

Independent Transportation NetworkTM

Alternative Transportation for the Elderly

Katherine Freund

It's never complicated," said my Jewish mother. "It's always simple."

I was the expert, home from college, explaining some great, complex injustice. My words piled like traffic against the simplicity of her statement.

I stared at her. "You don't understand," I said. "This is very complicated."

"No, it's not," she repeated. "It's never complicated. It's always simple." And she walked away. Apparently there is a little Zen Master in every Jewish mother.

Even though I was a college expert, I thought about what she said. Thirty years later, I am still thinking about it.

This is what I think: The symptoms or manifestations of a problem are often complicated, but it is possible to state the essence of a problem, the defining issue, as a simple, straightforward idea. When the essence of a problem is understood, a solution becomes possible. Likewise, although the implementation of that solution may be complex, the essence of the solution, too, is always simple.

Essence of the Problem

There is growing recognition that the nation's transportation system does not meet the mobility needs of normally aging people. That is because seniors, like the great majority of the U.S. population, depend largely on the private automobile for transportation. This dependence results in serious safety and mobility problems for diminished-capability elderly drivers.

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Many elderly drivers experience serious safety and mobility problems because the transportation system does not meet their needs.



STEWART SMITH PHOTOGRAPHY

This project received initial seed money from TRB's Transit-IDEA Program.

When older persons turn to traditional alternative transportation, such as mass transit, they are often hampered by the same functional impairments that make it difficult to drive an automobile.



Safety

Older drivers currently have the highest fatal crash rate of any group except teenagers, and the projected rate is even more disturbing. It has been estimated that in 20 years, the number of annual fatalities among elderly drivers will increase from 7,078 to 18,934, reflecting growth in the elderly population, in the proportion of seniors who continue to operate private vehicles, and in the mileage they drive. The latter figure exceeds the current number of deaths resulting from alcohol-related crashes—17,100. Although some would argue that this projection is too high, even a more conservative forecast of 12,106 is terrible enough (1).

It is true that the elderly are affected more by problems associated with mobility than by those associated with safety. Yet the safety issue is what galvanizes public opinion, especially when dramatic crashes occur that involve grossly impaired older drivers. The recent effort in California to better screen impaired older drivers exemplifies this increasing concern.

Mobility

As noted, mobility is a more prevalent, though less dramatic, transportation problem than safety among the elderly. Indeed, between 25 and 41 percent of people over age 75 have difficulty getting around. Despite recent increases in travel among older people, the number of miles driven still decreases with age. In an effort to remain safely behind the wheel, older drivers limit the time, location, and frequency of their trips. Often they

do not drive at night, and they avoid interstate highways, busy intersections, inclement weather, rush hours, and unfamiliar locations. Essentially, they trade their mobility for their safety.

Moreover, when older persons begin to experience difficulty driving and turn to alternative transportation, they encounter additional problems. The same functional impairments that make it difficult for them to drive challenge their use of mass transit. They cannot walk to the bus stop, or they cannot stand in the sun/snow/rain/cold. When the bus arrives, they cannot manage the step, or they cannot carry their groceries. Many suffer from incontinence or muscular-skeletal problems and cannot endure the hard seats or bumpy rides of vans or buses. In short, the elderly need more than a ride: they need a short, comfortable ride, and they need a helping hand.

Complicating Factors

In about 20 years, almost one in five Americans will be age 65 or older. Today's safety and mobility problems among seniors are the small white cap rolling forward at the crest of this demographic wave. The real problem is the mass of aging people who will enter the next century with expensive needs not only for medical and long-term care, but also for transportation. Funding alternative transportation for nondriving seniors with public dollars would mean increasing the tax burden already placed on the public to support Medicare and Social Security. Given the extent to which policy makers are struggling with limitations for these existing

social programs, it may be unrealistic to add the cost of transportation, especially the kind of personal, specialized service needed by frail elders.

Trends in travel, licensing, and population distribution increase the magnitude of the problem and the cost of a solution. Today's older people are more likely to have a driver's license, to travel more miles, and to live in suburban locations than were their counterparts in the past. Increased exposure elevates crash risk, and decreased population density elevates the cost of alternative transportation.

