

DOGAMI Fact Sheet: FEMA Flood Map Modernization



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How will redelineating FEMA flood maps save lives and prevent losses to businesses and property?

FEMA currently produces many maps from the U.S. Geological Survey National Elevation Dataset, but more accurate maps are available using lidar, which measures elevation from lasers on aircraft.

"Flood hazards are dynamic and older maps may not reflect recent development or natural changes in the environment," says FEMA Administrator R. David Paulison. "Map Modernization gives everyone—communities, government agencies and homeowners—the ability to better protect lives and property from future flooding."

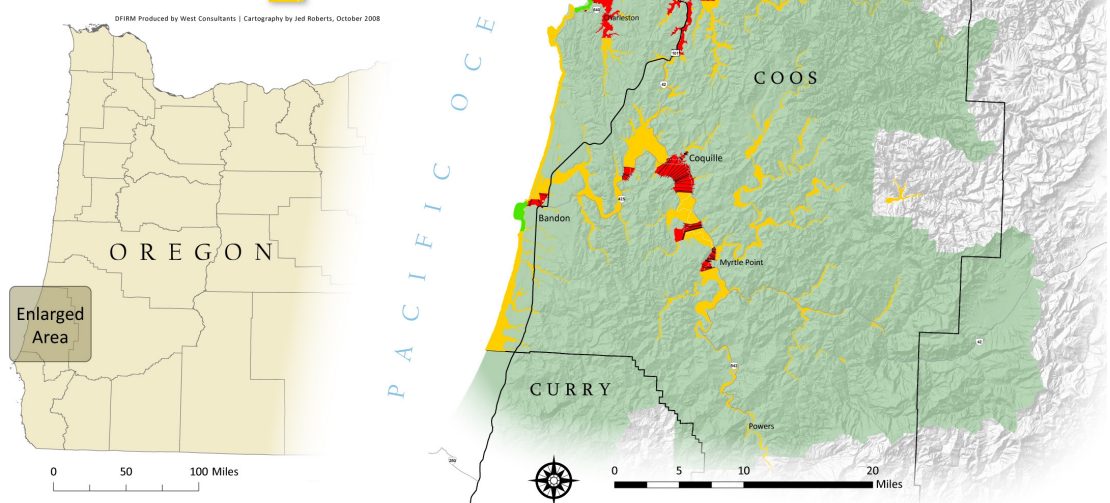
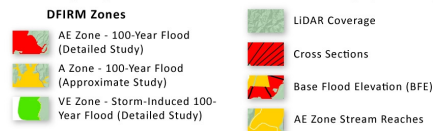
FEMA's Map Modernization program, which began in 2003, is a multi-year Presidential initiative supported by Congress and directed at improving and updating the nation's flood hazard identification maps.

Sen. Mary Landrieu, D-La., who chairs the Senate Homeland Security and Governmental Affairs subcommittee on disaster recovery, called FEMA's upgrade of its flood maps "welcome, but long overdue." "An important part of the process is local participation to ensure the maps are accurate and represent the true topography of the land. Knowledge of the local terrain is an essential supplement to the science used to design new flood maps."

Source: Frommer, Frederic J., "Upgrading FEMA flood maps would save lives," *Oregonian* article, 1/23/09

Floodplain Redelineation Coos County Pilot Project

Existing Digital Flood Insurance Rate Map (DFIRM)



What is the project?

The Federal Emergency Management Agency (FEMA) has obligated \$1,012,960 to the Oregon Department of Geology and Mineral Industries (DOGAMI) under FEMA's Map Mod (Modernization) Program. The obligation will fund high-resolution coastal topographic data development using lidar (light detection and ranging), flood insurance rate map redelineation, hydraulic coastal flood analysis, integration of multiple natural hazard data layers for Coos County, and lidar data acquisition for Clatsop and Tillamook counties.

