

USGS Community Engagement and its Role in Improving *The National Map*

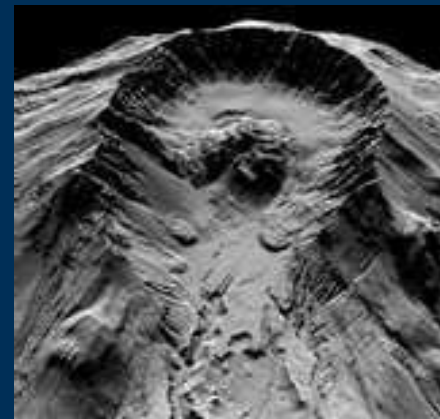
ESRI User Conference, 2014

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USGS National Geospatial Program Strategic Direction

Provides a sharpened focus on our **topographic mapping** mission

- **High investment** – layers that define topographic mapping:
 - Elevation** - Improve data quality and resolution nationally, pursue a national enhanced elevation data initiative
 - Hydrography and watershed boundaries** - Work with stewards to maintain data, enhance NHD to support users' modeling and business needs, improve user tools
- **Moderate investment - Geographic names:** Fulfill the Public Law 80-242 requirements of the Board on Geographic Names
- **Maintenance investment - Imagery, transportation, boundaries, selected structures and land cover:** For reference purposes, maintain coverage by obtaining data from other organizations and suppliers with a minimum investment



National Geospatial Program Strategic Direction

- **Emphasis on meeting user needs (internal and external)**
- **Priority communities of use**
<http://liaisons.usgs.gov/communities/>
 - **Water resources**
 - **Geologic Mapping**
 - **Geologic Hazards**
 - **Natural Resources Conservation**



USGS Engagement Activities

- 2008 The National Map Customer Requirements: Findings from Interviews and Surveys
<http://pubs.usgs.gov/of/2009/1222/>
- 2011-current: National Enhanced Elevation Assessment, now 3DEP
<http://nationalmap.gov/3dep/>
- 2014 National NHD Assessment



Constraints for user-driven requirements

- **National scope**
- **Prefer public domain data**
- **Data sources must be compatible with automated production processes**
 - **Very low or no data preparation**
- **Data need to be product ready**
 - **Appropriate resolution for product scale**
 - **Sufficient attribution for classification**
 - **Maintainable**

Examples of FY12 Requirements

- **Contour Generation** – Adjust generalization techniques to create a layer more consistent with Geologic Mapping requirements
- **Fonts** – Application of freely available fonts for Geologic Mapping use of US Topo annotation layer
– Cartographic Governance Board example
- **Delivery** - ArcGIS 10.0 Map Package delivery of base US Topo layers including grids, contours, annotation, NHD, transportation, PLSS, woodland ...
all US Topo layers



Current Investigations/Pilots

- **US Topo GIS Packet** – ArcGIS ingestible data and cartography
- **Geology Features** – adits, quarries, mine shafts



Future Requirements...ongoing research

- Pacific Territories
- 100,000-scale product ★
- Custom extents
- Custom layers
- Ancillary mxd/layer files ★
- Dynamic Grids
- Dynamic Labeling
- Custom labeling templates ★
- Streamlined Workflows
- Change Detection
- US Topo GIS Packet ★
- New possible content
 - Census Roads ★
 - Ambulance Services
 - Wetlands ★
 - Control points / spot elevations
 - Bathymetry
 - NPS boundaries
 - BLM boundaries
 - BIA boundaries
 - National cemetery boundaries
 - Raster land cover / urban layer

