Practical Strategies to Maximizing Parking

2016 HESNI Annual Conference
Naperville, IL

May 5, 2016

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Lisle, IL
Agenda

• Introduction
• Parking alternatives
• Parking/transportation demand management
• Case studies
• Questions/Comments
Why care about parking?

- Parking is **not** the best use of land
- Benefits of efficient parking system:
  - Provide more parking in less land
  - Additional land available for other uses
  - Reduce first and O&M costs
Why care about parking?

• Many organizations have reached full build out and can no longer build additional parking

• Benefits of parking supply/demand management:
  ✓ Reduces infrastructure costs
  ✓ Increases parking supply
  ✓ Decreases parking demand
  ✓ Decreases traffic congestion
  ✓ Improves air quality
Practical Strategies to Maximizing Parking

Parking is expensive.
Parking Construction Costs - 2016

• Structured parking:*
  • National average $19,100/space ($58/sq. ft.)
  • Chicago average $21,200/space ($65/sq. ft.)

• Surface parking:
  • Varies → $4,000 to $6,000/sp
  • Higher if on-site storm water treatment and detention systems are required

• The above costs do not include land, soft, and O&M costs

* Source: Interpolated from 2014 parking industry cost data
# Monthly Revenue Needed to Breakeven

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<thead>
<tr>
<th>Project Costs Per Space</th>
<th>Annual Operating Cost Per Space</th>
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<tr>
<td></td>
<td>$300</td>
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Note: Assumes tax-exempt financing at 4.5% over 30 years
Practical Strategies to Maximizing Parking

Parking Alternatives
Parking Alternatives

• Oversell
• Shared Parking
• Restriping/Layout of Parking Facilities
• Valet Parking
• Parking Demand Management Through Rate Adjustments
• Parking Expansion Through Lease
• Parking Expansion Through New Construction
Oversell

- Up to 30%
- Start at a low percentage and adjust over a 3 to 6 month time
Shared Parking

- Parking is shared by more than one user
- Works for predictable utilization patterns
- Parking supply management technique

Example

- Zero sharing – assigned spaces
- Maximum sharing – On-street space in a busy, mixed-use, urban area
Shared Parking Examples

• Church sharing parking with a hospital or bank
• Hospital or office building sharing parking with restaurants
• Hospital or bank sharing parking with a church
• Church sharing parking with a college
Shared Parking Considerations

- Parking facilities should be located within walking distance
  - Some municipalities require within 300 feet
- Management/Coordination
- Liability
- 501(c)(3) status concerns
- Maintenance
## Shared Parking – Case Study

<table>
<thead>
<tr>
<th>Land use</th>
<th>Size/Units</th>
<th>Base Demand</th>
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<tr>
<td>Residential</td>
<td>29-2 Bedroom Rental Units</td>
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<td>84-2 Bedroom Condo Units</td>
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<td>Residential</td>
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<td>Residential</td>
<td>8-3 Bedroom Condo Units</td>
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<td>Hotel</td>
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<td>Hotel</td>
<td>1,000 SF Conference Room</td>
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<tr>
<td>Theater</td>
<td>400 Seats</td>
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<td>Office</td>
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<td>Retail</td>
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<td>Restaurant</td>
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<td><strong>TOTAL PARKING DEMAND (WITHOUT SHARED PARKING)</strong></td>
<td><strong>837</strong></td>
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## Shared Parking – Case Study

### Weekend - December

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<th>8:00 AM</th>
<th>10:00 AM</th>
<th>12:00 PM</th>
<th>2:00 PM</th>
<th>4:00 PM</th>
<th>6:00 PM</th>
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<td>114</td>
<td>143</td>
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<td>518</td>
<td>422</td>
<td>537</td>
<td>693</td>
<td>505</td>
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</table>
### Shared Parking – Case Study

- **Base Parking Demand**: 837 Spaces
- **Shared Parking Demand**: 693 Spaces
- **Shared Parking Reduction**: 144 Spaces
- **Cost Savings (Approx.)**: $3,000,000
- **Square Footage Savings**: 47,500 SF
- **O&M Savings ($500/sp/yr)**: $72,000/Year
Restriping/Layout of Parking Facilities

• Restriping
  ➢ Resurface the parking facility or remove existing stripes
  ➢ Reapply the paint for parking, lanes, turn aisles

• Parking gains are accomplished by:
  ➢ Reducing the width of spaces
  ➢ More efficient parking layout
Restriping/Layout of Parking Facilities

