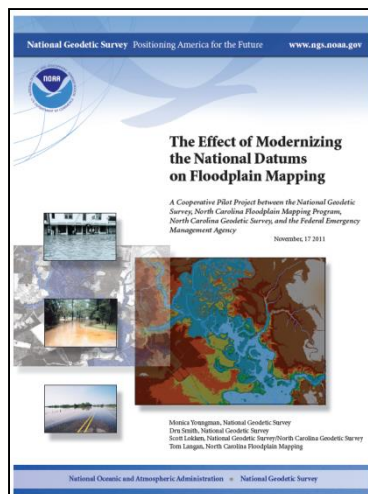
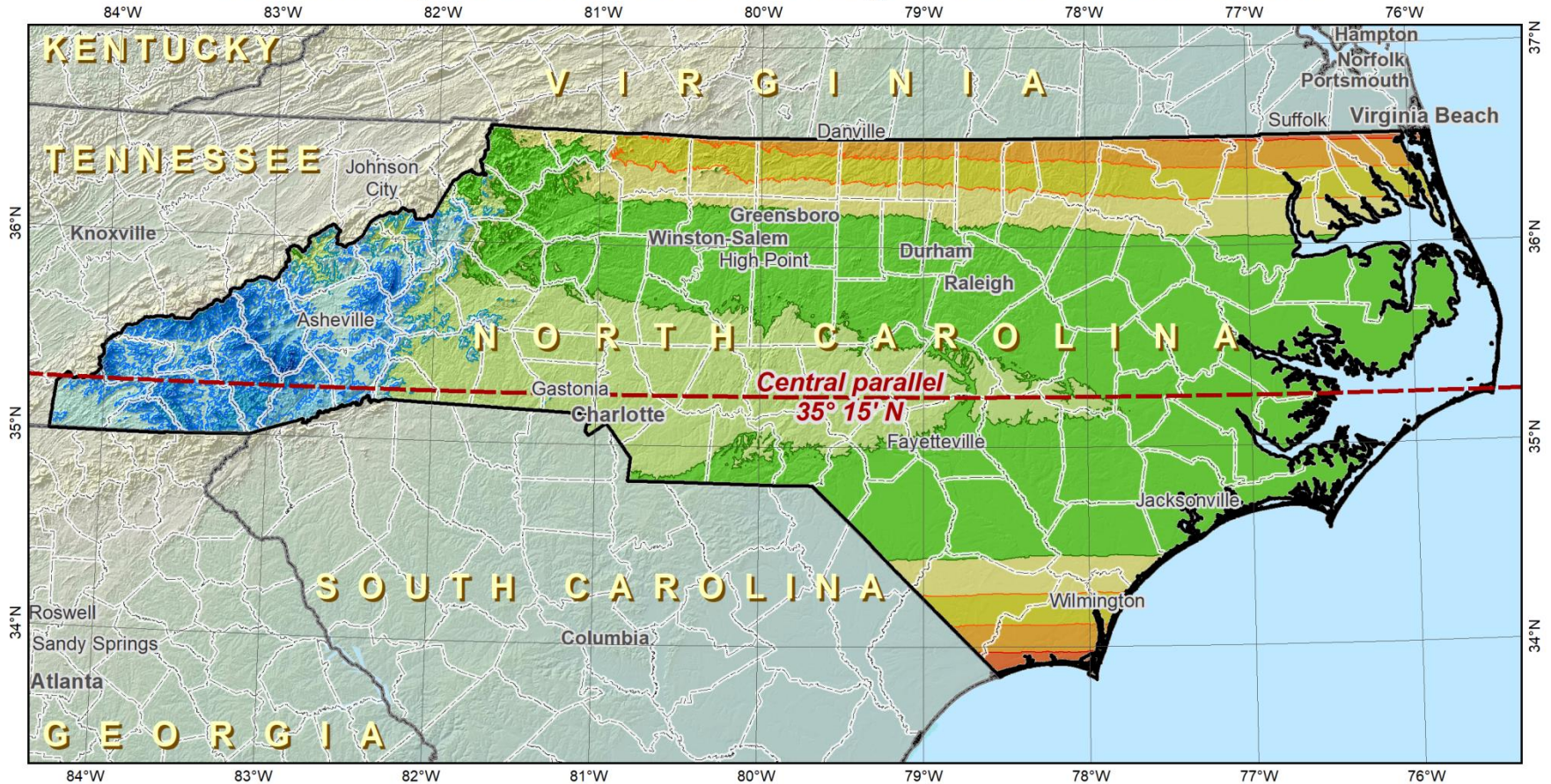


