



puget sound action team

***The Puget Sound Action Team's
Multi-year Effort to Bring LID to
Puget Sound***

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Presentation Overview

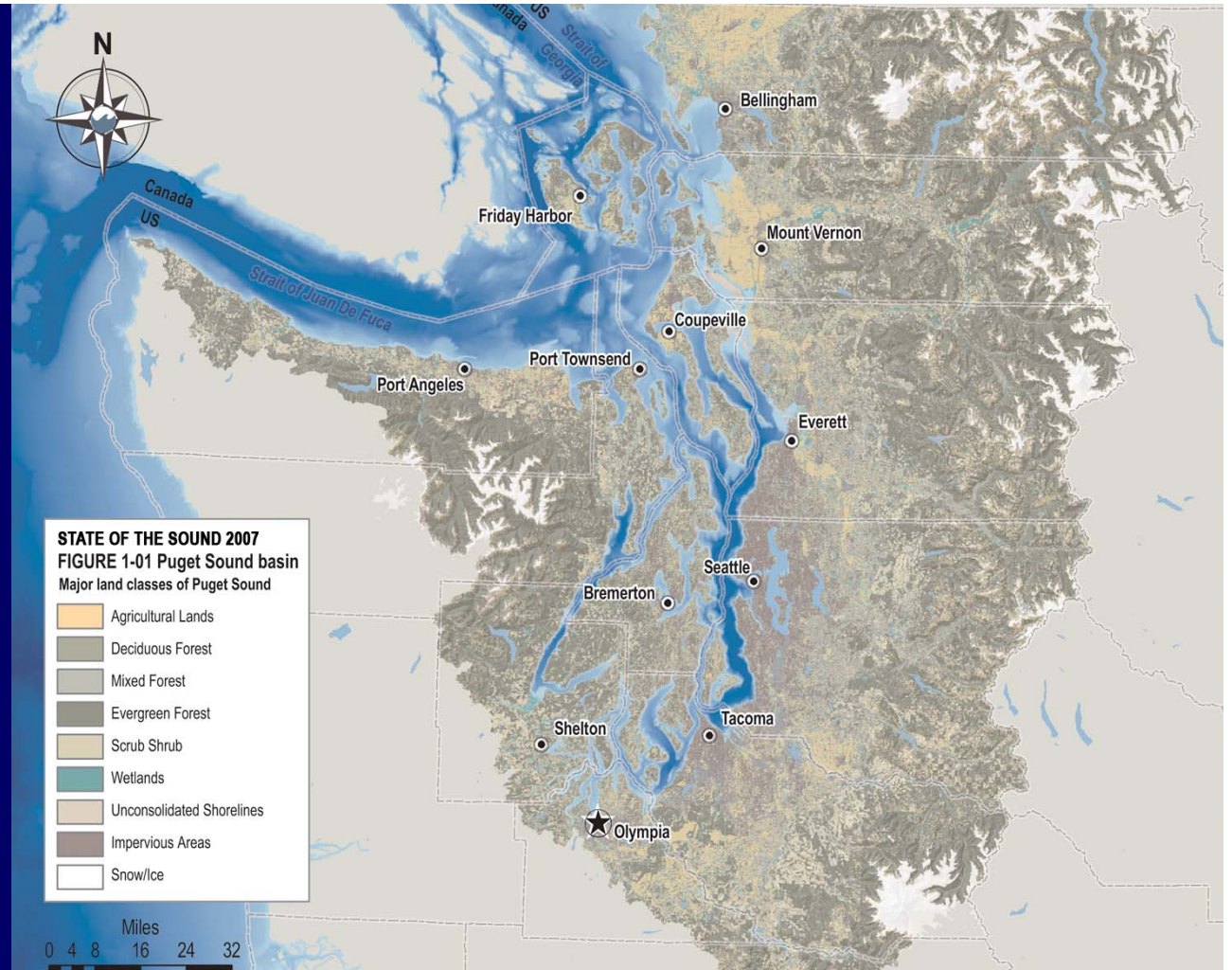
- **Since 2001, LID has taken off in the Puget Sound region. The Action Team, with regional partners, has played key role in this.**
- **The 2005-06 LID Local Regulatory Assistance Program is unique in its size and scope.**
- **Despite progress, LID is still not standard operating procedure in Puget Sound region. What are the most pressing needs to continue the paradigm shift?**

