Department of Geology and Mineral Industries

Presentation to the Ways & Means Subcommittee on Natural Resources



February 9-10, 2015 www. OregonGeology.org





About DOGAMI



2015-2021 Strategic Framework

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

STRATEGIC FRAMEWORK 2015-2021

Our Mission and Vision

- DOGAMI provides earth science information and regulation to make Oregon safe and prosperous
- DOGAMI envisions an Oregon where people and places are prepared for natural hazards; where decisions for Oregon's future always consider natural hazards; where resource potential is fully understood and responsibly developed; where earth science contributes to the health of our coast, rivers, forests, and other ecosystems; and where geologic learning and discovery abound.





2015-2021 Strategic Framework

- Identifies goals and objectives for our work in areas of earth science, natural hazards, resource management, governance & operations, and outreach & education
- Develops outcomes that reflect the Governor's 10 Year Plan and Initiatives:
 - Disaster Resilience
 - Clean Waters and Working Landscapes
 - Effective Governance



Who We Serve

- Public: All Oregonians use our information and rely on our environmental protection
- Partners: State agencies, local governments, private sector and non-profits, federal agencies, academia
 - Partners in resilience and disaster planning
 - Partners in water and mineral management
 - Partners in economic development and environmental restoration
- Industry: Aggregate and metal miners plus geothermal, oil & gas exploration and development
- Leadership: The Governor and you, the Legislators





Organization

Geological Survey & Services Program: science and technology for the service of the state

- **Safety** mitigate geologic hazards for resilient communities
- Jobs and Innovation identify resources and economic opportunities
- Healthy Environment develop earth science information and data

Mineral Land Regulation & Reclamation Program: regulation to protect environment & enhance economy

- Healthy Environment manage land resources to support a healthy environment
- Jobs and Innovation help build communities for growing population



DOGAMI Organizational Chart: 2013-15 LAB



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DOGAMI Organizational Chart: 2015-17 GRB





Actual Business Model

- Enterprise Based = providing products to users on a project basis = our products sell themselves
 - No way to implement comprehensive or prioritized actions
- Team Operations = specialists from sections assigned as needed to projects = cross pollination of staff and increased opportunities to serve public = authorization for Limited Duration professional staff crucial
 - Close to losing crucial subject matter experts when unable to bridge between projects
- Outreach Crucial = getting the best information into the hands that need it at the right time
 - Requires considerable front and back end, non-recoverable investment
- Flaws to implementing this model will be discussed during this presentation



Continuous Improvement Options

Opportunities Abound

Geologic Survey & Services Program

- Lidar Program Building Strong Funding From Many Partners
 - Multiple Applications
 - Very High Data Quality
- Federal Funding
 - 3 Dimensional Elevation Data programs
 - Flood Mapping
- Other Funds
 - Landslide assessments
 - Multi-hazard assessments
 - Resource and Energy assessments
- Increasing Demand for Digital Information Distribution
 - Lidar
 - Hazard Awareness HAZVU Website

Mineral Land Reclamation & Regulation

- Increased Geothermal Renewable Energy Exploration & Development Activity
 - Geothermal Exploration permits from 0 40 in five years & actual energy production in 2012
- Modest increase in natural gas exploration
- Metal mining exploration and NOI for operating permit
 - •First activity in 20+ years
- Potential for More Mined Land Restoration Projects
 - Special Investment Partnerships



Continuous Improvement Options

Performance Metrics

Geologic Survey & Services Program

- Lidar Program Building Strong Funding From Many Partners
 - Multiple Applications (POP 101)
 - Very High Data Quality
- Federal Funding
 - 3 Dimensional Elevation Data programs
 - Flood Mapping (POP 103)
- Other Funds Increasing
 - Landslide Assessment (POP 104)
 - Multi-hazard assessments (POP 102)
- Increasing Demand for Digital Information Distribution
 - Lidar
 - Hazard Awareness HAZVU

Goals and Measures from 10 Year Plan and DOGAMI Strategic Framework

- Acquire and organize data on geologic resources, materials, landforms, processes and hazards
 - Performance Measures 6 and 7
- Reduce risk, damage and loss through comprehensive descriptions of natural hazards