Complicating Attitudes

Misplaced loyalty and the powerful symbolic value of the automobile further complicate the problem. Despite incontrovertible safety and demographic data, many still assert that there is no older-driver problem. Their denial arises from a desire for fairness for older people, who lack dignified transportation options and encounter this mobility crisis at a time when they are already facing increased prospects of loss and suffering.

The answer to this dilemma is to separate the people from the issue—to acknowledge that older people may have a driving problem without believing that older people are the problem. The people are aging normally; it is the transportation system that is not working. We must measure the machines and the system against the

needs of the people, not the people against the needs of the machines.

The machines, of course, are automobiles. Among American symbols, only the flag may have a stronger appeal to our sense of freedom and independence. A symbol is a concrete object to which we attach abstract feelings and ideas; in this manner, the object comes to represent the idea. So powerful are symbols that it is easy to forget the real power lies not in the concrete object, but in the abstract feelings and ideas the object represents. Automobiles provide transportation instantaneously, any time, in any direction we choose to travel. Upholstered and gleaming at the curb, named for wild animals or prestigious social positions, cars are symbols born in Madison Avenue heaven. They symbolize the freedom to come and go—mobility and its triumphant passenger, independence.

Essence of the Solution

If the problem is that our transportation system does not meet the needs of normally aging people, the solution is a transportation system that does. In this light, the effort to solve the "older-driver problem" through stricter licensing measures may be regarded as an important but partial measure—one that addresses only public safety but ignores mobility issues.



STEWART SMITH PHOTOGRAPHY

More than 90 percent of personal trips among people age 65 or older are made in private automobiles.

Policy analysts frequently speak of unintended consequences. With respect to the national love affair with the private automobile, the unintended consequences include urban sprawl, air pollution, traffic congestion, dependence on foreign oil, and traffic safety concerns. To this list may be added the problems of people who age out of the driving role.

Transportation planners and policy makers are good at analyzing the problem to this point, but instead of moving forward into the transportation future, they seek answers in the transportation past. If cars are causing all of these problems, they reason, we must return to traveling on trains, buses, and bicycles. Older transportation consumers appear not to agree. According to the 1995 National Personal Transportation Survey, more than 90 percent of personal trips among people age 65 or older are made in the private automobile, as either a passenger or a driver, as compared with fewer than 3 percent made on public transportation (2).

Transportation planners have analyzed what is wrong with automobiles, but if we can understand what is right with them, these qualities can be incorporated into an alternative.

Complicating Factors

Large public subsidies for mass transit and paratransit have effectively changed the customer from the transit rider to the subsidizing agency. Because public resources are scarce, rides are often rationed by purpose, time, or location. Worse, the distribution of public subsidies must fall along such artificial lines as city, county, or state boundaries. Inevitably, turf wars arise and persist—to the detriment of transit consumers, to whom such issues are entirely irrelevant.

Complicating Attitudes

When one has been working on a problem for a long time, it is difficult to see the problem with new eyes. Traditional transit providers who use buses and vans on fixed or deviated routes work hard to provide efficient service in clean, safe vehicles. When they think of change, they do so in terms of improvements or modifications to their existing systems.

Yet the desire to use traditional mass transit to address some of the problems caused by automobiles, such as air pollution and urban sprawl, can block alternative solutions. In today's transit planning climate, this assertion is heresy. However,

just as we must separate what is wrong with the automobile from what is right so we can incorporate the latter qualities into a solution, we must do the same with mass transit: efficient routing, advance planning, and ride sharing are beneficial qualities of mass transit that can be incorporated into a solution to the problem of transportation for the elderly.

Basic Requirements

A transit solution designed to meet the mobility needs of the aging population must be economically sustainable, which probably means it must be able to survive without continuous infusions of operating subsidy from taxpayers. Second, the solution must be committed to customer service; in particular, it must be designed to provide high levels of customer assistance for frail passengers. Finally, the solution must represent a marriage of the freedom and independence of the private automobile and the efficiency and environmental advantages of mass transit.

