

# DIGITAL MAPPING TECHNIQUES 2022

The following was presented at DMT'22  
May 22 - 25, 2022

The contents of this document are provisional

See Presentations and Proceedings  
from the DMT Meetings (1997-2022)

<http://ngmdb.usgs.gov/info/dmt/>

# topoBuilder and OnDemand Topo

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# topoBuilder is...

...an application to make your own topographic map

...created **on demand**

...centered **where you want**

...in **multiple formats**

...with the **best available** National Map data



# Open the app, select map type



topoBuilder Application v: 1.0.0

User Guide

1 Map Types

## Map Types

Select a map type, then click Next

2 Maps

3 Cart 0

? Help



NEXT

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS GI... Powered by Esri



# Zoom to your area of interest



topoBuilder Application v: 1.0.0

User Guide

① Map Types

Maps

Select area of interest on the map

② Maps

③ Cart 0

? Help

Display Grid

7.5-Minute Topo



Select a map to begin



SELECT BY GRID(S)

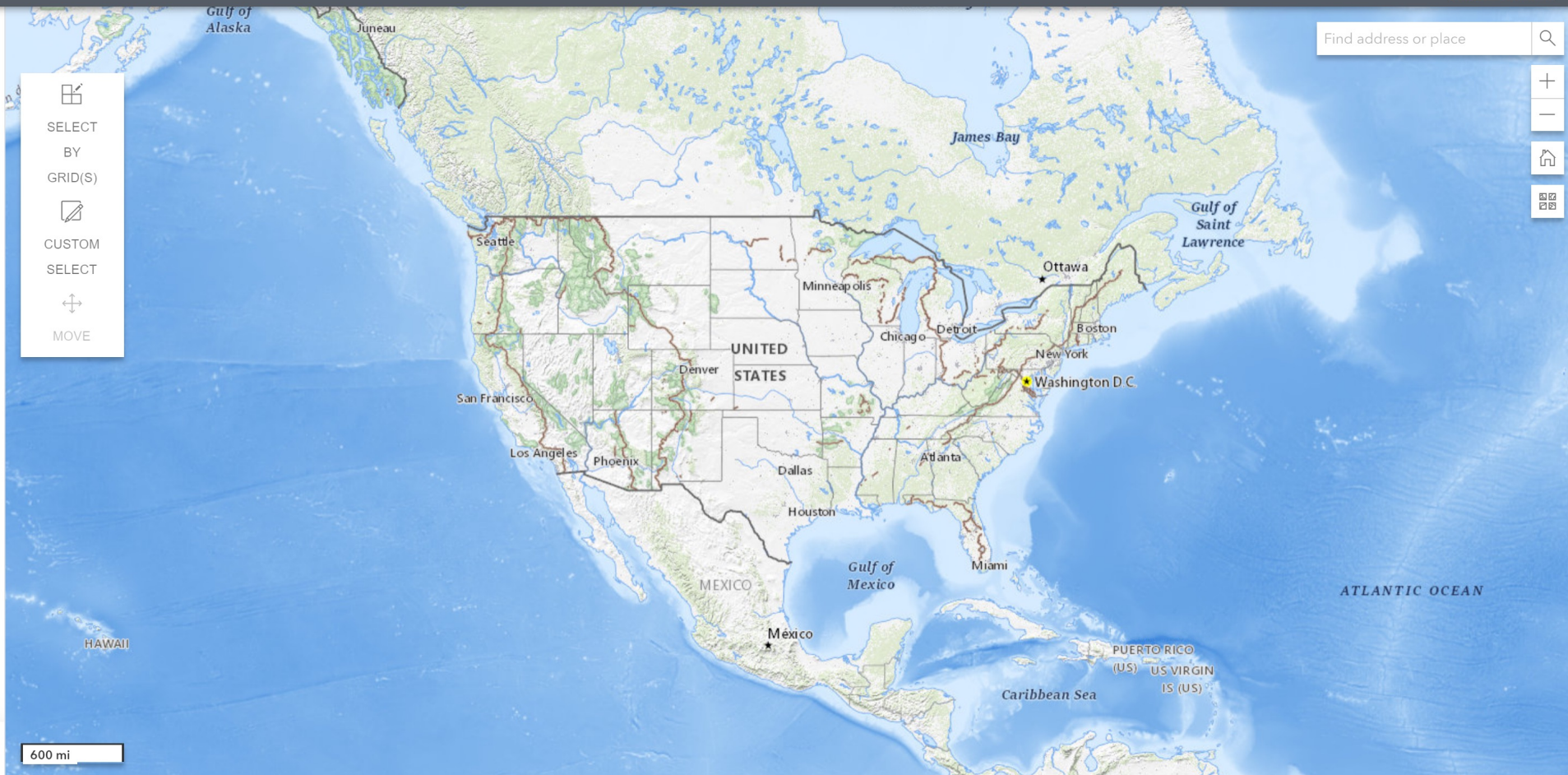


CUSTOM SELECT



MOVE

Find address or place



DELETE

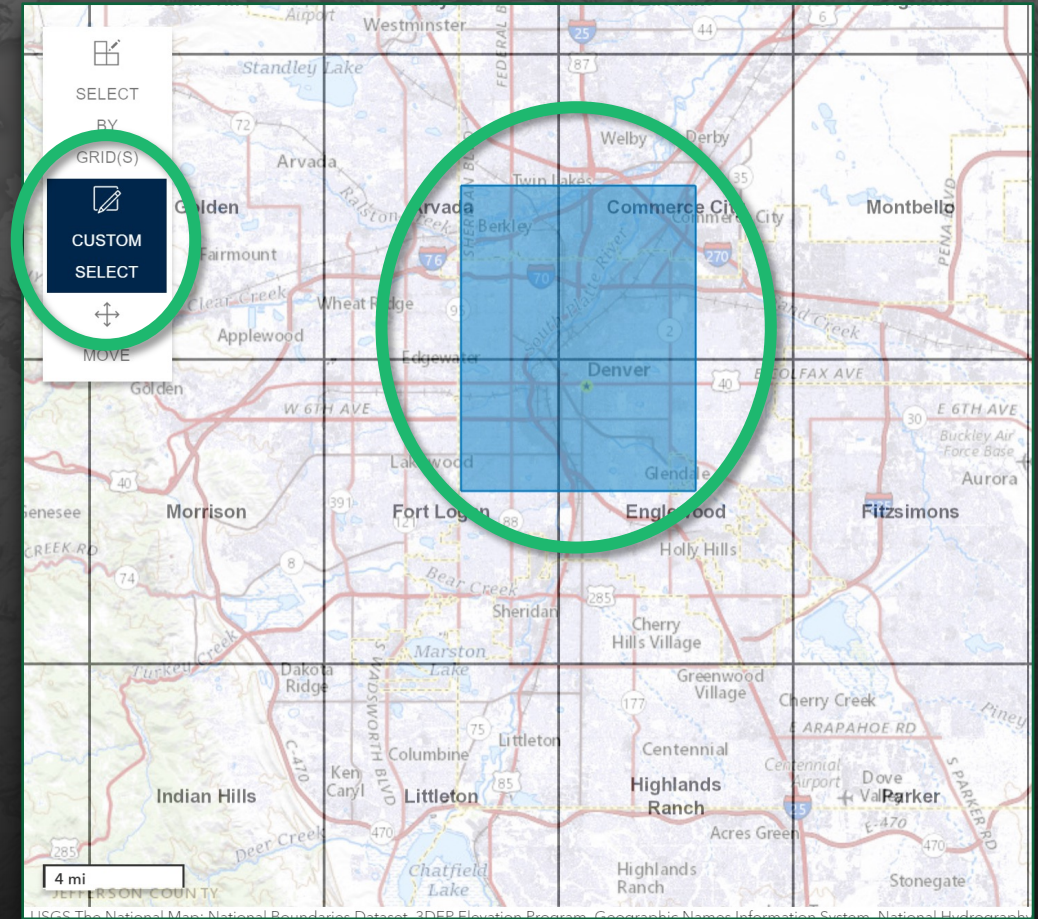
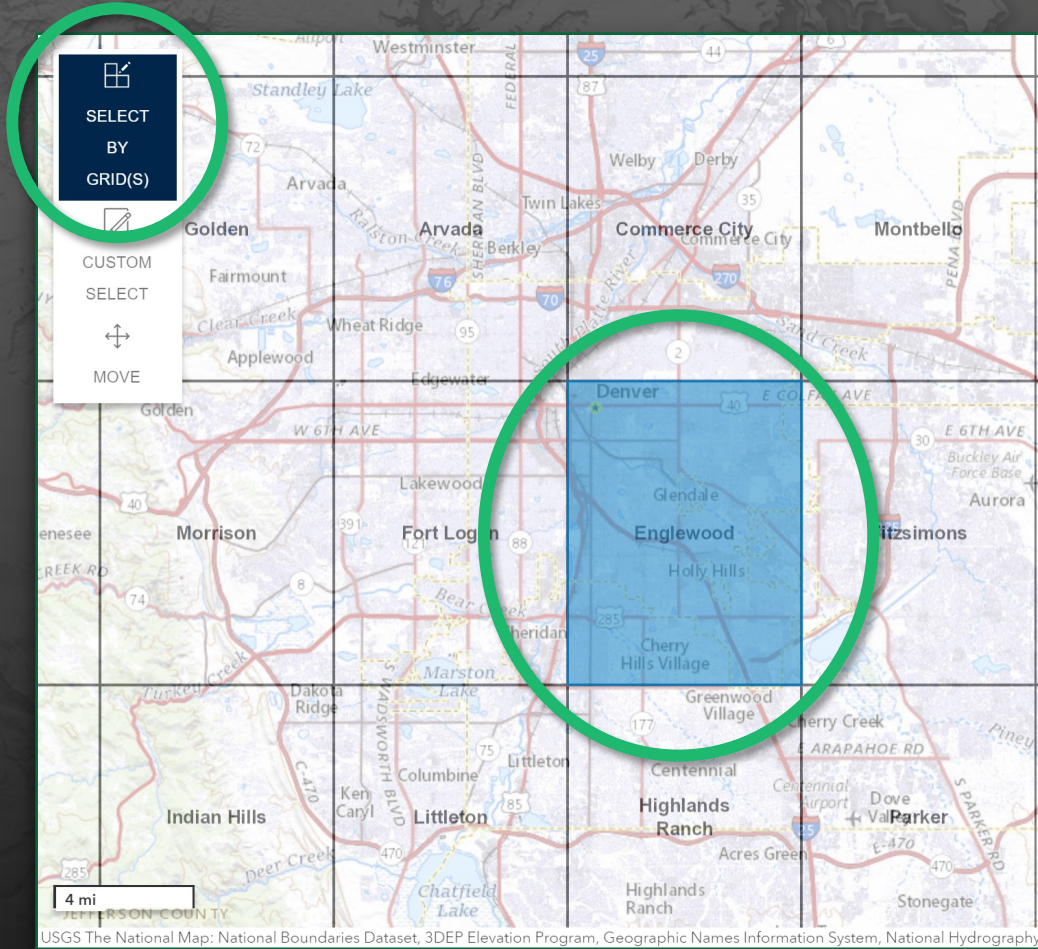
ADD

600 mi