**Puget Sound:
110 cities, 12
counties**

**Currently 4
million residents.
Another 1.4
million projected
by 2025**

**2000-06: 315,000
more people in
region**

**Fantastic array of freshwater and marine species
showing significant decline. See *State of the Sound 2007***



Some of the unique considerations of Puget Sound Region

Plus side:

- **Some history: Focus on the Sound started in '80s**
- **Large, stable NEP office with state standing**
- **Threats to icon species increases attention**

Challenges:

- **Strong flow control standard makes it difficult to just use LID practices**
- **Many areas tough to infiltrate (till soils)**
- **Majority of rainfall October – April**
- **Many residents don't appreciate problems**

Action Team's Strategy to Promote LID in Region (2000 – Present)

- 1. Form partnerships**
- 2. Add LID to state, regional policy**
- 3. Increase basic awareness & knowledge**
- 4. Provide tools and guidance, and seek to answer pressing questions**
- 5. Target identified regulatory barriers**

1. Form Partnerships

Early implementers & interested parties sought out:

- **University of Washington & Washington State University Extension**
- **Local governments**
- **Private engineering firms**
- **Ecology, other state agencies**
- **Local homebuilders associations**
- **EPA Region 10**

2. LID in State & Regional Policy 2000-05

- **2000 Puget Sound management plan**
- **Puget Sound biennial recovery plans:
2001-present**
- **State stormwater manual: LID practices
and flow control “credits”**
- **Highway runoff manual**
- **Federal services & state salmon recovery
planning**

3. Increase knowledge & awareness

- **2001 regional/national conference**
- **2002 follow up regional workshops**
- **Ongoing, on-call presentations**
- **University of WA & other training classes**
- **Educational & technical brochures, case studies, guidance**

