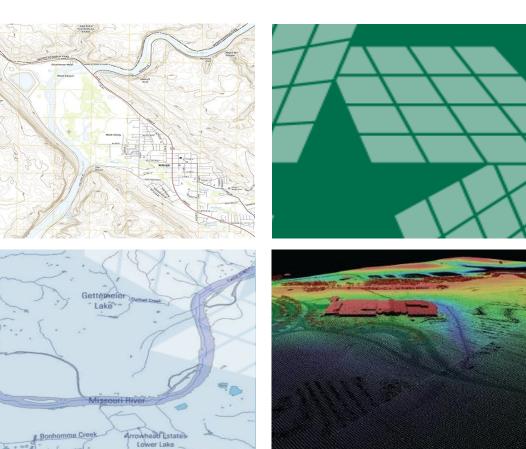
## **3D Elevation Program**



December 5, 2024

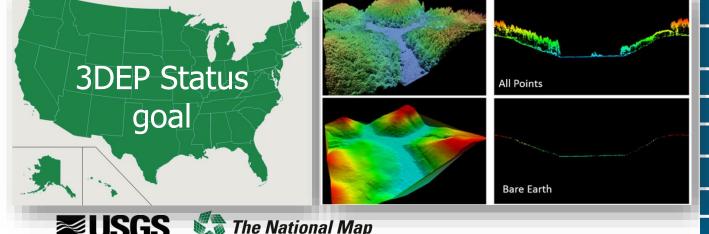


**USG** The National Мар science for a changing world Topographic Information Your Source

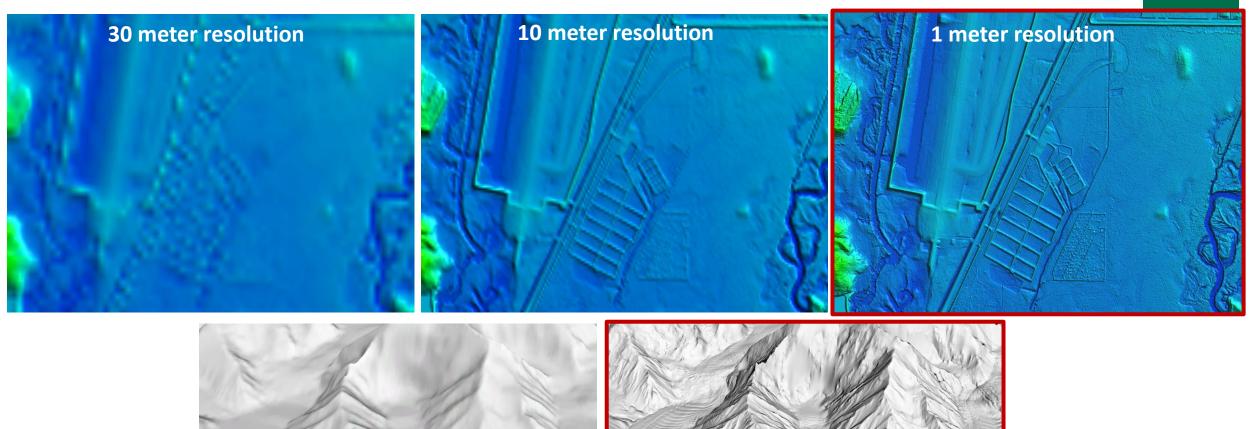
## 3D Elevation Program (3DEP) Goal

- Complete acquisition of nationwide lidar (IfSAR in AK) to provide the first-ever national baseline of consistent high-resolution elevation data – both bare earth and 3D point clouds
- Address Federal, state and other mission-critical requirements
- Realize ROI 5:1 and potential to generate \$13 billion/year
- Leverage the expertise and capacity of private mapping firms
- Achieve a 25% cost efficiency gain
- Completely refresh national data holdings

ar			Annual Benefits		
1	Rank	Business Use	Conservative	Potential	
,	1	Flood Risk Management	\$295M	\$502M	
	2	Infrastructure and Construction Management	\$206M	\$942M	
	3	Natural Resources Conservation	\$159M	\$335M	
	4	Agriculture and Precision Farming	\$122M	\$2,011M	
	5	Water Supply and Quality	\$85M	\$156M	
	6	Wildfire Management, Planning and Response	\$76M	\$159M	
	7	Geologic Resource Assessment and Hazard Mitigation	\$52M	\$1,067M	
	8	Forest Resources Management	\$44M	\$62M	
	9	River and Stream Resource Management	\$38M	\$87M	
	10	Aviation Navigation and Safety	\$35M	\$56M	
	:				
	20	Land Navigation and Safety	\$0.2M	\$7,125M	
		Total for all Business Uses (1 – 27)	\$1.2B	\$13B	