DOGAMI-FEMA Coos County Multi-Hazard Project Overview

Map Mod Redelineation Components

- Develop new topographic data incorporating lidar
- Develop base map, including lidar-based digital elevation model (DEM)
- Redelineate Digital Flood Insurance Rate Maps (DFIRMs), including coastal zone
- Produce preliminary map products, that is, "new" DFIRM products
- Assist FEMA and DLCD with community outreach

Pilot Risk Map Component

- Identify, evaluate, and disseminate multi-hazard data based on new mapping:
 - flooding and channel migration zone hazards
 - 100-yr and 500-yr flood hazard loss estimation (HAZUS)
 - landslide hazards
 - earthquake hazards, including liquefaction and ground shaking amplification
 - tsunami inundation hazards
 - coastal erosion hazards
 - deliver multi-hazard maps in paper and digital format using online web tool

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Example Map from Map Mod (Modernization) Component of DOGAMI-FEMA Project

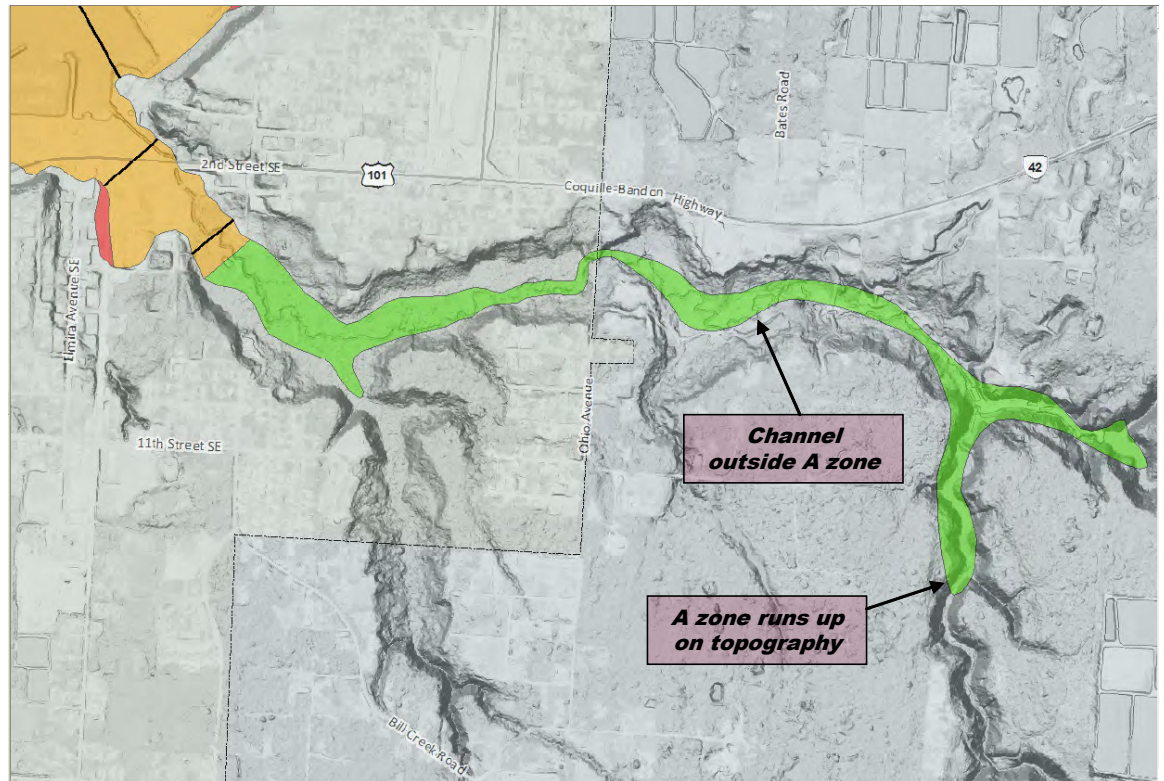
Most current FEMA DFRIM flood zones are based on topographics data from the U.S. Geological Survey National Elevation Dataset.

These topographic maps were constructed from 1950s-1960s era aerial photography. Cartographers could not see through trees, especially in forested drainages, to draw precise contours. Recent air photos display more recent built environment, but the maps cannot be interrogated.