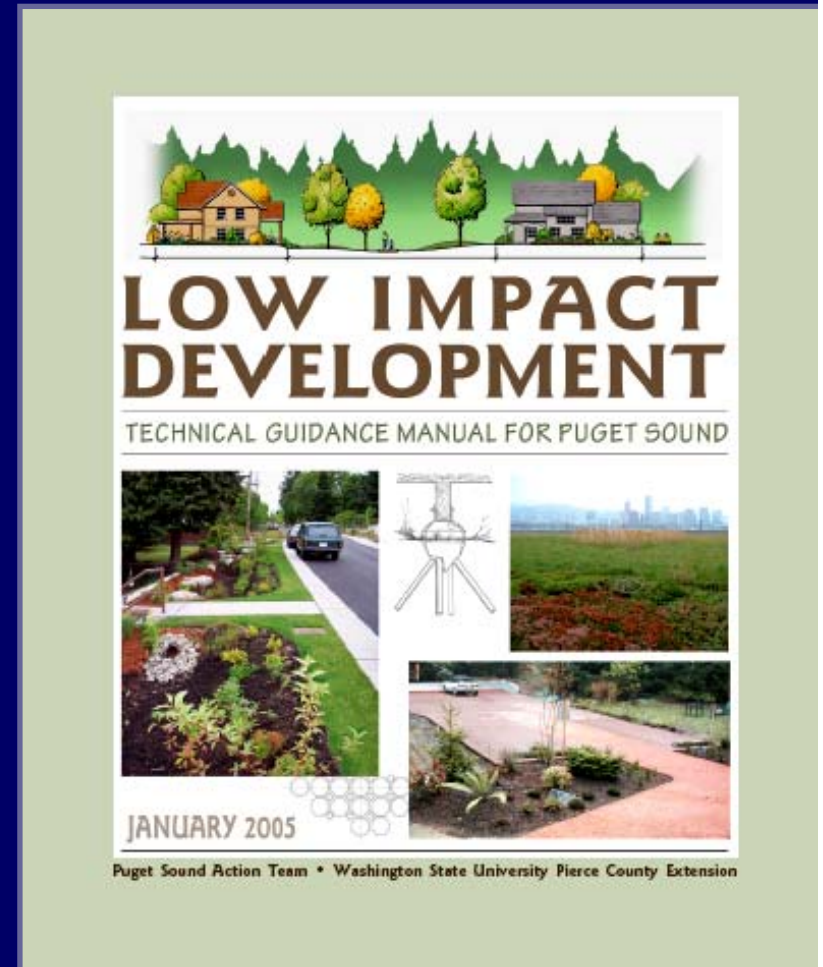
4. Provide Tools & Resources

- Brochures, case studies & technical guidance for lay and technical audiences
- Extensive web site
- Model PPT show
- Monitoring & research



LID Technical Manual

- Provides common understanding of LID
- Partnership project with WSU Extension & State Dept of Ecology
- Tailored to Puget Sound
- Complements Ecology stormwater manual
- Technical specifications & research findings



LID Technical Manual Contents

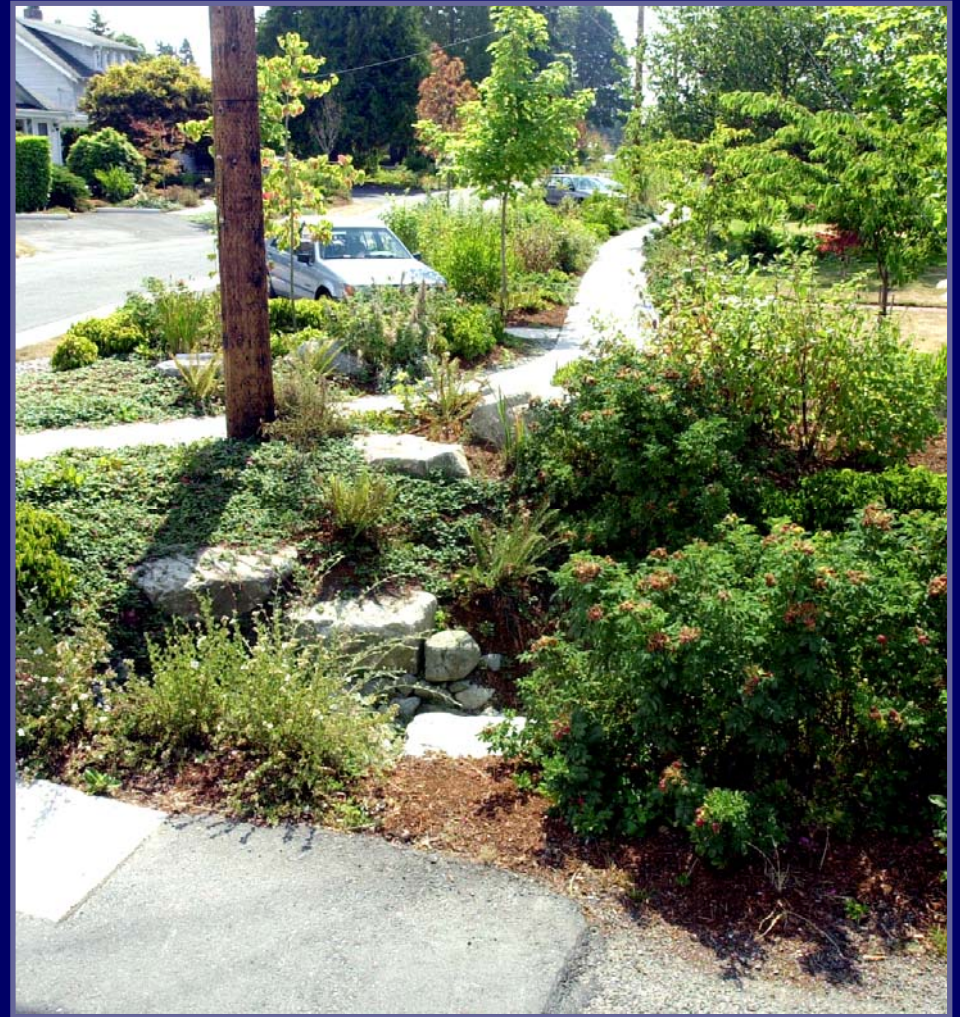
- Site assessment
- Site planning/layout
- Vegetation protection
- Clearing and grading
- Integrated practices
- Flow control credits



