Reducing Parking at Transit Stations

Jeffrey Tumlin
EVALUATING PARKING AT TRANSIT STATIONS

• Effects on transit ridership
  – Transit Oriented Development (TOD): New households & transit trips
  – Parking: Park-&-Ride participants
  – Implications for encouraging future growth in ridership

• Effects on traffic congestion
  – Walking, cycling & transit trips to station
  – Proportion and amount of vehicle trips to station
  – Implications in allocating street right-of-way

• Effects on revenue generation
  – Lease or sale of land: Land value with higher density & mixed use compared to parking
  – Development of land: Joint development, economic vitality
  – Productive use of land: Economic productivity, sales tax
STRATEGIES FOR REDUCING TRANSIT PARKING

• SkyTrain system in Vancouver, BC (TransLink)
  – Land use concentration around SkyTrain
  – Transportation supply
  – Transportation demand including low to no parking

• Metrorail stations in Arlington County, VA (WMATA)
  – Urban village development
  – Multimodal transportation
  – Shared parking only (No park-&-ride)

• South Hayward station in Northern California (BART)
  – Plans to develop area around station and improve pedestrian, bicycle and bus access
  – Determining amount of replacement parking
Reduced Transit Parking at Rail Stations

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Land Use Density and Transit

% Transit Use

Persons/hectare

Europe

Asia

US-Canada-Australia

GVRD
Transportation Supply (RT Development)

- SeaBus 1977
- West Coast Express 1995
- Millennium Line 2002
- Coquitlam Light Rail 2009
- RAV – Automated Rapid Transit 2009
- Surrey Busway 2013
- UBC Future Extension
- Expo Line – 1986
- WCE from Langley 2008
- Surrey
- Richmond
- Coquitlam
- City Centre
- Airport
- Metro Town
- Surrey
- UBC
Lessons & Results in Greater Vancouver

• Increasing ridership and cost recovery
  – 41% increase in ridership since 1994
  – 20% increase in ridership since 2002
  – Ridership of 200 million by 2010 (33% increase)

• Park-&-ride generally discouraged at stations
  – Allows access to transit & extends system BUT
  – Sterilizes land around stations
  – Disconnects city from system
  – Promotes low density urban development
  – Discourages all-day rides
  – Raises safety, personal security issues
Transportation Demand

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Metrorail Service in Arlington County

• 11 Metrorail stations within Arlington County
• Approximately 200,000 people/weekday entering these stations
• 61 million one-way trips/year to, from and within the county
• Development planned or under construction in the county
  – 6,000 housing units
  – 3 million sq ft office
  – 1 million sq ft retail
Urban Villages in Rosslyn-Ballston Corridor

- 5 urban villages developed around Metro stations in the Corridor
  - 3 miles long and 2 square miles in area
  - Medium-high density mixed use villages
  - Surrounded by well established low-moderate density neighborhoods

- Supported by multimodal transportation facilities
  - Walkable, pedestrian/bike-friendly environment
  - 5 closely spaced Metrorail Stations that are below grade
  - Local and feeder bus service
  - Extensive, connected network of highways, arterials and local streets

- Close to the center of Downtown DC
- No distinct park-&-ride facilities, only public shared parking
Development Patterns, 1960s – 1970s

- Loss of status as Northern Virginia’s main retail district
  - Declining retail sales
  - Declining population as families moved to the suburbs
  - Disinvestment in residential neighborhoods, absentee landlords, land speculation
- New shopping centers emerging instead in Fairfax County
- Large scale office development and increasing employment in Rosslyn
Redevelopment Initiative

- Use Metrorail transit investment as catalyst for intensive redevelopment of the commercial spine of central Arlington
- Concentrate density and promote mixed use at 5 stations
  - Rosslyn, Courthouse, Clarendon, Virginia Square, Ballston
- Taper development down to adjacent neighborhoods
- Preserve and reinvest in established residential neighborhoods adjacent to the corridor
Household, Population & Employment Trends

- HH
- Population
- Employment

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Metrorail Access at 5 R-B Corridor Stations

39,500 daily boardings

- Walk: 73.0%
- Metrobus: 12.9%
- Other Bus/Vanpool: 7.5%
- Auto (incl. Drop-off): 3.6%
- Other: 1.0%
- No Response: 2.0%

Source: WMATA May 2002 weekday Metrorail ridership and access data
Reduced Transit Parking at Rail Stations

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Metrorail Access at 4 Orange Line Stations

29,250 Daily Boardings

- Walk: 14.6%
- Auto (incl. drop-off): 57.6%
- Metrobus: 9.3%
- Other Bus/Vanpool: 1.7%
- Other: 12.0%
- No Response/Unknown: 4.8%

Sources: WMATA May 2002 weekday Metrorail ridership and access data
No Park-and-Ride

- All parking charged at market-rate
- Prepaid ParkSmart debit cards can be used to pay for metered parking
- Parking brochure
  - Locations of all public on- and off-street parking in the 5 villages
  - Information on alternative transportation options