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS GI... Powered by Esri



# Choose your map extent





# Choose your export options



topoBuilder Application v: 1.0.0

User Guide

1 Map Types

## Maps

Select area of interest on the map

Display Grid

7.5-Minute Topo ?

SELECT ALL TOGGLE ALL

7.5-Minute To... + 🗑️

Format

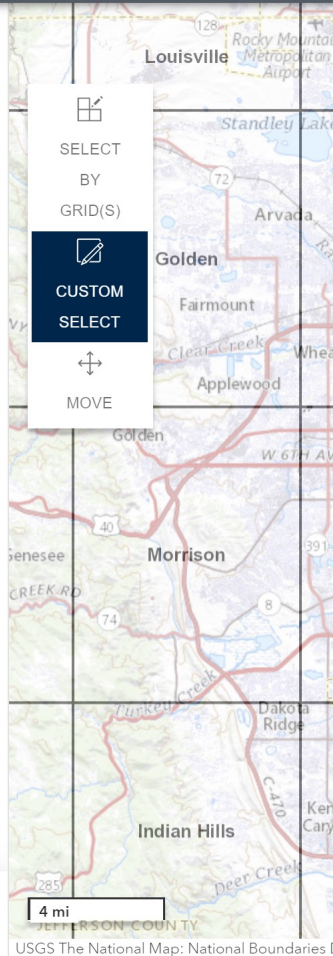
PDF ▾

Contour Smoothing ?

Low Medium High

DELETE

ADD



1 Map Types

## Maps

Select area of interest on the map

Display Grid

7.5-Minute Topo ?

SELECT ALL TOGGLE ALL

7.5-Minute To... + 🗑️

Format

PDF ▾

PDF

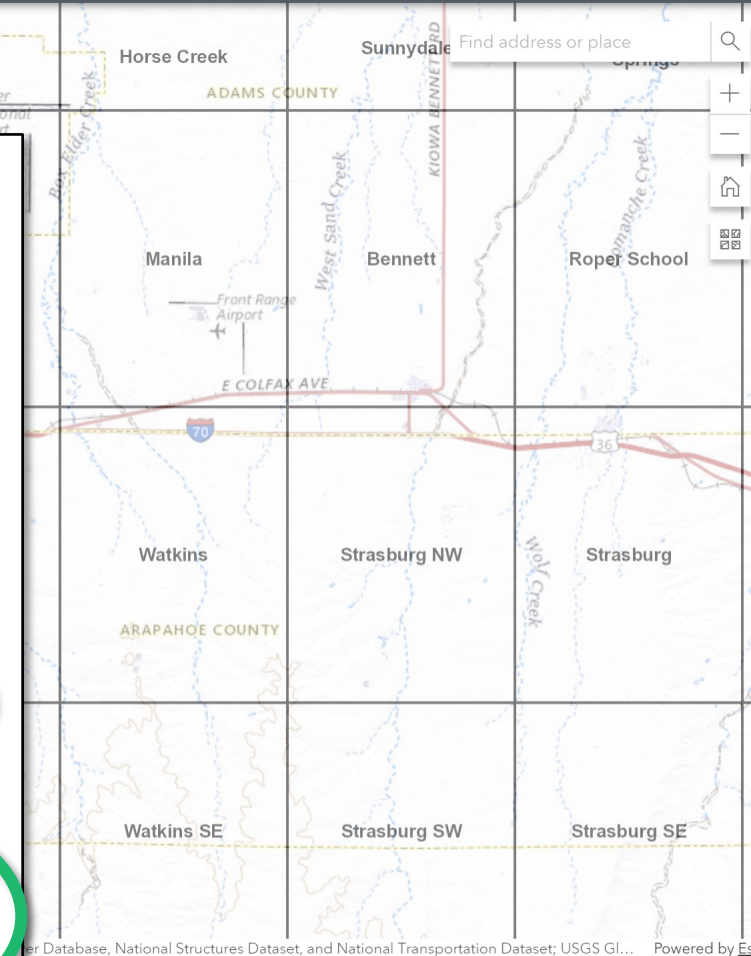
TIFF

Low Medium High

2 Maps

3 Cart 0

? Help





# Choose your contour smoothness

① Map Types

② Maps

③ Cart 0


④ Help

## Maps

Select area of interest on the map

Display Grid

7.5-Minute Topo i



SELECT ALL TOGGLE ALL

7.5-Minute To... + 🗑️ —

Format

PDF ▾

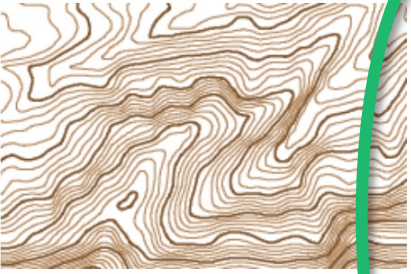
Contour Smoothing i

Low Medium High

## Contour Smoothness Guide


**Low Smoothing**

Contours will portray the landscape and topographic features at a high detail allowing the user to better identify geographic surface characteristics. These contours are best for scientific research such as Geology, Geomorphology, and Hazards.



