I**D**EA

Innovations Deserving
Exploratory Analysis Programs

Transit Program

Pilot Testing Innovative Payment Operations for Independent Transportation for the Elderly

Final Report for Transit-IDEA Project 18

Katherine Freund,
Independent Transportation Network

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TRANSPORTATION RESEARCH BOARD • THE NATIONAL ACADEMIES

Innovations Deserving Exploratory Analysis (IDEA) Programs Managed by the Transportation Research Board

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The Transit IDEA Program is one of four IDEA programs managed by TRB. The other IDEA programs are listed below.

- NCHRP Highway IDEA Program, which focuses on advances in the design, construction, safety, and maintenance of highway systems, is part of the National Cooperative Highway Research Program.
- High-Speed Rail IDEA Program, which focuses on innovative methods and technology in support of the Federal Railroad Administration's (FRA) next-generation high-speed rail technology development program.
- Safety IDEA Program, which focuses on innovative approaches for improving railroad safety and intercity bus and truck safety. The Safety IDEA program is funded by the Federal Motor Carrier Safety Administration and the FRA.

Management of the four IDEA programs is coordinated to promote the development and testing of innovative concepts, methods, and technologies.

For information on the IDEA programs, look on the Internet at www.trb.org/idea or contact the IDEA programs office by telephone at (202) 334-2441 or by fax at (202) 334-3471.

> IDEA Programs
> Transportation Research Board
> 500 Fifth Street, NW
> Washington, DC 20001

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CONCEPT

This applied research project (Transit IDEA Project-18) pilot tests two innovative payment operations for independent transportation for the elderly—adult child payment plans and merchant participation. It also investigates the use of geographic information system (GIS) technology for community-based transportation for seniors.

A previous Transit IDEA Project, *Independent Transportation Network: Alternative Transportation for the Elderly* (Transit IDEA Project-9), showed that seniors were willing to use a transportation service that models the comfort and convenience of the private automobile. (Freund, McKnight 1997) This Transit IDEA Project-18 research moves beyond that beginning to explore the economic sustainability of such a senior transportation service by examining several innovative sources of revenue and by developing efficiency through the application of information system technology.

Transit IDEA Project-18 demonstrated that businesses and adult children are willing to participate in the cost of transportation for seniors. Community willingness to voluntarily support senior transportation has important implications for the economic sustainability of present and future transit services seeking to meet the mobility needs of the growing older population. Transit IDEA Project-18 addressed the economic sustainability of such service by looking outside the traditional public funding sources to private resources in the community.

Adult children whose parents use the transportation service and members of the business community whose customers and patients use the service were identified as groups who might be willing to help pay for rides. Geographic Information System (GIS) technology was selected as the information system application most likely to contribute to the efficiency of the senior transportation service.

Research was conducted at the Independent Transportation Network (ITN) in Portland, Maine. ITN uses automobiles and both paid and volunteer drivers to provide service seven days a week, 24 hours a day. Seniors who use the service become members of the non-profit organization and open pre-paid accounts which are debited to pay for their rides. No money changes hands in the vehicles; rather, members receive monthly statements, similar to a telephone bill, detailing their rides and charges.

PRODUCTS AND RESULTS

Innovative Payment Operations for Adult Children
A catalogue that combined gifts and transportation certificates was tested with seniors and their adult children. The response rate from the target market, adult children, was 9.8 percent, or nine orders from 92 customers. By comparison, the typical response rate of companies in the catalogue industry is only two percent. Most of the gift certificates purchased, however, were for transportation only, not transportation combined with a gift. This meant that the only opportunity to raise revenue was from fees charged for the

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certificates, a practice that was unpopular with consumers. The willingness of adult children and families to participate in and support the ITN senior transit service was then tested as a membership campaign, expanding the membership concept from the senior customers to families and the population as a whole. The membership program produced revenue immediately, with membership dues from adult children and siblings ranging from $35 to $1,000. Gift Certificates have been retained in the transit program as conveniences for customer service. Adult children liked them as a feature of the service and showed their appreciation for the ITN through contributions and membership dues. Likewise, credit cards as a payment method did not increase adult child participation in the program, but they did provide a good customer service.

Innovative Merchant Program
Merchant participation was tested with the Ride & Shop program. A control group and an experimental group tested the program for six months, collecting stickers from thirteen area merchants. The results indicated the Ride & Shop program was effective in increasing rides to participating stores. Each sticker collected was worth $1.50, with $1 going to the riding seniors, as an incentive to patronize that store, and $.50 going to the ITN to help cover the deficit incurred with every ride. The administrative cost of the Ride & Shop program exceeded the economic benefit until the program became "stickerless" as an electronic transfer of funds from the merchant's account to the accounts for the seniors and the ITN. Like the membership campaign described above, the electronic Ride & Shop program was implemented after the actual research project was completed. It is now a successful program at the ITN in Portland, Maine, and may be adapted by other transit services or by communities replicating the ITN model.

Information System Technology
A GIS program was designed to create shared rides among community dwelling seniors using windows of availability and dispatching to volunteer drivers. Available commercial GIS software applications for transit were found to be inappropriate and unaffordable for small community volunteer transit services that need to capture the detail necessary to properly dispatch volunteer drivers and their vehicles. Focus groups and a survey of seniors using the ITN service showed that 80 percent of seniors were willing to share rides in automobiles with other seniors in the service. The program could not be built with the resources available in the Transit IDEA Project, so a pilot test was not possible. However, a GIS software application using Transit IDEA research results was built with other resources The program dispatches to both paid and volunteer drivers, creates shared rides as a consumer choice, incorporates revenue and data collection for the innovative payment operations (Ride & Shop, Healthy Miles and Ride Services) and maintains a database for membership.

By creating new sources of revenue through adult children and businesses in the community, and by using a GIS to create shared rides and efficiently dispatch volunteers, Transit IDEA Project-18 points the way to economic sustainability for community-based transportation services for older people.

IDEA PRODUCT

This applied research project (Transit IDEA Project-18) pilot tests two innovative payment operations for independent transportation for the elderly—adult child payment plans and merchant participation. It also investigates the use of geographic information system (GIS) technology for community-based transportation for seniors. The research was conducted at the Independent Transportation Network (ITN) in Portland, Maine, a non-profit transportation service for seniors developed, in part, through Transit IDEA Project-9.

The impact of this IDEA product lies in its potential to:

1) Access private resources to help pay the cost of transportation for the aging population;
2) Expand the sources of revenue for senior transit by enlarging the concept of the transit consumer to include family and the business community;
3) Incorporate the efficiency of GIS technology through shared rides for community dwelling seniors and improved dispatch for volunteer drivers

CONCEPT AND INNOVATION

This research project builds upon the success of Transit IDEA Project-9, *Independent Transportation Network: Alternative Transportation for the Elderly*, which sought to develop an alternative to the private automobile for seniors with a diminished capacity to drive safely. The senior transit problem is significant, since three out of four older Americans live in rural and suburban areas that lack the density for traditional mass transit. (Rosenbloom, 1988) Their fatal crash rate exceeds all age groups except teenagers, and their projected fatalities are likely to reach more than 18,000 by 2020. That number exceeds the current fatality rate for alcohol-related driving. (Burkhardt 1998)

The Project-9 research determined that it is possible to successfully provide a demand-responsive transportation service for seniors that models the comfort and convenience of the private automobile. (Freund, McKnight 1997) As the graying of the American population continues—over 50 million people will be age 65 or over by 2020—the implications of this finding are significant for the economic sustainability of future senior transit solutions. (U.S.DOT, 1997)

Resources are one of the four essential components of transportation. The others components are logistics, technology and policy, as shown in Figure I, below. (Freund 2002) Resources are the means, in any form, and from any source, to fund the transportation process. Although transportation resources may be either public or private, in America, they are overwhelmingly private.

