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Southeast Michigan’s Green Infrastructure Vision: Engaging Community Leaders through a Series of Implementation Strategy Workshops

BOHLING, M., Michigan Sea Grant
KARLL, K., Southeast MI Council of Governments
SEMCOG Map of southeast MI
2014 SEMCOG GI Vision

- **Purpose:** First regional plan highlighting goals and developing regional policies for expanding and influencing green infrastructure regionally.

- **Identifies:**
  - Current Green Infrastructure Network
  - Recreation and Conservation Land
  - Potential Recreation and Conservation Land
  - Potential Green Roads
  - Opportunities to increase tree canopy in communities <20%

SEMCOG GI Vision

Process:
- Developed a task force of more than 60 reps from local gov't., state and fed agencies, environmental, transportation, educational and economic development groups
- Public survey with over 850 responses
- 9 stakeholder visioning sessions
- 300 participants
SEMCOG GI Vision

- **Elements of the plan**
  - Quantity of GI
  - Quality of GI
  - Accessibility to network
  - Connectivity
  - Water Quality
  - Air Quality
  - Transportation
  - Vacant Land
  - Visioning
  - Sustainability: Maintenance, Financing, Partnerships
  - Implementation
Green Infrastructure by the numbers

Table 3

**Land Cover, Southeast Michigan**

<table>
<thead>
<tr>
<th></th>
<th>Area (acres)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious</td>
<td>410,074</td>
<td>14%</td>
</tr>
<tr>
<td>Tree Canopy</td>
<td>986,619</td>
<td>33%</td>
</tr>
<tr>
<td>Open Space</td>
<td>1,431,372</td>
<td>49%</td>
</tr>
<tr>
<td>Bare</td>
<td>28,685</td>
<td>1%</td>
</tr>
<tr>
<td>Water</td>
<td>91,551</td>
<td>3%</td>
</tr>
</tbody>
</table>
Green Infrastructure by the numbers

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Land Cover Area (Acres)</th>
<th>Percent Green Infrastructure</th>
<th>Percent Tree Canopy of Total GI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livingston</td>
<td>374,633</td>
<td>61%</td>
<td>63%</td>
</tr>
<tr>
<td>Macomb</td>
<td>309,977</td>
<td>45%</td>
<td>53%</td>
</tr>
<tr>
<td>Monroe</td>
<td>359,557</td>
<td>67%</td>
<td>28%</td>
</tr>
<tr>
<td>Oakland</td>
<td>580,501</td>
<td>45%</td>
<td>86%</td>
</tr>
<tr>
<td>St. Clair</td>
<td>467,236</td>
<td>67%</td>
<td>45%</td>
</tr>
<tr>
<td>Washtenaw</td>
<td>462,342</td>
<td>62%</td>
<td>51%</td>
</tr>
<tr>
<td>Wayne</td>
<td>395,303</td>
<td>30%</td>
<td>81%</td>
</tr>
<tr>
<td>Wayne, excluding Detroit</td>
<td>305,376</td>
<td>32%</td>
<td>81%</td>
</tr>
<tr>
<td>Detroit</td>
<td>89,187</td>
<td>19%</td>
<td>85%</td>
</tr>
<tr>
<td>Region</td>
<td>2,949,548</td>
<td>54%</td>
<td>56%</td>
</tr>
</tbody>
</table>
Implementing the GI Vision

- Green Infrastructure Target Setting
  - Determines how much green infrastructure is needed at subwatershed level to reduce flashiness and improve water quality
  - Enables prioritization of areas for GI implementation
2015 Workshop Series

- Green Infrastructure Priority Setting
- Green Infrastructure Design and Construction
- Green Infrastructure Local Plans and Ordinances
- Green Infrastructure Bus Tour
2016 GI Code Audit Project

- **Project Summary:** Follow-up to 2015 Workshop Series

- **Goal:**
  - Identify updates and changes to existing codes and ordinances that can support green infrastructure implementation
  - Provide flexible alternative considerations
  - Recognize the importance of aligning county and community programs
  - Identify opportunities to enhance coordination to achieve multiple desired outcomes
2016 GI Code Audit Project

- City of Southfield & Canton Township
- Align with Oakland County & Wayne County
Southfield

1. Code mark-up
2. Summary of code changes in audit document
3. Ideas on how to incorporate water quality requirements into zoning
4. Anticipating Oakland County new MS4 standards