**Medium Smoothing**

Contours are the classic topographic look found on many maps. Topographic features



CLOSE

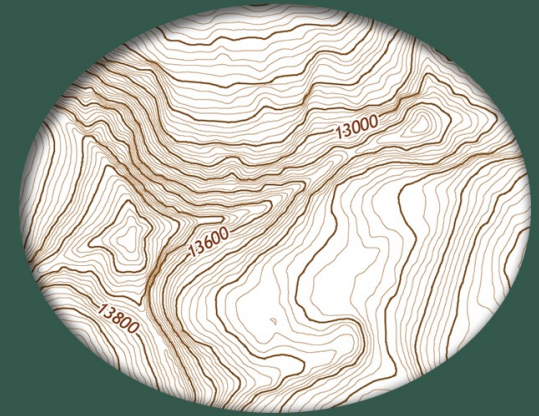


## More about contours

- Generated on the fly
- Use highest-resolution, best available 3DEP data
- $\frac{1}{3}$  arc-second,  $\frac{1}{9}$  arc-second, and 1 meter resolution in CONUS
- 2 meter in Alaska
- $\frac{1}{3}$  arc-second in U.S. territories
- Multiple smoothing options

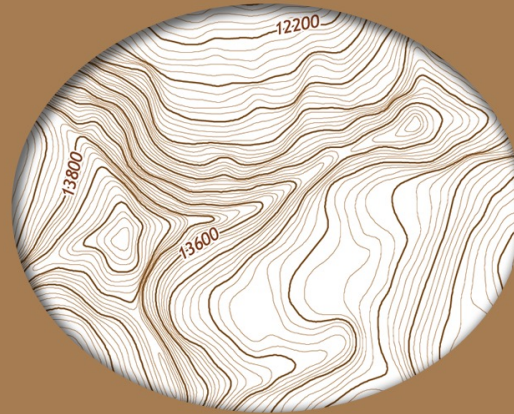
### low smoothing high detail

These highly detailed contours allow the user to identify surface features and landforms. Best suited for geology, geomorphology, and natural hazards.



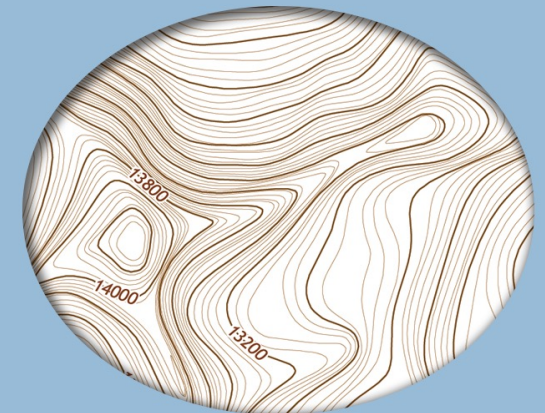
### medium smoothing medium detail

Closest to the US Topo style, the reduced detail permits better map readability. Best for recreation, geocaching and orienteering, land management, and emergency management.



### high smoothing low detail

This option shows only general topography. Smaller features may not appear. Best for thematic maps, urban planning, transportation management, and demography.





# Add to cart



topoBuilder Application v: 1.0.0

User Guide

- 1 Map Types
- 2 Maps
- 3 Cart
- 4 Help

## Maps

Select area of interest on the map

Display Grid

7.5-Minute Topo



SELECT ALL

TOGGLE ALL

7.5-Minute To...