Independent Transportation Network™

The Independent Transportation Network (ITN) is a model program designed to address the problem of transportation for the elderly. This program received applied research funds from the Transportation Research Board's Transit-IDEA (Ideas Deserving Exploratory Analysis) Program to develop the ITN and pilot test innovative payment options in Portland, Maine. The program was further developed under a three-phase Federal Transit Administration deployment grant. Every characteristic of the ITN derives from the problem analysis presented above. Each service decision emerges from attention to customer needs and a steady focus on economic sustainability.

Vehicles

The ITN uses automobiles to meet the need for small, flexible vehicles that can easily travel door to door. Moreover, automobiles are inexpensive and relatively easy for seniors to use. Cars have soft seats, and passengers do not have to step up to enter the vehicle. Walkers and wheelchairs fit easily into the trunk. Moreover, seniors like cars, and this is important because they are paying for the ride. ITN vehicles are unmarked except for a small

placard with a logo that is placed in the window. When an ITN vehicle arrives to pick up a passenger, it looks and feels like a neighbor's or family member's car.

Service Schedule

ITN service is available 7 days a week, 24 hours a day. This gives seniors around-the-clock availability similar to having a car in their driveway. This availability is easily accomplished by call forwarding to the dispatcher's cellular phone after office hours. A night call to dispatch is a rare event, but when such a call occurs, it is invariably health related. Medical emergencies are always referred to 911, but in these days of cost-saving health care, some seniors are discharged from the hospital in the middle of the night and need to get home. They call, and the ITN comes. The major benefit of this guaranteed 24-hour service is not transportation; it is a sense of security, of not being trapped. This comfort zone is designed to resemble the availability characteristics of the private automobile.

Membership and Benefits

Every senior who uses the service joins the non-profit membership organization. This feature is designed to replace the feelings of ownership and belonging that are lost when people exit the driving role. A basic membership costs \$15 a year. Benefits include a \$5 transportation birthday certificate; a \$5 transportation credit for referring another customer; discounts on gift certificates; access to the Ride & Shop and Healthy Miles discount programs, Senior Rideshare, and the Car Trade program; and a newsletter. All customers complete applications with information on emergency contacts and special needs, as well as an informed consent that allows the ITN to use demographic and ride information to conduct transportation research. More than 1,100 applications for service have been completed since 1995, and new applications arrive in the mail each day.

Fares from Prepaid Accounts

No cash changes hands in an ITN vehicle. Everyone who uses the service opens a prepaid transportation account. This account is debited for rides, and each member receives a statement, like a phone bill, once a month.

Customers pay for rides by the mile, with discounts for advance planning and rideshare. The most expensive rides are those requested on demand by people who wish to ride alone. Such service is the closest the ITN comes to a taxi ride. However, fully 97 percent of ITN rides are voluntarily scheduled 24 hours in advance by seniors who choose the discounted rate. Moreover, four of every five ITN customers surveyed prefer to share rides. Thus two of the efficiency benefits of mass transit—advance planning and ridesharing—are accomplished in concert with important benefits of the private automobile—freedom of choice and the ability to ride alone or with others in trips scheduled on demand or in advance. Feelings of independence thrive with this kind of free choice.

ITN rates are shown in Table 1. In addition to the mileage charge, there is a flat pickup charge: \$2 during the day, \$5 before 7 a.m. and after 9 p.m., and \$1 for stops. If a customer needs to make more than two stops, he or she is charged for the car at the hourly rate of \$12, plus mileage. The minimum charge for any ride is \$3. An average trip length is 3 miles each way; an average fare is \$5.50 each way.

Innovative Payment Plans

Innovative payment plans emerged from the realization that fares alone could not cover the true cost of ITN rides. Limiting costs by limiting service was not a design option; doing so would have undermined service quality and diminished customers' willingness to pay, in turn decreasing economic sustainability. The solution was to increase revenue from other sources. Based on the assumption that those who benefit when seniors have adequate, dignified mobility will be

TABLE 1 Mileage Cost per Person, Independent Transportation Network

Number of Riders	1	2	3	4
On demand	\$1.50 each	\$.80 each	\$.60 each	\$.45 each
24-hour notice	.75 each	.50 each	.40 each	.30 each

Independent Transportation Network: Making a Difference

Portland, Maine

Any day of the week, any time of day, Mrs. M, age 83, can call the ITN to schedule a ride. She can go to the supermarket, the hairdresser, or the Women's Literary Union, where she has organized the fashion show for the past 20 years. If Mrs. M decides to schedule her ride in advance, she will save money, and if she chooses to share her ride with someone else who happens to be going her way, she will save even more money. At some destinations, such as the supermarket, the merchant will help pay for her ride. Some of the funds in Mrs. M's prepaid account may be a gift from one of her daughters, through the ITN's Gift Certificates from Adult Children payment plan.

