Braddock Metro Neighborhood Study
Transportation Education

October 29, 2007

Presentation Overview

- Travel Trends
- Basics of a Complete System
- Travel Characteristics in Braddock, Parker-Gray, Rosemont, & Del Ray, Old Town, Northeast Neighborhoods
- Traffic Conditions & Planned Improvements
- Transportation Resources & Their Management
  - Parking Pricing & Regulations
  - Offering Travel Options: Transit, Bicycle, Pedestrian
  - User Communication & Incentives
  - Design for Pedestrians
Non-Motorized Travel by Country

![Chart showing non-motorized travel by country and age group.](image)

**Source:** US Department of Transportation, German Ministry of Transport, and Statistics Netherlands.

**FIGURE 2—Percentage of trips in urban areas made by walking and bicycling in the United States, Germany, and The Netherlands, by age group, 1995.**

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National Trip Purpose Data

<table>
<thead>
<tr>
<th>Trip purpose</th>
<th>Share of Trips</th>
<th>Share of Vehicle-Miles Traveled</th>
<th>Trip Length (miles)</th>
<th>Trip Duration (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To/from work</td>
<td>22.1%</td>
<td>27.8%</td>
<td>12.1</td>
<td>22.3</td>
</tr>
<tr>
<td>Work-related business</td>
<td>4.1%</td>
<td>6.4%</td>
<td>7.5</td>
<td>15.2</td>
</tr>
<tr>
<td>Shopping</td>
<td>21.1%</td>
<td>14.5%</td>
<td>6.7</td>
<td>14.4</td>
</tr>
<tr>
<td>Other family/personal business</td>
<td>24.7%</td>
<td>16.7%</td>
<td>19.0</td>
<td>20.7</td>
</tr>
<tr>
<td>School/church</td>
<td>4.9%</td>
<td>3.7%</td>
<td>7.5</td>
<td>15.0</td>
</tr>
<tr>
<td>Medical/Health</td>
<td>2.2%</td>
<td>2.2%</td>
<td>5.9</td>
<td>18.7</td>
</tr>
<tr>
<td>Vacation</td>
<td>6.4%</td>
<td>1.8%</td>
<td>47.4</td>
<td>59.6</td>
</tr>
<tr>
<td>Visit friends/relatives</td>
<td>6.3%</td>
<td>5.4%</td>
<td>14.9</td>
<td>24.4</td>
</tr>
<tr>
<td>Other social/recreational</td>
<td>13.7%</td>
<td>13.2%</td>
<td>5.6</td>
<td>18.2</td>
</tr>
<tr>
<td>Other</td>
<td>6.8%</td>
<td>1.0%</td>
<td>16.4</td>
<td>31.4</td>
</tr>
<tr>
<td>All</td>
<td>100.0%</td>
<td>100.0%</td>
<td>8.8</td>
<td>10.7</td>
</tr>
</tbody>
</table>

**Source:** Generated from the National Household Travel Survey website.
Regional Trip Purpose by Time-of-Day

Based on 1995 NPTS Survey Data for Washington, D.C Region

Basics of a Complete System

- Streets
- Transit
- Off-road Paths
- Parking
- Planning & Regulation
- Users: Travelers and Neighbors
Traditional Traffic Engineering Classification

- Guides street design, speed, and access
- Creates hierarchy
- “Level of Service” is based on the automobile and truck modes
- Creates the roadway character
- Only the start of planning

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Freeways
  Major Arterials
  Minor Arterials
  Collectors
  Minor Collectors
Local Streets
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“Great streets make great places”

- Recognizes a street as a public space...reflects community values
Evolving Street Classifications

- Understand priority user needs
- Recognize neighborhood character or context

Connected network that keeps local streets local

0-Car Households per Square Mile

- City Boundary
- Parks & Conservation Areas
Parking in Mixed Use Areas

- **Provides a Form of Access**
  - Integral part of auto system (mode converter)

- **Serves Various of Uses & Users**
  - Priority user type matters in mixed zones

- **Supports Economic Activity**
  - On-street spaces generate $75+ daily retail revenue

- **Affects Livability/Quality of Life**
  - Positively or negatively, depending on management/maintenance/location

- **Affects Trip Making & Mode Choice**
  - Excess parking can promote auto use
  - Park Once: constrained parking can result in more linked trips

