fully-integrated ITS functions, including data collection, data fusion, and data dissemination. From these TOCs,, SmartRoute Systems presently services a number of private sector clients, including traditional radio and television, cable TV, cellular phone, paging, CVO, and on-line service providers, as well as public sector clients such as state Departments of Transportation.
- SmartRoute Systems designed and operated the *SmarTraveler* Operational Test in Metropolitan Boston, funded by the FHWA Office of ITS and Traffic Operations, pursuant to the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. The *SmarTraveler* project is presently supported by the Massachusetts Highway Department (MHD), delivering "real-time, on-demand, location-specific" traffic and transit information to anyone in eastern Massachusetts with a touch-tone phone, free of charge. The *SmarTraveler* service has been extensively evaluated by MHD, has demonstrated to be highly effective at modifying traveler behavior, and is now being incorporated into the Department's long-term congestion management plans.

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- SmartRoute Systems served as a member of the consultant team headed by TRW, designing and implementing the TravInfo project for the Metropolitan Transportation Commission in San Francisco. The company's special responsibilities included contribution to overall system design, "Traveler Advisory Telephone Systems (TATS)," Advanced Traveler Information Systems, and operations and maintenance.
- SmartRoute Systems serves as the principal subcontractor to TRW for final design, construction and early operation of the Cincinnati Regional Traffic Management System. The company's special responsibilities are in system design, early deployment and interim operations, and operations and maintenance of the full RTMS. Pursuant to this contract, SmartRoute Systems launched the Cincinnati *SmartTraveler* traveler information system (identical to the previously described system in Boston) in June of 1995.
- SmartRoute Systems has substantially designed and operates the Interim Operations Center for Boston's Central Artery/Third Harbor Tunnel project, the largest road construction project in the US. Project responsibilities include integrating data from various surveillance technologies and communicating that data to a variety of target audiences, including the general traveling public, the media and key project personnel.
- SmartRoute Systems was selected by the Connecticut Department of Transportation to operate its I-95 Freeway Traffic Management Center in Bridgeport, Connecticut. Project responsibilities for this project include the staffing and operation of a state-of-the-art operations center covering 56 miles of Interstate 95. The primary focus of this operations center is incident detection/management, and provision of motorist information to I-95 travelers.
- SmartRoute Systems served as a principal subcontractor on the consultant team headed by Loral Aero System, selected by the I-95 Corridor Coalition to design traveler information systems for the I-95 Corridor.
- SmartRoute Systems served as a member of the Virginia Tech and Urban Engineers teams selected by the I-95 Corridor Coalition to research user needs with respect to safe, economical, convenient travel along the corridor and the commercial market potential for addressing these needs.

## **KEY PERSONNEL**

### **SmartRoute Systems**

Cambridge, MA

***Stephen P. Crosby***  
***Chairman & CEO/Principal***

25 Yrs. Senior Management  
Experience  
Cross-Jurisdictional  
Relationships  
ITS Operations Management  
ITS Marketing  
ATIS Systems Development  
Public/Private Partnerships  
Strategic Partnering

Steve has more than 25 years experience in developing and managing complex organizations and projects, including the last five years in strategic planning, marketing, and development of a unique private sector venture in ITS. In addition to serving as Chairman & CEO of SmartRoute Systems, Steve has served as Project Manager for his company's participation in the TravInfo Field Operational Test in San Francisco, and Project Manager for the company's participation in the design, construction and operation of the Regional Traffic Management System in Cincinnati. As CEO, Steve also supervises development of strategic marketing relationships with private companies in the ATIS dissemination business.

***John P. Liebesny***  
***President & CTO/Principal***

25 Yrs. Major High-Tech  
Development and Marketing  
Experience  
Systems Design  
TICC Design  
ITS Hardware/Software  
Analysis

John has 25 years experience in the design, development, and deployment of evolving high technology systems, focusing most recently on comprehensive design and systems integration work on fully vertically-integrated ITS infrastructures. As founder, President & CTO of SmartRoute Systems, John has particular responsibility for the technology development for the company, and serves as the key principal for the Central Artery/Third Harbor Tunnel Interim Operations Center (IOC) project in Boston.

***David Stein***  
***Executive Vice President/Principal***

25 Yrs. Major Project Management  
Experience  
Project Management  
Systems Operations  
Public Agency Relationships

David has spent 14 years in the development and management of major projects, including most recently serving as the Executive Vice President of SmartRoute Systems. David served as the Project Manager for the *SmartTraveler* Field Operational Test conducted for MHD in Boston, and specializes in senior-level supervision of ITS operations, marketing, and multi-jurisdictional public agency coordination.

## **KEY PERSONNEL**

### **SmartRoute Systems**

Cambridge, MA

***William V. Twomey***  
***Vice President Public Sector***  
***Business/Principal***

22 Yrs. Public Sector Management  
Project Management  
Public/Private Initiatives  
Capital Program Management

Bill has spent 22 years in positions of increasing responsibility within the Transportation segment of the Massachusetts State Government. Prior to joining SmartRoute Systems, Bill served as Project Manager for the Massachusetts Highway Department on the massive Central Artery/Tunnel Project, and Director of Transportation Services for TAMS Engineering. Bill is SmartRoute Systems' Principal responsible for public sector business development and consulting work, overseeing the management of all such contracts.