In 1998, Americans spent $675 billion private dollars on transportation. That number is five times greater than government expenditures for all roads, highways and transit

systems. At the household level, that translates into 17.9 percent of the average
household budget, making personal expenditures for transportation second only to
housing, at 19 percent. Significantly, these large private sums were spent on automobiles.
Of the $6, 312 out-of-pocket annual transportation expense for the typical American
household, $6,200 was spent purchasing, fueling and maintaining personal cars and
trucks. (McCann 2001)

Figure I:

Basic Components of Transportation

Primary Elements   **Primary Forces**
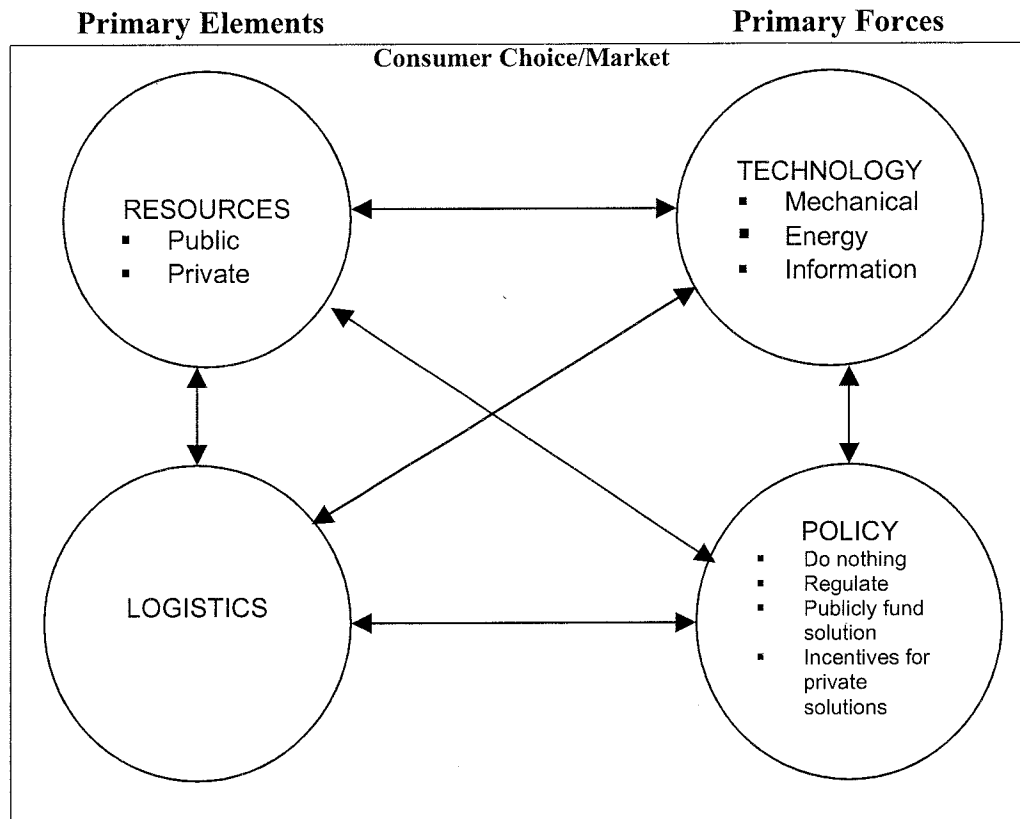
By establishing the feasibility of a demand-responsive transportation service that models
the private automobile, the Transit-9 IDEA Project pointed the way to potential private
economic support for senior mobility. When balanced against established demands for
public resources from other senior programs, such as Social Security and Medicare, the
benefit to the transit industry of developing payment methods that access private
resources could be substantial.

The adult child and merchant payment programs examined in this IDEA research project
take the concept of private resources a step farther than traditional personal expenditure
by expanding the concept of the transit consumer from the rider to include the rider's
family and the business community. The reasoning is that families and businesses benefit

when older consumers have mobility, and where there are benefits, there is often a willingness to pay. This opens the revenue stream to multiple sources at both ends of the ride. The challenge is to collect these revenue streams efficiently, so the cost of administration does not exceed the benefit of revenue.

There is an interactive relationship (See Figure I) in transportation, between technology and logistics, and between technology and resources. By applying geographic information system (GIS) technology to a senior transit service that uses automobiles with volunteers as well as paid drivers, the kind of routing and dispatching efficiency that has formerly been available only to large transit services through expensive software programs will be within reach of smaller, community-based senior transportation services. The level of detail required to provide good customer service for seniors with special needs, combined with the logistical complexities inherent is using volunteers with various kinds of automobiles, and at diverse times and locations, offers a broad opportunity to create efficiency through database management and GIS. Volunteers, as a private resource in the form of rides from family and friends, move more seniors than public transit. Managing this resource through information system technology effectively marries the informal and formal transportation systems, with benefits to both systems. Finally, a GIS can create shared rides among community dwelling seniors, unifying the benefits of door-to-door service in automobiles with the efficiency of mass transit.

INVESTIGATION

DEVELOPING THE IDEA PRODUCT

The aim of this research project was to promote the economic sustainability of innovative transportation for seniors by developing new revenue streams to help pay for rides and by increasing efficiency through the application of information system technology. The Independent Transportation Network™ of Portland, Maine, a non-profit service for seniors that uses automobiles and both paid and volunteer drivers, was used to conduct the research. At the start of this study, May 1997, ITN had four radio dispatched fleet automobiles, between 40 and 70 volunteer drivers using their own automobiles, and approximately 600 senior members taking about 1,300 rides per month. ITN maintains a database of all riders and rides, including records of trip origin, destination, purpose and time. Information about seniors, the businesses they patronize, and their adult children was gathered through database queries, focus groups, surveys and advertisements. Technology information was gathered through internet searches and site visits.

The investigation section of this report is organized first by research activity, e.g. needs assessment, assessment results, pilot program design, then by subject area under that.

Needs Assessment

Innovative Payments Plans

Merchant Program

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This innovation involved reimbursements to ITN clients, by merchants, for travel to their places of business. Examination of all 1997 rides in the ITN database revealed that trips to healthcare providers were the most frequent ITN trip, accounting for 45.8 percent of rides. Retail merchants and professionals accounted for 32.9 percent of rides; trips to exercise, to visit nursing homes, or for social, educational and community purposes, hereafter referred to as "life betterment," accounted for 21.3 percent of rides. (See Table I.) Based on these categories, researchers conducted three different focus groups to gather information about merchant participation in paying for a portion of senior's rides.

Table I:

INDEPENDENT TRANSPORTATION NETWORK TOTAL RIDES, 1997		
RIDE PURPOSE	NUMBER OF RIDES	PERCENT OF TOTAL RIDES
Health care	2,448	45.8 %
Retail merchants, professional services	1,758	32.9 %
Life betterment	1,137	21.3%
TOTAL	5,343	100%

Some retail merchants were recruited from among those merchants who attended or expressed an interest in ITN presentations of the merchant participation program conducted at the Greater Portland Chamber of Commerce, December 1996. Others were identified from the ITN database.   Participants included representatives of a bank, a retail bookstore chain, a retail discount merchandiser, a large supermarket chain, a large pharmacy chain, and a large shopping mall.

