Funding: EPA Targeted Watershed Grant

Partners:

Furman University
City of Greenville

Goal: Create market based incentive program to encourage development less impactful on water resources
Project Background - Downtown Greenville
Sewer pipes crossing rivers

Reedy Falls downtown - 2006

Severely Eroded Stream Banks

Project Background
Nationally:

- Impervious surfaces cover 43,000 sq mi (equivalent to size of Ohio)

- 65% of total impervious cover is transportation related

- Parking lots represent the 3rd largest category of impervious cover (24.8%)

(Sources: Frazer, L., 2005, USGS, 2007)
• Convey pollutants:
  • Chemical - predominant source of PAHs in urban streams
  • Biological - bacteria
  • Thermal - increase stream temperatures dramatically (10°)

• Alter stream morphology:
  • Increase in volume and velocity of flow

• Decline in stream biodiversity:
  • Relationship between increase in impervious and decrease in biodiversity

(Sources: USGS, 2007: Mahler et al., 2005)
Excessive Parking Requirements
City of Greenville

City limits = 18123 acres

Total impervious area = 10,784 acres

Impervious parking area = 2325 acres

City surface parking =
• 21.5% of impervious cover
• 12.8% of city acreage
• Revised Off-Street Parking Code
  • Minimum
  • Maximum

• Reasons for the revision

• What information was used to set current code
Charge fee per space for each additional space

Parking Variance Program
Parking Variance Program

MIN

Impervious: Free

Pervious: Free

MAX

Impervious: $$

Pervious: Reduced $$
Pervious paving materials = No/lower fee for additional spaces

Interlocking pavers

Interlocking pavers

Pervious concrete

Grasscrete

Pervious Pavement Options

Credit: CMI Homebuilders
• 115 Parking Lots Surveyed

• Land Uses:
  • Retail & Sales (Big box, shopping centers, discount stores)
  • Office (General office, medical office)
  • Restaurants (sit down, drive through)
  • Financial Institutions (banks with and without drive through)

• Types of Surveys:
  • Aerial Surveys: Peak (Black Friday), Non-peak
  • On-the-ground: 3x during peak usage period
Flights courtesy of SouthWings, Asheville, NC

Aerial Surveys
Data Collection

Two Flyovers:
- Peak usage – 11.27.09 – Black Friday
- Average usage – 3.17.10

Sites:
- Big Box Retailers –
  i.e. Walmart, Kohls, Target, Costco, Best Buy, etc.
- Shopping Centers –
  Haywood Mall, Greenridge Shopping Mall, strip malls
Data Collection

- Total parking spaces
- Occupied spaces
- Time
- Date
- Building size (sq ft) – based on preliminary research
- Building vacancies – based on preliminary research
6004 Total Parking Spaces

5227 occupied spaces = 87% occupancy rate

Haywood Mall 11.27.09 – Black Friday
6004 Total Parking Spaces

1525 occupied spaces = 25% occupancy

Haywood Mall 3.17.10
2940 Total Parking Spaces

1525 Occupied = 52% Occupancy

Greenridge Mall 11.27.09
2940 Total Parking Spaces

1051 Occupied = 36% Occupancy
582 Total Parking Spaces

407 Occupied = 70% Occupancy

Kohls 11.27.09
582 Total Parking Spaces

90 Occupied = 15 % Occupancy

Kohls 3.17.10
668 Total Parking Spaces

148 Occupied = 22 % Occupancy

Target 3.17.10
<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Current Minimum Required (1/sq ft)</th>
<th>Current Maximum Required (1/sq ft)</th>
<th>Peak Percent Occupancy</th>
<th>Optimal Maximum Parking Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail/Shopping Centers - Discount</td>
<td>500</td>
<td>250</td>
<td>52%</td>
<td>1/522 sq ft</td>
</tr>
</tbody>
</table>

Freestanding buildings vs. attached stores:
- Freestanding buildings (Walmart, Kohls, etc.) : 41%
- Attached buildings (strip malls, mall) : 66%
3 Measurements for each lot:
- Peak usage time

Sites:
- Banks (8)
- Restaurants (19)
  - Drive-thru
  - Without drive-thru
- Medical offices (12)
- Offices (16)
- Personal Service (7)
  - Salons
  - Veterinary Clinics
  - Health Clubs
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</tr>
</thead>
<tbody>
<tr>
<td>Banks</td>
<td>200</td>
<td>150</td>
<td>39%</td>
<td>1/350 sq ft</td>
</tr>
<tr>
<td>Grocery</td>
<td>500</td>
<td>250</td>
<td>35%</td>
<td>1/611 sq ft</td>
</tr>
<tr>
<td>Medical Offices</td>
<td>200</td>
<td>100</td>
<td>52%</td>
<td>1/300 sq ft</td>
</tr>
<tr>
<td>Offices</td>
<td>500</td>
<td>150</td>
<td>58%</td>
<td>1/360 sq ft</td>
</tr>
<tr>
<td>Personal Service</td>
<td>500</td>
<td>250</td>
<td>68%</td>
<td>1/342 sq ft</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>500</td>
<td>250</td>
<td>45%</td>
<td>1/463 sq ft</td>
</tr>
<tr>
<td>Drive Thru Restaurants</td>
<td>150</td>
<td>75</td>
<td>55%</td>
<td>1/180 sq ft</td>
</tr>
<tr>
<td>Restaurants</td>
<td>100</td>
<td>60</td>
<td>39%</td>
<td>1/120 sq ft</td>
</tr>
</tbody>
</table>
• Continue with data analysis
• Prepare to take to Council
• Conduct public outreach
• Implement Banking Program in City of Greenville
• Take FRB to other municipalities
Could you envision a program like this working in your county or municipality?

A. Yes
B. No
C. Maybe

Upstate Forever
Decision Making Tool
On a scale of 1 to 5, how would you rate the complexity of this program, with 5 being the most complex?

A. 1
B. 2
C. 3
D. 4
E. 5

Upstate Forever
Decision Making Tool
Did you feel that this information was useful to you?

A. Yes
B. No
C. Not sure
Questions:

Contact Jean Pool
City of Greenville
jpool@greenvillesc.gov

Or
Erika Hollis
Upstate Forever
ehollis@upstateforever.org