Format

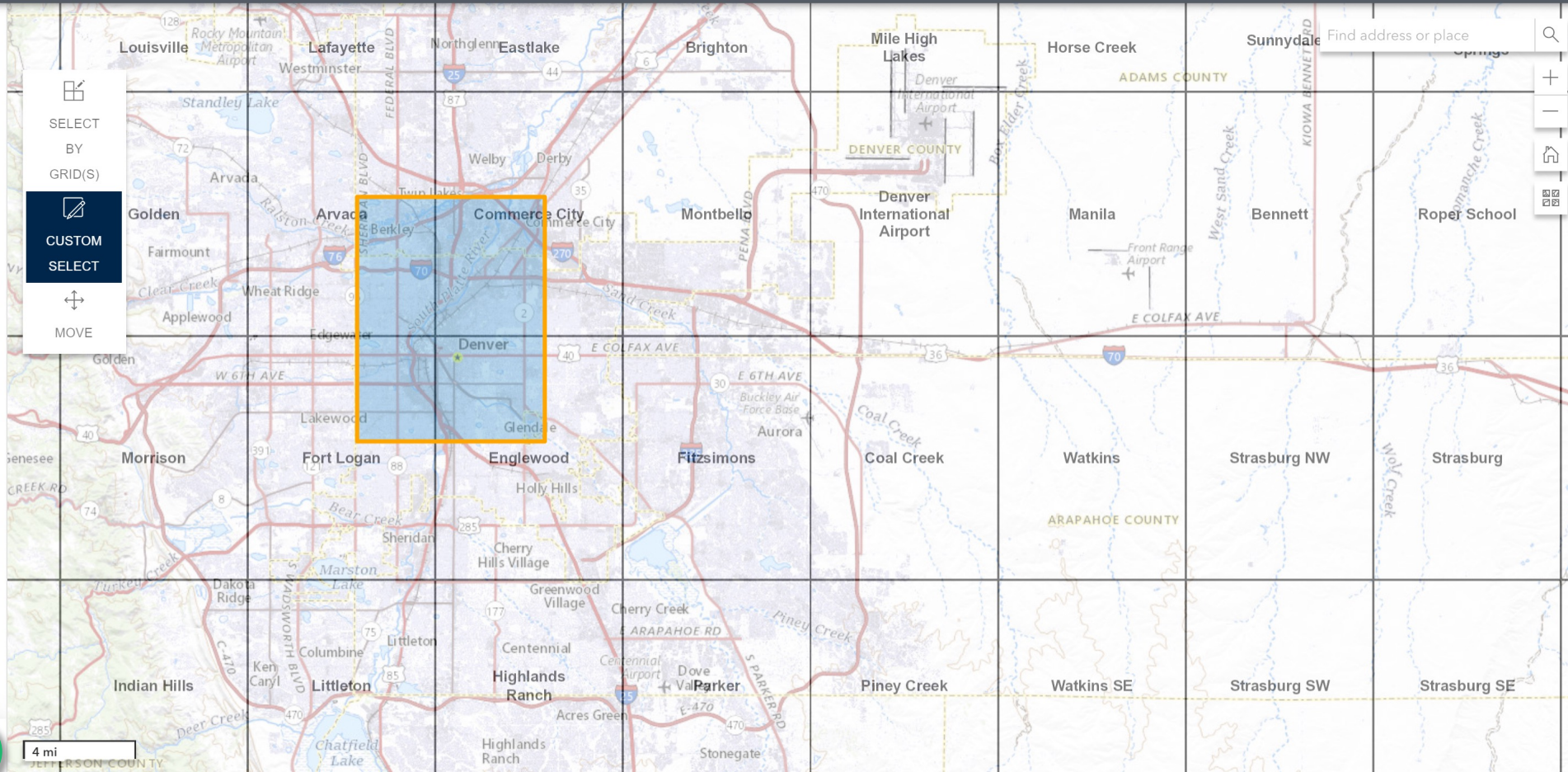
PDF

Contour Smoothing



DELETE

ADD



USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS GI... Powered by Esri



# Review selections in cart



topoBuilder Application v: 1.0.0

User Guide

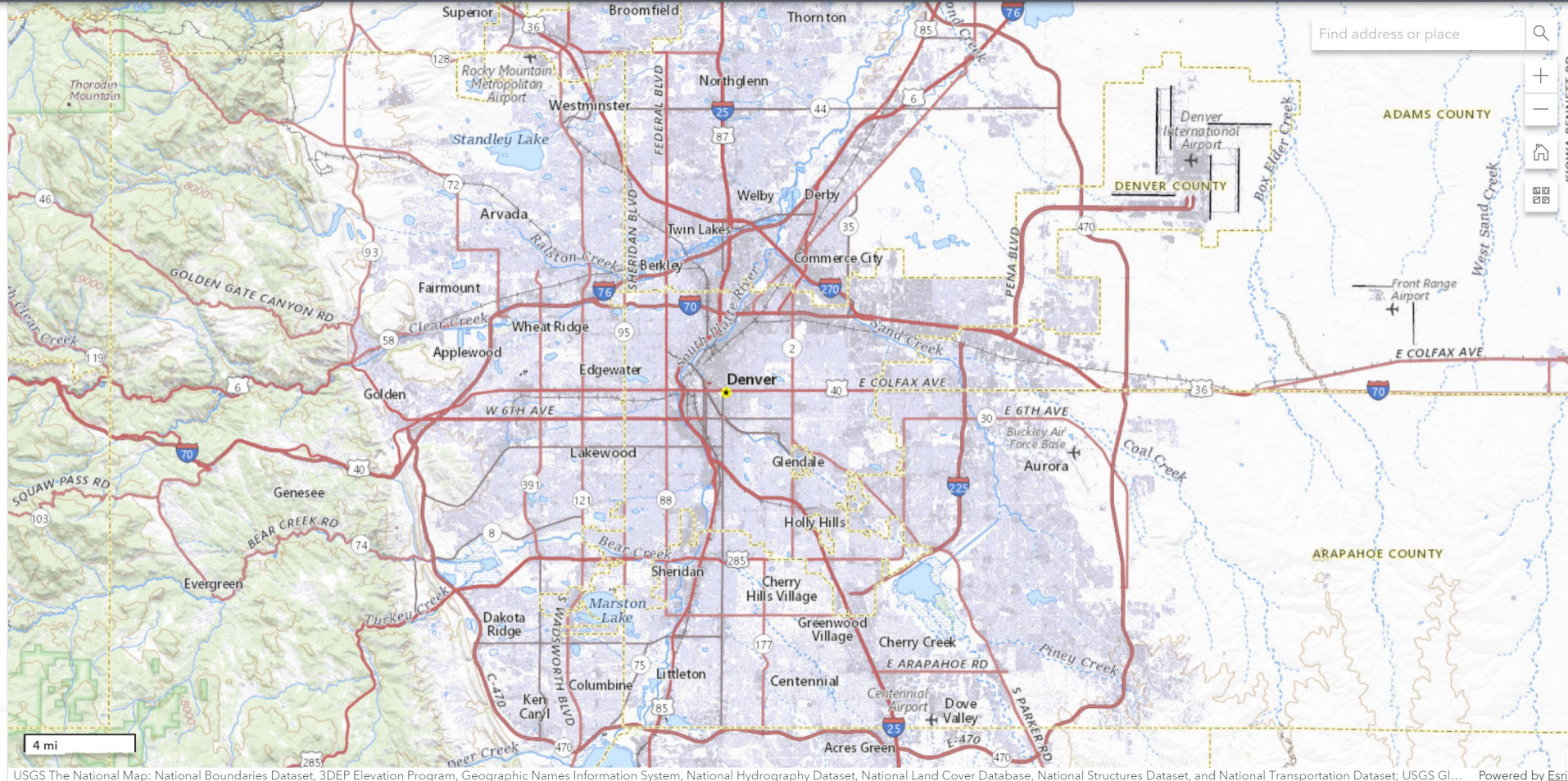
- 1 Map Types
- 2 Maps
- 3 Cart **1**
- 4 Help

## Cart

Checkout maps for purchase

### 7.5-Minute Topo

- 7.5-Minute Topo 1
  - Custom Extent
  - Medium Contour Smoothing
  - Production PDF Format