Participants in the life betterment group were recruited by contacting representatives of businesses and organizations frequented by ITN riders. They included two nursing homes, one exercise program, one church, one volunteer service, and one large apartment building with a large number of senior residents. A representative of the symphony was also interviewed by phone.

Healthcare professionals were not interested in participating in a focus group discussion. Attempts to contact health care professionals included letters and phone calls to three large physician practices (rheumatology, cardiology, and internal medicine) frequented by ITN customers, two large ophthalmology practices served by ITN, six individual doctors, one non-profit health insurance provider, one medial equipment provider and one visiting nurse service. In declining, these health care providers said that even though they feel the ITN is providing a valuable service, they cannot see any way in which they might contribute to providing that service. Health care professionals understand the services *they* provide are not only necessary, but also often critical; they do not feel they should contribute to the cost of transportation to and from that service. As one provider put it, "People need to get to the doctor, and they do. Obviously it's not like making it to the symphony or hairdresser's."

One physician's office manager explained that healthcare is being squeezed for every dollar by HMOs, and suggested transportation providers turn to them for support. Another business manager for an eye care group that sponsored the ITN newsletter in the past said his group would do so again in the future as a form of community support, but he did not see the business case for participating in a program that helps seniors pay for rides.

The question scripts for all focus groups in this research project were written by the principal investigator and circulated for review in the marketing department at the University of Southern Maine graduate school of business. All focus group participants received a $20 gift certificate for transportation on the ITN (for themselves or as a gift for someone else) and a small houseplant to take away with them.

Adult Child Program

Researchers initially planned to conduct two focus groups with adult children: one group whose parents need to use the ITN, another whose parents are currently using the ITN. The goal was to create an organized system to encourage and collect contributions to the ITN by adult offspring who might be willing to subsidize patronage of the system because it helps them and their parents. Of the two groups, the former seemed to hold the greater promise, since ITN clients are generally reluctant to call upon, or permit ITN to call upon, their adult children.

Contrary to expectations, it proved impossible to recruit adult children of seniors who need to use the ITN, but who are not yet enrolled. There were numerous efforts to recruit focus group participants, including a press release and Community News page announcement in the local newspaper, as well as distribution of 1,200 announcement flyers to local churches, synagogues, and public community bulletin boards in such locations as the public library and local supermarkets. A $20 transportation incentive was offered. This mass recruitment effort yielded no phone calls. Finally, an announcement was placed in the ITN newsletter, the *ITN Express*, (local circulation approximately 1,000) asking seniors who knew of adult children who might like to participate in the project to call the ITN office. The same incentive was offered. There was no response.

The focus group discussion with adult children whose parents are currently using the ITN service was easy to recruit. Using a list of 30 adult children compiled by surveying staff members, a letter was sent asking for volunteers to participate in a discussion. Seven adult children participated in the discussion . All were women.

Information System Technology

Three potential applications of emerging technology to ITN were Smart Cards, Geographic Information Systems (GIS), and Global Positioning Systems (GPS). On the basis of preliminary evaluation, only GIS appeared able to contribute significantly to the economic viability of ITN. Smart Cards provide a means of recording date, time, driver,

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passenger, mileage, and cost for administrative, financial and research purposes. However, the same information must be collected at the time a ride is requested, and is more readily entered into the data file by office staff using available equipment than by drivers carrying individual card readers. GPS, when connected to a radio communication system, would allow the geographical location of the vehicle to be plotted at all times. This ability has proven extremely valuable in allowing dispatchers to manage the travel patterns of large vehicle fleets. However, this capability was of limited benefit to a community-based senior transit service such as the ITN, given the small number of vehicles, the circumscribed location, and easy radio contact between drivers and dispatchers.

Geographic Information Systems have three potential applications to ITN: assisting rideshare, routing drivers and assigning volunteers. The pilot study for GIS applications was developed through focus groups with seniors, and an assessment of GIS databases and paratransit dispatch software. The assessment included interviews with experts in the field, an internet search, and an information gathering excursion to the Boston vicinity to see database and software demonstrations at ESRI (ArcView), Caliper Corporation (Transcad), Multisystems (Midas), and Harvard Mapping and Design.

The main reason to review existing GIS software applications was to determine whether existing technology could be adapted to the needs of senior transit services that use automobiles and rely heavily upon volunteers and private resources. Existing software applications were geared to the needs of large transit and paratransit services. They were unsuitable for an ITN-like service because they were both too expensive ($50,000 and more) and they had capabilities a volunteer oriented service did not need. At the same time, they lacked many significant capabilities a community-based senior transit service would need. If these differences were minor, it would have paid to adapt the software.

To gather information about consumer preferences for sharing rides and for the merchant program, researchers conducted two focus group discussions with seniors who had demonstrated an interest in using alternative transportation. One group included seniors who were long standing ITN customers but who had not participated in any previous studies; the other group comprised seniors who had just signed up to use the ITN service.

In the group comprising seniors new to the service, the mean age was 79, with an age range of 71 to 85. Of the seven seniors in the group, there were three men and four women. Six of the seven were former drivers (with one woman still driving during the day, only) and the other participant never drove. The group of seniors familiar with the service had a mean age of 78, with an age range of 69 to 80. There were nine people in this group of three men and six women. Two of the participants were visually impaired, but less than 65 years-of-age, and are considered outliers for the purpose of this research. Of the seven seniors in the group, four had never driven, and three were former drivers.

A survey to gather information about cost savings and waiting times was mailed to 573 ITN customers. For this survey, 231 surveys were returned, out of 573 mailed, a response rate of 40.3 percent.

Assessment Results

Innovative Payment Plans

<u>Merchant Program</u>

Retail Merchants

Universally, retail merchant participants felt that seniors made up a significant percentage of customer traffic. Merchants were also aware that many seniors have mobility limitations that inhibit their ability to get to a place of businesses. When asked to describe the ways in which seniors made it to their stores, merchants responded that seniors walk, take a taxicab, rely on adult children and friends, use Regional Transportation (local paratransit), and travel on the ITN. Some retailers were more concerned about the disabled senior population, than seniors in general. Reasons for this included the feeling that many seniors, in general, are "a pretty independent lot."

Merchants felt that the services provided by the ITN could increase traffic to their doors; however, the exact impact of that traffic on increased business would need to be researched. Many of the merchants participate in METRO's Bus 'n Buy program; they felt that dispensing stickers was easy and, to a limited extent, it encouraged more customers to shop at their stores. Merchants also felt a similar program with the ITN would increase store traffic, but they wanted more information. Overall, merchants would need to be provided with a description of ITN service, the size of the population currently and potentially served, and the number of rides ITN currently delivers to retail merchant destinations. Merchants wanted to know how the ITN recruits and insures drivers, and who endorses the ITN service. By giving merchants "something to look at" they felt they could make more educated choices about participating in the ITN merchant participation program. They expressed a willingness to participate in the production of a brochure designed to inform ITN customers about their business.

The focus group discussants viewed and approved a prototype merchant participation ticket for collecting stickers for the pilot program. They did not feel a need to require a minimum purchase amount. When asked how much they would be willing to contribute to the cost of seniors' rides, they suggested one dollar, since that is the amount they currently contribute to the Bus 'n Buy program. Facilitators asked them if an additional fifty cents could be added to that to help cover ITN costs to provide the ride, and they were agreeable, but again said they would need more information.

