Six blind travelers encounter an elephant...

It is a snake!

It is a curtain!

It is a wall!

It is a tree!

It is a rope!

It is a rope!

It is a spear!
This is our elephant...
<table>
<thead>
<tr>
<th>Siting + Design-related Questions Raised by Residents in Ballard (and SW Seattle/Barton Basin*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where will I park? How will the project affect parking and getting out of my car?</td>
</tr>
<tr>
<td>Are these safe, especially for children?</td>
</tr>
<tr>
<td>What about mosquitoes?</td>
</tr>
<tr>
<td>How will the project affect the value of my home?</td>
</tr>
<tr>
<td>Where will I put my trash and recycling bins?</td>
</tr>
<tr>
<td>What will these really look like?</td>
</tr>
<tr>
<td>Won’t pollutants build up in the raingardens?</td>
</tr>
<tr>
<td>Will I be able to walk across the raingarden? How will I get from my car to my house?</td>
</tr>
<tr>
<td>Why are we doing this? What are the alternatives?</td>
</tr>
<tr>
<td>What will the net affect of this project be on the overall CSO problem?</td>
</tr>
<tr>
<td>What aspect of this do we really have a say in?</td>
</tr>
<tr>
<td>Will there be standing water and mud?</td>
</tr>
<tr>
<td>How/why did you choose my street?</td>
</tr>
<tr>
<td>What will happen to our street trees?</td>
</tr>
<tr>
<td>Will you provide extra lighting if we have to walk further from our car to our home?*</td>
</tr>
<tr>
<td>Can the road be realigned to accommodate the raingarden and maintain parking?*</td>
</tr>
<tr>
<td>How do you know the raingardens will not cause wet basements?*</td>
</tr>
</tbody>
</table>

**Social Function Themes**

- Convenience
- Comfort
- Property Value
- Aesthetics/Beauty
- Compelling Purpose
- Safety
- Collaboration/Voice

---

What is “social function”?
NOT IN MY BACKYARD!
“NIMBYism”

Stewardship

Two sides of the same coin?
Our experience of place is part of our sense of self, of community, and a connectedness to everyday life.

CONCLUSIONS FROM PLACE ATTACHMENT RESEARCH:

• Place attachment and meaning are person-place bonds that evolve through emotion and cognition, connecting us deeply to a specific place and/or features of a place... especially our home.

• Frequent use of a green space and its proximity to one’s home can increase our attachment to the place.

• The attachment and meaning of a green place can encourage individuals to actively steward it and engage in behaviors to protect that place from threats, real or perceived.

• Enduring place attachments/meaning are often developed at an early age.

• Neighborhoods with green common areas can encourage social bonds between neighbors.

• Residents who are more attached to their community have higher levels of social cohesion and social agency, less fear of crime, and are typically more engaged in neighborhood revitalization efforts.

http://depts.washington.edu/hhwb/Thm_Place.html
Rain Garden-Scale

- Cell Structure Design Considerations
  - Ponding depth + ponding shape
  - Cell depth
  - Foot crossing/access
  - Auto egress
  - Pedestrian safety + comfort
  - Aesthetics of side slopes + vertical walls

- Planting Design Considerations
  - Visual impact at installation
  - Winter interest/beauty
  - Summer interest
  - Maintenance requirements (including irrigation)

Block-Scale

- Block Template Design Considerations
  - Parking impact (overall + house-specific)
  - Object markers impact
  - Look/feel of bump outs (if used)
  - Future ROW uses for bike infrastructure
  - Construction impact + overall level of intervention
  - Solid waste pick-up (staging area)

- Planting Design Considerations
  - Streetscape continuity + unique character
  - Canopy recovery goals
  - Seasonal interest/beauty
  - Maintenance requirements (including irrigation)

Basin-Scale

- Basin-scale Siting Considerations
  - Bike Master Plan
  - Pedestrian Master Plan
  - Safe Routes to School
  - Parks + open space gaps
  - Neighborhood destinations + walking routes
  - Traffic volumes (current + projected)
  - ROW + planting strip widths
  - Street slope
  - Implications for size/location of gray solutions
  - Alley access + location

- Existing parking congestion + frontage patterns
No one holds the whole truth

Social function can & must be designed for intentionally (... and technical function is a prerequisite)

NIMBYism and stewardship may share a common heart: love of place

Consider social function at multiple scales

NEXT UP:

Budget time for authentic engagement

Communicate as clearly as possible
Road Map to Successful Engagement
Going beyond the “public meeting” model
Step 1. Identify and engage key internal stakeholders