At the end of the month, Mrs. M receives a statement that tells her the date, time, length, and cost of every ride she has taken that month, as well as how much money she must place in the account to maintain a proper balance. She pays her transportation bill once a month, the way she once made a car payment when she owned a car and drove. Mrs. M is a dues-paying member of the ITN, and when she can, she volunteers in the office.

The vehicle that arrives for Mrs. M is an automobile. Sometimes the driver is a volunteer in his or her own car; sometimes an ITN driver arrives in a company car—a four-door sedan. Either way, the driver calls at Mrs. M's door and escorts her to the vehicle. Since she began having trouble with her eyes, she needs that extra help. Mrs. M recognizes the volunteer driver

when he arrives, since she taught school in this community for 30 years. Before the ITN, Mrs. M depended on her daughters and her friends for rides, or she stayed home. She did not ask for rides, and she did not complain.

Levittown, New York

Mrs. K, age 80, does not drive. When her husband was alive, he drove her everywhere. Mrs. K volunteers at the hospital three times a week—the most important social interaction she enjoys. A friend drives her, because using a taxi would be prohibitively expensive. When Mrs. K goes shopping or to the doctor, her 75-year-old sister or her 83-year-old brother-in-law drives her. If anything should happen to them, she would have no transportation. Even though they are very kind and generous, she constantly feels like a burden.

Mrs. K tried to use public transportation, but it is a mile to the nearest bus, and she does not qualify for the transportation reserved for people with disabilities. She brought all of the special forms to her doctors to sign, but they refused. Her sons, who live in distant communities, would like to help her, but she does not want to travel by taxi, and there is no other transportation service they can purchase for her. Mrs. K has had bypass surgery and has trouble with her legs. She wonders when the ITN will be available in her community. Until then, she does not ask for rides, and she does not complain.

willing to help pay for rides, the ITN's innovative payment plans involve programs that open revenue streams from families, businesses, and the community as a whole.

Gift Certificates and Merchant Participation

Research funded by TRB's Transit-IDEA program focused on pilot testing two innovative payment plans—Gift Certificates from Adult Children and Merchant Participation—which became the basis for the ITN's Ride & Shop and Healthy Miles programs. Under the Ride & Shop program, area mer-

chants help pay the cost of their senior customers' rides; Healthy Miles is a similar program being developed for health care providers. Both the Gift Certificates and Merchant Participation plans show great promise, especially the latter. That plan was recently incorporated into the ITN software, a development that will decrease cost, increase efficiency, and facilitate replication in other locations.

Ride Services

The Ride Services program involves private contracts with businesses and organizations in the

community that want to pay for more than a small portion of a senior's rides. Churches, assisted-living facilities, and area businesses have all approached the ITN to contract for rides. Each, however, has slightly different service requirements. For example, one may wish to limit the number of rides per month, while another may wish to limit the purpose of rides (e.g., only medical trips) or the service area. Since all such third-party payers want the same product—door-to-door service in automobiles—this diversity is an information system problem that is solved using the ITN software without compromising customer service. Rides provided under the Ride Services program are billed at a higher rate than individual services.

Car Trade

Currently, older drivers of diminished capability do one of four things with their automobiles: (1) they drive the vehicles when they should not, sometimes crashing and getting injured or killed; (2) they sell the vehicles and put the money in the bank, but do not use the money to pay for their transportation; (3) they leave the vehicles in the garage or driveway so they can sit behind the wheel and “visit” them; or (4) they give the vehicles away, often to a waiting grandchild. It is easy to see room for improvement in this scenario.