Life Betterment

Assisted living facilities, nursing homes, volunteer programs, and exercise programs participated in this discussion group. Overall, these businesses, organizations and programs felt they would not enroll in a merchant participation program in the traditional sense (i.e., a sticker program.) However, most said they would be willing to work with the ITN to develop some kind of mutually beneficial partnership. For example, the ITN

could partner with an assisted living facility to provide some of the transportation the operation requires for its residents. The facility would pay for the cost of the resident's ride and pay for a portion of the ITN overhead to deliver that ride, thereby supporting the network. In return, by assuming all responsibility for those rides, the ITN would diminish the transportation headaches of those facilities. This group was also willing to display promotional materials and advocate for the service as a way to reach additional seniors, and their families.

This groups' feelings about senior mobility, as a problem, and the ways in which seniors currently get rides was essentially the same as that of the earlier retail merchant group.

Healthcare Providers

As previously explained, this group was difficult to recruit. Overall, the physicians and health care providers contacted for this study did not view themselves as merchants, and could not see reasons for participating in these kinds of programs.

Adult Child Program

The majority of adult children in this group learned about the ITN service, then told their parents. The ways in which adult children learned about the service included public service announcements on TV, articles in the local press, friends, information from the Southern Maine Agency on Aging, and information from the doctor's office. Universally, adult children thought the ITN was a "life saver" and said it helped their parents regain their independence. Before using the ITN, adult children had to spend a lot of their personal time driving their parents to and from appointments and social events. They felt the ITN had given them back a portion of their lives.

Adult children stated they "love" the idea of a gift certificate program, and suggested that they would send the names of other family and friends who would use the program if they were given a form to provide that information. Adult children were also very receptive to the idea of an ITN credit card and to the ITN accepting credit cards for payments.

Adult children agreed that more could be done with local businesses to educate employees about this issue (i.e., presentations to employee assistance programs). Participants agreed to help the ITN arrange informational sharing sessions at their places of employment.

Information System Technology

Seniors Familiar with the Transportation Service

This group felt the ITN made a qualitative difference in their lives, affording them the freedom to go anywhere they choose. They used the service for a wide range of transportation purposes, including healthcare appointments, merchant trips (i.e., grocery store, restaurant, and hairdresser), and life betterment activities (i.e., exercise programs,

visiting friends in nursing homes.) Seniors in this group were eager for the gift certificate, merchant participation, and ride share programs to begin. They expressed a willingness to provide the names of family members and friends so those people could give them gift certificates for special occasions. When asked how they thought the merchant participation program would effect them, seniors expressed the belief that the number of rides they take a week would increase.

Eighty percent of the seniors in this focus group said they would use rideshare, *as long as they had the choice to ride alone when they preferred.* In fact, most viewed rideshare as an opportunity to meet others and socialize. Destinations suitable for shared rides included restaurants, exercise programs, the Maine Mall, symphony, and theater events, they said.

When asked how long they would be willing to wait in order to share a ride, they replied "fifteen minutes." Some seniors indicated they would be willing to wait longer if they could meet new people and socialize. Asked how much longer they would wait, they would not specify a time window.

Seniors New to the Transportation Service

For the most part, this group echoed the sentiments of the first senior group. Many people requested that the innovative payment programs (merchant participation, gift certificates, and rideshare) begin as soon as possible. For everyone in this group, a major life change forced them to stop or limit their driving. These life events fall into three categories: 1) the participant never drove and the spouse recently died; 2) an acute illness or a change in health forced the participant to stop driving; 3) the participant felt concern for his or her safety while driving, and decided to stop.

Unlike the people in the focus group of seniors familiar with the service, the majority of people in this group restricted their use of the ITN to rides for healthcare related appointments, such as a doctor's visit or an exercise program. They explained that they did not want to appear to be taking advantage of the service and decided to self-limit their use of the available transportation.

Listening to this rationale, a woman in the group recounted her decision to give up driving. She tested the alternative transportation system by using it for all of her rides for many months. During this time she maintained her car and insurance, and kept her license. After three months, she sold the car because she felt the ITN was able to meet all of her transportation needs. Following her personal testimony, many group participants expressed surprise to learn the service could be used to go wherever and whenever a person desires. Such programs as merchant participation and gift certificates may similarly educate consumers to the numerous possible uses for alternative transportation.

Pilot Program Design

Innovative Payments Plans

Merchant Program

The primary purpose of the innovative payment plans is to contribute to the economic sustainability of the transportation service. Since the cost of delivering rides exceeds the revenue collected in fares, the merchant participation program, and all of the innovative payment plans must contribute funds to both the seniors *and* the transportation service, and there must be a mechanism to accomplish this transfer. Funds must be transferred voluntarily, as a consumer choice (merchants, adult children, and seniors are all regarded as consumers) and the revenue gained must exceed the cost of capitalizing, operating and administering the program.

The Independent Transportation Network is a contained system, limited, for the most part, to people age 65, or older. Everyone who uses the service must complete an application and open a pre-paid account. Payment is accomplished through a computerized monthly statement system, in which seniors receive a detailed summary of all the rides they have taken in the previous month, together with an accounting of any money they may need to deposit into their account to pre-pay rides for the next month.

Working with this established, pre-paid account system, the following mechanism was designed to pilot test the merchant participation program: Participating merchants opened an ITN account for $150. The ITN provided each merchant with 100 pre-printed identification stickers. Each sticker was be worth $1 for a senior and $.50 for the ITN. Seniors signed up to use the merchant program received a card in the mail with their regular statement. The card had the senior's name printed on it, and a place where participating merchants could place stickers when the senior rode the ITN to the participating store or office. Seniors then sent the card, with stickers, to the ITN office when they sent in a check for their monthly pre-payment. At the ITN office, senior accounts were credited one dollar for each sticker; the ITN was credited fifty cents for each sticker; the participating merchant was identified by the sticker and that merchant account was debited appropriately, simultaneously recording research data. A merchant account was only debited, therefore, when a senior patronized that business. This system allowed merchants to make individual choices about the spending level they chose to require for seniors, although merchants in the focus group discussions showed little interest in requiring minimum purchases to qualify for a sticker. This system also permitted dissatisfied merchants to receive a full refund of any unused balance in their account, a feature designed to make the program an attractive prospect for business people. Unlike advertising, where merchants spend money with no guarantee of results, with this merchant participation program, businesses had nothing to lose by trying.

To promote this program, researchers produced and distributed to seniors a promotional brochure highlighting participating merchants. Merchants were surveyed to determine if seniors would be required to purchase a minimum amount to receive a sticker for the visit. This information was then relayed to seniors in the promotional brochure.

For the merchant participation program to reach its full potential, the transit service must find ways for as many merchant destinations as possible to contribute to the economic sustainability of the system. One problematic group that accounted for seven percent of all 1997 merchant rides was hairdressers. Most hairdressers are independent contractors who rent a chair from a salon, and they enjoy a high level of customer loyalty. Yet, they would not participate in the focus group discussions, and when asked in telephone recruiting discussions if they would be interested in a merchant participation program, they replied that they would not.

The pilot study for merchant participation for hairdressers, therefore, included a mailing to all licensed hairdressers in the ITN service area, inviting them to participate in the gift certificate program and seeking their involvement as volunteer drivers.

The two remaining merchant groups were healthcare providers and life betterment. These groups were also more difficult to involve, but because they account for over half of all ITN rides, engaging them in the project was worthwhile. One potential program involved the ITN contracting with nursing homes and assisted living facilities to become those organizations' transportation provider. The facility could pay for the seniors' rides on the ITN and also contribute funds, on a per ride basis, to help support the network.

