



Oregon

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Oregon LiDAR Consortium Business Plan

The Oregon Department of Geology and Mineral Industries (DOGAMI) has been asked by the Oregon Legislature to collect high quality LiDAR data throughout Oregon. LiDAR data and imagery will help identify geologic hazards, manage forests, farmlands, fish, streams and fires, and help with urban engineering and planning applications. The legislature appropriated \$ 1.5 M from the Oregon Watershed Enhancement Board's research funds to DOGAMI as seed money and directed DOGAMI to find funding partners. Accordingly, we have formed the Oregon LiDAR Consortium (OLC) to bring together funding partners and to help promote the use of the new LiDAR data to better understand and manage Oregon's resources. For more information on the OLC, please see our web page: <http://www.oregongeology.com/sub/projects/olc/default.htm>.

Several other U.S. states have committed sufficient funds to collect LiDAR for their entire state boundaries (North Carolina, Iowa, and Pennsylvania). The current state funding available in Oregon is about one-thirtieth of the level necessary to cover the entire state (~ 100,000 mi²), so we must prioritize the areas where we will collect the data. To define the initial area of interest, DOGAMI used population data and population proxies like water well density to develop a rough outline of the inhabited areas of the state (Nominal Inhabited Area or NIA. See Figure 1). The NIA covers about 17,000 mi², and *excludes* large areas of Federal range and forestland and large tracts of corporate timberland. As we develop the final survey outlines, it will be our policy to try to focus the limited state funding *within* this inhabited area.

LiDAR imagery is most useful and acquisition costs are lowest when the data are collected in large contiguous blocks (at least 100-200 mi²) without internal gaps or unnecessarily complex borders. Our strategy to develop survey blocks is to look for partners who can provide significant funding to "anchor" a block, and then proceed to canvass adjacent landowners to find funds to enlarge the survey. Finding the anchor is crucial, because it allows us to approach other adjacent landowners knowing that a minimum survey will definitely take place, and gives them the opportunity to participate.

At this level, we are willing to include areas outside of the NIA if the funding partner can pay for all or most of the area. When we have collected as many

additional funding partners around the anchor as possible, we will then use the state funds to fill in the gaps and smooth the borders to make a practical survey.

One of the most important uses of LiDAR is for understanding the true configuration of the landscape, so we will try to have survey boundaries correspond to landscape features rather than political boundaries. In this case we will use the borders of 6th order watersheds where possible because:

- Watershed analysis applications of the data will require complete inclusion of local watersheds;
- Landslide analysis of any area requires data that extends to the top of the local drainage;
- 6th order watersheds are a convenient size (20-30 mi²) to use as the minimum unit to add to a survey.

