How to Create an Integrated Station Area Transportation

Lake Worth, FL
October 31, 2007

Jeffrey Tumlin
Nelson Nygaard Consulting Associates
Transportation and TOD -- Agenda

1. Why transit? Why transportation?
2. Access Planning
3. Parking versus Joint Development
4. Parking for TOD
5. Legalize TOD
6. Lake Worth
1. Measure Success

Photo montage by Steve Price
1. Why Transportation?

- Transportation is not an end in itself.
- It is merely a means by which we support larger goals....
How Transportation Meets Goals

• Mobility:
  - Can I travel freely and easily to where I want to go?
  - Reduce roadway congestion
  - Increase transit frequency, reliability and speed
  - Create bicycle lanes and complete sidewalks

• Accessibility:
  - Can I get the things and services I want?
  - Bring people, goods and services closer together
  - Mix uses
  - Technology, delivery

1. Why Transportation?
Typical Measures of Success

Auto Level of Service (LOS)

- Seconds of delay experienced by vehicles, typically at intersections.
- Easy to measure.
- Says nothing about average travel speed over a corridor.
- Says nothing about person capacity.
- Ignores other modes of transportation
Why not Consider...

- Economic Development
  - Job creation
  - Real estate value increase
  - Retail sales
- Quality of Life
  - Access to jobs
  - Access to shopping
  - Residential property value impact
- Social Justice
  - Do benefits accrue equitably?
  - Are investments spread equitably?
- Ecological Sustainability
  - VMT per capita (=CO₂, NOₓ, runoff, etc.)
  - Land use/transportation connection
2. Access Planning
Access Planning Primer

- How do you maximize your riders and minimize your costs?
- Look at all options:
  - Parking
  - Feeder Transit
  - Bike & Pedestrian
  - Housing & Joint Development
Riders: Parking and Joint Development Housing

- Surface parking
  - 100 spaces per acre
  - 200 rides per day
  - All at peak period
- 3 Story Structure
  - 200 spaces per acre
  - 400 rides per day

- Housing = ~1.6-4 rides per unit
  - 50-100 units/acre = 200 rides per day
  - 100-200 units/acre = 400 rides/day
  - Spread throughout day esp if affordable
Riders: Feeder Transit

- As corridor density increases, so does potential transit ridership

**AM & PM Commute Trips:**

**Pleasant Hill TOD versus Typical Development**

![Graph showing AM & PM commute trips comparison]

**15-35 Units/Acre = Big Reduction**

**Graph showing annual vehicle miles travelled/household vs. Households/acre**

**Uses**

- Typical Residential
- Typical Office
- Pleasant Hill BART Residential
- Pleasant Hill BART Office

**Typical Development**

**Pleasant Hill TOD**
Costs: Operating vs Capital

- Feeder transit: High operating, low capital
- Bike/ped: Cheap
- Surface parking: low operating, low capital
  - Unless you include land!
- Structured parking: low operating, high capital
Station Access Design: Rules of Thumb

• Small Blocks!
  - Increases curb length
  - Provides easy turnaround
  - Allows for narrower streets
  - Pedestrian friendly

• Maximize curb parking
  - Allows for flexibility:
    - Drop-off
    - Bus zones
    - Retail parking
    - Etc.
Bus Intermodals: Design Guidance

- Site close to faregates
- Minimize need for bus passengers to cross street – don’t let passengers run for bus or train!
- Make all bus stops visible to each other
- Put eyes on the street, especially for stops with many passengers waiting in evening.
- Transparency and natural wayfinding
- Site station agent to oversee bus intermodal
- Typically, line buses up along the tracks and use station itself as turnaround
3. Station Parking vs Joint Development
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
RB Corridor Arlington vs. Fairfax County

39,500 daily boardings

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

29,250 daily boardings

- Auto: 57.6%
- Auto (incl. drop-off): 12.0%
- Walk: 14.6%
- Other Bus/Vanpool: 9.3%
- Other: 4.8%

Source: 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

<table>
<thead>
<tr>
<th>Color</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>YELLOW</td>
<td>1/2 hour</td>
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<tr>
<td>SILVER</td>
<td>1 hour</td>
</tr>
<tr>
<td>BLUE</td>
<td>2 hours</td>
</tr>
<tr>
<td>RED</td>
<td>4 hours</td>
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<tr>
<td>GREEN</td>
<td>12 hours</td>
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</table>
South Hayward BART Station Study
## Example: South Hayward

