

Transportation for Minnesota Seniors: Future Needs and the Role of Technology

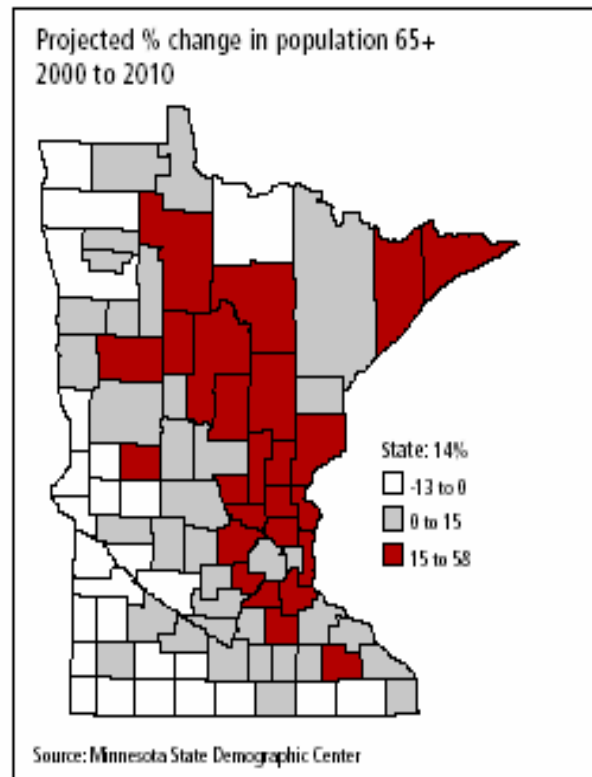
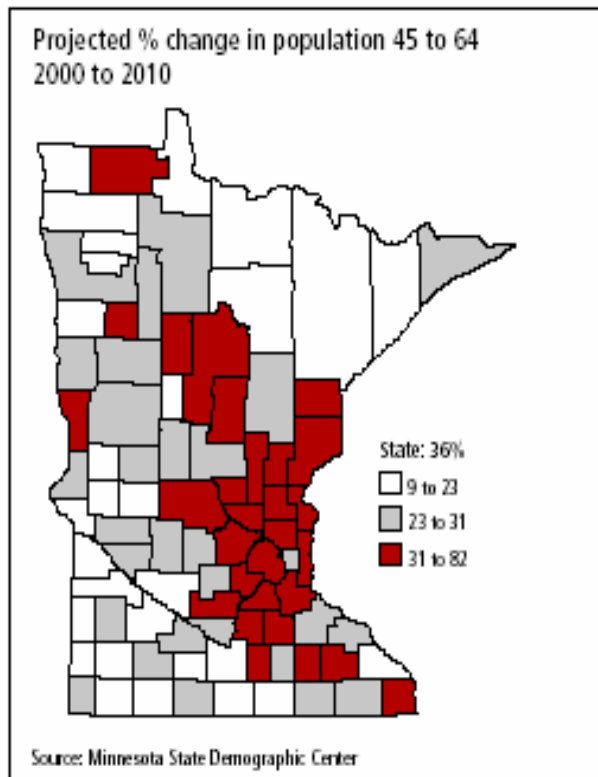
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Overview

- Survey of Seniors: Travel habits and desired transportation system
- Institutional background of community based transportation (CBT) system
- Survey of CBT providers: Resources and barriers
- Technological solutions and institutional constraints

Survey of Seniors

Initial Demographic Foundations



- Population will age, median age rising to 40.2 from 35.4
- 45 – 64, and 65+ age groups will grow, live in “golden corridor”
- 25 – 44 age group not expected to grow, except in suburban counties

Survey Statistics

- 2000 surveys, 267 responses (13%)
- 16 counties, different area types (urban, suburban, small town, rural)
- Born before 1948
 - 27% “Baby Boomers” (1943-47)
 - 20% At or Near Retirement Age (1938 – 42)
 - 51% Beyond Retirement Age (Before 1942)
- Over 95% Own a Car and Drive

Survey of Seniors

Differences Among Age Groups

- Activities For Which They Travel
- Preferred Modes of Transportation
- Key Transportation Values

Survey of Seniors

Key Activities

	Average Number of Trips (Weekly)					Annual
	Work Trips	Friend Visits	Medical Visits	Recreation Activities	Social Activities	Out of Town
Boomers	4.95	2.53	0.89	1.96	1.81	24
New Retirees	3.42	2.15	1.77	1.94	2.04	37
Old Retirees	2.1	1.93	0.88	1.6	1.75	15

New Retirees Travel More for Medical, Social and Out of Town trips; less for work.

