What Do We Mean By Sustainable Development?

- Conventional Development - *mitigate impact*
- Low Impact Development - *minimize impacts*
- Sustainable Development - *zero impact*
- Regenerative Development - *positive impact*
Why Sustainability Frameworks?

Provides direction and an organizational structure.

- Plan for multiple mandates
- Pro-active
- Enhance compliance
- Potential cost savings
- Public demand
- Implementation strategy
- Marketability
Developing a Framework

• Build on existing initiatives, policies and projects

• Big picture – connect the dots

• Vision and creativity to see solutions to poorly defined problems

• Scan for systems and scales
Alignment for Sustainability

Vision

Goal
Goal
Goal
Goal
Goal
Goal

Principle
Principle
Principle

Metrics
Metrics
Metrics
Metrics
Metrics
Metrics
Metrics

DAVID EVANS AND ASSOCIATES
## Building a Framework

<table>
<thead>
<tr>
<th>Green Infrastructure</th>
<th>Protect and conserve ecological systems</th>
<th>Optimize infrastructure for sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protect, enhance, and create habitat areas</strong></td>
<td>Preserve trees</td>
<td>Conserve water</td>
</tr>
<tr>
<td>Develop a management plan for greenspaces and corridors</td>
<td></td>
<td>Encourage low-water use landscapes</td>
</tr>
<tr>
<td>Inventory and access ecosystems/species on site, noting key habitat/species for protection</td>
<td>Re-use rainwater and graywater as appropriate</td>
<td>Promote the use of energy efficient appliances and technologies (e.g. Energy Star ratings)</td>
</tr>
<tr>
<td><strong>Capture opportunities to improve ecological systems</strong></td>
<td>Use non-chemical/poison control measures for weeds and pests</td>
<td><strong>Minimize energy use</strong></td>
</tr>
<tr>
<td>Increase street tree and tree canopy coverage</td>
<td></td>
<td>Promote the use of energy efficient appliances and technologies (e.g. Energy Star ratings)</td>
</tr>
<tr>
<td>Remove invasive plants from the Island</td>
<td><strong>Minimize light pollution</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Enhance the Island’s riparian edges for aquatic habitat</strong></td>
<td>Inventory and assess aquatic habitat</td>
<td><strong>Manage stormwater close to the source</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Develop an island-wide stormwater strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Use the SWMM stormwater hierarchy</strong></td>
</tr>
</tbody>
</table>
sustainability
A FRAMEWORK FOR PLANNING

Getting Around

Island Community

Green Infrastructure
Focus Areas for Transit

Transit-Oriented Development:
Transportation systems that promote infill development and smart land use practices

Green Building:
Using sustainable materials for project and station design

Environmental Management Systems:
Green construction practices

Energy and Climate:
Conservation, renewables and emissions
Interstate Max Section 10C-NE: Mass Transit Infrastructure for Portland

Client:  
Trimet, Portland, Oregon

DEA Role:  
Prime Design Engineer, Section 10c (Expo) Design-Build

Project Team:  
F.E Ward, Otak, Parsons Brinkerhoff, ZGF, Mayer/Reed

Year Completed:  
2004

ACEC Oregon, 2005 Project of the Year Award
Interstate Max Extension
Interstate Max Extension

Sustainable Design Features

- Transit-oriented development
- On-site material re-use
- Recycled materials
- Contextual site design
- Public art
Interstate Max Extension

On-site material reuse: soil, pavement, track
Interstate Max Extension

Recycled Materials:
Recycled plastic bollards and chains
Interstate Max Extension

Over 6,000 railroad ties recycled from plastic gas tanks
Interstate Max Extension

Triple Bottom Line Results

• Energy savings through reduction in vehicle trips: 10 stations, 2 park-and-ride lots
• Reuse/recycling of onsite material
• Economic stimulus and community revitalization, with no demo of businesses or residences
• Over $3 million in savings due to sustainable design decisions
Flavel Transit Station Concept

- Re-creation of Lowland and Upland Habitats
- Site Redevelopment
- Floodplain Relief for Johnson Creek
- Stormwater Control and Infiltration

Regional Context: Riparian Floodplain
Habitat Conservation Area Overlay
Site Concept

Habitat as Infrastructure
Restoration: Residence, Stopover, Refugia
Off-Channel Refugia, Floodplain Relief