Met with:
- Planning Director
- City Engineer
- City Stormwater Manager Code
Southfield

- **Updates:**
  - Definitions
  - Site Plan requirements
  - ODD Standards
  - Off Street Parking
  - Landscape Requirements and Plant materials
  - Community Impact Statement
  - Rainwater Harvesting Systems
  - Neighborhood/Regional Shopping District
  - Neighborhood Business District
1. Code mark-up
2. Summary of code changes in audit document
3. Ideas on how to reduce effective imperviousness and runoff
4. Use green infrastructure practices
5. Allow flexibility to meet infiltration requirements
6. More flexibility in landscaping techniques to meet stormwater requirements

Met with:
- Public Works Manager
- City Engineer
- Landscape Architect
Canton

- **Updates:**
  - Definitions
  - Use of permeable surfacing/ providing options
  - Shared and offsite parking
  - Required parking ratios
  - Parking lot design standards
  - Landscaped areas
  - Pollutant reduction
  - Site Plan review process
Wayne & Oakland Counties

1. Differences in County Standards

2. Alternative considerations for managing required volumes
   - Reducing imperviousness in developments
   - Practice types and credits
   - Runoff reduction calculations
   - Off-site or alternative compliance with performance standards
RESULTS:

MUNICIPAL CODES: Alas, my friends...it is... say it with me...

1. POLICIES support gi, but code language does not reflect policies
2. STAFF ACTIONS support gi, but are not consistent with or written into code language
3. UNDERLYING DRIVERS of imperviousness and non-gi landscaping are significant
4. PARKING STANDARDS = seriously.
5. MS4-RELATED COUNTY PROVISIONS may have very different impacts on wayne county vs. oakland county

Credit: Juli Beth Hinds
PRIMARY FINDINGS best of times

1. STRONG POLICIES ON GI, WATER QUALITY PROTECTION 😊
   - Plans (especially Southfield’s upcoming plan) reflect awareness of GI benefits, commitment to environmental quality
   - Zoning (both actively discuss lid/gi practices)

2. WETLAND AND TREE PROTECTION STANDARDS ARE A+ FANTASTIC 😊

3. CANTON’S BIORETENTION SPECS & KNOWLEDGE ARE A+ FANTASTIC 😊
   ...your fearless planner will note that the buffer landscaping standards in 82-131(a) and (b) are too prescriptive to incorporate the bioretention plantings described in 5.02(J)...

Credit: Juli Beth Hinds
PRIMARY FINDINGS worst of times

1. PARKING, PEOPLE! TOO MUCH REQUIRED PARKING!
   - Minimal use of shared parking, without standards and procedures for how to calculate required parking among multi-tenant buildings or common sites!
   - Very stringent allowance for distance to off-site parking, seriously limiting use (300’ vs. 800’ to 1,000’)
   - PARKING RATIOS (NUMBER OF SPACES PER GSF OF A USE) ARE OUT OF DATE AND HIGHER THAN CONTEMPORARY RECOMMENDATIONS FROM Urban Land Inst, Inst of Transp Engineers
   - Procedure for modification of standards is entirely at the review board’s discretion, rather than allowing an applicant to provide a parking study or survey from a comparable use.

2. LANDSCAPING DISORDER DIAGNOSES:
   - BERMITIS MICHIGANDII
   - ISLAND CURBITIS
   - DEHD (DENSE EVERGREEN HEDGE DISORDER)

3. PERMEABLE SURFACING HASN’T PENETRATED
## Findings: PARKING

“For the love of Heaven, of justice, of generosity, of the honour of your noble name, I supplicate you, Monsieur, to succor and release me."