# Edit maps if necessary



topoBuilder Application v: 1.0.0

User Guide

- 1 Map Types
- 2 Maps
- 3 Cart 1
- 4 Help

## Edits

Make edits to maps

Display Grid

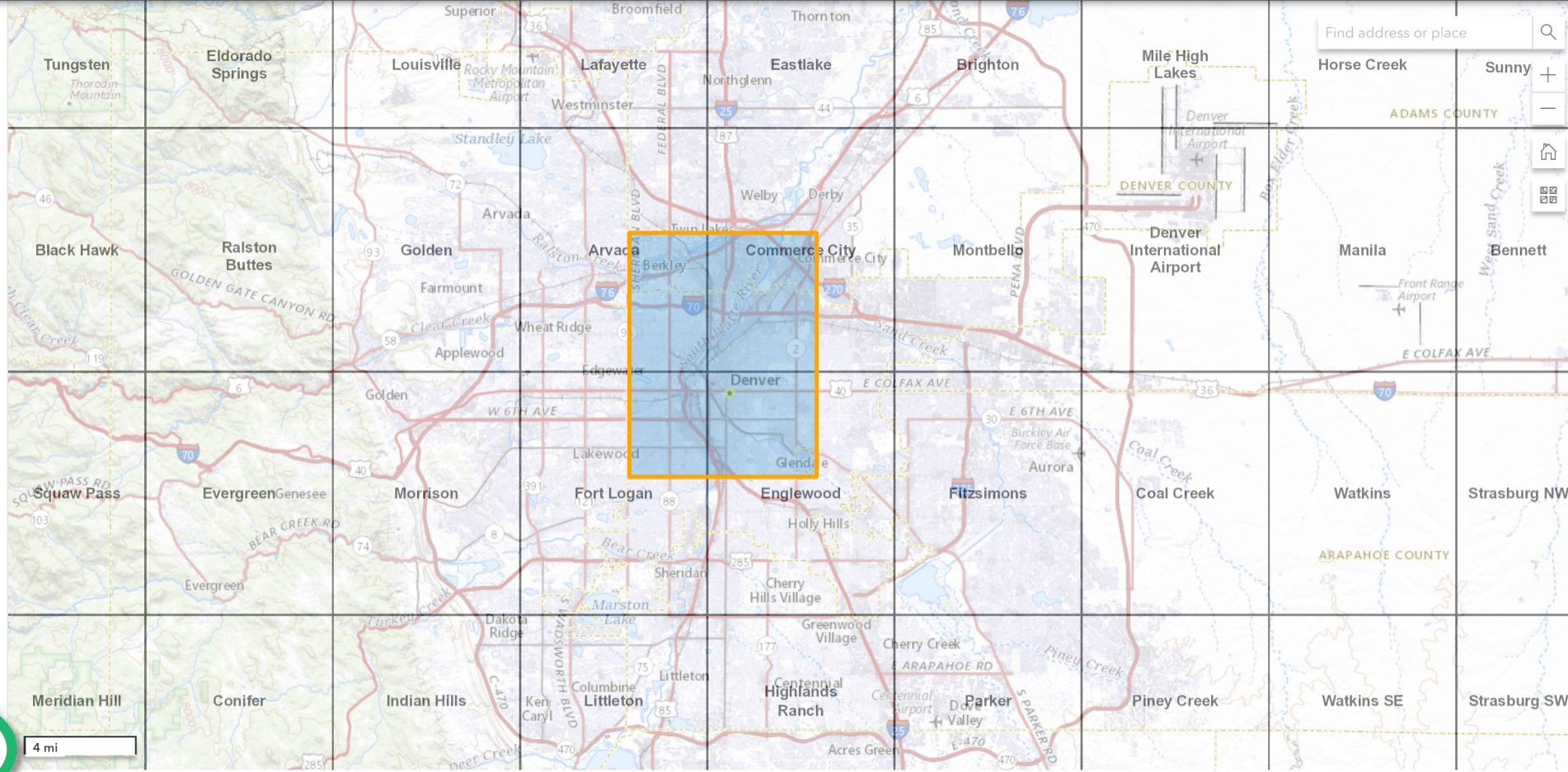


7.5-Minute Topo 1

Format: PDF

Contour Smoothing: Low Medium High

CANCEL **SAVE**



USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS GI... Powered by Esri



# Checkout



topoBuilder Application v: 1.0.0

User Guide

1 Map Types

## Cart

Checkout maps for purchase

2 Maps

## 7.5-Minute Topo

3 Cart 1

? Help

### 7.5-Minute Topo 1


- Custom Extent
- Medium Contour Smoothing
- Production PDF Format

EDIT MAPS

CHECKOUT

# What next?

## USGS Map Request

 no-reply-mapdelivery@usgs.gov  
Mon 1/10/2022 11:59 AM  
To: Baker, Josefa M

Hello

Thank you for your order. The following map(s) have been successfully submitted.


- 7.5-Minute Topo 1

Your order is in queue for processing. An email with a link will be sent when your map(s) are ready for download. Please contact us at [tnm\\_help@usgs.gov](mailto:tnm_help@usgs.gov) with questions.

Thank you,  
U.S. Geological Survey  
National Geospatial Program

- You will receive an email that your request was submitted.

## Completed Map Request

 no-reply-mapdelivery@usgs.gov  
Mon 1/10/2022 12:52 PM  
To: Baker, Josefa M

Hello

Thank you for your order. The following map has completed successfully and is ready for you to download. Follow the link provided to access your map.

75MinuteTopo1

- Custom Selected Map
- Contour Smoothness: Medium
- 24K Topographic Map Type