• Performance Measures 1, 2 and 8

- Help shape decisions on an individual, local, regional and statewide level with earth science information
 - •Performance Measures 3 and 12
- Continually improve our governance and operations
 - •Performance Measure 10 and 11



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Continuous Improvement Options

Performance Metrics

Mineral Land Regulation & Reclamation

- Surface Mining Regulation
 - Operation of mine for beneficial reclamation
- Oil & Gas exploration and development
 - Proper geophysical exploration
 - Drilling conducted safely and with reclamation plan
- Geothermal exploration and development
 - Proper geophysical exploration
 - Drilling conducted safely and with reclamation plan
- Metal Mining Regulation
 - Operation of flotation and chemical process mining and reclamation

Goals and Measures from 10 Year Plan and DOGAMI Strategic Framework

- Regulate to protect the environment and the people of Oregon
 - Performance Measure 8
- Proactively pursue restoration and reclamation
 - Performance Measure 5





Key Performance Measures



KPM Overview

- Review progress on Key Performance Measures
- Discuss Policy Option Packages 101, 102, 103, and 104
- Identify where our Agency has opportunities, challenges, and changes



Key Performance Measurement

Measure KPM Progress Where Oregonians Are:

• Blue Areas Total About 18% of Oregon's Area & About 98% of Oregonians







What Is Lidar?







Oregon's Many Uses of Lidar

Forest management

 Characterize stands, measure individual tree height and volume, measure fuel loads, carbon content, track growth, provide accurate and comprehensive data for ecosystem and habitat models.

Natural hazard science

 Inventory of landslides, active faults, modeling floods, wave erosion, tsunami run-up.

• Managing streams, watersheds and habitat

 Mapping streamside and uplands vegetation, mapping and classifying floodplain and channel features, defining habitat

Infrastructure management and planning

 Mapping urban landscape and inventorying structures and vegetation, change detection, engineering design, hazard monitoring.

• Agricultural applications

Mapping and monitoring agricultural soils, detailed topography to optimize drainage and irrigation



Lidar Program Business Model

• One word – Partnerships

- Build funding partnerships around shared areas of interest
- Pooled funds used to buy large projects using State price agreement
- Successful in attracting partners and leveraging funds
 - 44 projects complete or underway
 - Lottery Funds : \$1.5 M in 2007-2009, \$0.5 M in 2009-2011
 - \$18.6 M from 67 partners
 - Partners include State and Federal Agencies, City, County and Regional Governments, Tribes, Corporations, watershed councils, SWCDs, non profit organizations.
 - Five partners have contributed to ten or more projects







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Policy Option Package 101: Lidar Data Acquisition Program



- Oregon Proposal to complete the Upper Rogue Basin, Coos Basin, most of the upper Umpqua Basin and the Wallowa Valley
- Aligns with OGIC-approved state plan, Governor's Clean Water Partnership priorities
- Proposed funding:
 - 3DEP \$770k USGS has awarded full funding
 - Oregon Funds (POP 101) ~\$760k-26% of total
 - 3rd party funds ~\$1.39 M
 - USFS may fund completion of Upper Umpqua



KPM Review Structure

- Geological Survey & Services Program KPMs
 - These KPMs are presented as they relate to DOGAMI's scientific process: Foundational mapping and data KPMs are presented first, followed by KPMs for the work that builds on those maps and data
 - Geologic mapping KPMs, then geologic hazard KPMs, then geologic hazard preparedness KPMs
- Mineral Land Regulation & Reclamation Program KPMs
 - Mine site inspection and reclamation
- Agency KPMs
 - Governance and customer service
- Will discuss current KPM data for all, as well as potential changes/additions to KPMs



KPM 6 – Detailed Geologic Map Completion

56% Complete



KPM 6 – Detailed Geological Map - 2010





KPM 7 – Regional Geologic Map Completion

- Built GIS Database of Best Maps
 - Compiled 70 years of work; Hundreds of maps
 - Need investment to update with more recent information
 - Need investment to develop a searchable, web-friendly map
 - Revise KPM to measure how mapping and data are made available to the public