<table>
<thead>
<tr>
<th></th>
<th>Scenario A - Maximized Parking</th>
<th>Scenario B - Lower Parking Ratios</th>
<th>Scenario C - Maximized Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross density</td>
<td>56</td>
<td>77</td>
<td>100</td>
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<tr>
<td>(units/ acre)</td>
<td></td>
<td></td>
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<tr>
<td>Residential parking</td>
<td>1.5-2.1</td>
<td>1.0-1.3</td>
<td>1.0</td>
</tr>
<tr>
<td>(spaces/ unit)</td>
<td></td>
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<tr>
<td>% replacement parking</td>
<td>102%</td>
<td>73%</td>
<td>55%</td>
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3. Parking vs Joint Development
Example: South Hayward

- Step 1: Assess ridership change
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<td>New riders from TOD</td>
<td>798</td>
<td>1,047</td>
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<td>Riders lost from reduced parking</td>
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<td>$637,000</td>
<td>$776,000</td>
<td>$826,000</td>
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Example: South Hayward

- Step 1: Assess ridership change
- Step 2: Assess land value and parking costs
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<td>($4,019,000)</td>
<td>($760,000)</td>
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<tr>
<td>Reduction in parking operations costs</td>
<td>($218,000)</td>
<td>($36,000)</td>
<td>$72,000</td>
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Example: South Hayward

- Step 1: Assess ridership change
- Step 2: Assess land value and parking costs
- Step 3: Assess total costs and benefits
Example: South Hayward

<table>
<thead>
<tr>
<th>Net New Riders</th>
<th>Net Annual Revenue</th>
</tr>
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<tbody>
<tr>
<td>A - 102% Replacement</td>
<td>$1,600,000</td>
</tr>
<tr>
<td>B - 73% Replacement</td>
<td>$0</td>
</tr>
<tr>
<td>C - 55% Replacement</td>
<td>$800,000</td>
</tr>
</tbody>
</table>

A - 102% Replacement
B - 73% Replacement
C - 55% Replacement

Net New Riders
Net Revenue
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
New Resources are Available

• “The High Cost of Free Parking”
  - By Don Shoup, UCLA
  - Top 100k on Amazon
  - 576 pages
  - $60 from APA

• “Parking Spaces / Community Places”
  - Free from US EPA
  - 70 pages

• “Parking Management”
  - By Todd Litman
  - Available at APA Bookstore or Amazon
4. Parking and TOD
Six Key Parking Reform Principles

1. Manage Spillover Parking
2. Create a “Park Once,” shared parking environment
3. Create lots of on-street parking
4. Ensure good parking design
5. Ensure 15% vacancy at all times through market pricing
6. Vary parking requirements according to context and goals:
   • Tailor minimums
   • Eliminate minimums
   • Establish maximums
1. Residential Parking Permit Districts

- Residential Parking Permit Districts
  - Critical for addressing spillover parking concerns of infill development
  - Requires neighborhood vote on parking district

- Austin Parking Benefit Districts
  - [http://www.ci.austin.tx.us/parkingdistrict/default.htm](http://www.ci.austin.tx.us/parkingdistrict/default.htm)
  - Allows residents to sell surplus neighborhood parking capacity to commuters
  - Revenue returned to neighborhood for community improvements
2. Park Once
Mixed Use, Park Once District

Results:

• <\frac{1}{2} \text{ the parking}
• <\frac{1}{2} \text{ the land area}
• \frac{1}{4} \text{ the arterial trips}
• \frac{1}{6} \text{th the arterial turning movements}
• <\frac{1}{4} \text{ the vehicle miles traveled}
Transit Oriented Development

School

Work

Shop

Play

Live
Parking Demand in Mixed Use Zones

• Typical single-use district – 4 spaces per 1,000 square feet
• Palo Alto – 1.8 spaces /1,000 sf
• Santa Monica – 2.4 spaces/1,000 sf
• Kirkland, WA – 2.0 spaces/1,000 sf
• Philadelphia Center City – 0.89 spaces /1,000 sf
3. On-Street Parking

On-street parking benefits:

