



*The data consortium consists of Denver Regional Council of Governments members and regional partners with an interest in geospatial data and collaboration. The data consortium newsletter improves communication among local geographic information systems professionals and features updates from all levels of government as they relate to data and geospatial initiatives in our region. This newsletter is published quarterly.*

## Introducing the new Regional Data Catalog

*Article submitted by Ashley Summers, GISP, PMP, information systems manager at DRCOG. Ashley can be reached at 303-480-6746 or [asummers@drcog.org](mailto:asummers@drcog.org).*

DRCOG has been hosting a Regional Data Catalog since around 2010. Since the beginning, our goal has been to provide easy access to regional data for our varied audience that includes GIS professionals and planners within local governments, at our partner agencies, at academic institutions, in the private sector and the general public. To continue achieving this goal, DRCOG staff knows it must keep up with ever-changing technologies and the needs of our stakeholders.

For the past six months, DRCOG information systems staff have been working on a new version of our Regional Data Catalog. We aimed to improve discovery of data and maps by:

- categorizing information in an intuitive way
- standardizing naming conventions and keywords

- employing more flexible search methods
- allowing users to sort and filter results by topic, date and format
- advertising new additions and popular downloads
- providing more formats, including GeoJSON, WMS, KML and SHPs
- adding webmaps to a map gallery

[Regional Data Catalog](#)

If you have feedback for us, please [take the survey](#).

## Workshop survey: Tell us what you want to learn

At the fall 2017 Denver Regional Data Consortium meeting, attendees suggested that DRCOG offer technical workshops. We are happy to offer assistance and excited to share our skills with you. We're also interested in the possibility of co-teaching with those of you who would like to collaborate on a class.

Whether you want to learn or teach with us, please let us know what topics, technologies and DRCOG initiatives interest you most. We want to ensure that our 2018 offerings meet your needs.

[Take the survey](#)

## Modernized National Spatial Reference System will bring about 3 feet of change

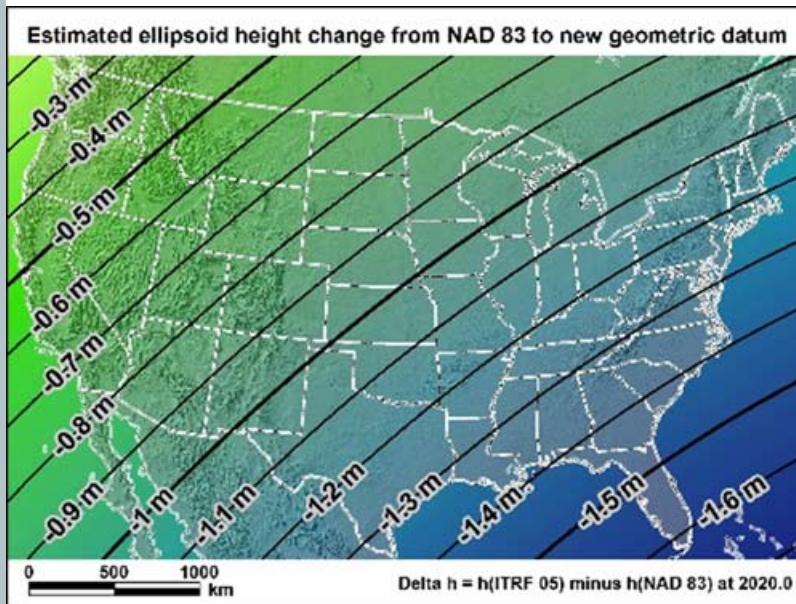
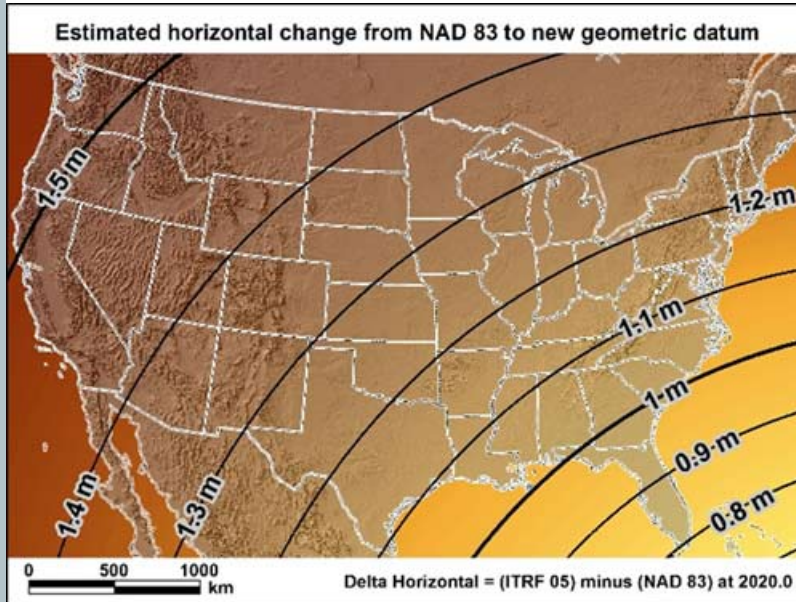
*Article submitted by Pam Fromhertz, Rocky Mountain regional adviser at the National Geodetic Survey, National Oceanic and Atmospheric Administration. Pam can be reached at 240-988-6363 or [pamela.fromhertz@noaa.gov](mailto:pamela.fromhertz@noaa.gov).*