The ITN had entered such a transportation service agreement with the Atrium, a new senior living facility currently under construction in Portland. The pilot study with senior living facilities was to approach various nursing homes and assisted living facilities in the area and present the Atrium program to them as a transportation solution. The Atrium, itself, was not ready to begin using the ITN service until fall of 1999, so it was not possible to collect any data for this research project on that contract.

Since it proved so difficult to involve individual doctors' offices and healthcare providers in the focus group discussions, it was impossible to design a merchant participation program for this segment of the market.

Adult Child Program

Since efforts to recruit new adult children to the project were unsuccessful, an alternative method was chosen. Every senior registered to use the service provides an emergency contact name and phone number. Approximately half of these 575 numbers are for adult children. The ITN office asked seniors to allow staff to contact these adult children for permission to mail them information about the transportation service and the gift certificate program. Using this method, the names of 80 adult children were added to the project.

A catalogue promoting available gift certificates was mailed to seniors and adult children. These gift certificates enabled adult children to encourage their parents to make greater use of the ITN while providing the ITN with additional support in the form of administrative fees.

The catalogue contained three basic gift certificate options:

1. *Basic ITN travel gift certificates—"All Around Town"* These certificates were available in various dollar amounts. The cost of these certificates contained an amount to be credited to the senior's ITN account and an administrative overhead charge.
2. *Basic ITN travel/merchant gift certificates—"Dynamic Duo"* These certificates matched ITN travel with the services of a specific merchant, allowing the senior to have some or all of the expenses paid.
3. *Package gift certificates—"Time on the Town"* These certificates matched specific services with ITN travel. For example, using the ITN to go out to dinner or the symphony. The certificate included travel as well as the cost of dinner or the cost of a symphony ticket. The gift certificates retailed for various prices, with the price being determined by the costs associated with the services provided.

Potential participants included not only adult children, but also seniors, friends and relatives, and local merchants who provide gift certificates. Local merchants who expressed an interest in this program included two supermarket chains, the Maine Mall, three restaurants, the Portland Symphony Orchestra, Portland Stage Company, the Sea Dogs, Portland Pirates, and bookstore chains.

Another way in which adult children could participate in the support of the ITN was through the credit card program. Beginning with this pilot study, the ITN began accepting credit cards. There are costs associated with the use of credit cards, so the success of this payment method depended upon the increased participation of adult children because of the ease of payment.

Information System Technology

The economic feasibility of ITN is influenced by its ability to accommodate ridesharing over various trip segments. Past experience with ITN customers, confirmed in recent focus group discussions, indicated that seniors were willing to rideshare, both for economy and sociability.

A rideshare feature, using a GIS based software application, was designed for this project. Seniors scheduling rides would be asked by the dispatcher if they would like to share that ride. The minimum window of time for rideshare would be an additional 15 minutes, added to the beginning of a trip. The minimum cost savings would be $1, or less, if a customer so requests

Another possibility for rideshare would group people by destination. For example, a senior scheduling a ride to the Maine Mall on Sunday might be offered a rideshare option if she is willing to go on Saturday, because the database would tell the dispatcher that a ride was available to the same destination on Saturday, and it would save her money. The choice would be the consumer's.

Rideshare could also be accomplished by activity or interest category. For example, people interested in attending the Deering Center Garden Tour in June might enter their name to share a ride with others going to that event. Rides could be shared for the symphony or theater the same way.

When selecting and assigning volunteers to a trip, it is necessary to match time and location of ride with their scheduled availability and location of volunteers at that time. This is difficult to do manually with large numbers of volunteers. As a consequence, dispatchers tend to select on the basis of other factors (e.g. soft touch), often requiring volunteers to travel longer distances than required, with unnecessary mileage costs and inconvenience.

The GIS would automatically match rides with volunteer drivers, based on location and availability. If no volunteer is available, the GIS would assign a paid driver.

Volunteer drivers need a navigational aid to assist them in reaching the locations of clients. GIS offered a means of providing, in addition to the route itself, information as to traffic controls, points of possible confusion, useful landmarks and so on. The maps and directions could be used for trips delivered by paid drivers, as well. For each assigned route, the GIS would determine the optimal route and print directions, if they were needed.

The GIS study was designed without a control group. It would be too difficult to match conditions of travel, particularly where more than one person was involved. A control group would also reduce the numbers available for ridesharing, curtailing the ridesharing opportunities and the match options too much.

Pilot Program Implementation

Innovative Payments Plans

Merchant Program

Using the list of interested merchants generated from the database of ITN destinations and information from ITN customers, 13 area merchants were recruited to participate in the Ride & Shop program, the name given to this merchant participation program.

Seniors were separated into two, randomly divided groups: AB, BA, AB, BA, etc. Seniors in each group were reviewed to ensure an even distribution of high frequency riders. If rider frequency distributions were not even, seniors were further divided into frequent and non-frequent riders. Frequency was defined as using the service an average

of at least once a month. Group A participated in the Ride & Shop program for the entire six (6) months of the research evaluation, October 1, 1998 to March 31, 1999. Group B served as the control group for October and November, the first two months of the research evaluation. (See Table II)

Table II:

ITN CUSTOMER SAMPLE, MERCHANT PARTICIPATION PROGRAM		
	FREQUENT RIDERS	INFREQUENT RIDERS
Group A Participants	6 month study	6 month study
Group B Control	4 month study	4 month study

Ride & Shop launched October 1, 1998. Information packets explaining the program were mailed to 253 ITN seniors. The packets included a Ride & Shop card to collect stickers and a brochure that highlighted businesses participating in the Ride & Shop program. Thirty-seven percent of seniors in the A Group were telephoned the first week in October to answer any questions about the Ride & Shop program.

During the first and second week of November, all 13 participating merchants were visited and interviewed. Overall, every business was happy with the program.

Seniors received their November Ride & Shop cards with their October statements. Promotional materials were also mailed at this time. The list of senior participants was reviewed. Seven customers in Control Group B were added to Participating Group A because they had already started collecting stickers. Additionally, four seniors were removed from Group A because of closed accounts. As of November 1, there were 256 seniors in the Ride & Shop program.

The second week in November a random sample of seniors (17 of 256) were called to evaluate their satisfaction with the program. In December, Control Group B was added to the Ride & Shop Program. Each senior was mailed a complete package of materials, including a brochure explaining how to use the service, a card for collecting stickers, and information about participating merchants.

At the end of the six month pilot study, March 31, 1999, a special survey was mailed to all ITN customers to determine their satisfaction with the Ride & Shop program and to ask them to mail all stickers they had collected up to that time.

Adult Child Program

In November, 1,167 gift catalogues were mailed to ITN customers, members, adult children and business participants. The target market for this mailing was the adult

children of seniors using this service. The total number of adult children in the database at the time of the mailing was 92. The mailing also included a promotional offer for a discount on a holiday plant at a selected Ride & Shop merchant.

In December, 250 catalogues were distributed to the community at local businesses. Gift catalogues were placed in informational areas at a local public market, Chamber of Commerce, City Hall, a church, community bulletin boards, and the public library. Catalogues were also sent to business participants to make available to customers.

To gather more information from the adult children who received catalogues in the first mailing, another copy of the catalogue and a survey of their opinions on such issues as catalogue format, concept and price was mailed in January. Some of the remaining 600 catalogues were mailed to target adult children before Valentine's Day.