Percent of Oregon With Regional Digital Geologic Maps



96% Complete







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KPM 7 – Regional Geologic Map Completion











•High Quality Landslide Hazard Mapping Is Dependent On Lidar

Oregon City Aerial Photograph





Mapped at 1:24,000 scale



Actual Landslides from Lidar Mapped at 1:4,000 scale



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• POP 104 – Landslide Hazard Mitigation Program • Governor's Clean Water Partnerships Initiative

- Transform landslide hazard mitigation projects into a <u>comprehensive</u> statewide program
 - Priorities would be set by state input stakeholder advisory committee
 - Production of landslide hazard map products for 1,500 square miles
- For the KPM Separate from EQ measure # landslide inventory maps and # of risk assessments to high priority area





- Exceeded target to produce statewide hazard maps
- Refocus seismic program to probabilistic assessment as per Strategic Framework
- POP 103 Earthquake
 Hazard Mitigation Program
- Revise KPM separate from landslide and measure community resilience









Align program with Oregon Resilience Plan and DOGAMI Strategic Framework

- POP 103 General Fund investment into seismic hazard mitigation
- •One time funding for purchase of National Science Foundation seismic instruments



KPM 9 – Tsunami Inundation Map Completion



Tsunami approaches Tohoku Event 2011





Tsunami damage to Port Orford - 2011



KPM 9 – Tsunami T-Shirts



Legend

| Earthquake Size | Average Slip Range (ft) | Maximum Slip Range (ft) | Time to Accumulate Slip (yrs) | Earthquake Magnitude |
|-----------------|----------------------------|----------------------------|----------------------------------|-------------------------|
| XXL | 59 to 72 | 118 to 144 | 1,200 | ~9.1 |
| XL | 56 to 72 | 115 to 144 | 1,050 to 1,200 | ~9.1 |
| L | 36 to 49 | 72 to 98 | 650 to 800 | ~9.0 |
| М | 23 to 30 | 46 to 62 | 425 to 525 | ~8.9 |
| S | 13 to 16 | 30 to 36 | 300 | ~8.7 |
| | Wet/Dry Zone | | | |

KPM 9 – Tsunami Inundation Map Completion

100% Complete





Accelerate Tsunami Inundation Mapping

- 363 miles of Oregon coastline modeled and mapped = 89 maps
- Revamp program and KPM w/ focus on applied science for preparedness and resilience



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KPM 2 – Tsunami Evacuation Map Completion



100% Complete 45 community maps released



Retire the KPM

Continue to update evacuation maps as roads and routes change



KPM 3 – Coastal Erosion Map Completion



Erosion Hazard Mapping:

- •24 of 30 Communities Mapped
- •Coastal Flood Maps For FEMA


KPM 3 – Coastal Erosion Map Completion

- Tillamook County map revisions did not count toward KPM - incorporated into planning ordinances in at-risk communities
- Measure depends on funds that are not available.
- Possible KPM change to reflect progress in monitoring and documenting change on the coast.





Neskowin





WINTER STORMS = MULTIPLE HAZARDS



KPM 12: Hazard Preparedness- Flood



DOGAMI flood risk assessment projects for FEMA

DOGAMI flood mapping projects for FEMA





KPM 12: Hazard Preparedness- Flood





KPM 12: Fixing Flood Maps

Low-Quality Topo Have 40 foot contours

Pink is flood area on old maps



Blue is flood area on new maps



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KPM 12: Fixing Flood Map Display



This qualifies for FEMA's Letter of Map Amendment – "Out as Shown"

KPM 12: Flood Risk Assessments



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KPM 12 – Geologic Hazard Preparedness

Oregon's Current Preparedness Level: 59% Weighted by county population



Hazard Assessment?

KPM 12 – Geologic Hazard Preparedness



KPM too complicated and cluttered:

- Work with DLCD on a joint KPM that reflects the state's progress in turning hazard data into products the state and local governments can use for planning purposes.
- Lidar is now a key part of the services DOGAMI provides to the state – we need to develop a measure that documents and shows the progress of this work.