- Upper Management
- Seattle Department of Transportation
- Elected Officials
- Customer Service
- Parks and Community Services Dept.
- Operations and Maintenance

ROADSIDE RAINGARDENS
Step 2. Identify external stakeholders

- Neighborhood Associations
- Early Adopters
- Business Roundtable
- Retail and community centers
- Project Opponents
- General public
- Community organizations
- Seattle Department of Transportation
- Parks and Community Services Dept.
- Upper Management
- Customer Service
- Elected Officials
- Operations and Maintenance
- Schools
- Faith-based organizations
- Customer Service
- Upper Management
- Customer Service
- Elected Officials
- Operations and Maintenance
- Schools
- Neighborhood Associations
Step 3. Engage external stakeholders

- SCHOOLS + FAITH-BASED ORGANIZATIONS
- BUSINESS COUNCILS + COMMUNITY COUNCILS + COMMUNITY GROUPS
- LOCAL MEDIA
- CITYWIDE NGOs + COMMUNITY GROUPS
- Adjacent Property Owners
- Nearby Neighbors/Businesses
- Surrounding Neighbors/Businesses
Levels of Involvement - tiered approach

• **High level**
  PAIs & APOs

• **Medium level**
  Residents/property owners in Urban Watersheds

• **Limited level**
  Ratepayers
Step 4. Develop clear, consistent messaging

“Informed Consent Guiding Principles”

- Establish that there is a serious problem that has to be addressed.

- Your agency (i.e. SPU) is the right agency to address it. Given our mission, it would be irresponsible if we didn’t address the problem.

- The approach we are using is reasonable, sensible, responsible way to solve the problem. Given our mission, it would be irresponsible if we didn’t address the problem.

- We are listening. We do care.
Informed Consent:
The grudging willingness of opponents to “go along” with a course of action that they actually are opposed to
Hierarchy of Values

Object-Related Values

Process-Related Values: Fairness

Meta-Values: Rights, Freedoms, Liberties

Meta-Meta-Values: Limitations of Rights, Freedoms, Liberties
Step 5: Manage Expectations: Who will maintain this?

- **Overall goals**
- **City responsibilities**
- **Homeowner/business responsibilities**

<table>
<thead>
<tr>
<th>Service Category</th>
<th>Service Level A (Excellent Effort)</th>
<th>Service Level B (Good Effort)</th>
<th>Service Level C (Moderate Effort)</th>
<th>Service Level D (Poor Effort)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• No erosion, channelization or scouring</td>
<td>• Some erosion, channelization or scouring</td>
<td>• The presence of long-term ponding (&gt; 72 hours)</td>
<td>scouring</td>
</tr>
<tr>
<td></td>
<td>• Water drains within 24 hours</td>
<td>• Most water drains within 24 hours, minimal long-term ponding</td>
<td>• Many bare spots</td>
<td>The presence of long-term ponding (&gt; 72 hours)</td>
</tr>
<tr>
<td></td>
<td>• Minimal bare spots</td>
<td>• A few bare spots</td>
<td>• Significant build up of sediment or debris</td>
<td>Many bare spots or noxious weed/grass</td>
</tr>
<tr>
<td></td>
<td>• Acceptable level of sediment or debris accumulation</td>
<td>• Acceptable level of sediment or debris accumulation</td>
<td></td>
<td>Significant build up of sediment or debris</td>
</tr>
</tbody>
</table>

**Green Stormwater Operations and Maintenance Manual**

Seattle Public Utilities

August 2016
Living Systems Change Over Time

30th Ave NW – December 2010

30th Ave NW – November 2011

30th Ave NW – June 2012
How can I be involved?
Roadside raingarden projects are evolving living systems that present an opportunity for long-term partnerships between residents and municipalities. So stay in touch!

TACTICS
- Provide maintenance tips + info on who to call with questions
- Remind residents of maintenance City will be doing
- Celebrate successes
  - How much stormwater runoff has been reduced?
  - Reductions in area flooding?
Successful

Roadside Raingarden Program=

Responsive to concerns and recommendations of stakeholders without compromising the mission of your Roadside Raingarden program
GSI Accomplishments

- SEA Street
  2001

- Pinehurst Green Grid
  2004

- Highpoint Redevelopment
  2005-2009
Ballard Pilot: Project Goals

- Develop design templates for future roadside raingardens in curb & gutter neighborhoods
- Refine construction costs
- Refine performance data
**2009**

