

Understanding Transit Demand

Purpose

- To provide a basic understanding of transit ridership and some common misunderstandings.
- To explain concepts of choice and captive use
- To explain basic transit user characteristics.
- Ridership forecasting is the subject of another presentation

The Transit Mode Share Myth

- “Transit is only 2 percent of the trips in our area and therefore no matter what we do, it doesn’t matter”
- This is the same as saying “The Green Bay Packers (or whatever your favorite team is) won only 2 percent of the football games last year” - it can be any number you want, depending on how many games you include in the denominator. The fact is a team does not play in all the games, nor does a transit system play in all the markets and provide service for all of the trips.

What is the Denominator??

- Mode share = Transit trips / what???
 - Time of day?
 - Schedule?
 - Connectivity?
- Access to stops on both ends?
- Transit may only adequately serve only a small portion of the trips can have a very good mode share for those trips.
- Transit can play a major role in serving travel to specific locations and at specific times, but there must be good service available.

What is the Numerator?

- Many transit users are occasional users, they use transit a couple times a week or a month, depending on circumstances of their travel.
- For example, consider the question: How often, on average, do you ride the bus?
 - More than 5 times a week
 - 3-5 times a week
 - 1-2 times a week
 - 1-3 times a month
 - Less than once a month

The National Transportation Household Survey as quoted in NCHRP web-only document 86 “Estimating the Impacts of the Aging Population on Transit Ridership, ICF Consulting, January, 2006, p 28 shows that about 50% of the population has transit service available within $\frac{3}{4}$ mile. This percentage is even lower because:

- Maximum walking distances to regular transit service are typically $\frac{1}{4}$ mile.
- The walk has to be on actual paths, not ‘airline paths’
- Service is only available for limited times of the day.
- Services do not connect to the desired destination

Six Conditions for Transit Use

In order for a person to use public transit, all of the following six conditions **must** be met:

- Connectivity: Service connects users origin and destination
- Access: User must be able to get to the stops at **both** ends of the trip
- Schedule: Service operates at appropriate times
- Knowledge: User must have knowledge about how to use the service
- Boarding: User must be able to get on and off the vehicle with all they carry
- Security: User must feel safe and secure.

Six Conditions for Auto Use

To be able to use an automobile the following conditions **must** be met:

- Connectivity: The road network connects users origin and destination
- Access: User must be able to find a place to park the vehicle at **both** ends of the trip,
- Schedule: Vehicle can be operated at appropriate times
- Knowledge: User must have knowledge about how to reach a destination
- Boarding: User must be able to operate the vehicle or have someone else operate it for them and be able to get in and out the vehicle with all they carry
- Security: User must feel safe and secure.

Generally about 30% of the population does not have an automobile available for trip making because:

- They are too young to drive
- They are not able to drive for a variety of reasons – disability, loss of license, age based limitations
- There is no vehicle available in the household at the time of the trip

Choice or captive user?

- If a user has only one option that meets all six conditions, they are a captive user
- If a user has multiple options that meet all six conditions, they are a choice user
- If a user has no options, they cannot travel.
- All travelers in the long run have choices: move residence, change jobs, acquire a vehicle, etc..

Transit user characteristics

- Usage patterns vary by city size, in larger cities, transit users look like the general population
- Transit rider numbers are dominated by a few large cities – New York, Chicago, Boston, Philadelphia, Washington, etc. In those places the profile of transit users looks like the profile of the overall population
- In smaller cities, transit users have greater portions of women, young, old, immigrants and low income or ethnic minorities than the general population
- In cities of less than 1 million:
 - More than 60% of users are women

- About 20% are under the age of 18,
- About 20% of users are over 65
- Use of transit for non-work purposes – shopping, medical, social purposes increases as city size decreases.
- There are greater portions of low income users
- Source: “A Profile of Transit Riders” APTA

National Transit Database –

- Federal database for statistics on the transit industry. Recipients of FTA funds are required by statute to submit data to the NTD.
- It includes data for over 650 transit agencies and authorities:
 - Transit Profiles - A "snapshot" view of a given transit agency for a given year.
 - Data Tables - data for all transit agencies ranging from Operators' Wages to Energy Consumption to Age Distribution of Active Revenue Vehicle Inventory.
 - National Transit Summaries and Trends -national summary data showing trends over time.
- See: <http://www.ntdprogram.com/ntdprogram/>

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