Information System Technology

The estimated cost to develop the GIS software combined with changes to the ITN database was $35,000, a figure that outstripped the resources of this TRANSIT IDEA project. A request for proposals was circulated using funds from other sources, and a consultant, Geofields, was selected. The software was developed, but it never functioned well enough to be implemented. This IDEA research process proved extremely valuable, however, because it laid the foundation for later development of GIS software, with important implications for efficiency and replicability.

RESULTS

Innovative Payments Plans

Ride & Shop

For the Ride & Shop merchant participation program to be a success, it must help seniors meet their shopping needs, contribute to the economic sustainability of the transit service, and be acceptable to both seniors and community merchants.

The numbers of trips taken by the control and program groups during the baseline and experimental phases are shown in Table III. Since the numbers of seniors in each group is the same, the raw numbers of trips provide a measure of ridership within each group.

Table III:

NUMBERS OF RIDES TO PARTICIPATING MERCHANTS BY ITN CLIENTS, BY GROUP AND DATA COLLECTION PHASE			
GROUP	BASELINE	EXPERIMENT	TOTAL
Program	14	79	96
Control	19	51	67
Both	33	130	163

Both groups increased rides to participating stores as the Ride & Shop program was introduced at the end of the Baseline period. However, the Program Group's rides increased by a factor of (79/14=) 5.6, while the Control Group's increased by a factor of (51/19=) of 2.7, a two-fold difference in increased ridership. A chi-square shows the differences to be significant (X^2 = 3.84,df=1, P =.05). The increase in rides to participating merchants among clients in the control group reflects to some extent an increase in overall ridership during the experimental phase. However, a sharp upswing in rides to the participating establishments by the controls during the third month of the program suggests there may have been some spill-over of the program's effects. The overall numbers of rides within the Program Group is rather small, a reflection of the time it takes to realize the effects of any marketing activity. A somewhat longer phase might have increased numbers, both showing a larger effect and yielding greater statistical significance. However, it was not feasible to withhold the Control group's participation in the program for any more than three months.

The results indicate the Ride & Shop program was effective in increasing rides to participating stores. The magnitude of potential change in ridership cannot be accurately estimated, given the brevity of the program and the difficulty in keeping the controls out of it. If anything, it might be somewhat larger than the two-fold difference that appeared in the experiment. Nor, is it possible to discern the program's effect on overall use of the ITN—whether clients rode more or just changed their destinations. However, the results can be considered encouraging.

There was a large discrepancy between the number of Ride & Shop stickers dispensed by participating merchants (225) and the number received from seniors at the ITN office (163). There are a few possible explanations for this gap. Seniors who were members of the control group for October and November may have collected stickers in anticipation of receiving their Ride & Shop cards. During these two months, 17 inquiries were received regarding the Ride & Shop program from seniors in the control group. One senior had already collected two stickers and stated she would save them for her card. Seniors from the control group who collected stickers may have lost them. As late as April 2002, seniors were still returning stickers to the ITN office. Another possibility is improperly

placed stickers. During the experimental period, stickers were returned to ITN drivers on manifests and scraps of paper. Finally, businesses may have dispensed stickers to seniors who were not ITN customers. Stickers have turned up on bus passes and sample Ride & Shop cards.

Of those stickers received, all were collected by active riders or by new customers. At the conclusion of the project, there were 193 active customers (at least one ride a month) and 349 non-active customers enrolled in the Ride & Shop program.

The 13 participating Ride & Shop businesses included a supermarket chain, a bank with several locations, a medical supply store, two eye care centers, one audiologist, a bookstore chain, two restaurants, a candy store, the symphony and the theatre company. These businesses were surveyed by phone or in face to face interviews during October and November and again in February and March. The majority thought the program was going well and suggested ways for the ITN to promote it. Businesses were also asked about their willingness to participate in a "stickerless" Ride & Shop system. Universally, they liked the idea because it eliminated the need to keep stickers on hand and to have staff trained. (Three businesses lost or discarded their stickers.)

The concept of a "stickerless" system was an unanticipated outcome of this research. The idea is to replace the paper system with an electronic debit transaction that would occur through the GIS. Since the ITN is a closed system, where all riders and destinations are known, all that needs to occur for an electronic Ride & Shop to work is a willing participant with an account on either end of the transaction (customer/participating merchant) and for the parties to agree that electronic documentation is an acceptable substitute for paper. Thus, the expressed willingness of businesses to participate is a great step toward simplification of the sticker system.

In the Ride & Shop survey mailed to seniors at the conclusion of the data collection period, (See Table IV) the last question of the survey stated: The Ride & Shop program can become a "stickerless" system. This means that merchants can help to pay for your rides but you do not have to collect a sticker. Our new computer dispatch program can automatically credit your ITN account if you travel to a merchant in the Ride & Shop program, and print that credit on your ITN billing statement. In your opinion, would this make the Ride & Shop program better or worse?   Ninety-one percent replied that the program would be better if it were "stickerless."

The survey was mailed to seniors in the study along with their March ride statement. Sixty- eight were returned. Of those, 90 percent were returned by seniors who had taken a ride with the ITN within the previous six months. Eighty-nine percent (n=56) of the respondents *did not use* the Ride & Shop stickers. When asked why they did not use the stickers, sixty-three percent (n=30) of the 47 responding said the merchants they go to are not in the program. Five (17 percent) volunteered the information that they use the ITN to travel to the doctor, and doctors were not included in the study. Nine respondents (19 percent) said they wanted to collect stickers, but they forgot, and seven people (15

percent) said the stickers are too much trouble. Only one individual indicated that she/he was afraid to ask.

Table IV:

RIDE & SHOP SURVEY RESULTS			
QUESTION	RESPONSE	NUMBER	PERCENT
1: Have you traveled with the ITN in the last six months?		68	100%
	Yes	61	90%
	No	7	10%
2: Have you received Ride & Shop material in the mail in the last 6 months?		64	100%
	Yes	61	95%
	No	3	8%
3. Have you collected any Ride & Shop stickers in the last six months?		63	100%
	Yes	7	11%
	No	56	89%
4. If you DID collect Ride & Shop stickers, please answer the following questions.		7	
A. How easy were the stickers to use?	a. Very easy	5	
	b. Fairly easy	1	
	c. Fairly difficult	1	
	d. Very difficult	0	
B. How easy was it to remember to use your Ride & Shop card?		7	
	a. Very easy	2	
	b. Fairly easy	4	
	c. Fairly difficult	1	
	d. Very difficult	0	
C. How easy was it to remember which merchants were part of the Ride & Shop program?		8	
	a. Very easy	2	
	b. Fairly easy	4	
	c. Fairly difficult	1	
	d. Very difficult	1	
5. If you did NOT collect any Ride & Shop stickers, please indicate the reason(s) why.	.	47	100%
The stickers were too much trouble.		7	15%
I wanted to collect stickers, but I forgot.		9	19%
I wanted to collect stickers, but I was afraid to ask.		1	
The merchants I go to are not part of the program.		30	63%
6. In your opinion, would a "stickerless" system make the Ride & Shop program better or worse?		35	100%
	Better	32	91%
	Worse	3	9%

The proposed gift certificate mailing to hairdressers could not be accomplished with remaining project resources. They remain an important merchant group, however, for

future study. Of the 2,029 ITN rides to local businesses during the six month Ride &
Shop evaluation period, 290 (14.3 percent) were to participating Ride & Shop businesses,
but 625 (30.1 percent) were to hairdressers.

