

# Central Oregon Coordinate System

Oregon GNSS User Group

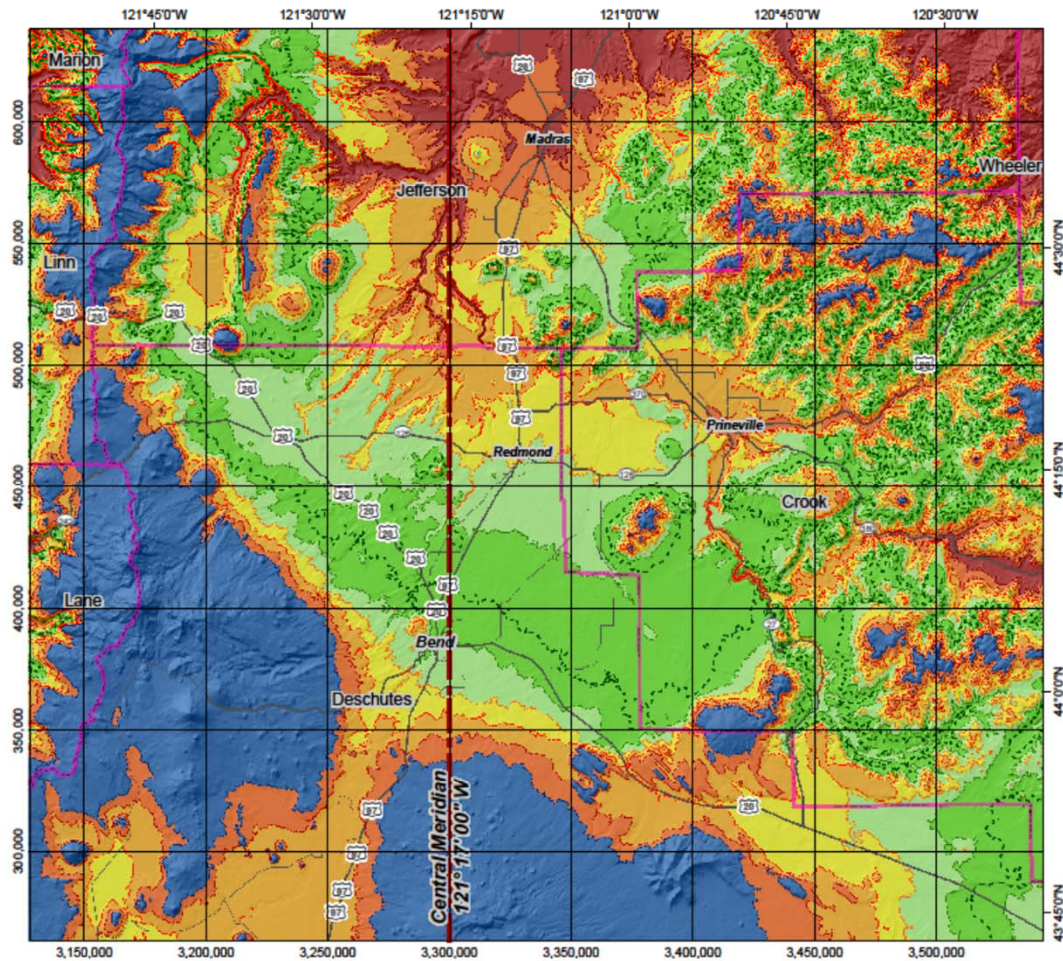
Developed by Bill Kauffman, PLS  
of Deschutes County between 1988 and 1991

Transverse Mercator Conformal Map Projection

Best fit for 80% of population area of Deschutes County

Grid to Ground < 1:50,000





## Central Oregon Coordinate System (existing coordinate system)

**Transverse Mercator projection  
North American Datum of 1983**

Latitude of grid origin: 43° 00' 00" N  
 Central meridian: 121° 17' 00" W  
 False northing: 0.000 ift  
 False easting: 3,300,000.000 ift  
 Central meridian scale: 1.000 160 (exact)



### Linear distortion

-----	Zero distortion	
Blue	< -50 ppm (< -0.25 ft/mi)	<1:20,000
Green	±10 ppm (±0.05 ft/mi)	1:100,000
Light Green	10 - 20 ppm (0.05 - 0.1 ft/mi)	1:50,000
Yellow	20 - 30 ppm (0.1 - 0.15 ft/mi)	1:33,333
Orange	30 - 40 ppm (0.15 - 0.2 ft/mi)	1:25,000
Dark Orange	40 - 50 ppm (0.2 - 0.25 ft/mi)	1:20,000
Red	> +50 ppm (> +0.25 ft/mi)	>1:20,000

