Smart Parking Tools, Technology and Techniques

Or, the Technological Fix

New Partners for Smart Growth 2012

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Picture of red car, http://colossus.net/parked.cgi/beta
And today, we want technology to do what we want, where ever we are

Three SF Bay Area Case studies:
- San Francisco (pop. 800,000+)
- Walnut Creek (population 60,000+)
- Sausalito (pop. 7,000+)

First a survey:
- How many of you have smart phones?
- How many have $1 in change?
- Can your change where there is an available space?
Case Study I: SF park, San Francisco:

- Meters
  - Encourage turnover
  - Raise revenue
- But they are not state of the art anymore
- Hence SF park
Technology is tailored to San Francisco’s goals

Goals and benefits

- Reduce circling and double parking
  - Less congestion via reduced cruising for parking
  - Manage auto trip demand via price signals
  - Improve transit reliability – double-parking slows buses
  - Increase safety – frustrated parkers = distracted drivers

- Increase convenience
  - More availability
  - Better customer satisfaction
  - Increased economic vitality
  - Fewer parking tickets
The SFpark pilot projects scope

- Technology + Policy
- 2 year demos, these locations
- $24.75 million (20% is local match, rest is federal)
- 7 pilot areas
- ~6,000 metered spaces (25%)
- ~12,250 garage spaces (75%)
- 3 control areas (not shown)
1. Information technology

- Sensors
- Web-based
- Street-level data
- Open XML feed
  - Machine Readable
  - Human Readable
  - SmartPhones too
3. Pricing, & Communicating the Price

- Demand-responsive
- Location/day/time/events
- Changes adjust gradually
- Lowest prices possible

<table>
<thead>
<tr>
<th>Time</th>
<th>Price/Hour</th>
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<tbody>
<tr>
<td>9 am - 11 am</td>
<td>$2.50</td>
</tr>
<tr>
<td>11 am – 2 pm</td>
<td>$3.50</td>
</tr>
<tr>
<td>2 pm – 6 pm</td>
<td>$2.00</td>
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</tbody>
</table>

example
2. Payment Technology

- Improved experience
- Easy to pay
- Longer time limits
Enforcement: Fines down, but fees up
Case 2: Walnut Creek, CA

Techniques & Technology to Increase Effective Supply in a Suburban Downtown

- A familiar problem: employees are parking in prime customer spaces located on the first & second floors of both garages

- ParkSmart (Regional Parking, Inc.) proposal: employees get annual hang tag parking permits and required to park on the roof tops of each garage
Package includes PRIVATE Parking Meters

42 Spaces on Ground Floor Level get meters

- Regional Parking, Inc. shall install 42 parking meters on the first level at RP Inc. expense

- Regional Parking, Inc. shall maintain parking meters, provide collections, repairs, auditing and bank services...

- Plaza Escuela may increase the meter rates at any time

- Regional Parking, Inc. shall pay Plaza Escuela 50% of the gross parking meter revenue collected.

Projected Monthly Revenue: $7,432

Calculation: 9am – 12pm 25% Occupancy; 12:pm – 2pm 85% Occupancy; 2pm – 5pm 25% Occupancy; 5pm – 7pm 85% Occupancy; 7pm – 10pm 35% Occupancy
Private Metered Lots in Walnut Creek

200 spaces - Equivalent to a $5 million garage
Park Smart Goal: Make it easier to pay fees AND easier to avoid fines
Case Study 3: Sausalito, CA

• A unique small city with unique parking issues

• Many commuters (the city has a major ferry bus terminal) – see card

• Many tourists

• Nice place to live, and residents want to keep it that way
Different SmartCards for different needs

Resident Parking Card – includes 3 hrs free
Sausalito – Smart Parking in smaller city

- Aparc Systems adapted and calibrated remote sensors and data processing
- Proof that the SF Park approach can be replicated in a smaller cities
- Similar technology, different goals for a unique environment
- Technology is subtle…
Parking a major challenge and revenue source

Proof that the SF Park approach can be replicated in a smaller cities

Similar technology, different goals for a unique environment

Technology is subtle
Sausalito – Smart Parking in smaller city
In Summary:

- Public agencies lucky enough to have parking for rent should make the most of it for themselves and their customers. In particular, they should consider following constellation of strategies:
  
  - Moving toward professional management of parking
  - Monitoring and adjusting off-street and curbside parking pricing closer to market rate and “parking benefit districts”
  - Encourage sharing of private parking for a fee (and with fee sharing)
  - Using emerging technology to do all of the above
Time for a smarter approach to parking

- Do a Parking Census
  - On-street and Off-street
  - Identify Special Needs (disabled parking, e.g.)
- Smarten up your spaces with sensors enabling remote detection of Occupancy critical data: are you $<, =, \text{or} > 85\%$?
- As needed adjust
  - Pricing
  - Enforcement
  - Marketing and communications
- Lots of Data – Evaluate policies in almost real time
Resources & Acknowledgements

- ITE *Journal, Smart Growth Parking Requirements Review* (December 2010); Lee, Watten & Rees

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Parking Day Intermission

- http://www.flickr.com/groups/worldparkingday/pool/show/