As retirees get older; they travel less -- even for medical care.

Survey of Seniors

Importance of Activities

Average Importance of Activities (1 to 4)					
	Work	Friend Visits	Medical	Recreation	Social
Boomers	1.81	2.04	2.35	2.06	2.04
New Retirees	2.16	2.09	2.28	2.42	2.28
Old Retirees	2.87	2.01	1.78	2.26	2.03

When older retirees work, the work trip is the most important trip type for them.

Medical, social and recreational activities take on a greater importance for new retirees, but decline somewhat as retirees get older.

Survey of Seniors

Trip Features

Average Importance of Trip Features (1 to 4)									
	Short Travel Time	Safety	Point to Point	Easy Access	When I'm Ready	Security	Physical Comfort	Privacy	Cost
Boomers	2.86	3.16	3.12	2.98	3.12	2.95	2.98	2.86	2.84
New Retirees	2.76	3.11	3.07	2.88	3.19	3.0	3.23	3.01	2.76
Old Retirees	2.94	3.31	3.3	3.15	3.16	3.2	3.26	3.11	3.03

Older Retirees are generally much more sensitive to the specific features of the trip

Newer Retirees are less sensitive to trip features

Safety, Point to Point Connection and Physical Comfort are Critical to older retirees

Survey of Seniors

Modal Preferences

Modal Preferences							
	Drive Alone	Walk	Bus	Internet	Computer Comfort	Ride-Share	Bike
Boomers	3.77	2.84	1.69	2.56	3.18	2.3	2.21
New Retirees	3.67	2.86	1.77	2.14	2.62	2.17	2.17
Old Retirees	3.44	2.57	1.95	1.85	1.9	2.75	1.68

As Biking, Walking and Driving become less available, Bus and Ride Sharing become more preferred.

Question: How the boomers' higher level of computer comfort affect internet as a transportation alternative?

Early retirees suggest bus, bike and ride-share preferences may be affected....

Some Questions

- What does this tell us about the retirement cycle, about the different generations?
- What are the implications for transportation policies (Community Based Transit, Tele-trips, Car-Sharing, etc.)?

Institutional background

Overview

- We define community based transit (CBT) as low-volume, customized services, usually to elderly, disabled, low-income
- Difficult service to provide
 - deals with individual rides, specific places and times
 - many clients have special needs (physical disabilities, dementia)
 - requires special vehicles, trained drivers, or other assistance
- Not just providing a generic service like regular transit, but have to be able to handle a wide range of sometimes difficult situations
- This is expensive, but no one wants to spend much on it

Institutional background

Institutional Situation

- Provision of these services has arisen piecemeal over decades in response to specific problems
- Result is multitude of different funding sources (65-70 just at federal level)
 - All targeted to specific users or types of trip
 - All these programs have their own rules.
- Another result is a multitude of transportation providers
 - Similarly focused on particular clients or trips, to stick to programs and rules they understand and can easily comply with.
 - Frustrated, because they would like to help others but don't want to have to incur huge costs or extra work to do so.
- Many providers don't really want to be in the business
 - Got into it to support some other mission.
 - Cost of vehicles, insurance, drivers, regulation, etc. make this an expensive drain on resources for non-specialists.

Institutional background

Coordination

- Because many providers are serving a limited market, they have spare capacity at certain times. Could provide rides to others, help other agencies avoid need to operate their own vehicles.
- Another aspect is coordination between providers to avoid duplication of service and ensure better overall coverage.
- However, these types of coordination don't seem to happen in practice. Two problems because of this:
 - Providers are not realizing potential efficiencies, which makes funders upset, and
 - Users of these systems are confused and underserved by presence of too many choices but each one limited in what it can do.
 - Classic example: systems that can't cross county lines, so user that wants to go from St. Paul to Minneapolis has to switch to a different provider for the last mile or two of the trip (provided they can even find a provider who is willing to coordinate this switch).