# New Datums are Coming in 2022

- Developing 2022 datum issue papers
  - Engineering ✓
  - Surveying ✓
  - Construction
  - Agriculture (in progress)
  - Imagery/elevation
  - Land records (in progress)
  - Floodplain mapping (updated study)



# Preliminary SPCS2022 default design: North Carolina Zone



## Lambert Conformal Conic projection

North American Terrestrial Reference Frame of 2022

Central parallel: 35° 15' N

Central parallel scale: 0.999 95 (exact)



NOAA's  
National  
Geodetic  
Survey

### Areas within $\pm 100$ ppm distortion

(1:10,000 =  $\pm 0.53$  ft per mile):

90% of population

78% of all cities and towns

76% of entire zone area

### Distortion values (ppm)

#### Entire zone:

Min = -341      Range = 597

Max = +256      Mean = -14

#### Cities and towns:

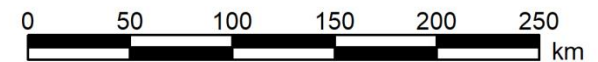
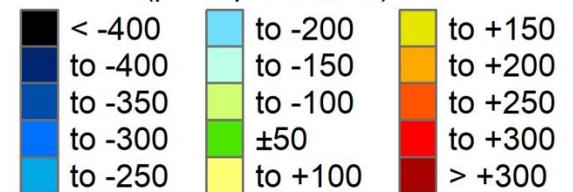
Min = -222      Mean = -25

Max = +246      (weighted by

Range = 469      population)