Gift Catalogue

The ITN received eleven gift certificate orders in December averaging $32.27. Nine of
eleven orders were for *All Around Town* gift certificates (ITN transportation only) and the
remaining two were for the *Dynamic Duo* (one to a grocery store and one to a
restaurant.). Of these eleven gift certificates, adult children ordered nine and seniors
ordered two. Of the two senior orders, one was a gift to introduce another senior to the
service, and the other was the purchase choice of a senior who received holiday money.

Although 11 gift certificate orders may not seem impressive, the response rate from the
target market, adult children, was 9.8 percent, or nine orders from 92 customers. By
comparison, the typical yield, or positive response rate, of companies in the catalogue
industry is only two percent. The average catalogue company mails five catalogues a
year to the 480,000 customer names stored in a computerized database. In 1995, the top
twenty catalogue companies in the United States generated $30.3 billion in revenues.
Demographically, the largest target group for the catalogue industry is married women
between the ages of 25 and 44 (58 percent of catalogue shoppers are women, 57 percent
are married, 61 percent are ages 25 to 44.) Seniors, age 65 and older, account for eleven
percent of annual catalogue sales, with individuals 75 and older accounting for less than
two percent of annual revenues. Research indicates it takes between three and five
exposures to a catalogue to induce buyer behavior for the majority of consumers.

In March, a survey was mailed to adult children and seniors to assess their satisfaction
with the gift catalogue program. Of the 20 adult children responding, 18 (90 percent)
thought the catalogue was a good idea. The two concerns that arose were that the
processing fees were too high (30 percent thought they were too high) and two indicated
that the fees prevented them from ordering something. Additionally, three indicated that
they thought the ITN rides were free.
Fifty-three ITN customers responded to the gift catalogue survey. The majority thought
the gift catalogue was a good idea, however, they did not feel comfortable asking their
children for gifts from it. Several indicated that they thought of the ITN as a service
primarily for medical rides and as a result would not be traveling to businesses in the
community with it.

It may be worthwhile to try a gift catalogue again when there are greater economies of
scale, since seniors like the concept and the catalogue seems a good way to involve adult
children. Until then, since most of the catalogue purchases were straight transportation
gift certificates—an administratively inexpensive way to involve adult children—the
catalogue cost outweighs the economic benefit.
No more than two or three credit card transactions occurred in any month. From the
point of view of increased involvement, credit card sales do not appear to make a
difference for adult children.

Ride Services

The name given to the program for rides contracted with community organizations in the life betterment category is Ride Services. This market demand was another unexpected finding, since these organizations all approached the ITN for service. A contract was developed and a special section of the information system was designed to accommodate the business. By the end of this research project, contract negotiations were underway with five assisted living facilities, one church, and one social service organization.

Each business had slightly different needs, but all wanted some form of reliable, customer-oriented transportation for seniors. The service variables included: trip purpose, destination, frequency, co-payment, and contract period. For example, the funeral home only wanted to pay for trips to the funeral home, while one assisted living facility wanted residents to co-pay for rides and another wanted to limit rides to four per month per person.

Information System Technology

Although the GIS software application could not be built and tested during the course of this research project, planning for the GIS was a valuable result in itself. Small community transportation services, such as the ITN, need to manage volunteer drivers. They have different software needs than large paratransit or mass transit services, and that need can be met through GIS technology and database management.
Since over 90 percent of person trips for the over 65 population are taken in automobiles, (NPTS footnote) and fewer than three percent are taken in mass transit, it might be easy to assume that seniors do not like to share rides. Four out of five ITN customers, however, indicated a willingness to share rides in automobiles, as shown in Table V.

Table V:

RIDESHARE SURVEY		
	Number	Percent
Willing to rideshare	183	79.2 %
Time willing to wait (per ride) to rideshare		
20 minutes	95	41.0 %
30 minutes	56	24.4 %
Wait any amount	32	26.9 %
Dollar amount to save to be willing to rideshare		
Must save $1	21	8.9 %
Must save $2	50	21.5 %
Save any amount	158	68.4 %

The rideshare model explored through this IDEA project incorporates two key characteristics of mass transit—advance planning and shared rides. By using automobiles and community volunteers, it points the way to an economically sustainable

model that delivers the feel of the private automobile and the efficiency of mass transit.
At the same time, it retains the satisfaction of consumer choice.

By examining information system technology and innovative payment plans in the same
research project, a connection between the two emerged in an unexpected place—
merchant participation. The realization that the Ride & Shop program, which was
favorably received by both seniors and merchants, but administratively awkward and
inefficient, could be integrated into the GIS system and become cost effective, was an
entirely unanticipated research result that unites the original aims of the project.

PLANS FOR IMPLEMENTATION

This research project was carried out between1998 and 1999. During that time and until
June 2001, the Independent Transportation Network also implemented a grant from the
Federal Transit Administration, *Deployment of the Independent Transportation Network*,
and a grant from the Great Bay Foundation for Social Entrepreneurs.

The goal of the FTA project was to develop an economically sustainable model, suitable
for replication as a national, non-profit transportation service for America's aging
population. To meet this broad goal, the model ITN established four objectives. They
were to:

1. Become economically self-sustaining through user fees and community
   support;
2. Incorporate the efficiencies and effectiveness of ITS technology for dispatch,
   rideshare, and fare collection;
3. Address the transportation needs of the rural elderly through a satellite
   location;
4. Develop the tools and methodology to replicate the ITN in other locations.

The work to carry out these research objectives covered several years, from 1997 until
2001. (See Table VI) During those years, the FTA Deployment grant served as an ideal
supporting framework, not only for carrying out the TRANSIT-18 research (shown in
bold, Phase One,) but for implementation of the products created. Those products
include the Ride & Shop program and its offshoot, Healthy Miles, the Ride Services
program, gift certificates and the development of GIS software for community-based
senior transit using volunteers and automobiles. The software development was funded
by the grant from the Great Bay Foundation for Social Entrepreneurs. It is scheduled to
be tested in August 2002.

Table VI:

FTA DEPLOYMENT GRANT WORK PLAN			
TASK	PHASE ONE	PHASE TWO	PHASE THREE
Economic sustainability	**Pilot test innovative payment plans**	Deploy innovative payment plans; pilot test additional plans	Deploy all available economic resources; gauge sustainability
ITS applications	**Pilot test ITS applications**	Deploy ITS applications	Evaluate and revise ITS applications
Rural satellite	Plan Saco satellite with community	Deploy Saco satellite	Evaluate rural satellite and plan expansion
Develop plan & tools for replication	Develop hands-on tools, i.e. software, handbook; develop national collaboration options	Develop information system, governance plan, capital plan; forecasting system	Complete plan & tools for replication; select sites for new ITN

INFORMATION DISSEMINATION

Information about the products developed in this research and integrated into the ITN model are available to other communities through several avenues. A fellowship to the National Transit Institute has allowed ITN's Executive Director to travel across the country presenting the ITN model. In the past two years, she has conducted workshops 15 states; ITN replications are now being planned in New York, Virginia and Maryland. ITN will be presented in the keynote address at the Saferoads 2002 conference in Melbourne, Australia in July 2002. The theme of that conference is "Putting Plans into Action." Conference organizers were specifically interested in the ITN because it is a community based transit solution that actively involves families, businesses and the community.