March: Began GSI siting and design

July: Likely to receive ARRA (Stimulus) funds

August: Formally awarded ARRA loan

Sept: 90% plans submitted

Nov: Geotechnical report finalized

**2010**

June: Construction began
What could go wrong?
<table>
<thead>
<tr>
<th>Learned</th>
<th>Looking Forward</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TAKE YOUR TIME</strong></td>
<td>Allow sufficient time for project scoping, meaningful community engagement, site selection, design, construction, and monitoring.</td>
</tr>
<tr>
<td></td>
<td>Build in time to respond to community input and technical analysis.</td>
</tr>
<tr>
<td><strong>DO YOUR HOMEWORK</strong></td>
<td>Conduct wet-weather soil testing and groundwater monitoring a full year in advance and validate test results with outside geotechnical experts.</td>
</tr>
<tr>
<td></td>
<td>Conduct additional tests to assess soil conditions and measure how well water absorbs in various places.</td>
</tr>
<tr>
<td><strong>LISTEN TO THE COMMUNITY</strong></td>
<td>Gather information from residents about what they know about soil conditions, drainage, and groundwater in their neighborhood.</td>
</tr>
<tr>
<td></td>
<td>Engage residents early in siting and design discussions.</td>
</tr>
<tr>
<td></td>
<td>Identify locations and designs that provide opportunities to improve community safety and livability.</td>
</tr>
</tbody>
</table>
GSI Facility Siting Activities

Start: Understanding Problem & Potential Solutions (Approx. 2 Months)

- Project Specifier/Project Manager:
  - Farms Team, rural
  - Biological Engineer
  - Public Engagement Lead

- Technical Project Manager/Technical Team:
  - Identify Possible Sites
  - Initial Concept Design

- Public Engagement Team:
  - Identify Target Audience Groups
  - Community Meetings

- SDOT Coordination:
  - Initial Concept Design
  - Identify Potential Alternatives

Potential Siting and Design (Approximately 6½ Months)

- Infrastructure: Conceptual Design
- Site Specific: Feasibility
- Initial Concept Design

- Site Specific: Feasibility
  - Analysis
  - Feasibility Assumptions

- Initial Concept Design

- Site Specific: Feasibility
  - Initial Concept Design

- Conceptual Design

Recommended Siting and Design (Approximately 7½ Months)

- Final Siting (Approx. 3 Months)

- Final Siting
  - Final Design
  - Final Plan

Transition to Design

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What policy considerations need to be clarified in advance?

What are the technical site conditions that are critical to a successful design?

What are the social/community site conditions that are critical to a successful design?
Political support?

Risk tolerances?
  - Signs
  - Allowable swale depth and ponding depth
  - Level of choice for residents
  - Parking loss
  - Safety
Do Your Homework: Technical

All Potentially Feasible GSI in the Right-of-Way

LEGEND
Green Stormwater
- Phase 1 blocks
- GSI potentially feasible
- CSO basin boundary (150-161 + 152)
- Glacial outwash soils
Planting Strip Widths

- Narrow: less than 8'
- Medium: 8'-10.5'
- Wider: 11' or greater
- Phase I blocks
- CSO basin boundary
# Do Your Homework: Technical

<table>
<thead>
<tr>
<th>Site</th>
<th>24th</th>
<th>25th</th>
<th>26th</th>
<th>27th</th>
<th>28th</th>
<th>Soil Initial Potential</th>
<th>Mature Trees ( Y )</th>
<th>Traffic Circle Lower Proper Adjacent</th>
<th>Parking Cones Steepness</th>
<th>Exist or stop biking</th>
<th>Walk</th>
<th>Traffic Calming ( Y )</th>
<th>Initial</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>37th</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>H</td>
<td></td>
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<td>L</td>
<td>too busy</td>
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<td></td>
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<tr>
<td>38th</td>
<td>N</td>
<td>N</td>
<td>N</td>
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<td>Y</td>
<td>N</td>
<td>N</td>
<td></td>
<td>N</td>
<td>Y</td>
<td>M</td>
<td>mature trees on south adjacent to Loyal Heights elementary playground</td>
</tr>
<tr>
<td>39th</td>
<td>N</td>
<td>N</td>
<td>N</td>
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<td>Instead</td>
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<td>40th</td>
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<td>N</td>
<td>N</td>
<td></td>
<td>N</td>
<td>Y</td>
<td>M</td>
<td>cherry trees along north side</td>
</tr>
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<td>41st</td>
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<td>N</td>
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<td>N</td>
<td>Y</td>
<td>M</td>
<td>mature cherry and plums along north side, young cherry trees along south side</td>
</tr>
<tr>
<td>42nd</td>
<td>N</td>
<td>N</td>
<td>N</td>
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<td>mature trees N side</td>
</tr>
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<td>43rd</td>
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<td>N</td>
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<td>mature trees N side</td>
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<td>44th</td>
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<td>N</td>
<td>N</td>
<td>N</td>
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<td>M</td>
<td>mature trees N side, probably cutting for curb inlet won't work, I.e. SDOT wants to replace with standard one</td>
</tr>
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<td>45th</td>
<td>N</td>
<td>N</td>
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<td>N</td>
<td>M</td>
<td>thrown to south, rolled C&amp;G, mature trees on N side</td>
</tr>
<tr>
<td>46th</td>
<td>N</td>
<td>N</td>
<td>N</td>
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<td>M</td>
<td>thrown to south, rolled C&amp;G</td>
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<td>47th</td>
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<td>thrown to south, rolled C&amp;G</td>
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<td>rolled C&amp;G</td>
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<td>established plantings/trees</td>
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Seattle Public Utilities

