

Understanding Transit Demand

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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

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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 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 provide service for all of the trips.

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What is the Denominator???

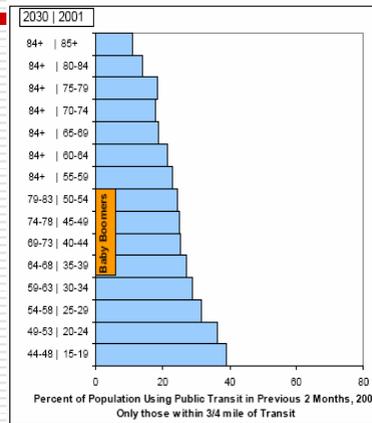
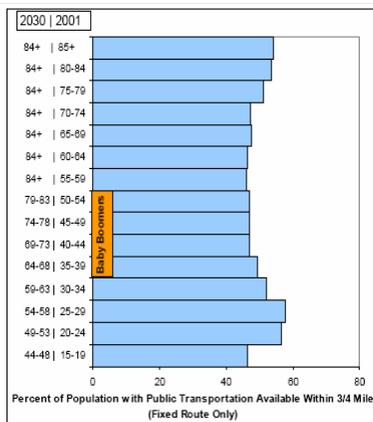
- ❑ Mode share = Transit trips / what???
 - Time of day?
 - Schedule?
 - Connectivity?
 - Access to stops on both ends?
- ❑ Transit may only adequately serve only a small portion of the trips can have a very good mode share for those trips.
- ❑ Transit can play a major role in serving travel to specific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

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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

Public Transit Available within 3/4 mile*



* From 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

True market size?

- The previous slide 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
- Generally about 30% of the population does not have an automobile available for trip making
 - Too young to drive
 - Not able to drive
 - No vehicle available in the household at the time of the trip

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Markets

- For planning purposes, need to identify potential markets where people have real choices with quality services.
- Specific corridors, population within reasonable walking distance or access to park and ride service enroute to their final destination
- Ridership = captive users + choice users



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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.
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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.
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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..



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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 smaller cities, transit users have greater portions of women, young, old, low income or ethnic minorities than the general population
- ❑ Source: “A Profile of Transit Riders” APTA

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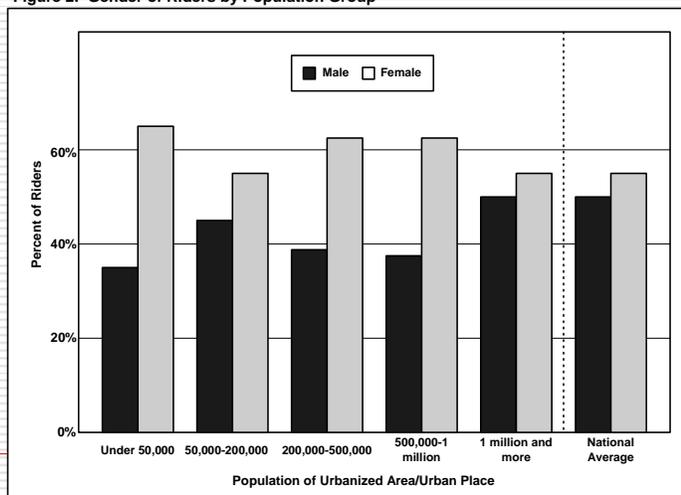
Rider profiles:

- In large cities the profile of users is similar to the population
- In cities of less than 1 million
 - More than 60% of users are women
 - About 20% of the users are under the age of 18,
 - about 20% 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