• Two bays, 8’-6” wide spaces at 90°

• **Without** end bay parking
  - Capacity: 132 sp
  - Area: 38,400 SF
  - Efficiency: 291 SF/sp
  - Total Cost: $2,496,000
  - Cost/Sp: $18,909
Restriping/Layout of Parking Facilities

- Two bays, 8’-6” wide spaces at 90°

- **With** end bay parking
  - Capacity: 138 sp
  - Gain: 6 sp
  - Area: 38,400 SF
  - Efficiency: 278 SF/sp
  - Total Cost: $2,496,000
  - Cost/Sp: $18,087/sp
  - Cost Reduction: $822/sp

- Restriping may not be possible in some parking structures or may not work for some user type
Restriping/Layout of Parking Facilities

- Two bays, 9’-0” wide spaces at 90°
- **Without** end bay parking
  - Capacity: 124 sp
  - Area: 38,400 SF
  - Efficiency: 310 SF/sp
  - Total Cost: $2,496,000
  - Cost/Sp: $20,129/sp
Restriping/Layout of Parking Facilities

- Two bays, 9’-0” wide spaces at 90°
- With end bay parking
  - Capacity: 128 sp
  - Gain: 4 sp
  - Area: 38,400 SF
  - Efficiency: 300 SF/sp
  - Total Cost: $2,496,000
  - Cost/Sp: $19,500/sp
  - Cost Reduction: $629/sp

- Restriping may not be possible in some parking structures or may not work for some user type
Comparison Between 9’-0” and 8’-6”

Two bays, 9’-0” wide spaces at 90°

- **Without** end bay parking
  - Capacity: 124 space
  - Area: 38,400 SF
  - Efficiency: 310 SF/sp
  - Total Cost: $2,496,000
  - Cost per space: $20,129/sp

Two bays, 8’-6” wide spaces at 90°

- **With** end bay parking
  - Capacity: 138 sp
  - Gain: 14 sp
  - Area: 38,400 SF
  - Efficiency: 278 SF/sp
  - Total Cost: $2,496,000
  - Cost/Sp: $18,087/sp
  - Cost Reduction: $2,042/sp

- Restriping may not be possible in some parking structures or may not work for some user type
Restriping/Layout of Parking Facilities

- Two bays, 9’-0” wide spaces at 70°, double thread
- **With** end bay
  - Capacity 125 sp
  - Area 36,480 SF
  - Efficiency 292 SF/sp
  - Total Cost $2,371,200
  - Cost/Sp $18,970/sp
Restriping/Layout of Parking Facilities

- Two bays, 8’-6” wide spaces at 70°, double thread
- **With** end bay
  - Capacity 130 sp
  - Gain 5 sp
  - Area 36,480 SF
  - Efficiency 281 SF/sp
  - Total Cost $2,371,200
  - Cost/Sp $18,240/sp
  - Cost Reduction $730/sp

- Restriping may not be possible in some parking structures or may not work for some user type
Restriping/Layout of Parking Facilities

- Three bays, 8’-6” wide spaces at 90°
- **Without** end bay parking
  - Capacity 194 sp
  - Area 57,600 SF
  - Efficiency 297 SF/sp
  - Total Cost $3,744,000
  - Cost/Sp $19,299/sp
Restriping/Layout of Parking Facilities

- Three bays, 8’-6” wide spaces at 90°
- **With** end bay parking
  - Capacity: 206 sp
  - Gain: 12 sp
  - Area: 57,600 SF
  - Efficiency: 280 SF/sp
  - Total Cost: $3,744,000
  - Cost/Sp: $18,175/sp
  - Cost Reduction: $1,124/sp

- Restriping may not be possible in some parking structures or may not work for some user type
Restriping/Layout of Parking Facilities

- Four bays, 8’-6” wide spaces at 90°
- **Without** end bay parking
  - Capacity: 256 sp
  - Area: 76,800 SF
  - Efficiency: 300 SF/sp
  - Total Cost: $4,992,000
  - Cost/Sp: $19,500/sp
Restriping/Layout of Parking Facilities

- Four bays, 8’-6” wide spaces at 90°

- **With** end bay parking
  - Capacity: 274 sp
  - Gain: 18 sp
  - Area: 76,800 SF
  - Efficiency: 280 SF/sp
  - Total Cost: $4,992,000
  - Cost/Sp: $18,219/sp
  - Cost Reduction: $1,281/sp

- Restriping may not be possible in some parking structures or may not work for some user type
Restriping/Layout of Parking Facilities