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**Transit Mode Comparison**

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Commuter Rail Transit</th>
<th>Heavy Rail Transit</th>
<th>Light Rail Transit</th>
<th>Modern Streetcar</th>
<th>Heritage Trolley</th>
<th>Dedicated Lanes BRT</th>
<th>Express Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected Costs per Mile</td>
<td>$3-$25 Million*</td>
<td>$50-$200 Million</td>
<td>$20-$80 Million ($50)</td>
<td>$10-$25 Million</td>
<td>$2-$12 Million</td>
<td>$4-$40 Million</td>
<td>$1-$2 Million</td>
</tr>
<tr>
<td>Distance Between Stations:</td>
<td>2-5 Miles</td>
<td>Urban Core &gt;1 mile</td>
<td>0.25 Miles</td>
<td>0.25 Miles</td>
<td>0.25 Miles</td>
<td>Limited stops along normal bus routes</td>
<td></td>
</tr>
<tr>
<td>Operating Speed:</td>
<td>30-60 MPH</td>
<td>50-80 MPH</td>
<td>20-60 MPH</td>
<td>8-12 MPH</td>
<td>8-12 MPH</td>
<td>20-40 MPH</td>
<td>15-19 MPH</td>
</tr>
<tr>
<td>Alignment:</td>
<td>Generally built on existing tracks at grade level crossings</td>
<td>Separate Right of Way</td>
<td>Aligned center or side of street on separate ROW</td>
<td>In Street with traffic, no grade separation</td>
<td>In Street with traffic, no grade separation</td>
<td>HOV lanes or separated right of way in median or on curb</td>
<td>In Street with traffic</td>
</tr>
<tr>
<td>Right of Way Width:</td>
<td>37+ Feet</td>
<td>25-33 Feet</td>
<td>19-33 Feet (Double Track)</td>
<td>11-13 Feet (Single Track)</td>
<td>19-24 (Double Track)</td>
<td>11-13 (Single Track)</td>
<td>12 (Pittsburgh Single)</td>
</tr>
<tr>
<td>Turning Radius:</td>
<td>140-460 Feet</td>
<td>330 Feet</td>
<td>50-100 Feet</td>
<td>40-80 Feet</td>
<td>40-50 Feet</td>
<td>40-70 Feet</td>
<td>33-46 Feet</td>
</tr>
<tr>
<td>Vehicle Length:</td>
<td>150-500 Feet</td>
<td>40-70 Feet per car, up to 10 car trains</td>
<td>50-80 Feet per car and up to 4 car trains</td>
<td>35-60 Feet</td>
<td>35-50 Feet</td>
<td>30-50 Feet</td>
<td>30-50 Feet</td>
</tr>
<tr>
<td>Typical Power Source:</td>
<td>Diesel</td>
<td>Electric</td>
<td>Electric</td>
<td>Electric</td>
<td>Diesel, Electric</td>
<td>Diesel</td>
<td></td>
</tr>
<tr>
<td>FRA Compliant:</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Urban Transit Street and Traffic Operations

- Mixed-traffic & Exclusive ROW can fit context
- Communications technology improves schedule adherence

Attractive, Quiet, Clean Vehicle Types

- Electricity & natural gas fuels new vehicles to reduce noise and pollution
Bicycle Networks on and off road

Planning for Walking
Connections & uses that activate the street

Planned growth with transportation support
Current Travel Behavior Trends

- Driving alone and transit has increased
- Carpooling is declining

### Alexandria Commute Mode Trends: 1990-2006

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>71,809</td>
<td>77,190</td>
<td>82,548</td>
</tr>
<tr>
<td>Drive Alone</td>
<td>59.1%</td>
<td>62.8%</td>
<td>63.5%</td>
</tr>
<tr>
<td>Carpool</td>
<td>15.6%</td>
<td>13.2%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Transit</td>
<td>17.9%</td>
<td>16.4%</td>
<td>20.5%</td>
</tr>
<tr>
<td>Other</td>
<td>7.4%</td>
<td>7.6%</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

2000 Census Commute Travel Mode

- Residential Densities are higher east of the station
- Driving alone decreases closer to station and on the east side
- Transit share is higher there
Many households are carless, particularly those proximate to the station. While one car households are significant, many transit accessible households have two or more cars. Two+ car households are generally lower adjacent to the station.