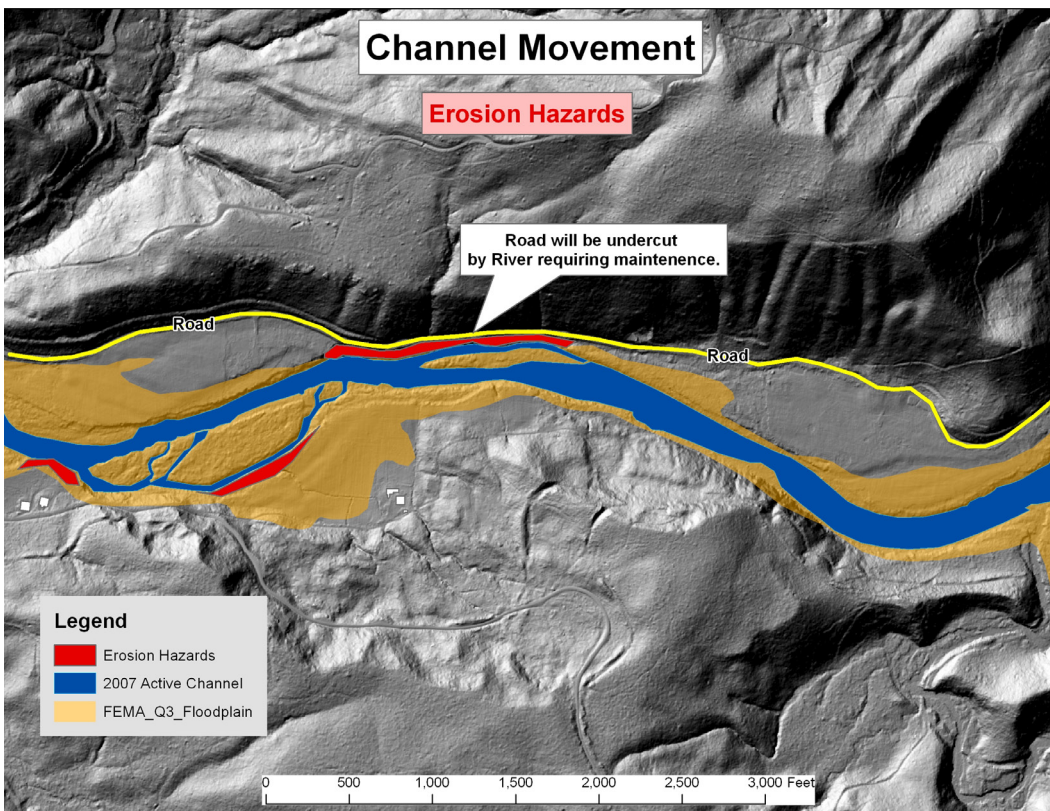
New lidar-based maps solve the cartographic flaws and provide detailed three-dimensional elevation data.



Existing FEMA DFIRM zones superimposed on new draft lidar-derived base map by DOGAMI show significant misalignment of flood zones to actual topography along Ferry Creek in Coos County.



Example Map from Pilot Risk MAP Component of DOGAMI-FEMA Project



FEMA developed the Risk MAP (Mapping, Assessment, and Planning) Strategy to combine flood hazard mapping, risk assessment tools, and Mitigation Planning into one seamless program. The intent of this integrated program is to encourage beneficial partnerships and innovative uses of flood hazard and risk assessment data in order to maximize flood loss reduction.

The Risk MAP vision is:

- Continue to focus on **improving and maintaining flood hazard data and maps** - the foundation of both flood risk assessment and flood mitigation planning;
- **Deliver quality products and services** to the right audience, using the right methods, at the right time;
- **Reduce losses of life and property** through continuous improvement of mitigation plans; and
- **Increase local mitigation action.**

(From FEMA's Risk MAP (Mapping, Assessment, and Planning) Strategy [<http://www.fema.gov/plan/fmms.shtml>])



Part of the DOGAMI-FEMA pilot Risk MAP project is to use lidar-based maps to show channel movement within the floodplain. Tracking channel movement provides a way to plan for erosion hazards.