- Five bays, 9’-0” wide spaces at 90°
- **Without** end bay parking
  - Capacity: 475 sp
  - Area: 144,000 SF
  - Efficiency: 303 SF/sp
  - Total Cost: $9,360,000
  - Cost/Sp: $19,705/sp
Restriping/Layout of Parking Facilities

- Five bays, 9’-0” wide spaces at 90°
- **With** end bay parking
  - Capacity: 498 sp
  - Gain: 23 sp
  - Area: 144,000 SF
  - Efficiency: 289 SF/sp
  - Total Cost: $9,360,000
  - Cost/Sp: $18,795/sp
  - Cost Reduction: $910/sp

- Restriping may not be possible in some parking structures or may not work for some user type

Kimley-Horn
Orientation/Layout of Parking Facilities

- Eight bays, 9’-0” wide sp. at 90°

- **Without** end bay parking
  - Capacity 440 sp
  - Area 144,000 SF
  - Efficiency 327 SF/sp
  - Total Cost $9,360,000
  - Cost/Sp $21,273/sp
Restriping/Layout of Parking Facilities

- Eight bays, 9’-0” wide sp at 90°

- **With** end bay parking
  - Capacity 476 sp
  - Gain 36 sp
  - Area 144,000 SF
  - Efficiency 303 SF/sp
  - Total Cost $9,360,000
  - Cost/Sp $19,664/sp
  - Cost Reduction $1,609/sp

- Restriping may not be possible in some parking structures or may not work for some user type
# Impact of Parking Bay Orientation

## Orientation: Short Direction*
- Eight bays, 9’-0” wide sp at 90°
- With end bay parking
- Capacity: 476 sp
- Area: 144,000 SF
- Efficiency: 303 SF/sp
- Total Cost: $9,360,000
- Cost/Sp: $19,664/sp

## Orientation: Long Direction*
- Five bays, 9’-0” wide sp at 90°
- With end bay parking
- Capacity: 498 sp
- Gain: 22 sp
- Area: 144,000 SF
- Efficiency: 289 SF/sp
- Total Cost: $9,360,000
- Cost/Sp: $18,795/sp
- Savings: $869/sp

*Orientation depends upon the destination location
Restriping/Layout of Parking Facilities

- Narrower spaces (8’-6”) work better for low turnover facilities (employees)
- Wider spaces (9’-0”) work better for high turnover facilities (visitors, shoppers, etc.)
- Parking layouts with end-bay parking is more efficient than without end-bay
- Restriping may not be possible in some parking structures or may not work for some user type
Restriping of Parking Facilities

• Re-evaluate…
  ✓ existing landscaped areas
  ✓ location of existing driveways
  ✓ width of drive aisles/parking spaces
  ✓ parking orientation
  ✓ delivery vehicle routes
  ✓ vehicular connection between parking facilities, especially for transient users
Parking Layout – Case Study
Valet Parking

- Highest level of service in parking
- “Attendant Assist” is different
- Increased parking supply
When to Offer Valet Service?

- Highest level of customer service
- Limited parking supply – parking supply management
- Availability of parking at inconvenient location
- Availability of parking at undesirable locations
- During and after major construction
- May help people with mobility issues who do not have ADA privileges
Valet Parking

Advantages

- Highest level of customer service
- Convenience for customers
- Increased parking supply
- Better use of undesirable parking spaces
Valet Parking

Disadvantages

- Can be perceived as bad customer service
- Not considered as a preferred parking option in many areas
- Susceptible to higher claims and litigations (legitimate and fraudulent)
- Higher operating costs
- Higher insurance costs

“Do’s and Don'ts of Valet Parking”
Valet Parking Staffing Guidelines

Rule-of-Thumb

- Up to 50 vehicles: 3 valets
- 51 to 200 vehicles: 4 to 5 valets
- 201 to 300 vehicles: 5 to 7 valets
- 301+: 7+ valets
Parking Demand Management
Rate Adjustments

• Successfully implemented at many locations
• Encourages parking patrons to...
  ➢ find cheaper parking
  ➢ park at longer walking distances
  ➢ park at longer distances and use hospital shuttle or public transit, if available
• Level of success depends on parking rates
• Potential abuse of “neighbors” parking facilities
• May push parkers deeper into residential or commercial areas
Parking Expansion
Leasing Additional Spaces

• Relatively inexpensive way to increase parking supply

• Potential locations:
  ➢ Theaters
  ➢ Malls
  ➢ Schools
  ➢ Closed parking facilities
  ➢ Churches → 501(c)(3) status concern
Parking Expansion
Leasing Additional Spaces