Cars, of course, are depreciating assets. This is an investment reality most people accept, not only because automobiles serve as an important transportation mode, but also because, as noted earlier, they carry enormous emotional and symbolic value. The ITN Car Trade program represents an attempt to create an emotional bridge for older drivers to cross—voluntarily—so they can liquidate this depreciating capital asset and convert it to an operating investment. The ITN can facilitate the selling of a vehicle, and encourages elderly sellers to use the proceeds of the sale to meet their own transportation needs.

Volunteers

In communities across the country, volunteers help drive older community members. These volunteer transportation services, sometimes no more than favors from family and friends, actually move greater numbers of elderly people than do the mass and paratransit systems. The benefits of these informal transportation systems are enormous: seniors feel safe when they ride with volunteers or people they know; seniors prefer to ride in auto-

mobiles, so the ride is comfortable; there are helping hands available to assist with packages, icy sidewalks, or other obstacles; and donated rides save money. At the same time, these informal systems have numerous drawbacks: seniors do not like to ask for ride favors; the informal systems cannot be dispatched; volunteer systems tend to “burn people out” because the demand for rides exceeds the supply of volunteers; outsiders, such as driver licensing agencies or health care providers, cannot easily identify these systems to recommend them; and volunteers who give to others have no way to recover their efforts should the day come when they need help.

One of the earliest research projects conducted by the ITN was a study funded by the American Association of Retired Persons to examine the role of volunteerism in the network. It was found that volunteers can be integrated seamlessly into a transportation service that uses automobiles. Although ITN drivers use radio-dispatched automobiles and volunteers use their own cars, seniors often cannot tell the two types of drivers apart. Seniors care if a ride is on time, if the vehicle is clean, and if the driver is courteous. The model of the car and the remuneration of the driver are apparently unnoticed. If anything, seniors tend to mistake paid drivers for volunteers.

Currently, 104 volunteers provide approximately 30 percent of ITN rides. The other 70 percent of the 1,700 to 1,800 rides provided per month are delivered by paid drivers. The goal is for half of all rides to be delivered by volunteers. The minimum volunteer commitment is a 3-hour block of time, once a month. Most volunteers enjoy the experience and remain for long periods, often recruiting other volunteers for the program. Volunteers are screened for moving violations, criminal history, adequate insurance, and current vehicle inspection. The volunteer coordinator checks personal references and administers a short road test. In-service training is offered to both paid and volunteer drivers.

Technology and Information System

Because the ITN was born in the information age, information technology plays a different role than in older, public transportation systems. The easiest way to understand this difference is to think of a traditional bus line or paratransit route as an analogue watch that ticks off time in sequence, one

unit or task after the other, and to think of the ITN as a web, like the Internet, where any element can connect to any other at any time. This is, in fact, a good description of transportation in an automobile; it is also transportation that reflects the way we live our modern lives.

A good example of this relationship between technology and operations is the ITN's use of a geographic information system (GIS). Instead of superimposing GIS onto an existing paratransit service to gain efficiency through improved routing and dispatching, the ITN uses GIS to create a whole new kind of dispatching system. Paying customers save money by sharing rides while still controlling their personal time.

Working together with GeoFields in Atlanta, Georgia, and Environmental Systems Research Institute, Inc. (ESRI) in Redlands, California, the ITN has developed its own integrated routing and dispatch software application that maintains a high level of customer service by using the computer to assist humans in making dispatch decisions. Using the same platform that ESRI provides for its corporate logistics clients, the ITN program integrates professional-level logistics capabilities to calculate trip times and fares, to determine Senior Rideshare arrangements, and to route vehicles efficiently. The program also dispatches volunteers before paid drivers and calculates monthly statements for senior customers, for businesses in the Ride & Shop and Healthy Miles Programs, and for Ride Services contracts. The Senior Rideshare feature is especially important since it allows dispatchers to schedule shared rides among community-dwelling seniors, using time- and cost-saving criteria selected by customers. Thus the program accomplishes mass transit efficiency while delivering car-like customer service that reflects the preferences of individual riders.