- 1:24000 Scale
- Production PDF Format

[https://topobuilder-delivery.usgs.gov/MapDelivery/VA\\_75MinuteTopo1\\_20220110\\_170035\\_TM\\_geo.pdf?Expires=1649613160&Signature=E8WtUvjS5djbHgGQu3qNZCRogkaQVRaAGpm1FirmGnFMytNvesh-s3bb5gYV4-atPlvaol2ZsvVRCbMRi6GCTk7UnF669X-0R27i9Q7jNebDe2RagO8nkQNGw3z9j22oCxxdhlLU4xqpUz9rf5wPMj63nZC68F7vXQ-Wj8IM0tG9Qfr-oQCUs1fWwMoHsUcS-clvYQRXha5Vjx8QWUCW7msYiIDHhe3APFenuqghJNBQ-vDShx6TKOI7S71Xg2kzV6OgkXVWYEVCCak-JswTvOTbn2KpDGunLzdWqKWFgfJfdTWknrutJMR5dnNCSq1bCOeRUHDrxVXZxwT1w\\_&Key-Pair-Id=K151FLKNF8L655](https://topobuilder-delivery.usgs.gov/MapDelivery/VA_75MinuteTopo1_20220110_170035_TM_geo.pdf?Expires=1649613160&Signature=E8WtUvjS5djbHgGQu3qNZCRogkaQVRaAGpm1FirmGnFMytNvesh-s3bb5gYV4-atPlvaol2ZsvVRCbMRi6GCTk7UnF669X-0R27i9Q7jNebDe2RagO8nkQNGw3z9j22oCxxdhlLU4xqpUz9rf5wPMj63nZC68F7vXQ-Wj8IM0tG9Qfr-oQCUs1fWwMoHsUcS-clvYQRXha5Vjx8QWUCW7msYiIDHhe3APFenuqghJNBQ-vDShx6TKOI7S71Xg2kzV6OgkXVWYEVCCak-JswTvOTbn2KpDGunLzdWqKWFgfJfdTWknrutJMR5dnNCSq1bCOeRUHDrxVXZxwT1w_&Key-Pair-Id=K151FLKNF8L655)

The file will be deleted on: 2022-02-09.  
Please contact us at [tnm\\_help@usgs.gov](mailto:tnm_help@usgs.gov) with questions.

Thank you,  
U.S. Geological Survey  
National Geospatial Program

- When the map is ready to download, you will receive a second email with a direct download link.



# Need help?

- National Map topoBuilder webpage:

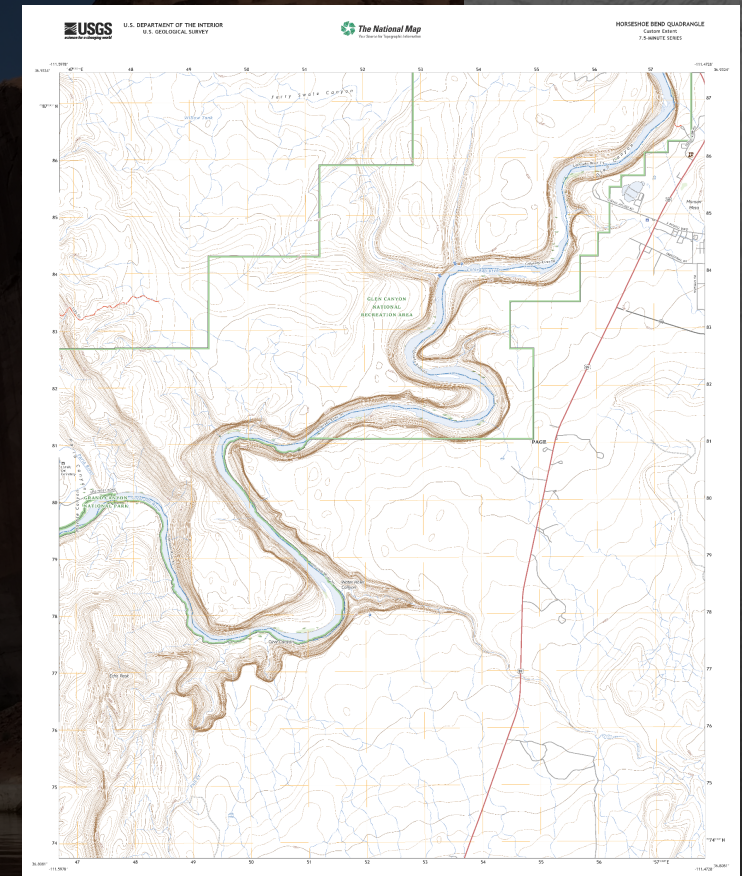
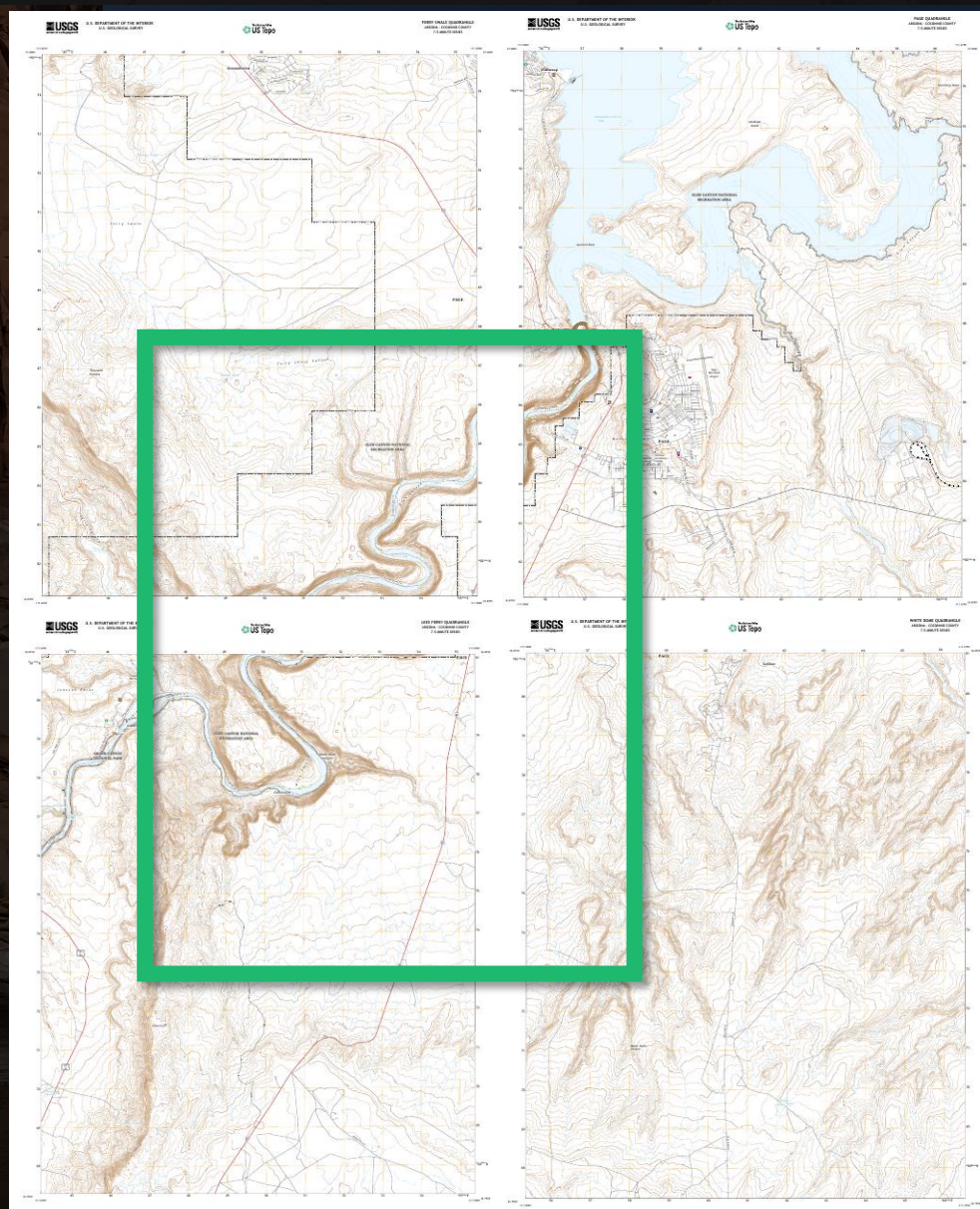
<https://www.usgs.gov/programs/national-geospatial-program/topobuilder>

