How Does Development Stress the Ecosystem and What are We Doing About it?

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Ecosystem Stressors

- Population growth and economic development leads to conversion of the natural environment into a human-induced or built environment, leading to:
  - Increased competition for scarce natural resources (e.g., competition for water between development, agriculture and instream flow needs)
  - Conversion of natural soils and vegetation to buildings, infrastructure and commercial resource extraction activities (ag, forestry and mining)
  - Increased stormwater runoff and water quality degradation due to increased impervious surfaces and other activities
  - Loss of environmentally sensitive or critical areas “functions and values” (green infrastructure) of wetlands, floodplains, fish and wildlife habitat, geologically hazardous areas and aquifer recharge areas

Tools to Mitigate the Impacts of Growth and Development

- ***State/Local***
  - *Growth Management Act (GMA)*
  - *Critical Area Regulations*
  - *Shoreline Management Act*
  - *SEPA*
- ***Federal***
  - *Clean Air Act*
  - *Clean Water Act*
  - *Endangered Species Act*
- ***Non-Regulatory/Incentive-Based Tools***
  - *Federal/State Programmatic Grants for Ecological Restoration*
  - *CREP*
  - *PDR/TDR*
  - *Current Use/Open Space Taxation*

We are Growing 6X Faster Today Than We Were 50 Years Ago

Whatcom County Historic Population Growth

1960—average growth 400+ persons/yr.

2010—average growth 2500+ persons/yr.

Whatcom County
Projected 20-Year Population Growth

	2013 UGA Population	Projected 2036 Population	2013-2036 Net Growth
Bellingham	92,660	123,710	31,050
Birch Bay	7,540	12,822	5,282
Blaine	5,171	9,585	4,414
Columbia Valley	3,103	4,448	1,345
Everson	2,665	3,907	1,242
Ferndale	12,758	19,591	6,833
Lynden	12,872	19,275	6,403
Nooksack	1,435	2,425	990
Sumas	1,449	2,323	874
Subtotal	139,696	198,129	***58,433***
Area outside UGAs	66,104	77,321	***11,217***
Total Whatcom County	**205,800**	**275,450**	***69,650***

Growth Management Act (GMA)

- Maintain quality of life
- Balance growth with environmental protection
- Manage growth; not stop it (reduce sprawl and cost of infrastructure)
- Encourage more compact urban growth; less rural growth
- Protect environmentally sensitive or critical areas
- Protect natural resource lands for their long-term commercial significance (ag, forestry and mining)

How are We Doing at Mitigating the Impacts of Growth on the Natural Ecosystem?

- The Puget Sound Partnership (PSP) has adopted 49 “vital signs” for measuring the health of Puget Sound
- *Land Development and Land Cover Vital Sign* indicators measure how well we are directing our region’s ongoing growth to protect our best remaining natural areas and working forests.
- There are four indicators for this Vital Sign:
  1. Forest Loss
  2. Riparian Restoration
  3. Growth in Urban Growth Areas (UGAs), and
  4. Conversion of Ecologically Important Lands.

1. Forest Loss

- The forest loss indicator provides a check on the region's success in maintaining forest cover throughout the Puget Sound Basin.

- This indicator tracks the conversion of forested cover, including coniferous, deciduous, and mixed forest classes, to developed land cover by using four classes of development intensity, based on Landsat satellite imagery with a 30m resolution.

- ***2020 Puget Sound target***
  - The average annual loss of forested land cover to developed land cover in non-federal lands does not exceed 1,000 acres per year, as measured with Landsat-based change detection.

1. Forest Loss

Status

- ***Puget Sound-wide*** (as measured by NOAA's Coastal Change and Analysis Program (CCAP)
  - Non-federal forestlands were lost to development at a rate of 2,176 acres per year for the period 2001 – 2006, the baseline reference year.
  - Between 2006 and 2011 the rate of forest loss decreased by almost half to 1,196 acres per year. The target value of 1000 acres per year was nearly reached during the 2006-2011 period.

- ***Whatcom County*** (as measured by WDFW's High Resolution Change Detection Project)
  - *Between 2006 and 2011 the rate of loss was 2.89 acres per 1,000 acres/year, of which only 0.61 acres per 1,000 acres/year was due to development activities.*

2. Riparian Vegetation Restoration

- The intent of this indicator is to measure the amount of new vegetated cover delivered by restoration projects along riparian corridors.

- ***2020 Puget Sound Target***
  - Restore 268 miles of riparian vegetation or have an equivalent extent of restoration projects under way.