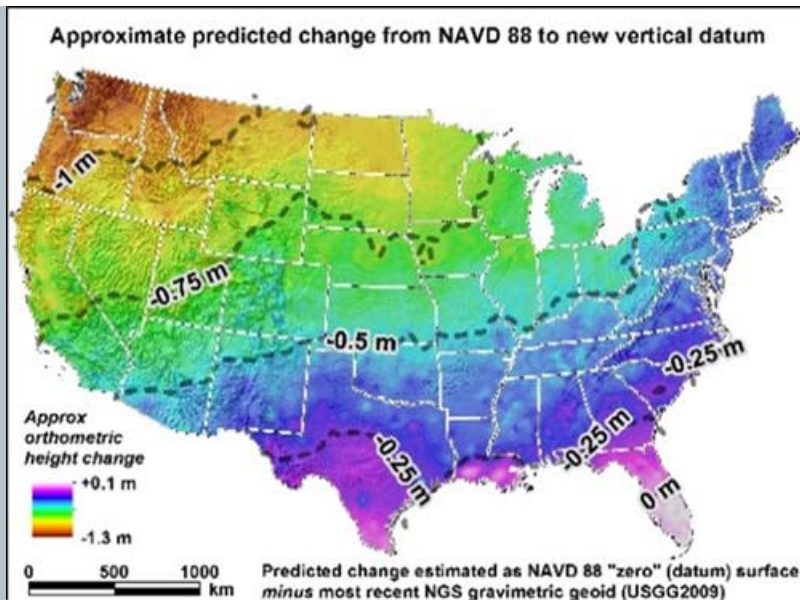
All geospatial data is defined by some type of reference frame or datum. The National Geodetic Survey (NGS) defines, maintains and provides access to the coordinate system and vertical datum for the United States, known as the National Spatial Reference System. As technology, mainly Global Navigation Satellite Systems (GNSS), is increasingly integrated into data collection, the method by which these surfaces are defined must be updated to meet users' needs. Just 30 years ago, nationwide horizontal and vertical datums were only accurate to several feet. Today, many users want to know where they are located to within a few inches and thus NGS is in the process of improving these reference systems.

### **New reference system**

There are currently two datums: a horizontal datum, North American Datum of 1983 (NAD 83), and a vertical datum, North American Vertical Datum of 1988 (NAVD 88). Ashley wrote about the horizontal datums in the [October 2013 DRCOG Data Consortium Newsletter](#). Prior to GNSS, the survey techniques and data used to define the horizontal datums were completely independent of the vertical. Now with the advent of GNSS we get 3-D data instantaneously, and even 4-D if time is taken into account. The vertical component from GNSS is referred to as an ellipsoid height. However, that height is based merely on a mathematically defined ellipsoid so it provides minimal information about the topographic heights that conform to gravity, and which way water flows or floods. Traditionally, we use orthometric heights derived from a simple surveying technique called differential leveling. This orthometric height gives us a height relative to a standard datum surface that is roughly equivalent to mean sea level. Leveling is, however, very laborious and costly. To provide improved GNSS access to meet users' needs, NGS is re-inventing the entire National Spatial Reference System. NGS will release a new system in 2022, with two principal components: a semi-dynamic 3-D geometric reference frame, called the **North American Terrestrial Reference Frame of 2022 (NATRF2022)**, along with similar frames for the Pacific, Marina and Caribbean plates; and a nationwide geopotential datum defined by a gravimetric geoid (a surface that approximates an idealized mean sea surface), called the **North American-Pacific Geopotential Datum of 2022** or **NAPGD2022**. Changes in