KPM 12: Geologic Hazards Can Also Be Resources



KPM 12: Volcanic Hazard also Geothermal Resource





MLRR Aggregate Permits (January 2014)

- 900 Permitted Sites
- 61,934 Permitted Acres
- 24,887 Disturbed Acres
- 9,346 Bonded Acres
 (We are no longer tracking this number, all disturbed acres are bonded, some are underbonded.)
- 8,975 Reclaimed Acres
 Of which 1,367 were voluntary



Oregon Aggregate Industry: Recession Over? •Production Volumes -45% in 2013 from peak in 2005 •Fee Revenues -17% in 2013 from peak in 2006 •Fees are not keeping up with expenses



Mine Site Inspection Targets:

Inspect All Unique Operators With Active Operations Each Biennium

•50% Each Year is Target



24% Achieved

53% Achieved



Inspection Challenges and Solutions

- Challenges:
 - Five positions perform across state
 - 0 to 40 geothermal permits
 - Increase in O&G permits
 - Outreach actions up
 - Requires repeat visits
 - Costs not recoverable
- Solutions
 - Add GIS Analyst to supplement field staff work load
 - Make Permit Coordinator permanent
 - Add junior level reclamationist to cover inspections in E OR
 - Presently analyzing all regulation fees and structure to better cover costs





KPM 5 – Reclamation



MLRR Voluntary Reclamation Award 2013: Triple C Redi-Mix, Baker City Before & After



KPM result is ahead of target

Prompt Reclamation of Acres Disturbed:

- 900 Permitted Sites
- 61,934 Permitted Acres
- 24,887 Disturbed Acres
- 9,346 Bonded Acres
- 939 acres reclaimed since January 2012.
- 7,608 acres reclaimed (not including voluntary)
 - Agriculture: 21%
 - o Anadromous Fish Habitat: 1%
 - o Forestry: 9%
 - o Housing/Construction: 9%
 - o Industrial: 2%
 - Open Space/Range: 25%
 - o **Other: 14%**
 - o Recreation: 1%
 - o Returned to Exempt: 3%
 - o Wildlife/Wetlands: 15%



KPM 5 – Reclamation



Shows that reclamation is
 occurring but measure not
 affected by DOGAMI's work –
 craft measure(s) that better
 show the results of our work.

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KPM 10 – Customer Service Satisfaction

No data were collected for 2014. DOGAMI has developed a formal survey program to help ensure future data collection.





KPM 11 – Governance

Governing Board Using Governance KPM during Annual Performance Review:

| 6/9/2014 | | | | | | | | | | |
|---|-----------|----|--------------|----|-----------|----|---------|----|--------|----|
| Oregon Department of Geology & Mineral Industries | | | | | | | | | | |
| Governing Board Best Practices Self-Assessment Score Card | | | | | | | | | | |
| Adopted May 5, 2007 | L. Givens | | D. MacDougal | | L. Phipps | | D. Luke | | Vacant | |
| Best Practices Criteria | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 1. Executive Director's performance expectations are current. | x | | x | | x | | x | | | |
| 2. Executive Director's receives annual performance feedback. | x | | x | | x | | x | | | |
| 3. The agency's mission and high-level goals are current and applicable. | x | | x | | x | | x | | | |
| 4. The board reviews the Annual Performance Progress Report. | x | | x | | x | | x | | | |
| 5. The board is appropriately involved in review of agency's key communications. | x | | x | | x | | x | | | |
| The board is appropriately involved in policy-making activities. | x | | x | | x | | x | | | |
| 7. The agency's policy option packages are aligned with their mission and goals. | x | | x | | x | | x | | | |
| 8. The board reviews all proposed budgets. | x | | x | | x | | x | | | |
| 9. The board periodically reviews key financial information and audit findings. | x | | x | | x | | x | | | |
| 10. The board is appropriately accounting for resources. | x | | x | | x | | x | | | |
| 11. The agency adheres to accounting rules and other relevant financial controls. | x | | x | | x | | x | | | |
| 12. Board members act in accordance with their roles as public representatives. | x | | x | | x | | x | | | |
| 13. The board coordinates with others where responsibilities and interests overlap. | x | | x | | x | | x | | | |
| 14. The board members identify and attend appropriate training sessions. | x | | x | | x | | x | | | |
| 15. The board reviews its management practices to ensure best practices are utilized. | x | | x | | x | | x | | | |
| Totals | | | | | | | | | | |
| Total Number | 15 | | 15 | | 15 | | 15 | | 15 | |
| Percentage of Total | 100% | | 100% | | 100% | | 100% | | 0% | |
| | | | | | | | | | | |
| Additional Notes | | | | | | | | | | |
| | | | | | | | | | | |