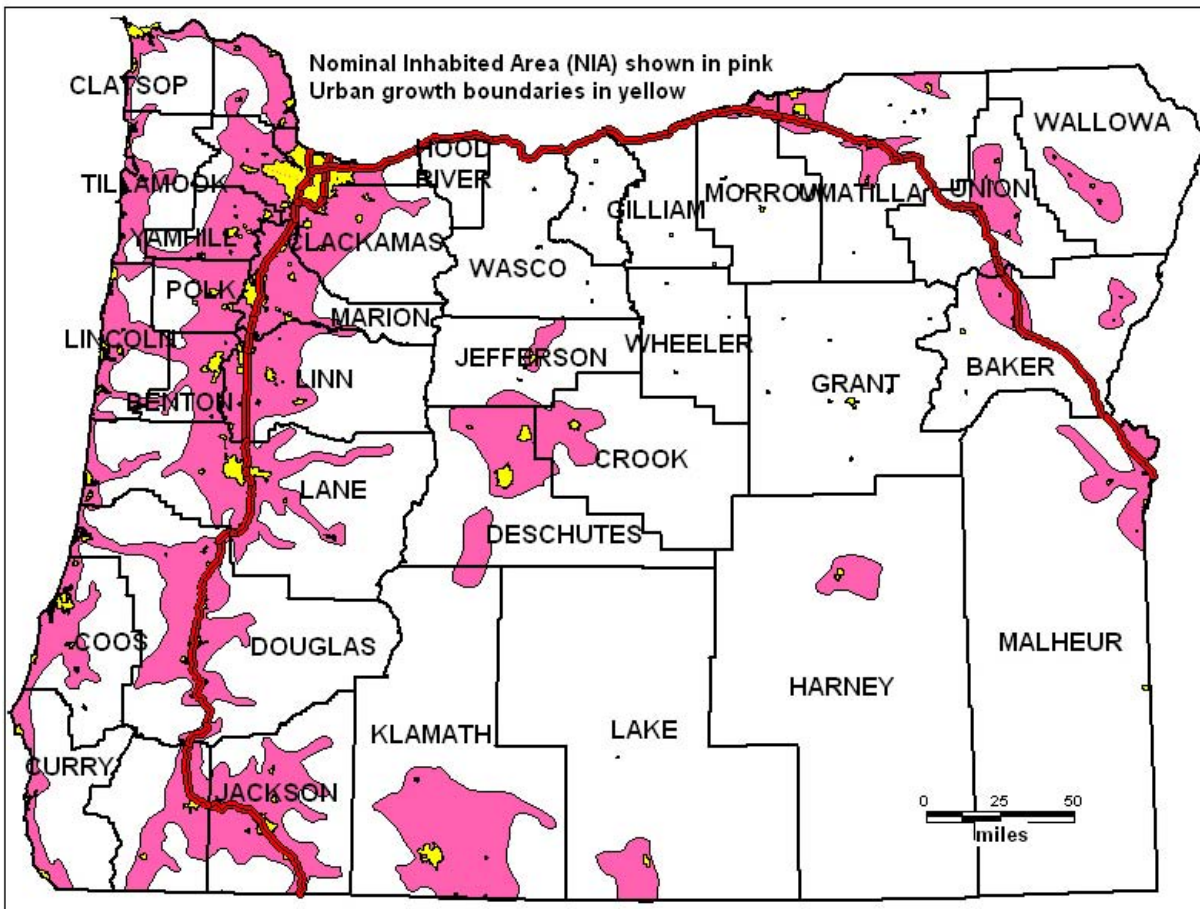
The proposed South Coast block (shown on Figure 2) is an example of how we will develop the funding for, and boundaries of, a survey. In this case our anchor funding partner is the BLM Coos District, which is interested in having all of its lands included (about 70% of which are outside the NIA). We start by adding each 6th order watershed that includes BLM lands in the district which captures significant additional amounts of the NIA. Then, since the coastline is a high priority NIA we add each 6th order watershed that touches the coast, and finally we add each 6th order watershed that includes an Urban Growth boundary. This defines a draft survey area that includes most of the NIA, and the next step is to aggressively pursue additional partnerships with other landowners in the proposed survey area.

In presenting this LiDAR program to the Legislature, we emphasized the need for data in Western Oregon, and along the Coast in particular. We therefore will try to focus on those areas, but we are willing to develop survey blocks in Eastern Oregon if there are good opportunities for local funding partnerships.