Institutional background

Research Questions

- What is the market – who, where, how many, what do they want, etc.
- How can providers make their own operations more efficient
- Why do they not work together now – what are the barriers, who is creating them, why, how to get around them (is it even desirable)
- Types of coordination opportunities; technological solutions; institutional barriers

Survey Background

- Earlier research identified two beliefs that were widely held but not formally documented as far as we could tell
 - Large numbers of privately held vehicles
 - Many vehicles used very little
- The notion that the system is inefficient or needs to be better “coordinated” relies to some extent on these two beliefs

Survey Objectives and Methods

- Measure of how widespread specialized transportation is and who is involved
 - Vehicle inventory
 - Vehicle usage (or lack thereof)
- Identify all organizations that might have an interest in transportation
 - Screened with large mailing of short pre-survey (sent out 5683, got back 1517)
 - Full survey to some pre-survey respondents (sent out 958, got back 454)

Types of Organizations

- We discovered that answers varied greatly by organization type
- We divided organizations into five types based on their answers to an open-ended question about their mission:
 - School districts (7.5% of total)
 - Transit and paratransit agencies (4.5%)
 - General social service (41%)
 - Housing services/assisted living (30%)
 - Churches and worship-based (17%)

Key Conclusions

- There are likely more than 3000 organizations in Minnesota providing transportation at least occasionally
 - The vast majority of these are social service and housing agencies outside of the specialized transportation system
 - A large fraction of organizations both provide and arrange transportation depending on circumstances
 - Many organizational models for providing and arranging
- Evidence on whether vehicles are underused is mixed, need to know more about vehicle purpose
- Some interest in collaboration, but barriers exist

Most Cited Types of Barriers

- Insurance restrictions on who can drive vehicle or who can be transported
- Legal constraints on how organization can operate vehicles (especially schools, transit agencies)
- Desire to avoid being subjected to new/additional regulatory structures
- (And of course, lack of money)

Technology Pros and Cons

- There are several detailed studies of the technologies available to providers of specialized transit services
- These are often seen as a silver bullet since technology usually improves productivity in other areas
- However, for many or even most agencies providing transportation services, the systems are unaffordable and the benefits negligible, due to the small scale of operations

Problem of Scale

- Since many technologies are too expensive for all but the largest providers, it can be helpful to think about the questions differently:
 - how can technology be used to help providers work together
 - gain benefits of automation and economies of scale that they could not afford alone
- And, what are the political and other barriers to using technology in this way

Opportunity for Efficiency Gains

- Administrative: Tools to automate common but time-consuming tasks, for example:
 - Scheduling
 - Third-party billing
 - Report generation
- Operational: Getting more use out of the vehicles and drivers that are already in place
 - More passengers on vans that are being fully used
 - More use of vans that are sometimes or often idle
- Travel avoidance: Using telecom to accomplish some tasks remotely (shopping, some medical diagnostics)

Administrative Efficiency

- **CRRAFT (New Mexico)**
 - Data on users and trips goes into a centralized database
 - Eligibility for various programs can be checked once, each separate provider doesn't have to do this
 - Providers don't have to maintain their own trip records
 - Reports to funding agencies are generated automatically
 - Users have “smart cards”
 - use to access a variety of services (not just transportation) that are part of this system
 - can move seamlessly across providers and programs
- Red Cross in St. Paul also centralizes some scheduling and administrative functions, such as third-party billing for several affiliated small providers

Operational Efficiency

- Geographic Positioning Systems (GPS) and Automatic Vehicle Locators (AVL)
 - Track where vehicles are at all times
 - Make this information available to central schedulers
 - Can then exploit missed trips and other spare capacity to accommodate new requests
- Mobile Data Terminals (MDT)
 - Update driver routes and maps in real time
 - Collect passenger and trip log data automatically in the vehicle for future download

Benefits of GPS for DARTS

- More same-day and 24-hour requests accommodated
- Greater responsiveness at times of heaviest demand
- Lower and more stable operating costs
- Shorter trips for riders

Internet and Telecom

- Can modify work commute times
 - Many respondents used internet to maintain contact with office while adjusting commute departure times
 - But retirees who work may want the social contact
- E-shopping broadens home shopping activities
 - Direct substitution not common yet, but perhaps more so as mobility becomes more difficult
 - Efficiency seems to be key: browsing, comparison
- In future, may be possible to carry out some medical activities from home or local facilities (basic consultations, some data-based diagnostics)

Conclusions

- Many new elderly will not be in cities where transportation is easier
- High expectations about quality of service
- But, existing services are often limited due to inadequate funding and legal barriers that make broad-based service difficult
- A number of technologies hold promise for efficiency gains, but the legal and funding structure makes these more difficult to exploit

For more info...

- Center for Transportation Studies (general information and links)
 - www.cts.umn.edu/ct/
- State and Local Policy Program (our reports and papers)
 - www.hhh.umn.edu/centers/slp/reports.html
 - (Click the “community based transit” link)
- Our emails:
 - gbarnes@umn.edu, fdouma@umn.edu