KPMs: Looking Forward

Goals for the next two years include:

- Geological Survey and Services KPMs:
 - Capture 10,000 square miles of lidar data (Policy Option Package 101) to produce new base maps and data for KPMs 1, 2, 3, 6, and 9.
 - Produce landslide hazard maps for 1500 square miles for KPM 1 (POP 104).
 - Separate KPM 1 into Earthquake KPM and a Landslide KPM and better align Earthquake Hazard Mitigation Program to Oregon Resilience Plan and Regional Solutions (POP 103).
 - Introduce new tools to distribute geologic and hazard data and reports via the web for KPM 12.
 - Expand the coastal monitoring network in support of coastal erosion map completion for KPM 3.
 - Complete multihazard flood risk maps for Coos County and begin similar work in Tillamook, Clatsop, Lincoln, Lane, Clackamas, and Curry Counties (POP 102) for KPM 12.



KPMs: Looking Forward

Goals for the next two years include:

- Mineral Land Regulation & Reclamation KPMs:
 - Maintain 50%+ mine site inspections by increased use of GIS technology for KPM 8.
- Agency-wide KPMs
 - Obtain a customer satisfaction rating of 90% plus in 2013 2015 for KPM 10;





Budget Trends Over Time



GS&S Non-lidar Revenue







GS&S Federal and Other Fund Variability

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Unsustainable Business Model



13-15 General Fund Expenditures Est.



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Reduce Duplication and Streamline

- Very little overlap most work is coordinated to agency missions. For example:
 - OEM: hazard preparedness and response
 - DLCD: land use goals and coordination with local governances
 - ODOT: hazard mitigation in transportation corridors
 - DEQ/DOGAMI: Intergovernmental Agreement for 1200 A
 Storm water permitting at mine sites
 - DSL: with aggregate mining and removal-fill
 - OWRD: has hydrogeologists for water adjudication



Cost containment and program delivery improvement – pluses and minuses

- Our entire business plan involves developing partnerships and collaborative efforts to leverage expertise, funds, and products
 - ODOT notes, "...The existing lidar saved us almost 4,400 man-hours of work and put us a year ahead of schedule..."
- Efficiencies in geothermal site permitting
 - Work with ODEQ and OWRD to streamline our respective regulatory responsibilities
- We outsource activities that require job specialization for particular projects
 - IT consultant, probabilistic hazard modeling, etc.
- We use DAS Enterprise Human Resources client services
 - Reduce support FTE
- Closed and consolidated field offices & outreach efforts
 - Maximizes space and staff , but leaves large areas of the state without face-to-face contact



Cost containment and program delivery improvement – pluses and minuses

- Held positions open as staff retired
 - plan to fill the positions on as needed basis
 - Vacancy savings not intended to be a long term plan
- Fund shifted S&S expenses
 - From GF to project indirect cost recovery
- High impact and agency crucial staff fund shifted
 - From GF to indirect cost recovery
- We are without stable core funding to operate the Agency



DOGAMI directed to develop a plan for sustainable success of the agency

- DOGAMI has for years sought funding sources outside of general fund support these sources are increasingly limited
 - In the 2013-2015 biennium, only 18 percent general funds
- Opportunity to explore new models that will support our Agency
 - Support our long-term sustainability
 - Support ongoing efforts to increase understanding of Oregon's geologic resources and hazards
- Will be preparing a plan to stabilize revenue, increase administrative support, and reduce overhead
 - This does not mean the agency will be disbanded or dissolved
- Governor's Budget reflects funding for the first year of the biennium
 - \$8.7 million total funds
- Planning has already been initiated by GNRO



Thank you

DOGAMI



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