In addition to a *TR News* feature article, "Independent Transportation Network:™ Alternative Transportation for the Elderly," (TR News, January 2000) the Handbook on ITN replication, written for the FTA Deployment grant, is in the final stages of review and will be available through the internet. That handbook contains information on all of the of products developed through this research, as does the ITN web site (www.itninc.org). A website for ITN*America*™, the entity created to connect affiliated ITN replications, is in development.

IMPLEMENTATION DEVELOPMENTS

This report would not be complete without describing developments that occurred after several of the products created in this TRANSIT IDEA grant were implemented.

  ◆ *Ride & Shop*—this program was successfully integrated into the ITN dispatch and information system, effectively creating the "stickerless"

electronic merchant participation program. Administrative costs have been reduced to pennies and the program is now successful at the economic level as well as the customer service and community levels. A new project to further reduce administrative costs by training volunteers to help market the program is in development. Also, participating merchants now pay an annual dues to become ITN members. Ride & Shop and Healthy Miles participation has grown from 13 to 24 merchants and healthcare providers, an increase of 85 percent. The most recent participant (May 2002), PCA Great Performances, asked to join Ride & Shop at the request of an 87 year old season ticket holder and ITN customer who could no longer drive to performances in the evening.

◆ *Healthy Miles*—this program was developed to address the expressed perception of healthcare providers that they are not merchants. The brochure developed for the Ride & Shop program was modified by replacing the words "Ride & Shop" with the words "Healthy Miles." That is the only change that was made. So far, a podiatrist, a general medical office, a physical therapist and a group of eye doctors have joined the two eye care practices still participating since the research project began. All Healthy Miles participants also pay annual dues set at twice the level of merchant dues. If there are multiple physicians in a practice, dues are collected from each physician.

◆ *Ride Services*—several Ride Services accounts have been established and are now running smoothly. Difficulties with some service contracts were created by promising more complex billing options that the system could realistically deliver. The pricing structure for this option is still problematic, but the program is promising and accounts for a large portion of the ITN's business.

◆ *Gift Certificates*—these are still offered and still purchased for seniors by their children. Gift certificates to traditional for-profit businesses create a profit for those businesses, while certificates to non-profit transit services that lose money on every ride only improve the bottom line by charging a fee or combining transportation with a profitable product. Nevertheless, the gift certificate program remains an excellent way for adult children to introduce seniors to the service or to support their use of the service. It is useful from a customer service and marketing standpoint, but it does not increase revenue to the system since consumers consistently object to any fees or surcharges added to the certificates.

◆ *Credit Cards*—the ITN still accepts credit cards, but it is done as a matter of customer service and convenience. It does not increase revenue to the service. When ITN affiliates are connected on the internet through ITN*America*™, credit cards for adult children who wish to pay for rides for their parents in distant cities will offer a new potential.

- *GIS Software Development*—this feature turned out to be not only the most important, it was the most difficult and expensive to develop, running to the hundreds of thousands of dollars, rather than the tens of thousands of dollars as initially and naively anticipated. Nevertheless, it is the single most important tool for all aspects of community based senior transit, especially volunteer driver dispatch and management, vehicle routing and economical integration of merchant and healthcare provider participation.

The FTA Deployment grant ended in June 2001. Economic sustainability has been the driving motivation behind every ITN decision ever since. Additional revenue generating efforts include:

- *Adult Children*—although adult children did not like the idea of fees added to gift certificate purchases, they were almost always willing to participate in the cost of their parent's transportation or to support the ITN service for their parents'sake. In March 2002, ITN launched a successful membership campaign to recruit adult children. Using a $5,000 matching gift from a prominent local philanthropist as an incentive, ITN mailed membership letters to362 adult children of seniors using the transit service. The mailing produced membership dues ranging from $35 to $1,000, and totaled $2,690. Adult children have also donated stock, cash and automobiles for the fleet. ITN anticipates that all future fleet acquisitions will be donated vehicles, eliminating capital expense for the fleet.

- *Membership Campaign*—a membership campaign to recruit the community at large as ITN members has been started but not fully developed. Several area business have agreed to participate by providing gift incentives at cost, such as oil changes for automobiles or road atlases. This program has great potential for renewable revenue and consumer education about senior mobility and personal transportation planning.

- *March of the Members*—this was the first public fundraising event for the ITN (May 2002). The public is accustomed to senior transportation that is supported by public resources, so the concept of raising private funds for transportation for seniors is novel. This publicized walk raised over $10,000 and gained numerous new volunteers for the project. There appears to be a synergy between fundraising and marketing, since both efforts keep the organization's name and the awareness of transportation for seniors in the public consciousness.

CONCLUSION

This Transit IDEA project demonstrates that businesses and adult children are willing to participate in the cost of transportation for seniors. Community willingness to voluntarily support senior transportation has important implications for the economic sustainability

of present and future transit services seeking to meet the mobility needs of the growing older population.

Building on the research results of Transit IDEA Project-9, which determined that seniors are willing to use an alternative transportation service that provides door-to-door service in automobiles, Transit IDEA Project-18 addressed the economic sustainability of such service by looking outside the traditional public funding formula to private resources from the community. The research focused on businesses and healthcare providers who offer services to seniors and on their adult children, who have a clear personal interest in their parent's safety and mobility. Examples of merchant participation programs developed and successfully implemented as a result of this research are Ride & Shop, Healthy Miles and Ride Services. The research showed that seniors will travel to businesses that help to pay for their rides and that both the businesses and the seniors are willing to use an electronic payment system that makes the innovative payment operation efficient. The gift catalogue and gift certificate research demonstrated adult children's *willingness* to help, but they did not improve economic sustainability as well as membership dues, which show great promise as sources of adult child support for senior transit. The merchant participation and adult child payment programs expand the sources of revenue at both ends of the ride and enlarge the concept of the transit consumer to include family and the business community.

The role and importance of information system technology was more complex, more expensive and far more important than imagined at the outset of the project. The most unanticipated finding of this project was the interconnection of resources and information system technology, since the Ride & Shop program only became efficient when it was converted to an electronic format. Seniors showed a great willingness to share rides in automobiles. Since ridesharing is one of the defining characteristics of mass transit, this finding points to the importance of a GIS software application that can create shared rides, based on windows of availability, among community dwelling seniors.

The clearest path to implementation of these research results is an internet deployment of a GIS software application that connects:

- seniors who need rides with
- volunteers willing to give rides and
- merchants and healthcare providers willing to help pay for rides and
- adult children willing to help pay for rides and
- community organizations or businesses willing to contract for rides and
- private individuals and organizations willing to support safe mobility for seniors.

To further develop the efficient use of private resources for senior transportation, future research is needed in the following areas:

1. Internet deployment of GIS technology so small communities with volunteer-based transportation services can connect through a web browser with innovative payment plans, volunteer management and other efficiencies;
2. Marketing research to better understand and develop the connection between membership, volunteerism, and personal transportation planning;
3. Vast economic resources are locked in the ownership of private automobiles. A better understanding of the symbolic value of automobiles is necessary to release these capital assets for seniors who can no longer drive. The liquidation of personal automobiles to fund personal transportation for seniors is a transportation marketing challenge that will release billions of dollars in senior transit funds;
4. Analysis to evaluate policy incentives for private resource planning to fund senior transportation.

CONTACT INFORMATION

For further information or questions about this project, the reader may contact the principle investigator of this project at the following address and telephone number:

Katherine Freund
President and Executive Director
Independent Transportation Network™
90 Bridge Street
Westbrook, Maine 04092
Phone 207 854-0505
Fax: 207 854-1026
Email: kfreund@itninc.org
Website: www.itninc.org

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