LA 494/594 Landscape Planning and Design Studio
Department of Landscape Architecture / University of Oregon
Johnson/Ribe/Mhuireach / Fall 2013

Problems 2 and 3 Supplement

Development of Envision Policy Set and Accompanying Scenario Parameters

Step 1: Draft written scenario narratives that describe your planning teams assumptions and goals for the two development scenarios, as well as the contrasts you intend to explore through them. This will help guide initial scenario and policy set development in subsequent steps and provide a touchstone for further refinements of the scenario's and their descriptions so that they are mutually consistent.

Step 2: Modify the Eugene.envx and Policies.xml file as described below to implement your two scenarios and perform test runs to refine them.

Simulating alternative policy sets in Envision

1) Scenarios are "what if" stories about the future.

Your planning team should develop two scenarios based on the assumptions and issues described in this assignment. You are free to frame your scenarios in a variety of ways but should navigate critically among the following principles – which suggest several potentially opposing forces. Your team should be prepared to explain and defend your choices:

1) *Plausibility*. Scenarios that explore plausible alternatives may be more useful and compelling than scenarios that describe utopian ideals that are extremely unlikely to be realized. Along these lines, Nancy Grimm of the National Climate Assessment has stated that scenarios should be "legitimate, credible and salient".
2) *Imagination and Innovation*. Steven Carpenter of the Univ. of Wisconsin advocates that scenarios should "bring to light… imaginable outcomes, unasked questions"
3) *Uncertainty*. Both Grimm and Carpenter stress the importance of bringing to light and characterizing recognized uncertainties.
4) *Contrasts*. Alternative scenarios are intended to investigate contrasting approaches that highlight key choices for the future -- to answer driving questions. Carpenter emphasizes that scenario contrasts should "highlight alternative paths and leverage points".

For instance, you can imagine scenarios that impose total governmental authority over private property rights to produce a "desired" land use pattern, or scenarios where financial incentives are freely provided with little regard for where the money would come, or for the marginal relationship between costs and benefits. Such scenarios may be overly imaginative or idealistic at the expense of plausibility. You can also imagine making a dispersed development scenario so awful with respect to your livability criteria that it will fail every test. Is this what you want? You could argue that the dispersed scenario relies on a complete relaxation of regulation. Or you could argue that people would implement such a scenario to achieve the best possible outcomes.

In Problem 2, you will be defining two scenarios: one based on an assumed continuation of Oregon's current land use planning policies that protect farm and forest land by focusing on compact urban

development, and one that based on changes to state planning policies that would allow more dispersed development, similar to the outcomes that almost came to pass through the passage by Oregon voters of Ballot Measure 37 (2004), but then substantially constrained by Ballot Measure 49 (2007). Measure 37 increased the rights of property owners at the expense of the government's right to protect public interests through environmental and other land use regulations.

The following websites describe and assess the impacts of these measures:
Oregon's Department of Land Conservation and Development:
http://www.oregon.gov/LCD/pages/measure37/legal_information.aspx
A Wikipedia article:
http://en.wikipedia.org/wiki/Oregon_Ballot_Measures_37_%282004%29_and_49_%282007%29
A published legal analysis by Blodgett (2011): http://law.u**oregon**.edu/org/jell/docs/261/Blodgett.pdf
Mapped information and data about Measure 37 claims in relation to other relevant issues:
http://oregonexplorer.info/landuse/Measure37

As described in other course materials, your scenarios should explore approaches to accommodating projected population growth while attempting to support livability as articulated by the different class theme teams.

Stress Tests
Your scenarios will be tested against the uncertainties of climate effects on vegetation succession and wildfire, as well as related environmental stressors. Your goal is to develop policy sets that are robust to these uncertainties, while simultaneously attempting to optimize among sometimes-conflicting livability criteria – very real conditions that characterize most landscape planning processes.