The National Map

User Request

Non-GIS

The National Map Products

GIS

Simple Raster

Processed Raster

Raster and Vector

Simple Vector

Processed Vector

Non-GIS

Cartographic Products

GIS

Print Map
Existing Function

HTMC GeoTIFF
Non-Existing Staged Product

US Topo GeoTIFF
Non-Existing Staged Product

HTMC GeopDF
Existing Staged Product

US Topo GeopDF
Existing Staged Product

Basemap Cache
Existing Staged Product

US Topo Layer Services
Non-Existing Dynamic Product

Basemap Services
Existing Dynamic Product

US Topo ArcGIS Layer Files
Non-Existing Product

US Topo GIS Packet
Proposed Staged Product

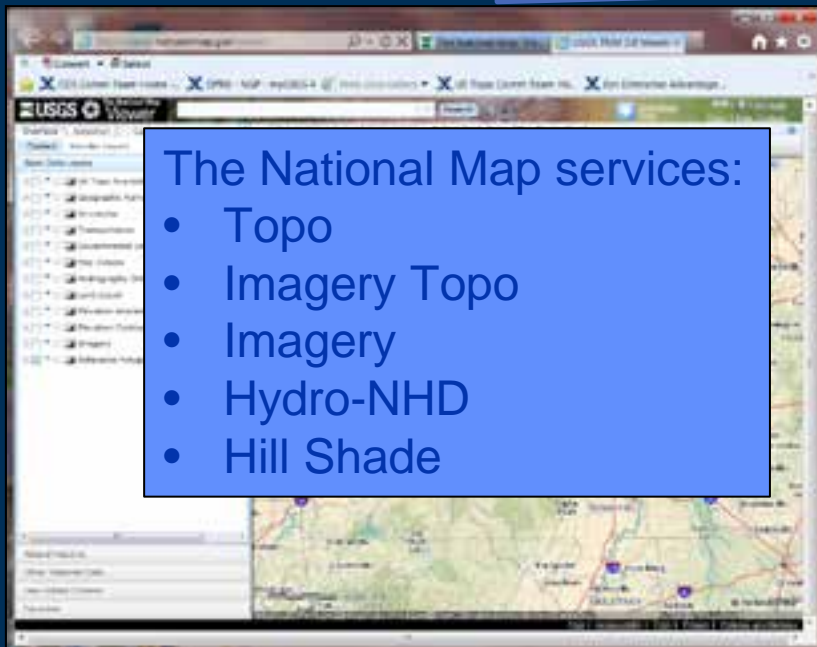
The National Map - Cartographic Products

User Request

Services

Products

TNM also provides data products.



The National Map services:

- Topo
- Imagery Topo
- Imagery
- Hydro-NHD
- Hill Shade



The National Map products:

- US Topo
- HTMC
 - Historical Topo Map Collection



US Topo Feature Content: 2009, 2010, 2011, 2012, 2013, 2014

Ortho-rectified Aerial Imagery

Roads

Names

Elevation Contours

Hydrography

State/County/USFS

Boundaries

Runways

Woodland

Railroads

PLSS

Fire Stations

Hospitals

Schools

Military Boundaries

Cemeteries

Post Offices

Shaded Relief

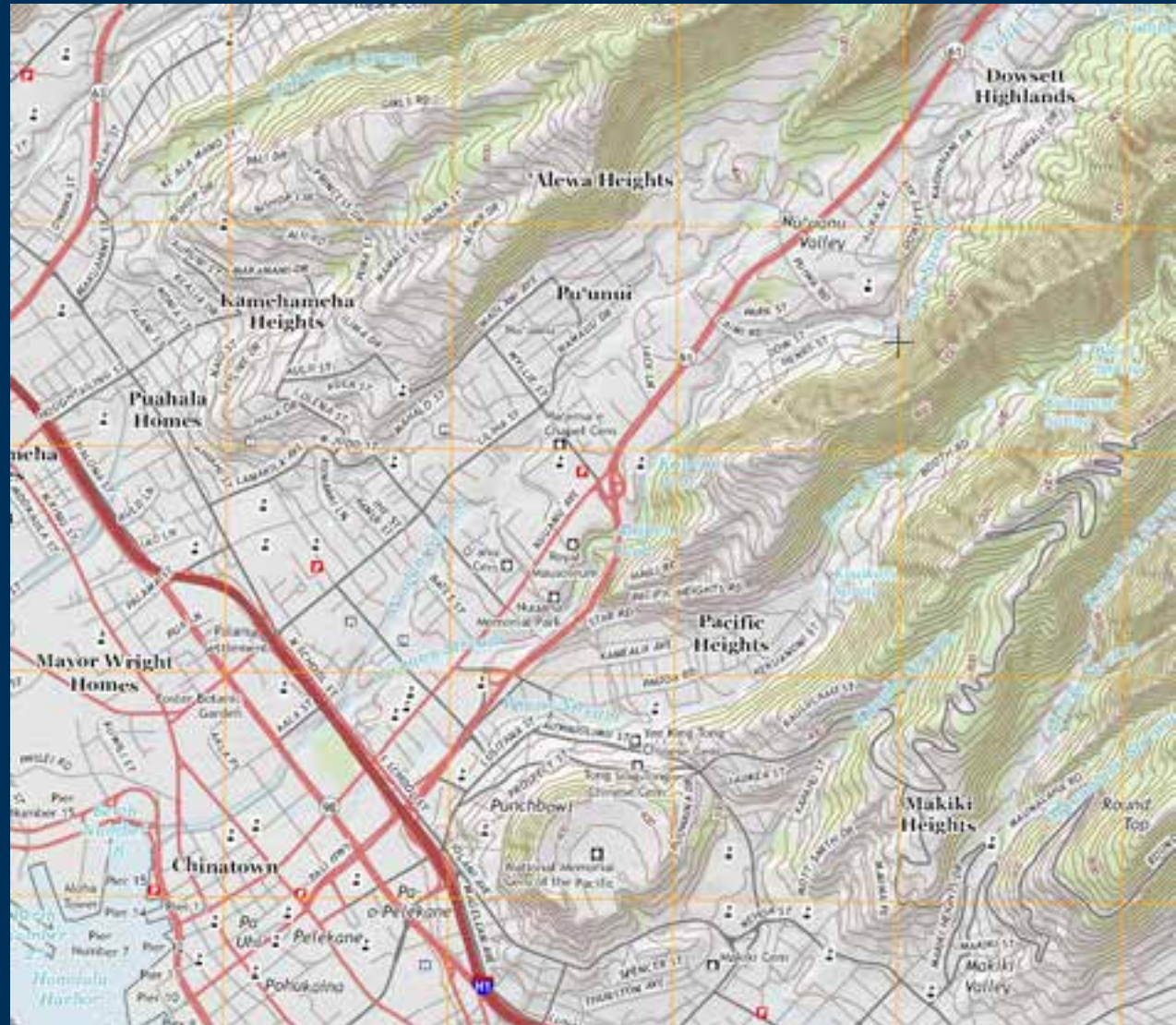
Selected Trails

FWS Boundaries

State Capitals

Police Stations

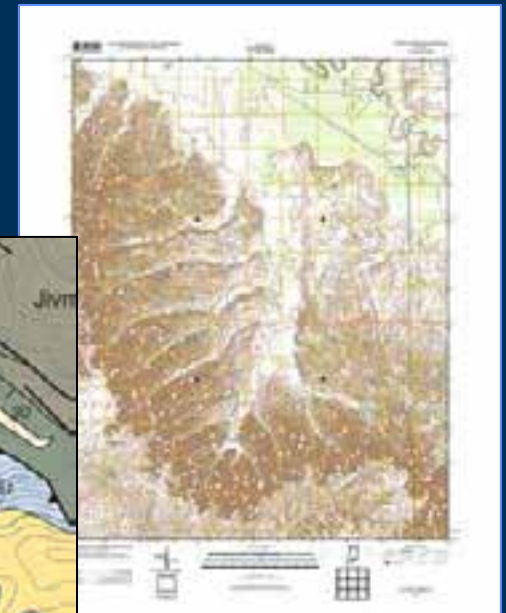
Correctional Facilities



US Topo GIS Packet

- **Goal: Use US Topo as base map input for Geologic mapping**
- **Requirement: Deliver the US Topo distributable layers to the Geologic Mapping Community that can be readily ingested into an ArcGIS system**
 - US Topo distributable layers: **Transportation**, Boundaries, Contours, Hydrography, Structures, Woodland, Annotation
- **Map packet content**
 - Metadata
 - Vector data
 - Annotation
 - ArcMap document
 - Layout
 - Map layers
 - Feature content filters
 - Cartographic symbols