Parking at County Meters

Short-term meter rate: 75¢ / hour
12-hour meter rate: 50¢ / hour
FREE everyday after 6 pm
FREE all day Sunday
FREE at designated meters Saturday

- YELLOW
  - 1/2 hour
- SILVER
  - 1 hour
- BLUE
  - 2 hours
- RED
  - 4 hours
- GREEN
  - 12 hours
South Hayward BART Station Study

Transit-Oriented Design Plan

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Reducing Replacement Parking

• Benefits:
  – BART’s surface parking lots represent prime transit-oriented development sites
  – Ridership growth can be achieved through transit oriented development
  – Existing parking does not fill up.
  – Expensive costs of providing parking can be used for access improvements instead.
    – Annual cost per surface space: $353.04
    – Annual cost per structure space: $537.62
• But - BART has commitment to existing riders
South Hayward BART Station Study

Net Revenue and Ridership Effects of Reducing Replacement Parking


<table>
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<th>Percent Replacement Parking</th>
<th>Net Revenue per Year (in thousands)</th>
<th>Number of Riders</th>
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<tr>
<td>102%</td>
<td>$3,000</td>
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</tbody>
</table>
South Hayward BART Station Study

Results of Replacement Parking Analysis:

• More ridership will be generated if less land is occupied for replacement parking.

• The cost of building replacement parking is expensive. BART generates more net annual revenue the less replacement parking built.

• Improving pedestrian, bike and bus access to the station will increase ridership.
Why provide parking at Rail Stations?

- Land banking for future joint development
  - Danger: may be politically difficult to eliminate later!

- Only effective use of land
  - Freeway interchange
  - Airport zone
  - Toxins
  - But why put rail line here at all?

- Free capital money from FTA to build parking, no operating money to run shuttle connections

- Appeal to affluent suburban voters

- Appeal to sprawl developers and building trades
Why require replacement parking?

- Replacement parking puts huge cost burden on joint development projects, oftentimes precluding them.
- Replacement parking reduces development envelope, resulting in less JD ridership.
- At most urban rail stations, eliminating station parking for more JD would result in higher ridership and revenue.
- Reducing replacement parking reduces congestion
- Reducing replacement parking reduces peak transit capacity problems and introduces more off-peak trips
Why require replacement parking?

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1. Calculate Cost per Rider by Access Mode

Parking

• Take land cost. Divide by ~100 spaces an acre for surface parking, or (100 x 0.8 x floors of structure) for structured parking.

• Amortize over useful life: ~30 years

• Add ongoing maintenance, lighting, insurance, security, etc:~$150 per space per year

• Total: Typical: $1,500 per space, or $6 a day. Up to $20 a day in urban areas.
1. Calculate Cost per Rider by Access Mode

Feeder Transit cost per Net Rider

• Look at cost per existing rider for key feeder bus lines

• Look for bus lines that suffered service cuts. Take cost saving from service cut and divide by lost riders. This is same as cost per net new rider for service improvements.

• Typical in urban area: under $3
2. Calculate net Revenue per Rider

- Peak period, peak direction trips create huge net costs to transit systems with capacity problems
- For reverse peak, off-peak trips, fare revenue is pure “profit,” allowing agency to keep overall fares lower.
3. Examine Ridership and Revenue from JD

- Does local jurisdiction allow sufficient density and minimize parking requirements for TOD?
- Is the development market ripe for TOD, or wait for next cycle?
- Calculate density of JD necessary to replace riders lost from displaced parking
- Examine new ridership that would be off-peak and reverse peak
4. Examine Social Justice Impacts

- If we have a limited amount of transit subsidy, where should we spend the money?
- Subsidize all access modes equally on a cost per passenger basis
- Subsidize access modes in a way that best achieves other local objectives, like economic development
- What about people who have no option for accessing the station other than driving?
- Rail transit cannot afford to serve everyone.
- We can justify extra subsidies to support
4. Examine Social Justice Impacts

- What about people who have no option for accessing the station other than driving?
- Rail transit cannot afford to serve everyone.
- We can justify extra subsidies to support disadvantaged populations – but why raise fares for low-income urban riders to subsidize high-income sprawl residents? This merely promote sprawl, auto-dependence and social injustice.
5. Examine other impacts

- Traffic
- Air quality
- Economic development potential
- Sustainability
- Etc.
6. Communicate

- We subsidize parking because rail agencies are dependent upon affluent, white suburban voters.
- Jurisdictions that have reduced parking and increased system productivity have only done so after extensive community engagement.
For more information

- Jeffrey Tumlin, Principal
  Nelson\Nygaard
  785 Market Street, Suite 1300
  San Francisco, CA  94103
  415-284-1544
  415-284-1554 (fax)
  jtumlin@nelsonnygaard.com
  www.nelsonnygaard.com

San Francisco, New York, Portland, Boston, Denver

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... transportation planning for livable communities