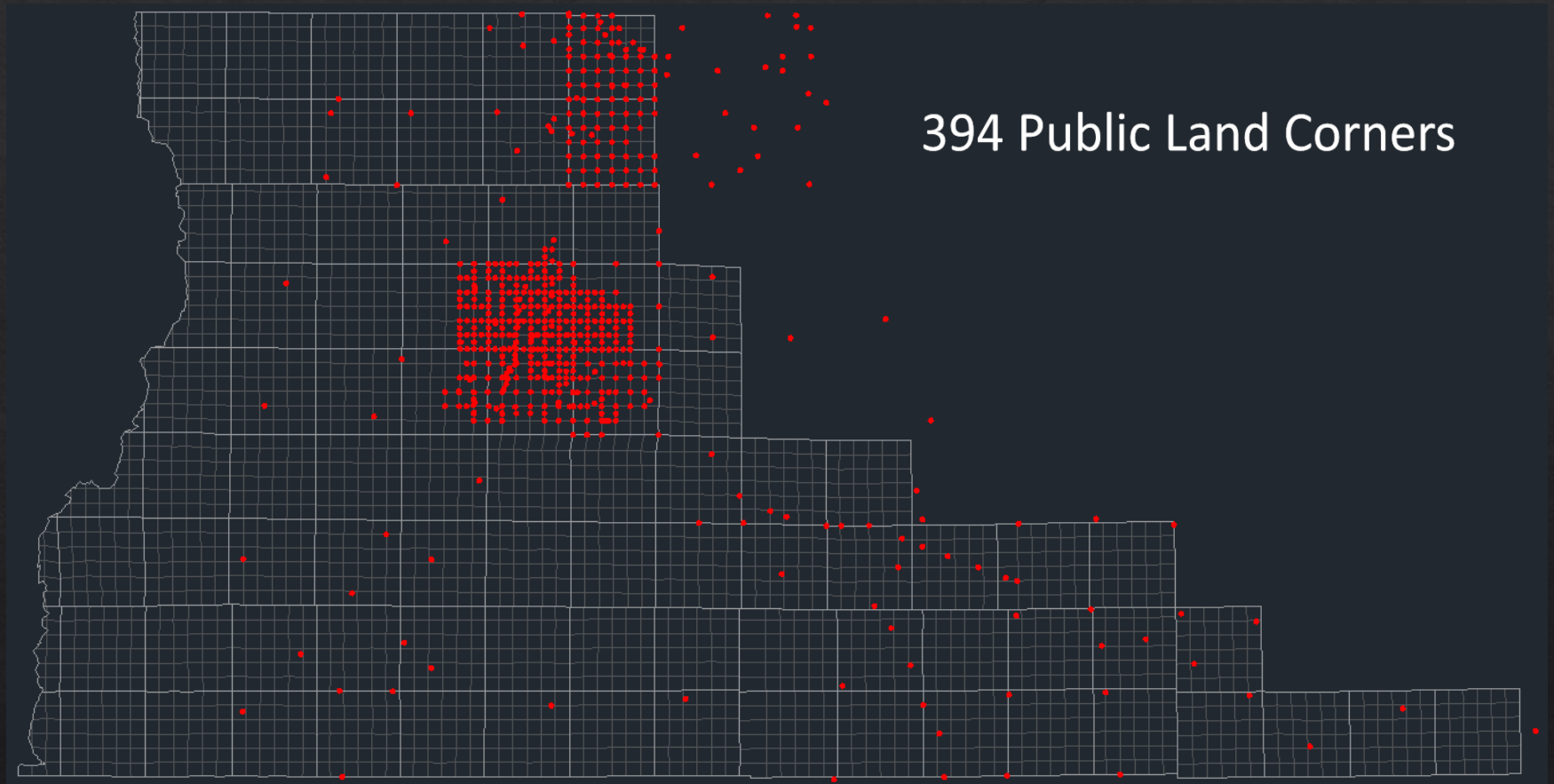
NOTE: Map grid is shown in units of international feet.