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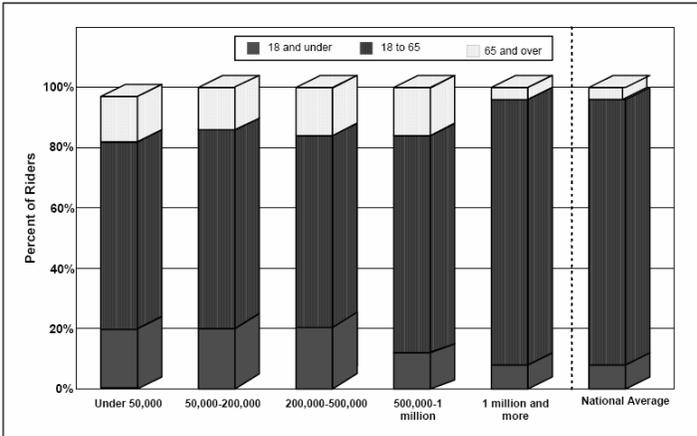
Rider profile of men and women

Figure 2. Gender of Riders by Population Group

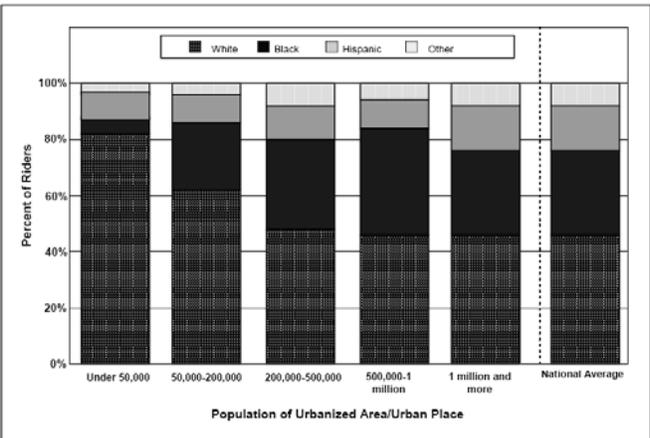


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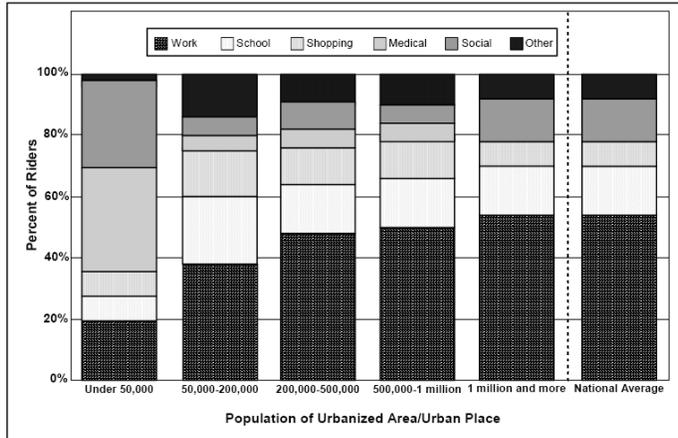
By age



By ethnicity and race

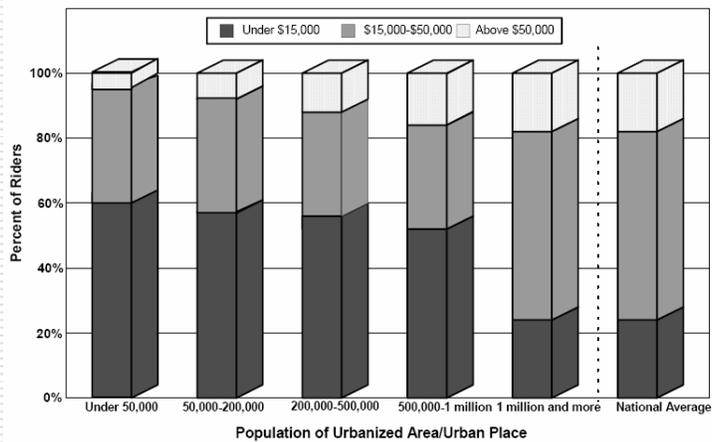


Trip purpose



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By income



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More data

- National Transit Database – a 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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