Large lot sample design from LID Technical Guidance Manual for Puget Sound, 2005

Detailed information on 6 practices

- **Bioretention**
- **Amended soils**
- **Permeable pavement**
- **Vegetated roofs**
- **Rainwater harvesting**
- **Minimal excavation foundations**



NW Seattle, courtesy of Seattle Public Utilities

Flow control credits in LID guidance manual & state manual

- Users represent LID techniques in state model to reduce detention requirements
- Flow control “credits” for:
 - **Full or partial dispersion**
 - **Bioretention**
 - **Pervious pavement**
 - **Vegetated roofs**
 - **Minimal excavation foundations**
 - **Reverse slope sidewalks**
 - **Rainwater harvest systems**

5. Remove regulatory barriers: LID Local Regulation Assistance

- 2005-06: Action Team led effort to help 19 cities and counties add LID to regulations
- Funding from state (Ecology) and federal (EPA Region 10)
- No local match required, just commitment
- Competitive process. Very strong demand drove expanded assistance

Puget Sound LID Local Regulation Assistance Project

- Process: Face to face meetings, multiple drafts of products, final products delivered in large binder and electronically.
- Products: Revised draft regulations in legislative format, entire new chapters, engineering designs, maintenance needs, cost comparisons, etc.
- Summaries on Action Team website. Possible to order complete recommendations on CD.
- Action Team staff help with adoption process.
- Adoption is happening, but slow process.

Puget Sound LID Local Regulation Assistance Project

- **Local codes reviewed, revised:**
 - Minimum native vegetation protected/restored; maximum limits on impervious surfaces; landscaping; tree protection
 - Subdivision and planned unit developments
 - Public works standards, including roads
 - Parking (residential and commercial)
 - Commercial, especially for drainage, landscaping, parking

Results of Efforts So Far

- Huge increase in use of many techniques.
Bioretention & pervious concrete very popular
- Projects occurring in every part of the Sound
- Promoted by many non-governmental groups
(development, environmental, community)
- LID now found in permits, and local, state, federal
and tribal plans
- Huge increase in state funding next biennium
 - **\$24.5 million in state budget for retrofits, demonstration projects, training, regulatory assistance**



*Bioretention at medical
center, Olympia*

*Photo by Bruce Wulkan,
Puget Sound Action Team*



*Pervious concrete
City of Sultan*

*Photo by Curtis Hinman, WSU
Extension Pierce County*



*Green roof at City
Hall, Seattle*

*Courtesy of Thor Peterson,
City of Seattle*

*Rainwater
harvesting,
San Juan island*



Courtesy Northwest Water Source

*Minimal Excavation
Foundation
Gig Harbor area*



Photo courtesy Rick Gagliano

LID is still not standard operating procedure. Needs:

- Need more projects, with documented costs, performance, longevity & maintenance needs
- Need more training for local staff, developers, builders, contractors, homeowners
- Need greater adoption of state stormwater manual. Flow control standard is incentive.
- Need to refine flow control & treatment credit in state stormwater manual
- Large state budget enhancement will help



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<http://www.psat.wa.gov/Programs/LID.htm>