- Buffer between pedestrians and traffic
- Convenience parking for retail
- “Teaser” parking
- Snow removal storage
- Potential location for street trees, flex space
- Traffic calming
- Bus bulbs and Corner bulbouts
- Bike parking
- Same land area per space as 3-story garage; twice as efficient as off-street lot
4. Ensure good parking design
4. Ensure good parking design
5. Manage On-Street Parking
Parking Benefit Districts

- Devote meter & permit revenue to district where funds raised

- Example: Old Pasadena
  - Meters installed in 1993: $1/hour
  - Garage fees
  - Revenue: $5.4 million annually
  - Tiny in-lieu of parking fees

- Funds garages, street furniture, trees, lighting, marketing, mounted police, daily street sweeping & steam cleaning

- Focus on availability, not price

Old Pasadena, 1992-99: Sales Tax Revenues Quadruple
Parking Benefit Districts

- Redwood City, CA: Meter and garage rates vary to achieve 15% vacancy on all blocks at all times.
Arlington, VA - Residential Parking Districts

Lower Density Zoning

Lower Density Zoning
6. Vary your Parking Requirements

- Example: Boulder, CO, Downtown Management Commission
- Responsibilities:
  - Parking construction and management
  - Operates full menu of demand management strategies
- District analyzes most cost-effective mix of new parking or transportation alternatives
- Cheaper to provide free transit to all downtown employees than provide them parking
- Provides buying power/negotiating strength for small businesses
Phase out Minimum Parking Requirements

- Minimum parking requirements set to avoid any chance of spillover
- Usually copy nearby cities, or look up in reference manuals
- Take peak demand, and round up
ITE Rates

- Based on locations with no transit accessibility, no adjacent land uses
- R² of 0.038 means that variation in floor area explains only 3.8 percent of variation in peak parking demand.
- Parking generation rate is reported as precisely 9.95 spaces per 1,000 square feet, not 10 but 9.95.
Tailor Parking Requirements?

• Parking demand varies with geographic factors:
  - Density
  - Transit Access
  - Income
  - Household size

• Cities can tailor parking requirements to meet demand, based on these factors

• Does not seek to constrain demand
Abolish Parking Requirements?

Reviving neighborhoods by abolishing minimum parking requirements

- Coral Gables, FL
- Eugene, OR
- Fort Myers, FL
- Fort Pierce, FL
- United Kingdom (entire nation)
- Los Angeles, CA
- Milwaukee, WI
- Olympia, WA
- Portland, OR
- San Francisco, CA
- Stuart, FL
- Seattle, WA
- Spokane, WA
Parking Maximums?

- Promotes alternatives to driving
- Maximizes land area for other uses
- Examples: downtown San Francisco; Portland, OR; Cambridge, all of UK
- Aside from congestion pricing, parking management is the ONLY useful tool for eliminating congestion
# Parking: High & Low Traffic Strategies

<table>
<thead>
<tr>
<th>Traffic</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Costs</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Pollution</td>
<td>High</td>
<td>Low</td>
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<table>
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<tr>
<th><strong>Typical Minimum Requirements</strong></th>
<th><strong>‘Tailored’ Minimum Requirements</strong></th>
<th><strong>Abolish Minimum Requirements</strong></th>
<th><strong>Set Maximum Requirements</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Requirement &gt; Average Demand</td>
<td>Adjust for:</td>
<td>• Market decides</td>
<td>• Limit parking to road capacity</td>
</tr>
<tr>
<td>• Hide all parking costs</td>
<td>• Density</td>
<td>• Garages funded by parking revenues</td>
<td>• Manage on-street parking</td>
</tr>
<tr>
<td></td>
<td>• Transit</td>
<td>• Manage on-street parking</td>
<td>• Market rate fees encouraged/required</td>
</tr>
<tr>
<td></td>
<td>• Mixed Use</td>
<td>• Residential pkg permits allowed by vote</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• ‘Park Once’ District</td>
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<tr>
<td></td>
<td>• On-street spaces</td>
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<td></td>
<td>• ...etc.</td>
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5. Legalize TOD
12 Code Obstacles

1. Parking and Traffic Code
2. Building Code
3. Uniform Fire Code
4. Clean Water Act
5. Fair Housing Act
6. State Schools Codes
7. Congestion Management Program
8. Zoning & Subdivision Codes: Design and Parking
9. Road Design Code
10. Street Typologies and Transportation Performance Measures
11. Impact Fees
12. Environmental Compliance
For More Information

Contact:

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