Cascadia Consulting Group
Initial Field Summary
Technical Feasibility + Social Feasibility

- **High favorability**
- **Medium favorability**
- **Low favorability**
- **Phase [pilot] blocks**
- **Lower Parking Congestion or Alley Parking Access**
- **C6 60-foot boundary**
- **Glacial outwash soils**
- **revised boundary (DRAFT)**

**Rolling Variables Considered**

**Technical:**
- soils/infiltration potential
- seeps [presence]
- longitudinal slope
- mature trees, downslope end
- traffic circle, downslope end
- adjacent property lower than ROW planning strip width

**Social:**
- mature plantings/landscaping
growth to a key parking
- parking congestion
- cross slope

**Inter-agency (SDOT):**
- existing or proposed biking route
- walking route/destination
- traffic calming opportunity

---

Do Your Homework: Technical
Potential Blocks For Additional Soil Testing

- High feasibility
- Medium feasibility
- CSO basin boundary
- Recessional or advance outwash soils

Variables Considered So Far:
- Likelihood of outwash soils
- Whether there is high groundwater
- Street slope
- Mature trees
- Mature plantings
- Traffic circles
- Homes lower than street level
- Planting strip width
- Access to alley parking
- On-street parking
- Slope across the planting strip
- Existing or proposed biking route
- Walking route/destination
- Traffic-calming opportunity
**Do Your Homework: Social**

**Additional Opportunities for Complete Streets Integration**

**Near-term Transit Improvements**

Improved bike-transit integration: Bike + ride facility at major Rapid Ride stations might include bike lockers or dedicated, covered, lit bicycle parking and could also incorporate attractive rain garden demonstrations and/or permeable paving.

**Family-Friendly Biking**

Improved major connection routes to Burke Gilman Trail. Major entry points to trail could also incorporate: CSI demonstrations such as attractive, green biotreatment swales to cleanse stormwater (lower basin is a separated system).

Improved major arterial crossings at NW 85th St., NW 80th St., NW 65th St., 15th Ave. NW, and 24th Ave. NW could include curb bulb extensions with attractive CSI treatments.

**Pedestrian Safety + Amenities**

Safe Routes to School programs at Salmon Bay Elementary, Loyal Heights Elementary and Ballard HS could include CSI demonstration sites at or adjacent to each learning institution and/or along walking routes. Pedestrian counts could help identify most heavily-traveled routes. Similar approach could be taken with neighborhood churches and senior housing facilities.
Do Your Homework: Social
Do Your Homework: Social
Do Your Homework: Social
How did survey inform siting/block selection?

- Groundwater and surface water issues
- Aware of natural springs
- Support // Don’t support Natural Drainage Projects
- Neighborhood improvements desired
Goal is to reach Informed Consent

**TACTICS**

- Walk blocks
- Look for block leaders
- Keep website updated
- Open House community meetings
- Be transparent
- Listen to concerns – don’t dismiss them
Goal: Talk to every resident on each block

- Identify block leads
- People may be suspicious at first
- People often hold misconceptions
**Total Project Cost = $2.5 million**

<table>
<thead>
<tr>
<th>Project Phase</th>
<th>% of Project Costs</th>
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<tr>
<td>Options Analysis</td>
<td>34%</td>
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<td>Design</td>
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<td>4%</td>
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</table>
Ballard Pilot Take-Home Lessons

- Take your time
- Do your homework: Technical variables impact social function
- Listen to the community (ask!)
Questions?

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