Testing how livability may be affected by land use and management policies
After subjecting your policy sets to the stress tests, your planning team will provide model run output to the livability theme teams, which they in turn will use to assess how well each planning team's policy sets supported each of the livability themes. Results will be tabulated in a class charrette and discussed by the class.

2) What are the levers that planners have on landscape trajectories?

In Envision, our research team has crafted a number of policy and planning dimensions that reflect real-world policy choices and allow the user to explore and test their implementation and outcomes. Your work will focus on two of these:

1) Regulatory land use policies based on zoning. You've already begun to explore how you can simulate policy-level provisions that determine where additional new rural residential housing can or cannot be created. You've made explicit policy decision in your assignment of site attributes that qualify for a zoning change (e.g., current zoning, taxlot size, site physiography, proximity to certain landscape features and avoidance from others); attributes such as the preferred size of units of zoning change (i.e. the size of the expand function), and the relative proportions of different zoning types (i.e., the outcome probabilities). You can continue to refine your choices

2) Publically or privately provided incentives to promote certain types of voluntary actions. Our current modeling system includes 17 voluntary policies that assume financial incentives are provided to landowners to support and encourage the implementation of vegetation treatments designed to reduce

wildfire hazard and/or restore valued native ecosystems (Appendix 1, Table 1). You can craft your policy set(s) through a number of mechanisms. Items A, B, C, and D are modified in the Eugene.envx file and item E in the Policies.xml file.

A) *Which policies are to be used in each scenario.* You can use all of the incentivized policies or a selected subset. More policies available to agents mean more competition among the policies for available funds. Fewer available policies can support more targeted application of spatial and functional alternatives, but with fewer choice and nuances. Further, more policies make it increasingly difficult to actually tease out which policies and feedbacks are driving model outcomes. Realism and complexity incur costs in the modeling world.

B) *Envision allows the user to specify a total annual budget for incentivized policies*. When the budget is used up for that year no further incentivized policy adoption is allowed. Unused funds are not carried over to the next year. Based on our team's research the annual budget has been set at $500,000/year.

C) *The total annual budget is partitioned between incentivized fuels treatments (if) and incentivized restoration (ir) treatments*. There is a budget allocation formula that allows feedbacks from the wildfire safety metric to shift funds toward fuels treatments or toward restoration. The basic premise is that when enough rural residences are threatened by wildfire, public agencies will respond by allocating more funds toward fire hazard reduction. In times when few residences are threatened by wildfire, they will allocate more funds for biodiversity-based restoration. The Excel spreadsheat *Budgetary_Proportional_Allocation_Function.xlsx* allows users to explore how the formula works as well as modifications to the formula. The current Eugene.envx file uses the same formula for the conventional fuels treatment scenarios and the mixed fuels treatment scenarios.

D) Implementation of a rural Service Development Cost (SDC): a one-time charge for each new rural dwelling that is added to the incentivized policy budget. This is included as a scenario variable in the most recent Envision update. As with the total annual budget, scenario choices that anticipate spending more money from public sources or charging development fees must be considered in light of the costs they may impose on public and private sectors. Teams should be prepared to defend their stipulations in light of the benefits achieved thereby.

E) *Policy modifications.* You may use the current policies "off the shelf" or may make modifications to achieve your desired scenario goals and contrasts. Modifications may include the following:
   1) You can modify site attributes to alter which IDUs qualify for each policy. Modifications can be targeted to qualities of the individual IDU, to spatial attributes (e.g. conservation opportunity maps), or to characteristics of the surroundings (e.g. the WithinArea, NextTo and Within operators)
   2) For policies that use to the Expand function to expand policy application to a larger area surrounding the "parent" IDU, you can change the maximum expand area to create larger or smaller treatment blocks.
   3) You can modify adoption rates (i.e., the "outcome probability") to increase or decrease policy adoption relative to other policies and/or to make the scenario as a whole function as intended.
   4) You can modify outcomes to achieve different ends
   5) You can make a variety of other policy modifications if you wish to wade deeper into Envision.