<table>
<thead>
<tr>
<th></th>
<th>CANTON -4.01</th>
<th>SOUTHFIELD -5.30</th>
<th>BEST PRACTICE STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF-SITE PARKING</td>
<td>Not permitted except for churches</td>
<td>300’</td>
<td>800’ TO 1000’</td>
</tr>
<tr>
<td>Distance from use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shared parking</td>
<td>4.01(B)(5) additive but PC may reduce total by up to 25% “upon determination that the parking demands... do not overlap”</td>
<td>ADDITIVE (5.29 (8) (9) and (11)</td>
<td>Shared parking by right or required, with formula/ table provided</td>
</tr>
<tr>
<td>Ratio, standard</td>
<td>1 per 65 SF usable area + 1 per employee</td>
<td>1 per 65 SF</td>
<td>1 per 75 SF</td>
</tr>
<tr>
<td>restaurants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio, medical office</td>
<td>1 per 200 sf</td>
<td>1 per 100 SF</td>
<td>1 per 200 SF</td>
</tr>
<tr>
<td>Parking space size</td>
<td>9 x 19 and may be modified where adjacent to 7’ wide landscaped area</td>
<td>9 x 20 and compact spaces</td>
<td>9 x 18 and compact spaces</td>
</tr>
<tr>
<td></td>
<td>SF/UNITS/SEATS</td>
<td>CANTON</td>
<td>9 x 17.75 space</td>
</tr>
<tr>
<td>---</td>
<td>---------------</td>
<td>--------</td>
<td>-----------------</td>
</tr>
<tr>
<td>4</td>
<td>RETAIL</td>
<td>20,000</td>
<td>1/150 + 1/Employee</td>
</tr>
<tr>
<td>5</td>
<td>BANK</td>
<td>2,000</td>
<td>1/100 + 1 employee</td>
</tr>
<tr>
<td>6</td>
<td>RESTAURANT</td>
<td>4,500</td>
<td>1/65 + 1/Employee</td>
</tr>
<tr>
<td>7</td>
<td>OFFICE</td>
<td>25,000</td>
<td>1/250</td>
</tr>
<tr>
<td>8</td>
<td>RESIDENTIAL</td>
<td>60</td>
<td>2/DU + 20%</td>
</tr>
<tr>
<td>9</td>
<td>THEATER (SEATS)</td>
<td>240</td>
<td>1/3 seats + 1/Employee</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>*Retail = 1 employee/500 SF</td>
<td></td>
<td>Imperviousness</td>
</tr>
<tr>
<td>12</td>
<td>Office = 1 employee/300 SF</td>
<td></td>
<td>Acres</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>Shared Reduction</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>Imperviousness</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>Acres</td>
</tr>
</tbody>
</table>

**BEST PRACTICE: SHARED PARKING ANALYSIS**

<table>
<thead>
<tr>
<th></th>
<th>USE</th>
<th>SF/UNITS/SEATS</th>
<th>REQUIRED PARKING</th>
<th>WEEKDAY LUNCH</th>
<th>WEEKDAY EVE.</th>
<th>SATURDAY 12-2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% PRESENT</td>
<td>SPACES</td>
<td>% PRESENT</td>
</tr>
<tr>
<td>20</td>
<td>RETAIL</td>
<td>20,000</td>
<td>100</td>
<td>85</td>
<td>85</td>
<td>80</td>
</tr>
<tr>
<td>21</td>
<td>BANK</td>
<td>2,000</td>
<td>10</td>
<td>100</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>22</td>
<td>RESTAURANT</td>
<td>4,500</td>
<td>60</td>
<td>75</td>
<td>45</td>
<td>75</td>
</tr>
<tr>
<td>23</td>
<td>OFFICE</td>
<td>25,000</td>
<td>100</td>
<td>97</td>
<td>97</td>
<td>5</td>
</tr>
<tr>
<td>24</td>
<td>RESIDENTIAL</td>
<td>60</td>
<td>96</td>
<td>50</td>
<td>48</td>
<td>95</td>
</tr>
<tr>
<td>25</td>
<td>THEATER (SEATS)</td>
<td>240</td>
<td>80</td>
<td>0</td>
<td>0</td>
<td>80</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>446</td>
<td>285</td>
<td>285</td>
<td>243</td>
<td></td>
</tr>
</tbody>
</table>

Credit: Juli Beth Hinds
Code Change: Enable shared parking, remove curbing requirement around parking lot landscaping areas

D. Off-street parking requirements for mixed or combined uses located within the same building or on the same lot or parcel. As a matter of policy the City of Greenfield finds that coordination of parking among mixed or combined uses is desirable to reduce the amount of paved surface on a site. Combinations of any of the uses set forth in Table 21.06.0203 shall may provide the total number of off-street parking stalls and/or queuing space required for each individual use, or may submit for Plan Commission approval a Shared Parking Analysis and Plan in accordance with the following:

1. A Shared Parking Plan shall be submitted with site plan showing a complete and accurate description of the proposed uses, the floor area dedicated to each use, and the distance from each use to the proposed parking area. Uses participating in the shared parking plan must be located with one-quarter (1/4) mile of the parking area.