***John Rourke***  
***Vice President New Business***  
***Development/Principal***

10 Yrs. Private Sector Management  
and Marketing Experience  
Project Management  
Private Initiatives  
ETTM Systems Development

John has 10 years experience in sales, marketing and corporate development for two successful high-technology start-up companies. Prior to joining SmartRoute Systems, John was a co-founder of AT/Comm, Inc., a leading manufacturer of non-stop electronic toll collection systems in the industry of Intelligent Transportation Systems. John's role at SmartRoute Systems is to create strategic alliances with media, telecommunications, automotive, and computer firms to disseminate the company's traveler information to the home, office and vehicle.

***Eli Sherer***  
***Vice President of Operations***

13 Yrs. Traffic Operations  
Experience  
TICC Operations  
TICC Systems Design  
TICC Personnel and Media

Eli has spent 10 years in the traffic operations business. Eli has particular expertise in an operational understanding of the metropolitan-area road networks, TICC system and personnel management, media relations and marketing, and integration of complex electronics into traffic information and management systems.

**KEY PERSONNEL**

**SmartRoute Systems**

Cambridge, MA

***Paul R. Hamnett***  
***Vice President of Engineering***

20 Yrs. Post Graduate Engineering  
Experience  
12 Yrs. Senior Technical  
Management Experience  
Qualified Public Accountant  
Hardware/Software Design  
Experience  
System Architecture and  
Implementation  
Strategic Partnership  
Development  
Management of Major Projects  
Joint Venture Experience

Paul has 20 years of engineering experience spanning proprietary embedded systems, board design, founder of profitable startup software company and major international software development projects. Most recently, Paul managed the MCI/NewsCorp Platform, WWW and Database groups. Key recent technology experience includes high bandwidth multimedia (video and CD quality audio) over internal and external networks (especially the WWW and Internet in general), using PPP, switching hub and FDDI technology. On the software side, component based architectures utilizing the new multi-platform implementations. Paul's role at SmartRoute Systems includes managing the entire development process for the company's growing family of products and services, and designing and implementing the new internal architecture for product delivery.

**SUMMARY FINDINGS, MASSACHUSETTS HIGHWAY DEPARTMENT  
INDEPENDENT EVALUATION OF SMARTRAVELER OPERATIONAL TEST**

Potential Impact of *SmarTraveler* on Congestion and Air Pollution

SmartRoute Systems is now in the fourth year of operation of *SmarTraveler*, a fully-deployed, area-wide Traveler Advisory Telephone Service (TATS) in the Metropolitan Boston area. *SmarTraveler* began as the first Field Operational Test funded by FHWA under ISTEA of 1991. Preliminary findings of the independent evaluation of *SmarTraveler* (conducted for the Massachusetts Highway Department and presented in a paper to ITS America) have demonstrated that *SmarTraveler* has extraordinary potential to influence traveler behavior, thereby reducing congestion and air pollution. While teaching people to learn to use and ATIS is a considerable challenge in behavior modification, the research is clear that use of the ATIS, increasing over time, is a powerful tool for changing the route, time or mode of drivers' travels. Following are highlights of the evaluation contractor's survey of 2,000 users of the *SmarTraveler* TATS:

- ***48% of respondents reported the information they received during the particular call about which they were being questioned, had a direct influence on their travel decision-making.***
  - ◆ ***28% reported making some kind of change in their travel behavior.***
    - ***14% reported changing the time of departure.***
    - ***12% reported using a different route.***
    - ***2% reported canceling the trip.***
    - ***1% reported changing route and time.***
  - ◆ ***20% indicated they used the information to choose between two or more relatively equal alternative routes.***
- ***Most of the remaining callers in some way used the information they received to verify that their preferred route would be viable.***
- ***8% reported they contacted others to indicate that they would be delayed, based on the information they received.***

(The Massachusetts Highway Department evaluation of *SmarTraveler* TATS substantially confirmed certain key points of research conducted by SmartRoute Systems for an Early Findings Report, evaluating the impact of *SmarTraveler* on users' route, time or mode of travel. Using this data, SmartRoute Systems retained Tech Environmental, Inc., of Cambridge, Massachusetts at the recommendation of the Massachusetts Environmental Protection Agency, to assess the potential impact on air pollution of the *SmarTraveler* TATS in the Metropolitan Boston Non-Attainment Area. Based on projections of increased use of the *SmarTraveler* service, the Tech Environmental report concluded that widespread use of *SmarTraveler* can account for the elimination of nearly one-half ton of Volatile Organic Compounds (VOC) daily. This accounts for 1/2 percent of the total required reduction in VOC from the base year 1990 to the target compliance year of 1999, and almost 7% of the projected requirement from the Emission Reduction and Highway Operations, Transportation Control Measures (TCM) that remain to be implemented.)

#### User Satisfaction with *SmarTraveler*

The Massachusetts Highway Department's independent evaluation of the *SmarTraveler* TATS demonstrated conclusively that users of *SmarTraveler* are very satisfied with the service, and find it remarkably valuable in their day-to-day travel:

- *97% of users expected to use the service again.*
- *85% of users rated the service "8" or better on a scale of "10."*
- *68% reported reduced frustration as a consequence of using the service.*
- *67% indicated that *SmarTraveler* provided all types of information that they desired from a traveler information service.*
- *63% reported the ability to avoid traffic problems.*
- *59% reported that they saved time.*
- *51% reported that they were aided in arriving on time.*

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SYSTEMS

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**Eli Sherer**  
VICE PRESIDENT  
OF OPERATIONS

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