published positional values in Colorado are anticipated to be on average three feet horizontally and vertically in Colorado.





Note the two images illustrating the anticipated changes: One uses the ellipsoid height and the other the orthometric height. Keep in mind the difference between orthometric and ellipsoid height in Colorado is an average of 60 feet.

**Anticipated positional changes in 2022 computed for Station W 409 near Denver**

**Horizontal:** 1.4 meters (4.6 feet)

**Ellipsoid height:** -0.9 meters (-2.9 feet)

**Orthometric height:** -0.7 meters (-2.3 feet)

NGS intends to provide a geoid model that is accurate to within 2 centimeters (0.8 inches) for GNSS-based access to orthometric heights without leveling. In other words, you will be able to apply the geoid model accurately to your GNSS data to derive the needed height or elevation. NGS has held many workshops on the development and effects of the new reference system. Visit [National Geodetic Survey: New Datums](#) for presentations, recordings and documents. With the release of the modernized reference system in 2022, technical reports and conversion software will be available. NGS Coordinate and Transformation Tool (NCAT) is available in beta version for transforming between all horizontal datums as well as converting between various systems. I will present on this topic at the [Elevations Geospatial Conference](#) and the [Rocky Mountain Survey Summit](#).

# policy for GIS data and standard maps

*Article submitted by Barbara Morey, CP, GISP, lead geographic information systems analyst/developer at Jefferson County Information Technology Services. Barb can be reached at 303-271-8041 or [bmorey@jeffco.us](mailto:bmorey@jeffco.us)*

Jefferson County has long had a policy of charging a fee for GIS data and maps. The Board of County Commissioners voted unanimously to rescind that policy effective Jan. 10, 2017 – approximately one year ago. The county continues to charge a fee for custom GIS processing, analysis, maps and parcel data.

Though a fee is no longer charged, the county still required a signed license agreement. This meant staff continued to be involved in each request, which kept the process of distributing data slow. The Information Technology Services geographic information systems staff worked with the county attorney on the licensing details and ultimately received permission to adopt a Creative Commons license. Because the Esri Open Data site uses Creative Commons licensing, Jefferson County could distribute data using ArcGIS Open Data.

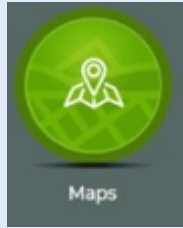
In June 2017 Jefferson County made available 29 GIS data sets on the site and ceased other distribution methods for non-fee data. The data available via ArcGIS Open Data includes the most-requested items from Address points to Zoning. See the complete list at the end of this article. The standard maps, in PDF format, are available free of charge on the county website.

The GIS data is also available to view, search for property or permits, identify layers, and to print at the [Jefferson County online map, “jMap”](#)

To access the data available to download, go to Jefferson County page on the [ArcGIS Open Data site](#).

To download the standard maps, in PDF format, go to the [county website](#) and select the green “Maps” icon.

Data available for download:



- Address
- Ambulance District
- Bike Plan
- Colorado state house district
- Colorado state senate district
- Colorado U.S. house district
- City boundary
- City precinct
  
- City ward
- Commissioner district
- County boundary
- County precinct
- Fire bond district
- Fire district
- Foothill park and rec
- Improvement district
- Metropolitan district
- Open space parks
- Open space trails
- Park district
  
- Regional Transportation District
- Sanitation district
- South Jeffco local improvement district
- Streets
- Traffic impact fee area
- Urban renewal district
- Water district
- Water and sanitation district
- Zoning

Recap of the LUCA technical

# workshop

The U.S. Census Bureau held a technical workshop for the Local Update of Census Addresses at DRCOG on Dec. 12.

