How do you select good sites for green infrastructure?

Methods for GI BMP site selection

- GIS screening
- Modeling optimization

Who needs to be involved?
Identifying Green Infrastructure Opportunities – GIS Screening

- Identify Green Infrastructure Opportunities
  - Identification of Target Watersheds
  - Primary Screening
    - Eliminate unfeasible parcels
  - Secondary Screening
    - Prioritize implementation opportunities
## Identifying Green Infrastructure Opportunities – GIS Screening

<table>
<thead>
<tr>
<th>Parcel-based green infrastructure</th>
<th>ROW green infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Public ownership (except in special cases, per Table 3-1)</td>
<td>- Proximity to targeted subwatershed</td>
</tr>
<tr>
<td>- Proximity to targeted subwatershed</td>
<td>- Infiltration capacity</td>
</tr>
<tr>
<td>- Proximity to environmentally sensitive or protected areas</td>
<td>- Available width</td>
</tr>
<tr>
<td>- Infiltration capacity</td>
<td></td>
</tr>
<tr>
<td>- Parcel size (large-scale)</td>
<td></td>
</tr>
<tr>
<td>- Impervious parcel area</td>
<td></td>
</tr>
<tr>
<td>- Percent impervious</td>
<td></td>
</tr>
<tr>
<td>- Proximity to storm drainage networks</td>
<td></td>
</tr>
<tr>
<td>- Proximity to contaminated soils</td>
<td></td>
</tr>
<tr>
<td>- Proximity to existing BMPs</td>
<td></td>
</tr>
<tr>
<td>- Proximity to parks and schools</td>
<td></td>
</tr>
<tr>
<td>- Contributing drainage area (large-scale)(^1)</td>
<td></td>
</tr>
<tr>
<td>- Drainage area percent imperviousness (large-scale)</td>
<td></td>
</tr>
<tr>
<td>- Known stormwater/MS4 capacity issues</td>
<td></td>
</tr>
</tbody>
</table>
### Identifying Green Infrastructure Opportunities – GIS Screening

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score (5 = Highest Priority, 1 = Lowest Priority)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Public ownership</strong></td>
<td>City- or town-owned public parcels and ROWs</td>
</tr>
<tr>
<td><strong>Proximity to target subwatershed[^1]</strong></td>
<td>Within target subwatershed</td>
</tr>
<tr>
<td><strong>Proximity to environmentally sensitive or protected areas (feet)^[^2]</strong></td>
<td>&lt; 100, but not within a sensitive or protected area</td>
</tr>
<tr>
<td><strong>Infiltration Capacity (HSG soil type)</strong></td>
<td>A, B</td>
</tr>
<tr>
<td><strong>Impervious area (acres)</strong></td>
<td>&gt; 1</td>
</tr>
<tr>
<td><strong>% Imperviousness</strong></td>
<td>60%–80%</td>
</tr>
<tr>
<td><strong>Proximity to storm drainage network (feet)</strong></td>
<td></td>
</tr>
</tbody>
</table>
Identifying Green Infrastructure Opportunities – GIS Screening

Public Parcels → Screened Parcels → Prioritized Regional Opportunities

- Drainage Network
- Target Watershed
- Soil Type
- Impervious Area
- Slopes
Identifying Green Infrastructure Opportunities – GIS Screening
Regional BMP Screening and Prioritization
Regional BMP Screening and Prioritization

Legend
- Major Freeway
- Candidate Site for Field Recon
- R2-G Subwatershed Boundary

R2-G Candidate Sites for Field Reconnaissance

NAD_1983_StatePlane_California_V_FIPS_0405_feet
Map produced 07-05-2013
What’s missing?

Given climate change projections for Albuquerque, what other factors do you need to add to this GIS screening?
How do you select good sites for green infrastructure?

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Who needs to be involved?
**SUSTAIN** – System for Urban Stormwater Treatment and Analysis INtegration

*EPA Sponsored GIS-based framework to support decision-making*

Diagram showing the components of the SUSTAIN system, including Framework Manager (ArcGIS), Watershed Module, BMP Module, BMP Siting Tool, Optimization, Cost Module, and Interpretation (Post Processor).
Place BMPs and Network Linkages
Identify Assessment Points & Optimization
Objectives/Constraints
Results
Cost-Effectiveness

<table>
<thead>
<tr>
<th>Solution</th>
<th>Cost ($ million)</th>
<th>Annual Volume Reduction (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$7.2</td>
<td>55.4%</td>
</tr>
<tr>
<td>2</td>
<td>$10.6</td>
<td>66.0%</td>
</tr>
<tr>
<td>3</td>
<td>$15.7</td>
<td>72.6%</td>
</tr>
<tr>
<td>4</td>
<td>$32.0</td>
<td>81.9%</td>
</tr>
</tbody>
</table>

Cost ($ Million)
Benefits of Optimization Approach

- Provides recommended location, size, order and phasing of structural BMPs
- Greater long-term cost savings
- Higher assurance investments in BMPs will meet objectives
- Realistic assessment of what’s achievable
- Supports adaptive approach
How do you select good sites for green infrastructure?

Methods for GI BMP Site Selection
- GIS Screening
- Modeling Optimization

Who needs to be involved?
Who needs to be part of the discussions and decisions on site selection?

- Stormwater Engineering
- Planning Dept.
  - Long Range Planning
  - Development Review
- Water Utility
- Transportation
  - Planning
  - Engineering
- Parks and Recreation
- City Arborist
- School System
- State DOT
- Regional Land Trust
- Homeowners’ Associations
- Who else?
Questions and Discussion