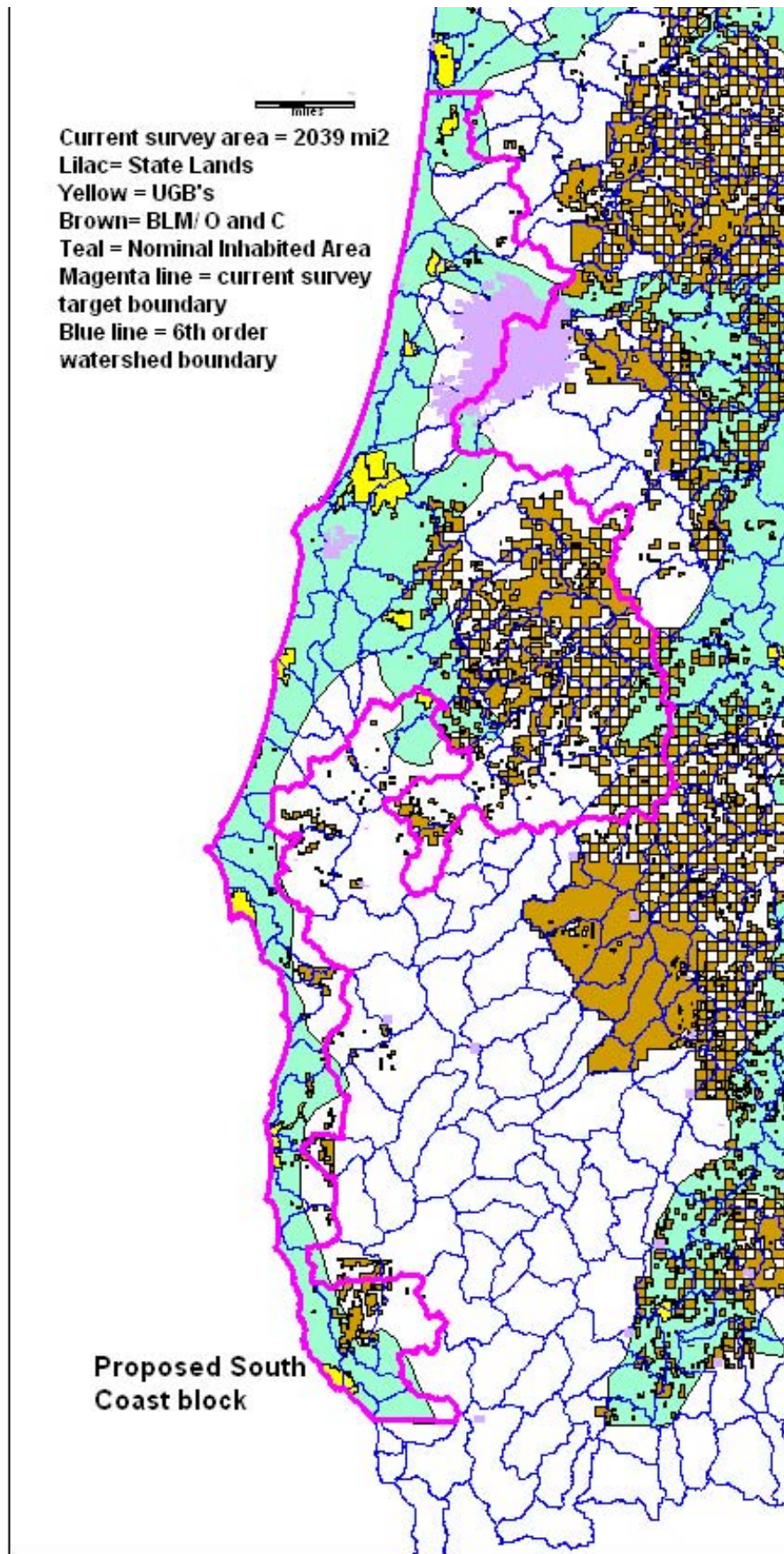
Consistent high quality and adequate resolution of the ground surface and forest cover are key factors in collecting this dataset. To ensure accuracy of the data our RFP will specify very high accuracy standards (vertical errors < 6". Horizontal < 8"), and DOGAMI will carry out its own quality control program to test the data, and will not accept data that do not meet the specifications. We have also consulted with forestry LiDAR experts to ensure that our specifications will be more than sufficient for cutting-edge forest management applications.

All the data collected by the Oregon LiDAR Consortium will be in the public domain, and we will work to make it freely available to the public.

For more information please contact Ian Madin, 971.673.1542 or 503.807.9975 (cell) or ian.madin@dogami.state.or.us



Map of Oregon showing the 17,000 square mile statewide Lidar target defined by the Nominal Inhabited Area (NIA).



Map showing the development of the South Coast survey block using BLM funds as the anchor and 6th order watersheds as the minimum units.