- User Guide
- [tnm\\_help@usgs.gov](mailto:tnm_help@usgs.gov)





# What's the difference?





# US Topo

- Staged
- Standard USGS quads
- Predesigned contours
- Updated on a 3-year schedule
- Free and immediate download (pay to print)

# OnDemand Topo

- On demand
- Custom extent
- Contours generated on the fly
- Uses best available data
- Currently available for a limited time



# US Topo

- 1:24,000 in CONUS & Hawaii
- 1:25,000 in Alaska
- 1:20,000 Puerto Rico & U.S. Virgin Islands
- Produced only at these three scales

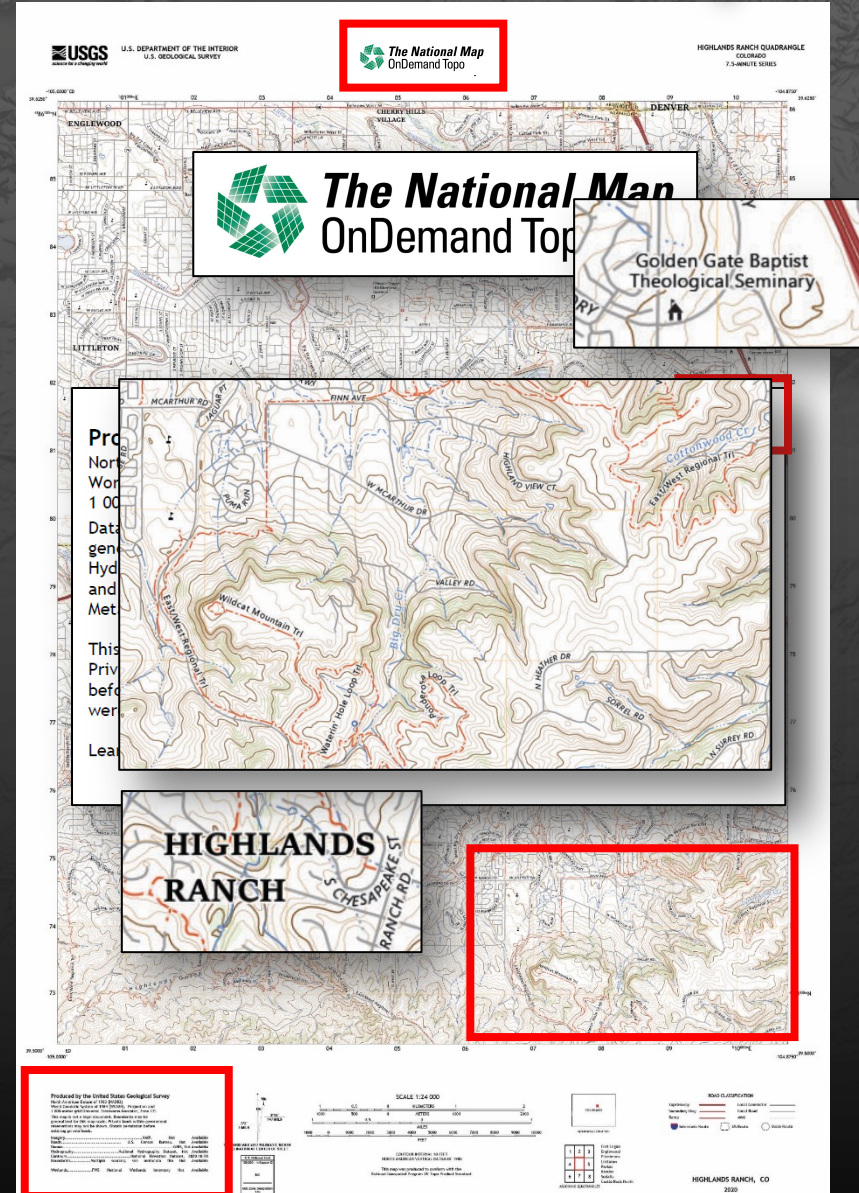
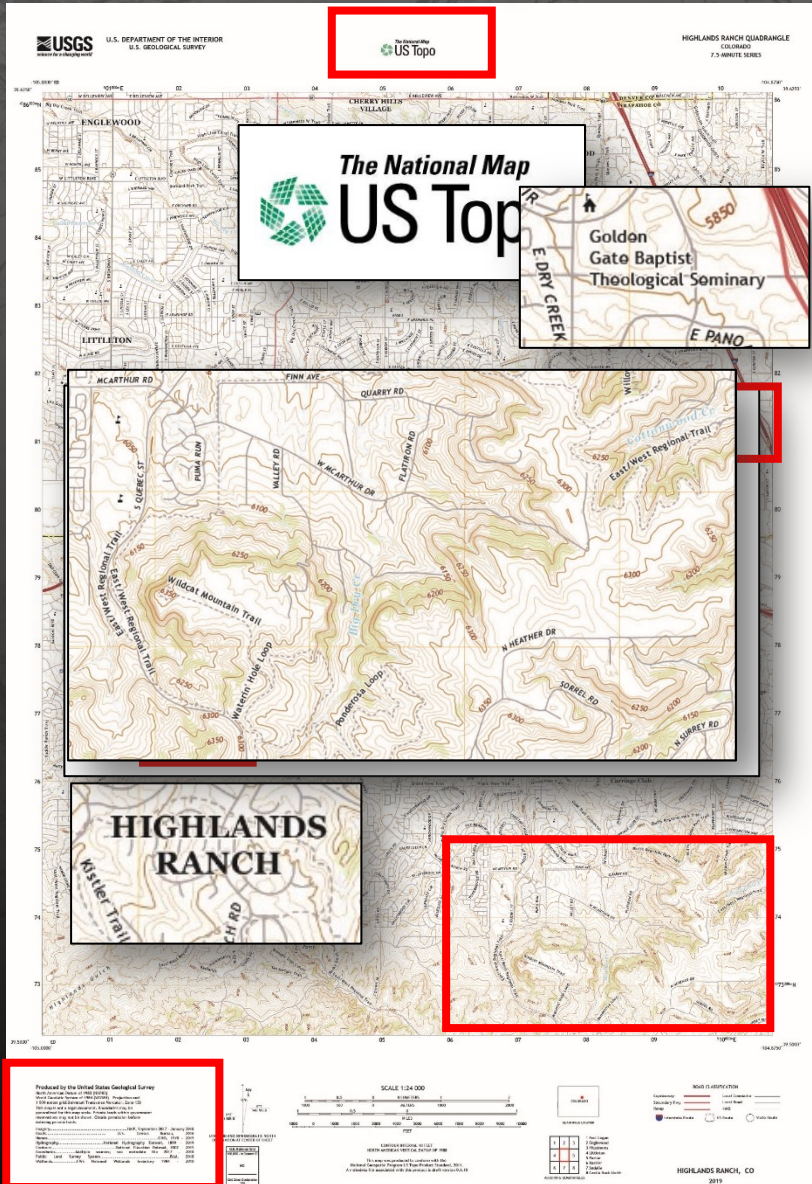
# OnDemand Topo