Concentrations of carless households are located east of the station, in Old Town and North of Duke St. Some of this may be due to locations of employment zones.
Worker Commute Patterns

Network Observations

- Barrier points of entry/exit
- Competing needs along US 1
- East-west movements less constrained
- Grid pattern of local streets
Regional Conditions

- Natural and physical barriers constrain travel options
- Major destinations along Route 1 corridor
- Beltway heavily influences traffic conditions along Route 1
- No alternatives to US 1 for regional traffic
Effects of growth on hourly traffic flow

- Limited growth in traffic volumes on US 1 in recent years
- Increases in demand result in “peak spreading”
  - Commute periods begin earlier and end later
- Growth likely will result in a longer, less reliable peak period

Managing Traffic Impacts of New Development

- Minimize impacts during peak periods:
  - Accessible transit
  - Walkable
  - Promote uses that contribute to off-peak or reverse commute patterns
  - Incentives to reduce single-occupancy travel during peak periods

- Traffic Management Tools:
  - Signal timing
  - Access management
  - Peak period restrictions
  - Traffic calming measures
Existing Parking Conditions

- Recent study suggests some on-street parking is approaching its capacity (85% full)

<table>
<thead>
<tr>
<th>Time</th>
<th>West</th>
<th>Park</th>
<th>Sport</th>
<th>Wing</th>
<th>Penn</th>
<th>Alle</th>
<th>Cameron</th>
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<tbody>
<tr>
<td>Sunday AM</td>
<td>77%</td>
<td>71%</td>
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<tr>
<td>Sunday PM</td>
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<tr>
<td>Sunday AM</td>
<td>73%</td>
<td>75%</td>
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<td>74%</td>
<td>74%</td>
<td>72%</td>
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<td>Sunday PM</td>
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</tbody>
</table>

Providing Adequate Parking & Access

- Achieve Greater Efficiency of the Existing Supply
  - Reduce time-stay limits (increases capacity without new spaces)
  - Provide more on-street, where possible
  - Increase meter enforcement
  - Increase permit zone enforcement
  - Promote shared parking opportunities

- Provide Alternative Means of Access
  - Increase mix of uses (converts auto trips to walking trips)
  - Increase transit service
  - Improve pedestrian/bicycle facilities
Transportation Demand Management

- Usually designed to reduce work trip travel by SOV
  - Employee databases for carpooling
  - Transit incentive programs
  - Guaranteed ride home for non-auto commuters
  - Limits on employee parking availability (Petersburg story)
  - Shower, locker, bike storage facilities for employees
  - Unbundling of parking costs to tenants
  - “FlexCar” access for business-based activities
- Can also accommodate planned, non-work trips
  - FlexCar available 24/7
  - Transit passes work 24/7

TDM - Best Policy Practices

- Development policies to protect & expand access
  - Flexible standards that promote integration of new and existing uses
  - Code that responds to and reflects existing character
  - Program & project options to enhance alternative modes
- Land use policies that promote mixed use
  - Reduce trip length to support ped/bike/transit trip-making
  - Enliven and revitalize –Activates the street, increases safety
- Transportation policies that optimize multimodal effectiveness
  - Context-based design parameters
  - Multimodal performance standards
  - Parking standards that complement transit goals
TDM - Existing Conditions

- **Federal Public Transportation Subsidy (PTS) program**
  - Offers $105/month in commute benefits

- **Transportation Management Plan (TMP)**
  - Qualifying development projects contribute to TMP fund
  - Finances strategies to use public transportation, including:
    - Discounted fare media
    - Shuttle bus service
    - Registration fees for car sharing
    - Bus shelter maintenance
    - Bicycle lockers and parking facilities
    - Administrative costs

TDM - Strategies

- **Expand Public Transportation Subsidy**
  - Private organizations also eligible

- **Strengthen Transportation Management Plan Program**
  - Require monitoring/reporting/refinement

- **Promote “live-where-you-work” programs**
  - TMP financial incentives to residents/employees with non-auto commutes

- **Transportation Management Association**
  - Strong business, residential, public partnership

- **Promote and financially support alternative modes**
  - Build on existing base of walking and bicycling
Enhance Non-Auto Systems: Bicycles

Enhance public transportation investment

- Metro & Dash transit function and service characteristics
Enhance Walkability

Highly-Walkable Parker Gray Streets

Build on Alexandria’s walking tradition
Connections to preserve & enhance

“Building neighborhoods from projects”
Questions?

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