Rural Community Office

The transportation needs of the rural elderly are particularly difficult to address. Long distances that increase the cost of service, combined with a small population to share the cost of maintaining operational capacity and administrative overhead, make rural transit expensive. Through the Community Office concept, the ITN is working to solve these problems by leveraging administrative and dispatch costs over a larger geographic area.

The first Community Office was opened in September 1998 in Saco/Biddeford, Maine (population 15,000), 15 miles from downtown Portland. The office is located in a storefront in the downtown business district, and is staffed by a community coordinator, a part-time ITN driver, and volunteers. Administration is carried out almost entirely from Portland. All personal contact, whether with volunteers, with seniors using the service, or with businesses in the community, is the domain of the Saco/Biddeford Community Coordinator. The idea is to use the efficiency of a sophisticated information system, 24-hours-a-day dispatch, and central administration in Portland to support the local office in doing what such an office does so well—connecting with people.

The ITN is now working on ways to expand the Portland office into areas that may need other levels of service. For example, what if a community is large enough to have its own dispatch center, but does not need to set up an entirely separate billing system? In communities too small even for an office the size of that in Saco/Biddeford, can the ITN set up a virtual office with a part-time Community Coordinator who “rides the circuit” with a laptop and cellular phone? With Internet applications steadily growing in importance, how will dispatch information exchanged in cyberspace create efficiency within and among future ITNs?

Federal Transit Administration Deployment Grant

Much of the ITN development has been made possible by a generous FTA Deployment grant for a three-phase project to develop an economically sustainable model, suitable for replication in other communities. The goal is a nationally coordinated, nonprofit, community-based transportation service for the aging population. Under the FTA grant, the model ITN in Portland, Maine, must become economically self-sustaining through user fees and community support; incorporate the efficiencies and effectiveness of intelligence transportation systems technology for dispatch, rideshare, and fare collection; address the transportation needs of the rural elderly through a satellite location; and develop the tools and methodology needed to replicate the ITN in other locations.

TABLE 2 Work Plan, Independent Transportation Network

Task	Phase 1	Phase 2	Phase 3
Achieve economic sustainability	Pilot test innovative payment plans	Implement innovative payment plans; pilot test additional plans	Deploy all available economic resources; gauge sustainability
Incorporate ITS applications	Pilot test ITS applications	Deploy ITS applications	Evaluate and revise ITS applications
Provide rural satellite	Plan rural satellite with community	Deploy rural satellite	Evaluate rural satellite, and plan expansion
Develop tools and methodology for replication	Develop hands-on tools (software, handbook); develop national collaboration options	Develop information system, governance plan, capital plan, forecasting system	Complete plan and tools for replication; select sites for new ITNs

The project is on track for completion at the end of 2001; Table 2 shows the ITN Work Plan. Economic sustainability must still be demonstrated, although the trend is excellent, as the graphs for revenue (Figure 1) and ride growth (Figure 2) indicate. The computer software must be completed, and the handbook that documents the ITN system must be compiled. Work on developing the actual programs, however, is well under way and progressing nicely. The major remaining effort involves the tasks in the last row of Table 2—the

governance plan, national collaboration options, a capital plan, and a forecasting system to be used in selecting new sites for replication.

Because the ITN has received a great deal of attention in the national press, there have been approximately a thousand requests from across the country for information on the service and its replication. The requestors range from seniors needing transportation, to adult children seeking help, to gubernatorial and congressional offices. These inquiries are a strong indication of market demand.