- 1:24,000 in CONUS and Hawaii
- 1:25,000 in Alaska
- 1:20,000 in Puerto Rico, U.S. Virgin Islands, American Samoa, Guam, and Northern Mariana Islands
- Multi-scale (in future releases)



# US Topo

# OnDemand Topo



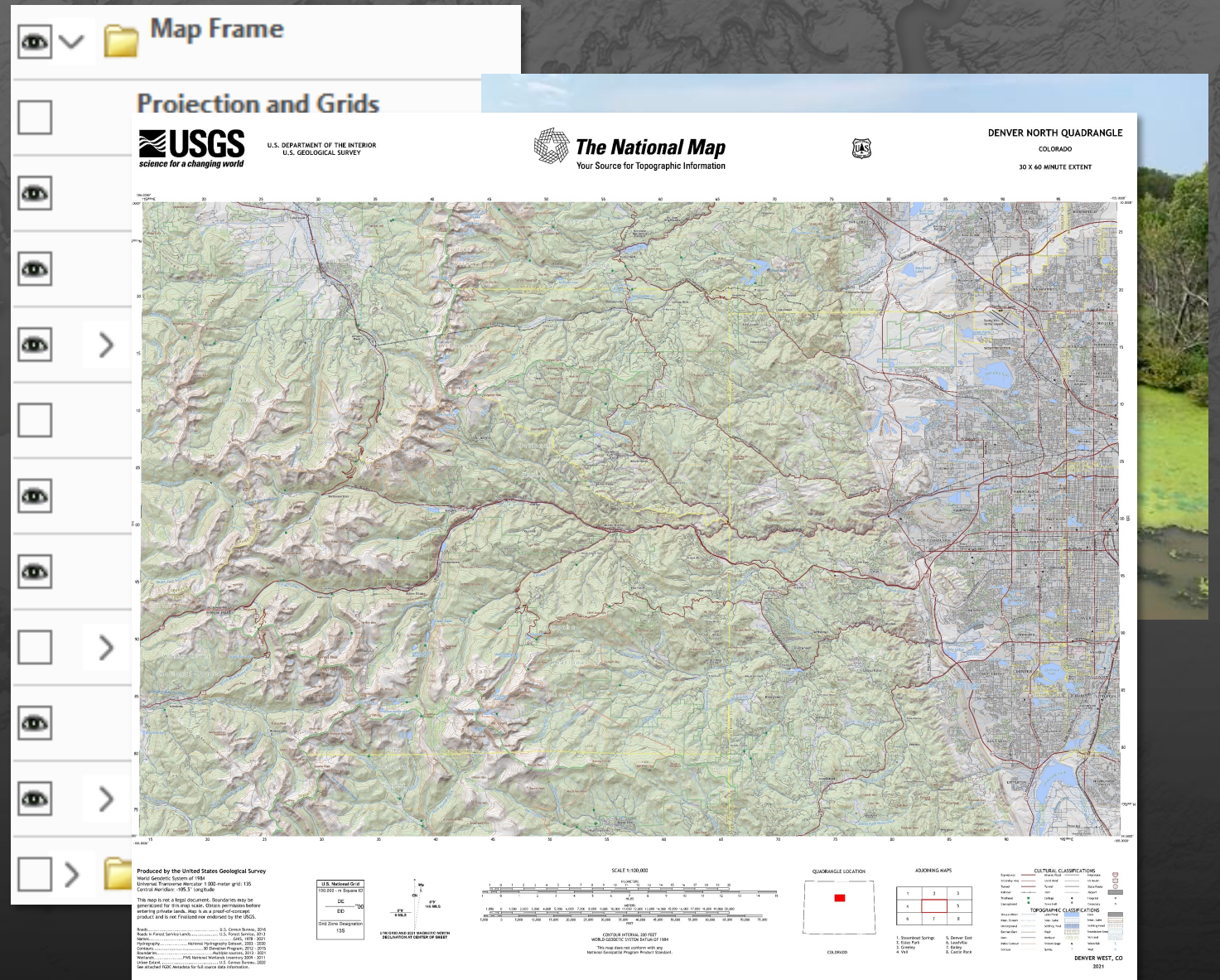






# Late 2022

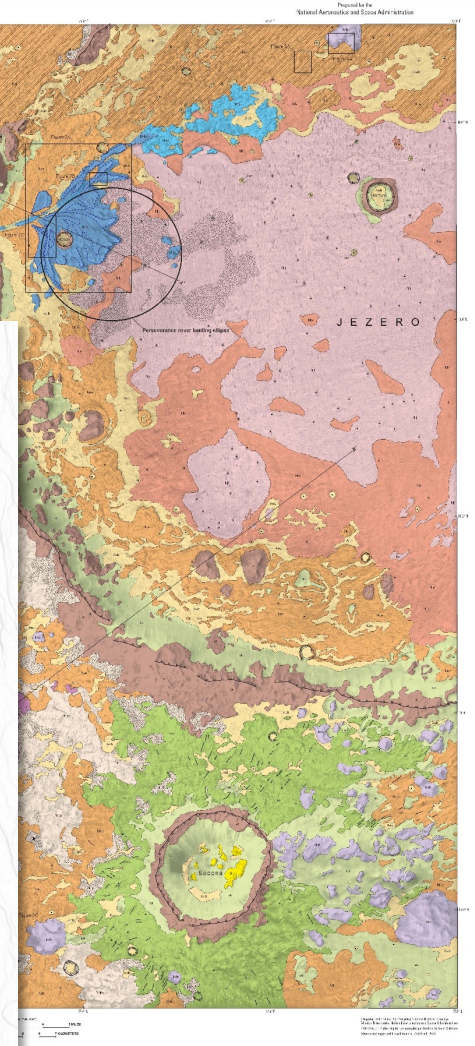
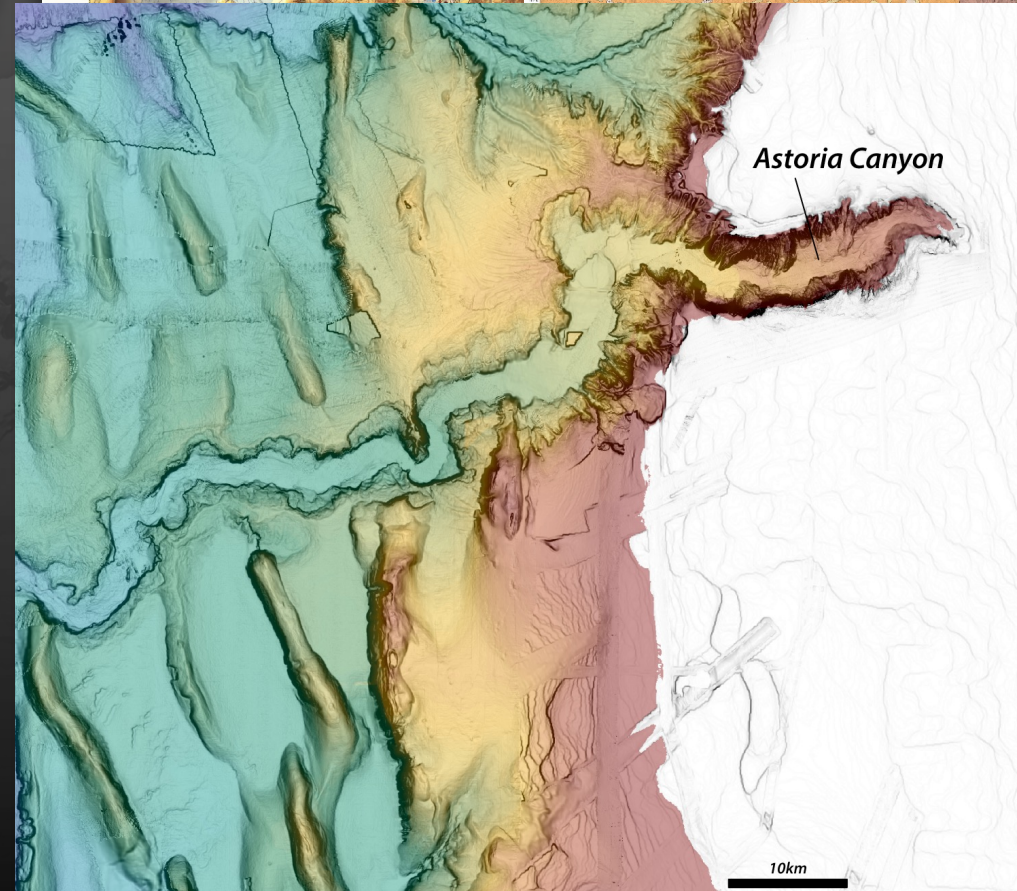
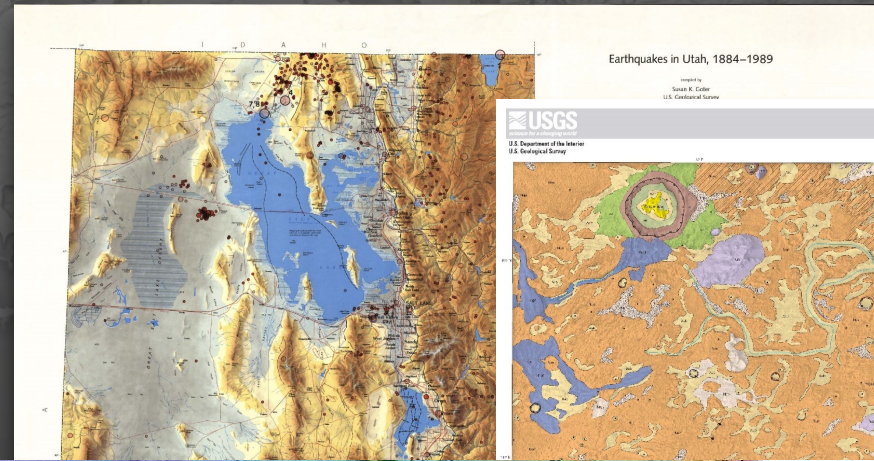
- User-selected TNM layers
- 1:100,000-scale





# Future releases

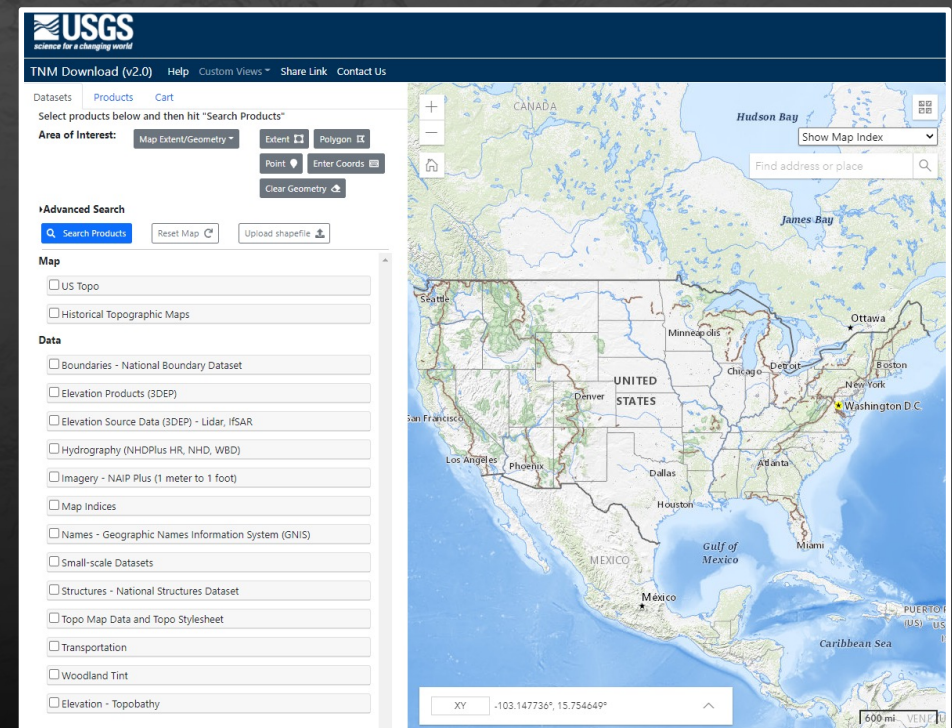
- User Added Content
- Custom area of interest
- GIS data download
- Print
- Additional scales
- Additional map types





# Essential facts

- topoBuilder uses the best available data from The National Map to create OnDemand Topos
- Choose file format, area of interest, and level of contour smoothness
- Additional customizations, scales, map types are planned
- US Topo staged maps continue to be produced and are available as free and immediate downloads





# Questions and discussion

William Marken [wmarken@usgs.gov](mailto:wmarken@usgs.gov)

User feedback, help, or support:

[tnm\\_help@usgs.gov](mailto:tnm_help@usgs.gov)

Special thanks to Ariel Doumbouya,  
Cartographic Products Lead  
USGS National Geospatial Program  
For providing slides and information.



**when you want**  
created on demand



**where you want**  
centered anywhere in  
the U.S. and territories



**what you want**  
turn map layers on or off  
with Geospatial PDF



On-Demand, Custom, Topographic Maps

start making yours at

**[topobuilder.nationalmap.gov](http://topobuilder.nationalmap.gov)**



**up-to-date**  
uses latest available data  
from The National Map



**fast turnaround**  
maps take up to  
5 days to process



**delivered to you**  
download maps from a link  
sent to your email



# Demo

[topobuilder.nationalmap.gov](http://topobuilder.nationalmap.gov)