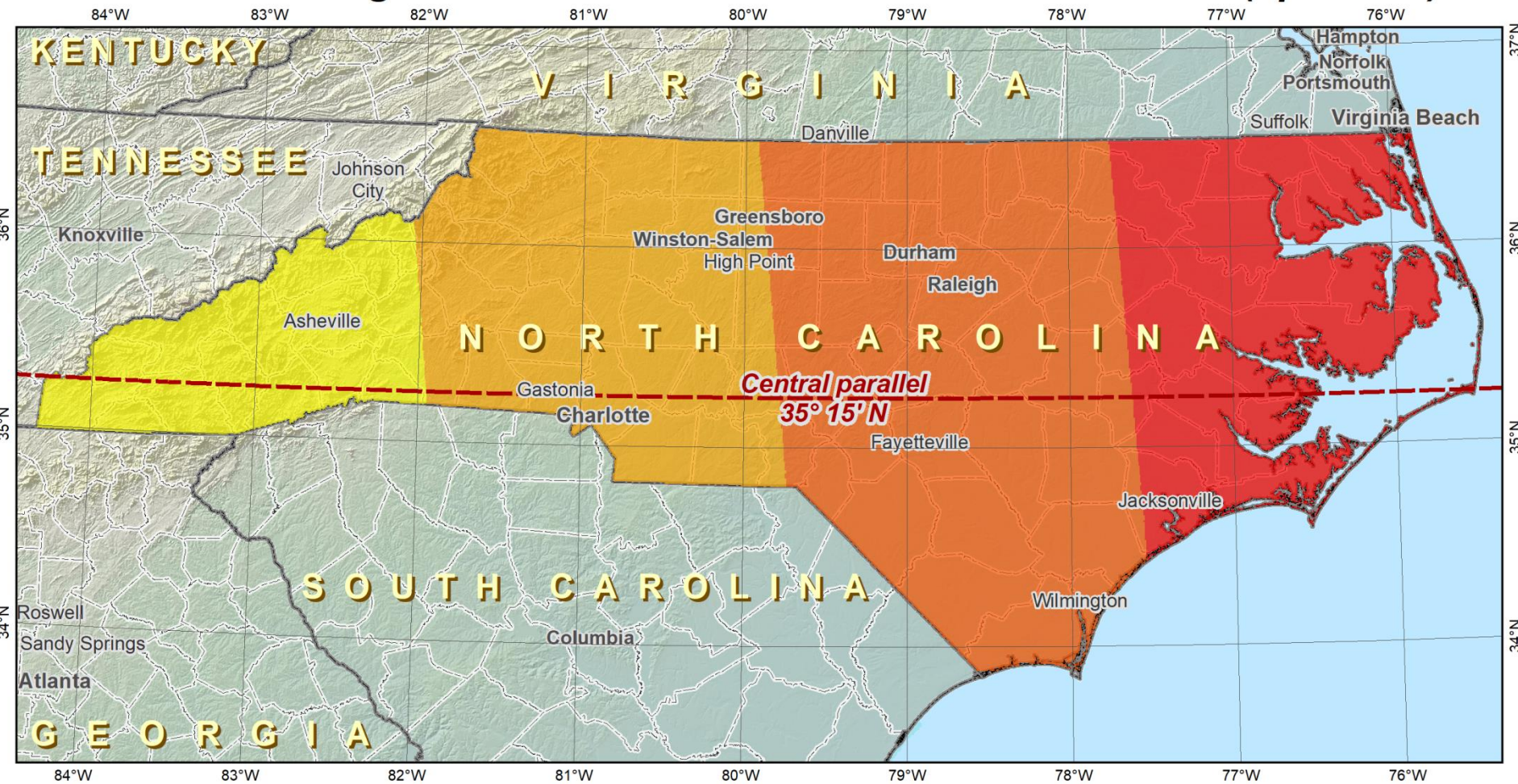
Created 03/10/2019

### Linear distortion at topographic surface (parts per million)





# Horizontal change in SPCS2022 coordinates for North Carolina (option 2b)



## Lambert Conformal Conic projection

North American Terrestrial Reference Frame of 2022

Central parallel: 35° 15' N

Central parallel scale: 0.999 95 (exact)

**Areas within ±100 ppm distortion (1:10,000 = ±0.53 ft per mile):**

- 90% of population
- 78% of all cities and towns
- 76% of entire zone area

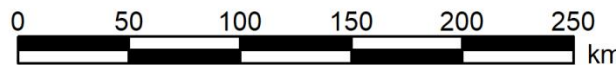
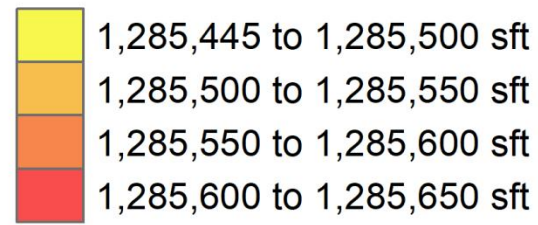


NOAA's National Geodetic Survey

## Option 2b: Reference frame plus parameter change:

False northing = 200,000 m  
False easting = 1,000,000 m  
(same central meridian as SPCS 83)