2. A Shared Parking Analysis shall be presented showing the parking demand for each individual use by time period, in the form of a matrix. The time periods shall include a weekday morning.

E. Concrete curb required for all off-street parking areas. Concrete curb meeting City specifications shall be required for all off-street parking areas serving more than five (5) vehicles in all nonresidential zoning districts and in the MFR-1, MFR-2, MFR-3, and PUD Districts. This requirement shall also apply to the expansion of any existing off-street parking lot where the number of off-street parking spaces is increased by ten (10) spaces or more. Breaks, depressions or other inlets for stormwater flows are permitted where a landscaped area has been designed to function as a vegetated stormwater control measure, in conjunction with an approved Stormwater Management Plan.

• Impervious area decrease alone from shared parking:
  - Runoff Reduction: 18%
  - TSS Reduction: 16%

• Impervious decrease + 0.4 ac bioretention:
  - Runoff Reduction: 55%
  - TSS Reduction: 66%
FINDINGS: PERMEABLE SURFACING

CANTON: DOESN’T MENTION PARKING LOT SURFACING! BUT EVERYTHING ELSE...

- “The internal path system shall be a minimum of five feet in width and constructed of asphalt or concrete.”

- “Privately owned sidewalk means a sidewalk, either asphalt or concrete...”

- “...and all streets shall be paved with concrete or asphalt...”

- “A paved pedestrian pathway or sidewalk shall be provided...”

- “Any proposed driveway which abuts a public right of way in which the road or street is paved shall also be required to be paved.”

- “Surfacing. All roads, driveways, parking lots, and loading or unloading areas shall be paved or treated in a manner approved by the building official...”

- “All dwelling units, including those under construction, shall be readily accessible by fire and emergency vehicles from a paved public street, paved private access road, or other approved paved area.”

SOUTHFIELD: PROHIBITS PERMEABLE PARKING LOTS.

- “Street: A right-of-way dedicated to public use which may comprise pavement, curbs and gutters...”

- “All pavement shall be concrete with integral curb...”

- “The surface of the parking lot, all drives, and aisles shall be constructed in accordance with MDOT Standard Specifications, section 4.11, aggregate pavement; section 4.12, bituminous concrete pavement; or section 4.13, concrete pavement.”

“CRUSH HUMANITY OUT OF SHAPE ONCE MORE, UNDER SIMILAR HAMMERS, AND IT WILL TWIST ITSELF INTO THE SAME TORTURED FORMS.”

(a) Off-street loading. There shall be provided off-street loading berths not less than the minimum requirements specified in this section in connection with any building, structure or use that is to be erected or substantially altered, and that requires the receipt or distribution of materials or merchandise by trucks or similar vehicles.

(b) Surfacing. All open off-street loading berths shall be improved with a compacted macadam base not less than seven inches thick, or equal, surfaced with not less than two inches of asphaltic concrete or some comparable all-weather, dustless material, which may include permeable surfacing, and shall be subject to approval of the village engineer.

(c) Screening and landscaping. All open off-street parking areas containing more than four parking spaces shall be effectively screened on each side adjoining or fronting on any residence district by a wall or fence not less than five feet high or more than six feet high, or a densely planted, compact hedge not less than five feet in height; and housesteps of masonry, steel or heavy timber shall be placed no nearer than five feet from the street line in districts where a front yard is not required or from side lot lines. A combination of planting and fencing may be used to accommodate the re-design of screening and landscaping areas to provide stormwater management, so long as effective visual screening is provided.

(g) Required spaces. The minimum number of off-street parking spaces accessory to designated uses shall be provided as follows:

(4) Business uses.

n. All other business and commercial establishments, one parking space for each 150-250 square feet of floor area.

- Narrow rear exit lane to 14’ from edge of parking stall; use remaining space between aisle to property boundary as bioretention
- Make exit lane permeable for length of building
- Make islands along Brown Deer Road and N. Mohawk bioretention

- Currently parked at 78 spaces for approximately 18,000 GSF (below zoning requirement of 1/150 SF or 120 spaces)
- If parked at 1/250 SF, would reduce requirement to 72 spaces
- Allows removal of 6 spaces facing Brown Deer Road & landscape with deep-rooted native plantings
Contacts & Questions

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http://www.semcog.org/Reports/GIVision/index.html