LUCA is the only opportunity offered to tribal, state and local governments to review and comment on the U.S. Census Bureau's residential address list for their jurisdiction prior to the 2020 Census. The program for the 2020 Census was introduced in January of 2017. Registration for the program began in July and ended Dec. 17, 2017.

The technical workshop was designed for local address coordinators, GIS practitioners or local planners to help them understand the LUCA process and their participation in the program.

If you missed it, you can watch the [recorded webinar](#) and [view the slides](#).

For more general information on the U.S. Census Bureau, attend upcoming virtual trainings entitled [Your Community by The Numbers](#).

## Join the 2018 planimetric project

*Article submitted by Ashley Summers, GISP, PMP, information systems manager at DRCOG. Ashley can be reached at 303-480-6746 or [asummers@drcog.org](mailto:asummers@drcog.org).*

DRCOG and its partners have just successfully finished the second regional planimetric project! Our first project collected features from 2014 aerial imagery and the second recorded changes seen in 2016 imagery. Both sets of data include building roofprints, edge of pavement, parking lots, sidewalk centerlines and more, and are available for [free download from our Regional Data Catalog](#). We invite you to take a look and put the data to good use!

With projects as large as these – covering so much area and including so many small details – there's never really much time to rest on our laurels. As soon as we've finished one project successfully, we're already on to the next one. That's where you come in.



Our 2018 Denver Regional Aerial Photography Project is gearing up and planes are expected to be in the air by March. Final, orthorectified imagery will be delivered to us in December, at which point a planimetric update project can begin. To help all potential partners budget accurately and have time to consider their specific needs and wants, DRCOG is starting to plan now.

DRCOG is already engaging existing planimetric project partners in surveys to get a better understanding of requirements for the upcoming project. During the first quarter of this year, we will determine our parameters and get rough cost estimates to equip our partners for 2019 budget discussions.

**If you are not an existing planimetric project partner but you want to be involved in our upcoming project, please reach out to me at [asummers@drcog.org](mailto:asummers@drcog.org).** By participating, you can influence how the project is conducted, the features to be collected and how they are captured and attributed. In addition to being able to tailor the project to your needs, your participation helps the wider GIS community in our region. Our strong partnerships allow us to leverage our modest budgets into quality data sets that power our distinct business needs. Please join us in this significant regional effort.

## RTD releases 2017 customer satisfaction survey results

In case you missed it, [read the press release](#).

## Your article goes here!

The Denver Regional Data Consortium newsletter is facilitated by DRCOG but written by GIS professionals like you. This quarterly newsletter reaches more than 200 people and has a higher-than-average open rate. It's the perfect place to show off your projects, highlight your great work and contribute ideas to the GIS community in the Denver region.

Newsletter release dates are Jan. 15, April 15, July 15, and Oct. 15 (or the next business day). Please contact Ashley Summers at 303-480-6746 or [asummers@drcog.org](mailto:asummers@drcog.org) to contribute.

## Pop quiz: Can you answer these questions about the region?

Which county has the highest median home value?

- a) Arapahoe
- b) Boulder
- c) Denver
- d) Douglas

Which county had the largest percent of people older than 60 in 2016?

- a) Boulder
- b) Clear Creek
- c) Gilpin
- d) Jefferson

Hint: Use [DRCOG's Community Profiles](#). We've updated them since the last newsletter with the latest American Community Survey data!

If you know the answer, [respond to Christine Connally](#). The first to respond with the correct answer will be recognized in the next newsletter.

### **Congratulations to the winner from the last newsletter:**

Rachel Parinello - Boulder

For more information on any of the topics mentioned in this newsletter or if you have an idea for an article, please contact Ashley Summers, DRCOG information systems manager, at 303-480-6746 or [asummers@drcog.org](mailto:asummers@drcog.org).

Disclaimer: The information provided in this newsletter is compiled from multiple sources and is intended for informational purposes only. DRCOG assumes no responsibility or legal liability for the accuracy, completeness or usefulness of any information in this newsletter.



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