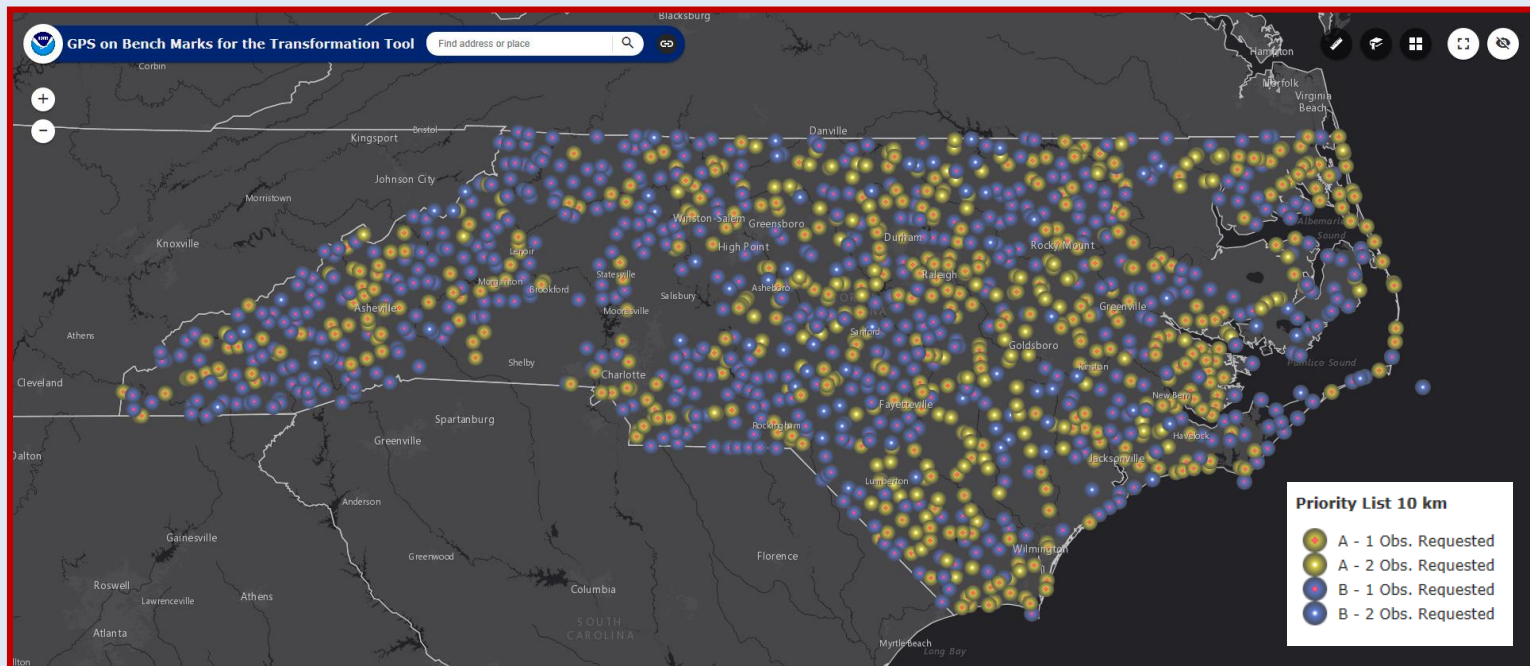
## Horizontal change in coordinates





# National Geodetic Survey GPS on Bench Marks 2018/2019

- 2019
  - NGS has prepared a list of geodetic monuments that we review for possible GNSS data collection



# New Datums are Coming in 2022

## Our preparations to date include:

- Created a 2022 Datum Working Group to develop implementation recommendations ✓
- Working with SC Geodetic Survey, SC, NC, and VA Department's of Transportation to develop common implementation plans ✓
- Working with the National Geodetic Survey to complete GRAV-D in North Carolina
  - Collecting terrestrial gravity data ✓
  - Collection of airborne gravity data completed ✓
- Partnering with UNCC to purchase an absolute gravity meters ✓
- Obtaining ellipsoidal heights on NAVD88 bench marks ✓
- Collecting statewide LiDAR elevation data (USGS QL1 and QL2) ✓
- Created 2022 Datum web page ✓
- Education outreach ✓
- National Geodetic Survey GPS on Bench Marks project ✓
- Met with NGS in March in Silver Springs to discuss the NCSPCS 2022 ✓

In progress = ✓  
Completed = ✓



**North Carolina Emergency Management**