2. Riparian Vegetation Restoration

Status

- ***Puget Sound-wide***—Activities to restore vegetation in riparian areas occurred along an estimated 154 linear miles of streams and rivers since 2009 (just over one-half of the 2020 target).

- ***Whatcom County***—Activities to restore vegetation in riparian areas:
  - *Whatcom Conservation District*—Planted 1.5 million seedlings on 3,390 acres along 241 miles of streams
  - *Nooksack Salmon Enhancement Association*—Since 1991has completed more than 50 miles of riparian restoration

3. Conversion of Ecologically Important Lands

- This indicator measures the proportion of vegetated cover on undeveloped lands identified as both ecologically important and under high pressure from development and that is converted in a given time period to developed cover.

- Because of the coarse scale approach to defining ecologically important lands, this indicator is appropriately used to identify broad regional (not local) trends.

- This indicator's results and designations are not intended for use in local decision-making, permitting, or planning. Instead, this indicator provides a regional measure of the effectiveness of local jurisdictions' efforts to direct growth away from ecologically functional and undeveloped areas.

3. Conversion of Ecologically Important Lands

- ***2020 Puget Sound Target***
  - Basinwide loss of vegetation cover on ecologically important lands under high pressure from development does not exceed 0.15 percent of the total 2011 baseline land area over a five-year period.

- ***Status (Puget Sound-wide)***
  - Estimates of conversion show that this indicator is losing ground.
  - The five-year baseline rate of land cover change across all 12 counties in Puget Sound for the period 2001 – 2006 was 0.28 percent and increased to 0.36 percent over the period 2006-2011.
  - Achieving the 2020 target will require reducing the conversion of ecologically important lands to development to less than half the rate of conversion observed in 2006 – 2011.

4. Growth in Urban Growth Areas

- This indicator tracks the proportion of population growth occurring within Urban Growth Areas (UGAs).
- County comprehensive plans designate UGAs for high-density urbanization with the intent to guide as much growth as possible to these areas to support regional and local economies, meet residence needs for a growing population, and be concurrent with infrastructure availability.
- This indicator therefore provides a measure of the effectiveness of land use policies and programs.
- It also measures the effectiveness of development practices in directing new development activities within existing urbanized areas and reducing land development pressures on rural and resource lands outside of urbanized areas.

4. Growth in Urban Growth Areas

- ***2020 Puget Sound-wide Target***
  - The proportion of basinwide growth occurring within UGAs is at least 86.5 percent (equivalent to all counties exceeding their population growth goals by 3%), with all counties showing an increase over their 2000−2010 percentage.

Status

- ***Puget Sound-wide***
  - 83 percent of new population growth from 2000 to 2010 occurred within urban growth areas.

- ***Whatcom County***
  - 78 percent of new population growth from 2000-2010 within UGAs
  - 84 percent of next 20 year projected growth (2016-2036) allocated to UGAs in the 2016 Comprehensive Plan Update

How Are We Trying to Reduce Ecosystem Stressors?

- ✓Critical Areas Ordinance Update (almost done)
  - ✓Public Education/Outreach to Property Owners on CAO requirements (scheduled for 2018)
- ✓New Stormwater Regulations
  - ✓Illicit Discharge Detection & Elimination Program (2010)
  - ✓Low Impact Development (2016), including tree retention standards
  - ✓Adoption of Department of Ecology Stormwater Manual (2016)
  - ✓Impervious Surface Standards (2017)
- ✓Revised On-Site Septic System Monitoring Program (2017)
- ✓New 2017 Ecosystem Condition Report prepared by Wildlife Advisory Committee recommends enhanced critical area monitoring and landscape-based approach to conservation (e.g., green infrastructure)
- ✓Studied Natural Resource Marketplace approach to watershed protection (2014-2015)

How Are We Trying to Reduce Ecosystem Stressors?

- Climate Change & Sustainability Strategy (scheduled for 2018)
- Pollution Identification and Correction (PIC) Program (ongoing)
- Purchase of Development Rights (PDR) and Open Space (O/S) Programs (ongoing)
- Reviewing Transfer of Development Rights (TDR) Program (ongoing)
- Watershed Management (ongoing)
  - Groundwater Model
  - Exploring Water Supply and Instream Flow Improvement Strategies
  - Exploring Groundwater Mitigation Strategies
- Downzoned almost 10,000 acres of rural land, reducing potential number of lots by 3,000 (2011-2013)

Questions?