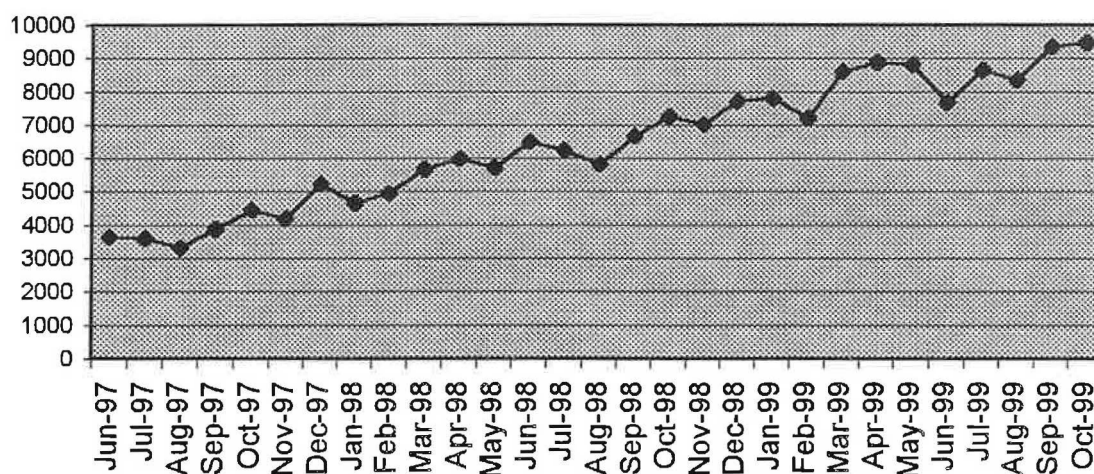
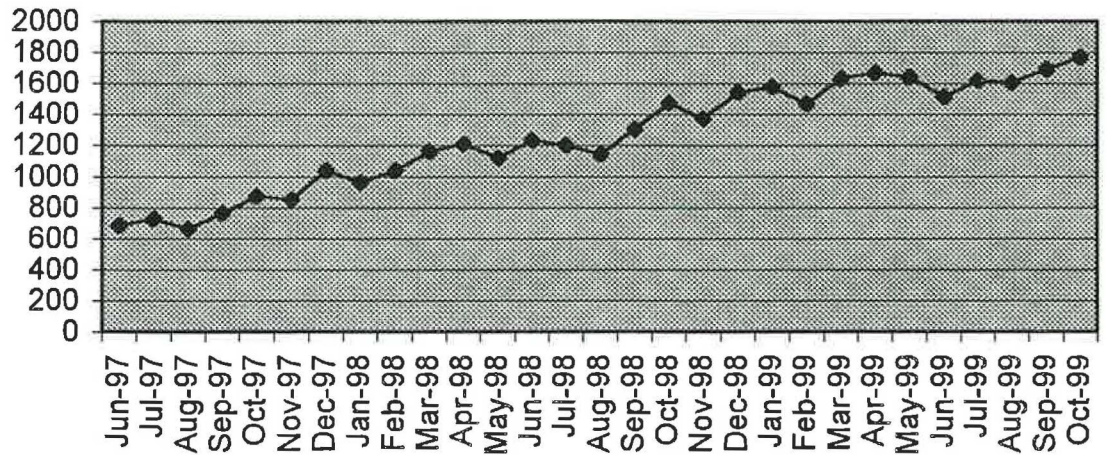


FIGURE 1 Independent Transportation Network revenue growth.

FIGURE 2 Independent Transportation Network ride growth.



National Endowment for Transportation for Seniors

The latest concept to emerge from the ITN development is the National Endowment for Transportation for Seniors (NETS). Still in the formative stages, the National Endowment is a way to capture, under one umbrella, many of the tasks shown in the last row of Table 2. Individual, sustainable ITNs will need such an overarching, national organization to link them together.

In addition to the many practical business functions the National Endowment can fill—planning and projecting markets, coordinating training for new ITNs, maintaining a national information system, marketing new transit products—NETS will be the primary center for governance, national development, and corporate support. Beyond such practical functions, the National Endowment will elevate mobility for seniors to the level of a common good.

Conclusion

The ITN solution is based on a community approach that allows for unlimited flexibility to suit

local needs and conditions. Because considerable resources and support—including membership dues, volunteer drivers, corporate partners, and business participation, among others—are required to sustain the network, a successful ITN must be well connected to the grass roots of a community.

The ITN is designed this way for three reasons. First, this kind of public-private partnership controls and limits the tax burden for future generations, while providing a framework and support for a transportation solution for the aging population. Second, only this form of support will have the flexibility to rise and fall, expand and contract with the needs of the community and the economy. Finally, through this kind of participatory solution, people will understand and learn to anticipate and plan for their own mobility needs beyond the driving years, and the seniors who use the service will remain vitally connected to the community they helped to build.

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