Puget Sound Mapping Project
Project Description

November 2017
Project Overview

In partnership with EPA National Estuary Program, Puget Sound Partnership Program, Washington State Department of Ecology
Project Overview - Project Objectives

Produce integrated maps of growth around Puget Sound by tracking zoned (planned) growth vs. actual development

- 12 counties
- 113 cities within the identified counties

Show zoning and land use patterns (2012)

Integrate data on new housing development (2001-2017)

- OFM small area population estimates
  (by Census block groups)
Normalized zoning and mapping categories across 12 counties, including:

- 15 Master Zoning Categories
- 32 “Nested” Sub Categories

New housing units from 2000-2017

Limits:
- Does not differentiate between detached homes and apartments or mobile homes
- Dots do not represent exact locations, but are general approximations of new development locations
Project Overview - Project Objectives

Show large scale growth patterns within

- Urban growth areas v. rural areas
- Incorporated v. unincorporated areas
- Land use categories
- New housing starts/units from 2000-2017
Annual population increase has tripled
  ▪ 29,203 new residents from 2010-2011
  ▪ 99,540 new residents from 2015-2016
Percentage of growth by county is staying about the same
  ▪ 50% in King County
  ▪ 13% outside of King, Pierce, Snohomish, Kitsap & Thurston
Percentage of growth in King County located in Seattle is increasing
  ▪ 40% between 2010 and 2011
  ▪ 57% between 2015 and 2016
Project Overview - Population Growth, 2011-2016
Puget Sound Mapping Applications
Applications - Project Applications

Integration with other data sets and measures
- Watershed characterization,
- High resolution change detection,
- Ecologically important areas, and
- Puget Sound Nearshore Ecosystem Restoration Project (PSNERP).

Provide tools for local planning
- Help visualize and understand existing conditions and trends
- Show areas with significant development
- Prioritize implementation of growth measures and restoration
  - Septic replacement/sewer extensions
  - Adjusting zoning standards
  - Habitat/open space conservation
Applications - Supplemental Uses

Provide tool for evaluating resource loss

- Depict agricultural and forest areas at risk
- Environmentally sensitive/critical areas
- Open space and habitat
- Depict growth and land uses within 200 feet of streams
Applications - Project Examples

2012 Zoning for Everett, Marysville & Lake Stevens
2012 Zoning for Everett, Marysville & Lake Stevens (without urban growth areas)
2012 Zoning for Everett, Marysville, & Lake Stevens: with urban growth areas
2012 Zoning for Everett, Marysville & Lake Stevens: with urban growth areas and growth patterns
King County Case Study
Multi-Criteria Location Selection
Case Study Description

Finding sites for new apartment projects

• Close to
  • Transit Routes
  • Parks
  • Grocery Stores
  • Elementary Schools

• Have Multi-Family Or Mixed Use Zoning
Potential Applications for the Future
Vision

- 2017 zoning update (and every 5 years)
- Expand to statewide
- Create new data sets
  - urban areas on septic systems
  - growth within floodplains
- Employment layer
- Assessor’s record land use codes
- Growth targets as adopted by local plans
Overcoming Technical Challenges
Technical Challenges

- File size problems – “Godzilla” incidents, especially for online hosting
- Convert comprehensive street line network into polygons
- Integration difficulties
  - Data overlaps, gaps, and mischaracterizations
  - Data errors created by geoprocessing (i.e., self-intersecting polygons)
  - Inconsistencies in reference boundaries and water features
Technical Learnings

File size problems

- To fix “Godzilla” incidents, first, measure the number of vertices in your layer – you need less than 2 million per layer. If you have more than 2 million, then break-down the map into pieces or sub-areas.
- To overcome online hosting issues create tiles when publishing.

Converting comprehensive street line network into polygons

- The Washington State Department of Transportation provides integrated street network layers, which can be converted from lines into polygons using the “Buffer” tool with a 30-foot off-set (this assumes a 60-foot Rights-of-Way).
Integration difficulties

- To fix data overlaps use the boundaries from the Washington State Department of Ecology map for cities and urban growth areas to create uniformity.
- Fill data gaps with current information from the appropriate local assessor’s records.
- To fix mischaracterizations begin by having more than one person characterize and look for areas where discrepancies in the categorization exist, then re-evaluate according to zoning code standards.
- Use the “Repair Geometry” tool after large geoprocessing tasks to prevent data errors.
- Consult data.wa.gov for the most current commonly used layers to fix inconsistencies in reference boundaries and water features.
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