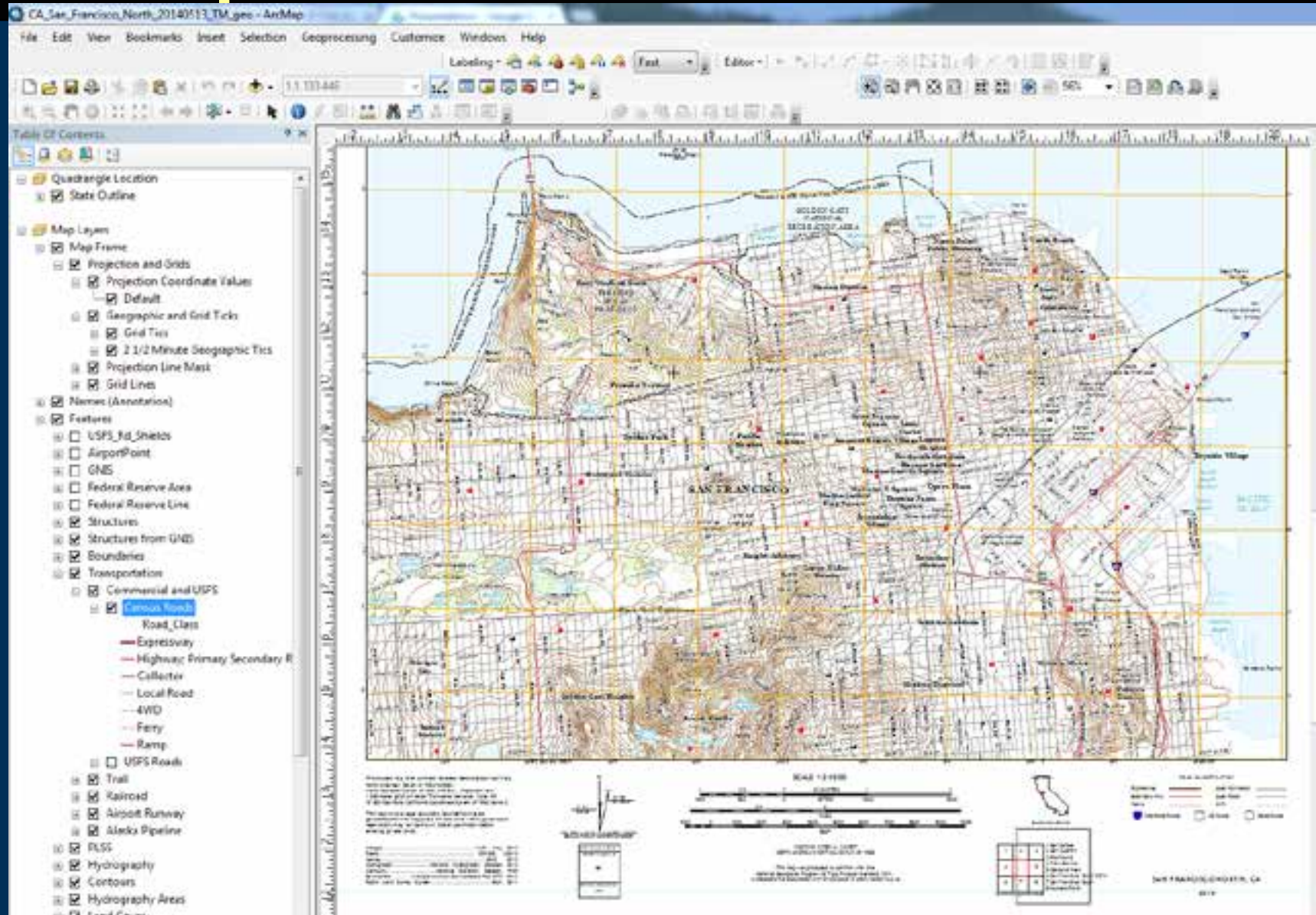
US Topo



Geologic Map



US Topo GIS Packet



Customer Engagement in summary

- Development of the COUs has led to improved understanding of customer needs
- Further refinement of products and services within the scope of program priorities (elevation and hydrography)
- COU understanding of the community needs results in ongoing improvements to products and services
- Research and pilot study is leading to the incorporation of GIS packets in national US Topo map product

Questions & Discussion



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