- Considerations
  - Security
  - Safety
  - Costs
  - Administration
  - Maintenance

- Evaluate costs of long-term lease compared with costs of parking expansion through new construction
Parking Expansion
New Construction

• Should be the last option.
• How many spaces?
  ➢ Supply/demand study – Consider developing a model to understand parking supply and usage
  ➢ Shared parking

• Future Developments

• Site selection
  ➢ Future needs
  ➢ Future expansion
    o Vertical vs. Horizontal

• Parking Layout → User type, orientation, efficiency, first costs, O&M costs
Practical Strategies to Maximizing Parking

Parking/Transportation Demand Management
Parking/TDM

• What is TDM?
• TDM Case Studies
What is TDM?

An acronym for *transportation demand management*

According to ITE…

“… not one action, but rather a set of actions and strategies, the goal of which is to encourage travelers to use alternatives to driving alone, especially at the most congested times of day.”

Example: HOV Lanes vs. Express Lanes
What is TDM?

A term representing strategies intended to:

- reduce single occupant vehicles
- increase usage of car- and vanpooling, mass-transit, bicycling, walking, etc.
- reduce parking demand
TDM, the “Other Half” of Balancing Parking Supply with Demand

- Owners hire consultants to determine needs
- Solutions often focus on expanding supply
- Through TDM, demand may be reduced or shifted
Examples of TDM Strategies

- Carpooling
- Preferred Parking Program
- Remote Park & Ride Lots
- Financial Incentives
- Tax Credits
- Parking Cash Out

(Parking $175 vs. $65 for bus pass)
Examples of TDM Strategies

- Non-Financial Incentives
- Guaranteed Ride Home (GRH) Program
- Residential Permit Parking
- Public Transportation
- Real-Time Transit Information
- Transit Discounts
Examples of TDM Strategies

• Express Bus Routes
• Car Sharing with preferred parking
• Vanpooling with preferred parking
• Telecommuting
• Compressed Workweek
• Bicycling
TDM Has a Brief History

TDM was first employed in the U.S. during WWII.

The use of the “TDM” acronym became popular during the 1980’s.

Clean Air Act Amendments and ISTEA legislations reference TDM.
### We “Americans” are “AUTOcentric”

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<thead>
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<th>Country</th>
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<th>Transit</th>
<th>Cycling</th>
<th>Walking</th>
<th>Other</th>
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<tr>
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<td>1%</td>
<td>9%</td>
<td>2%</td>
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Source: Mode Split in Urban Areas (Pucher and LeFevre, 1996)
TDM is most common in the western states

Boulder
Los Angeles
Phoenix
Portland
San Diego
San Francisco
Seattle
Practical Strategies to Maximizing Parking

TDM Case Study
Midwestern Downtown
Problems / Issues

• Several large stakeholders including a hospital
• Parking hindering growth
• Parking shortages
• Traffic congestion
• Pedestrian safety
• No comprehensive parking and transportation master plan
Parking Demand Analysis

Current demand: 8,300 spaces
Current deficit: 875 spaces

Future demand: 10,900 spaces
Future deficit: 1,800 spaces
Parking Alternatives

- Shared parking
- Efficiency improvements
- Mixed use parking facilities
- Valet parking
- PDM through rate adjustments
- Expansion through leasing
- Expansion through new construction
TDM Alternatives

- Carpooling
- Preferred parking program
- Remote park & ride lots
- Financial incentives
- Non-financial incentives
- Guaranteed ride home program
- Residential permit parking
- Express bus routes
Remote Park & Ride Lots
Impact of PDM and TDM Programs

- Reduction in parking demand 360 spaces
- Relocation of parking demand, outside of core area 800 spaces
- Additional parking needed within the core area 600 spaces
- Cost Savings (net) $7,632,000
- Sq. Footage Savings 118,800 SF
- Additional savings for relocating parking demand outside of core area
Effective PDM Programs

**Carrots**
- Cash out
- Free or discounted bus passes
- Preferential parking spaces
- Car- and vanpool matching
- Bicycle paths
- Bicycle lockers and showers
- Pedestrian walkways
- Guaranteed Ride Home (GRH)

**Sticks**
- Parking Fees
- Higher parking fees
- Controlled parking supply
  - Maximum parking requirements
- Rigorous parking enforcement

- **Caution – Evaluate political implications**
Conclusion

• Successful and proven techniques and strategies are available to:
  ➢ increase parking supply
  ➢ reduce parking demand

• Parking expansion through new construction should be the last option
Practical Strategies for Maximizing Parking

For additional information, please contact:

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