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Why do we still use COCS?  
LEGACY DATA

# Original COCS - Public Land Corners



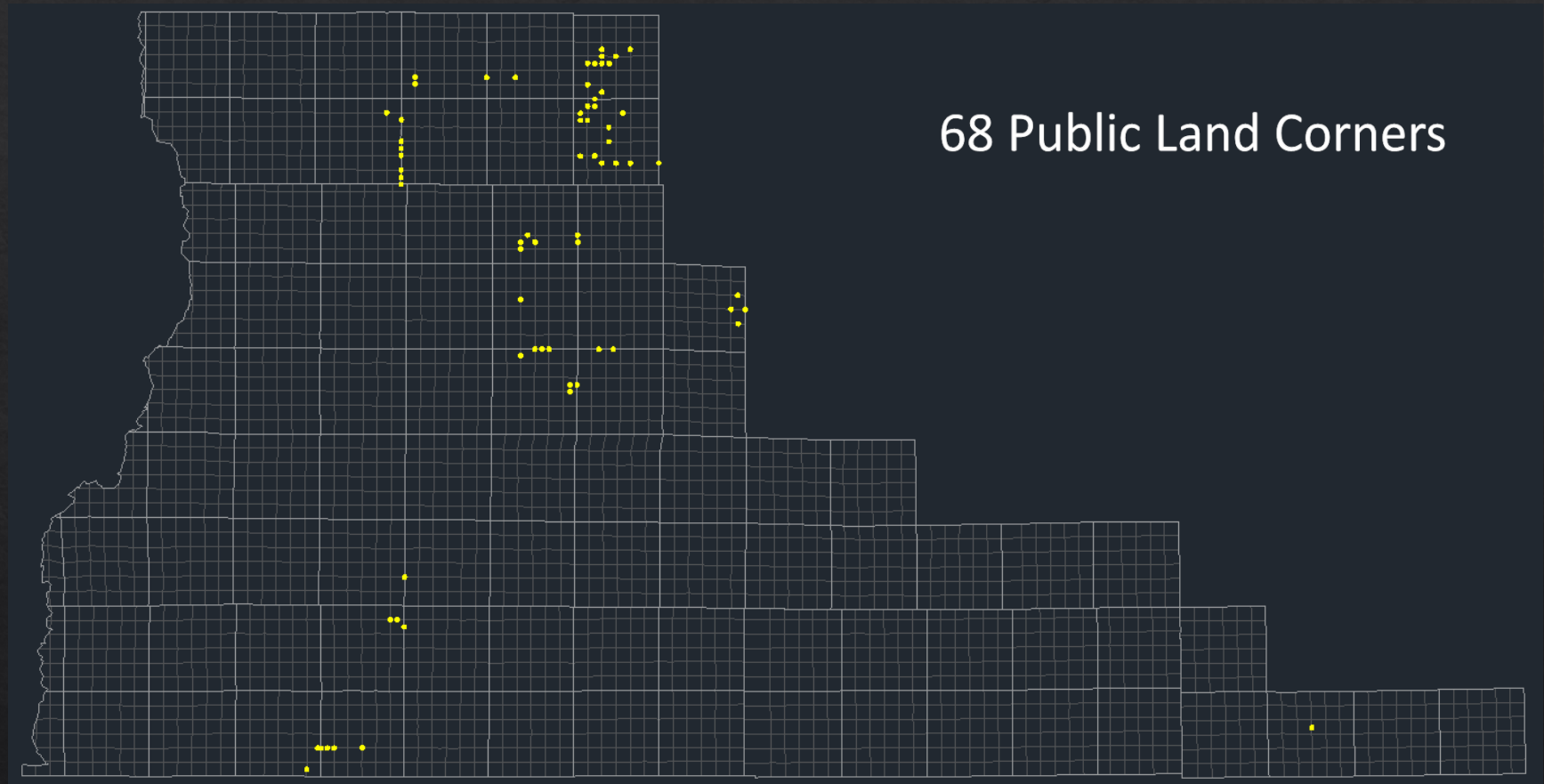


# Deschutes09

14 transformation points



# Deschutes09 - Public Land Corners



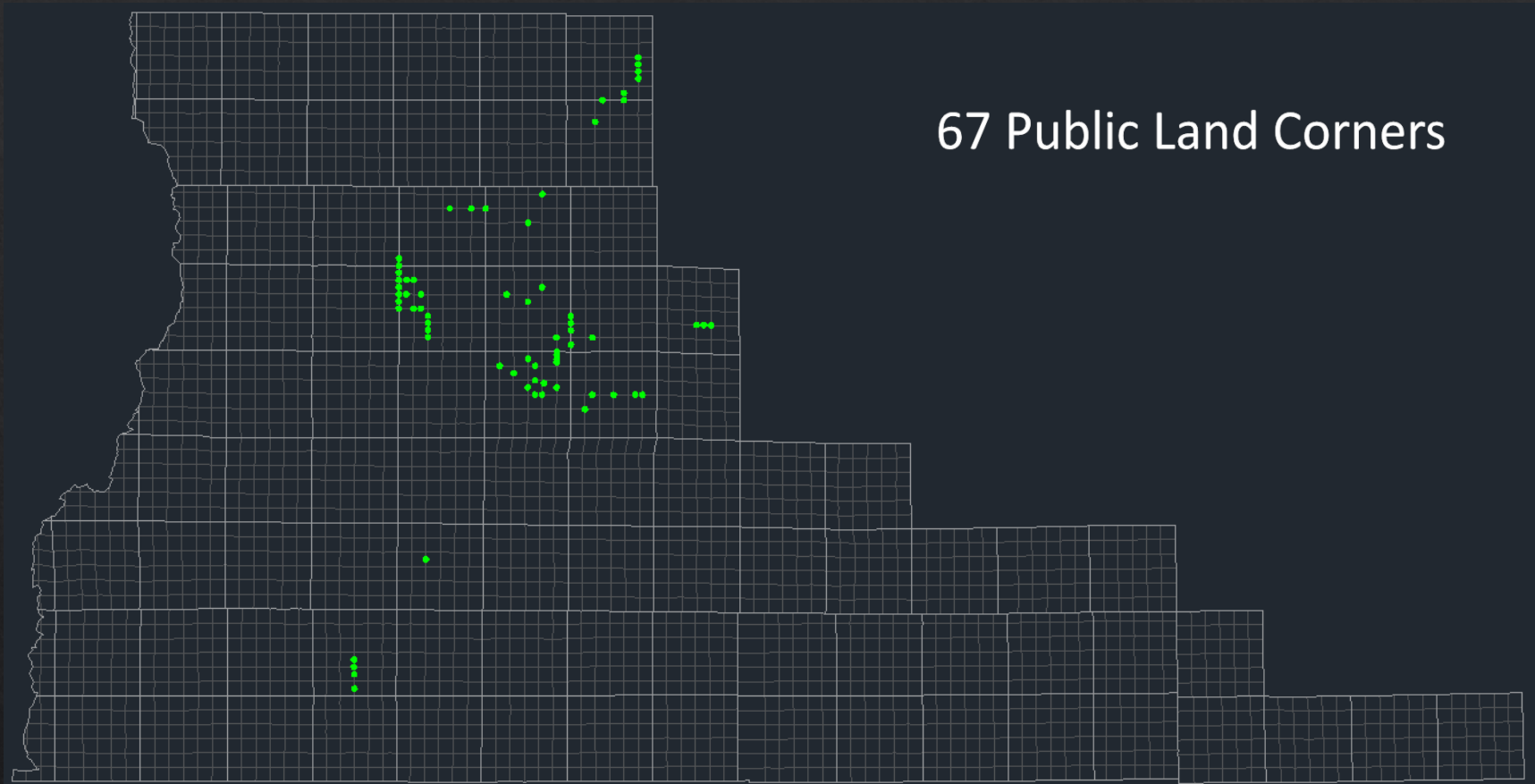
# Deschutes13

14 transformation points



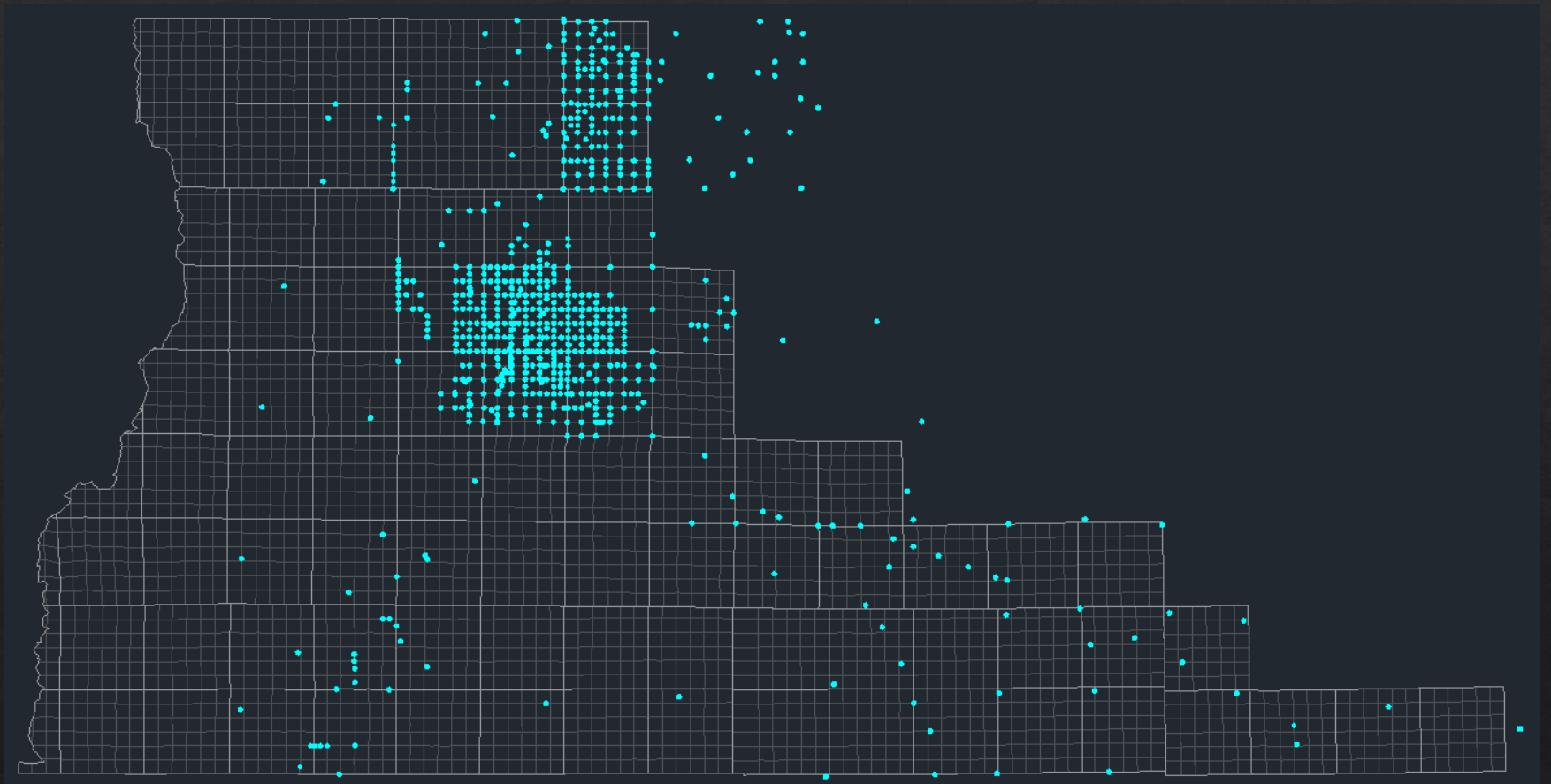


# Deschutes13 - Public Land Corners



67 Public Land Corners

~500 Public Land Corners - combined



~300 plat checks since 2009

CAD drawings for plat/field checks

Every plat check conducted on COCS

GIS Indexing of plat boundaries on COCS per field check

# Deschutes County Road Department

R/W retracement surveys

County Road Legalization surveys

County Road Design

R/W acquisitions



# City of Bend

Engineering Division requires engineering drawings on COCS

City of Bend sewer and water systems designed/built to COCS

Many local firms use COCS as a default system of measurement

LEGACY DATA – 500 PUBLIC LAND CORNERS

 CONSISTENT COORDINATES (BEARINGS/DISTANCES)

REPEATABLE BY VARIED USERS OVER TIME

ONE SYSTEM, ENTIRE COUNTY

## CURRENT WORK

4 hr static observation of transformation points – NGS shared

## FUTURE WORK

Deschutes25? - to align with NGS NATRF2022



<https://www.deschutes.org/road/page/central-oregon-coordinate-system>





Bill Kauffman, PLS 1031  
1942 - 2020