### + Lidar Products Digital Elevation Models (DEMs)



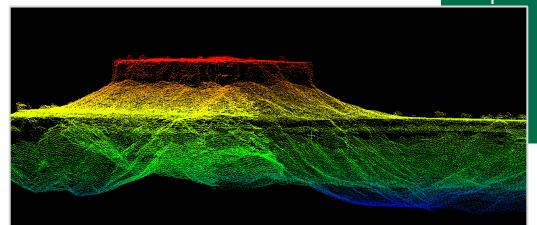


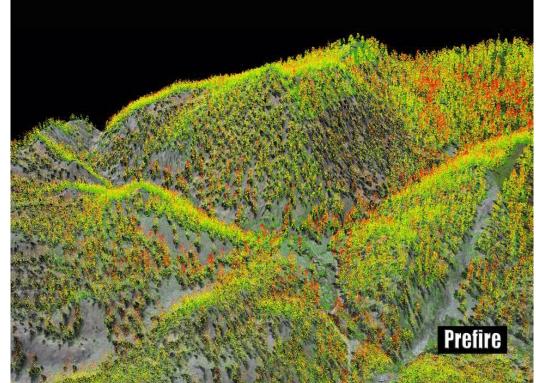
60 meter resolution (Alaska)

5 meter resolution (Alaska)

## + Lidar Products Lidar Point Clouds









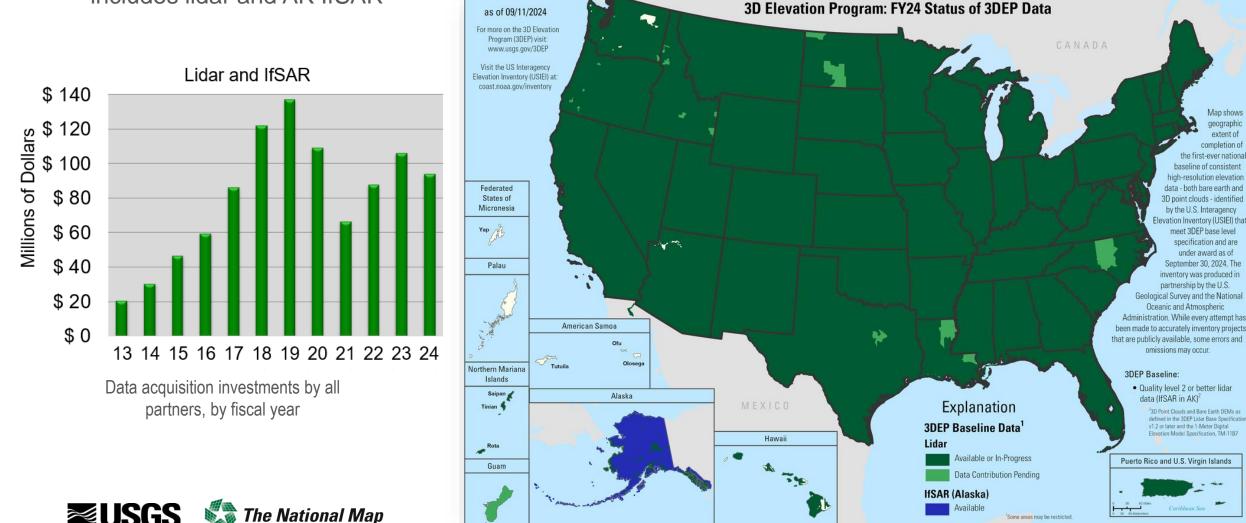


+ 3DEP FY24 Summary

Your Source for Topographic Information

Data are available or in progress for 98.3% of the Nation

\*includes lidar and AK IfSAR



## + Building National 3DEP Coverage One Year at a Time



\$13B



Potential annual benefit with ROI of 5:1



65

Percent of total 3DEP cost contributed by partners



On track to complete the baseline by the end of FY26 The National Map 3D Elevation Program: FY23 Status of 3DEP Data 2004 - 2010 For more on the 3D Elevation Program (3DEP) visit: www.usgs.gov/3DEP Visit the US Interagency Elevation Inventory (USIEI) at: coast.noaa.gov/inventory Map shows geographic extent of completion of the first-eve of consistent high olution elevation data Federated States of the U.S. Interagency Micronesia Elevation Inventory (USIEI Yap R hat meet 3DEP base leve Palau partnership by the U.S. Geologica Survey and the National Oceanic a American Samoa accurately inventory projects that are publicly available, some errors and Ofu omissions may occur Tutuile orthern Mariana 3DEP Baseline: Islands Quality level 2 or better lidar Saipan Alaska data (IfSAR in AK)2 Explanation Tinian 🤇 <sup>2</sup>3D Point Clouds and Bare Earth DEMs as defined in the 3DEP Lidar Base Specification 3DEP Baseline Data<sup>1</sup> v1.2 or later and the 1-Meter Digital Elevation Model Specification TM-11B Hawaii Lidar Rota Available or In-Progress Puerto Rico and U.S. Virgin Islands Guam Data Contribution Pending IfSAR (Alaska) Available Some areas may be restricted

6

At the end of FY24 98.3% of the Nation had 3DEP data available or in progress

## 3D National Topography Model (3DNTM)

The terrestrial component of the 3D Nation vision of a continuous data surface from the depths of the oceans to the peaks of the mountains

#### 3D Hydrography Program (3DHP)

- Hydrography derived from/integrated with 3D Elevation Program data
- Connections to groundwater, wetlands, and engineered hydrography
  - 3DHP Infostructure for data sharing as part of the Internet of Water

#### Next Gen 3D Elevation Program (3DEP)

New quality levels and refresh cycles

 Integration of inland bathymetry

- 3DEP Ecosystem for data and resource sharing
- Continual improvement with new technologies and approaches

#### Future Integrated 3D Model

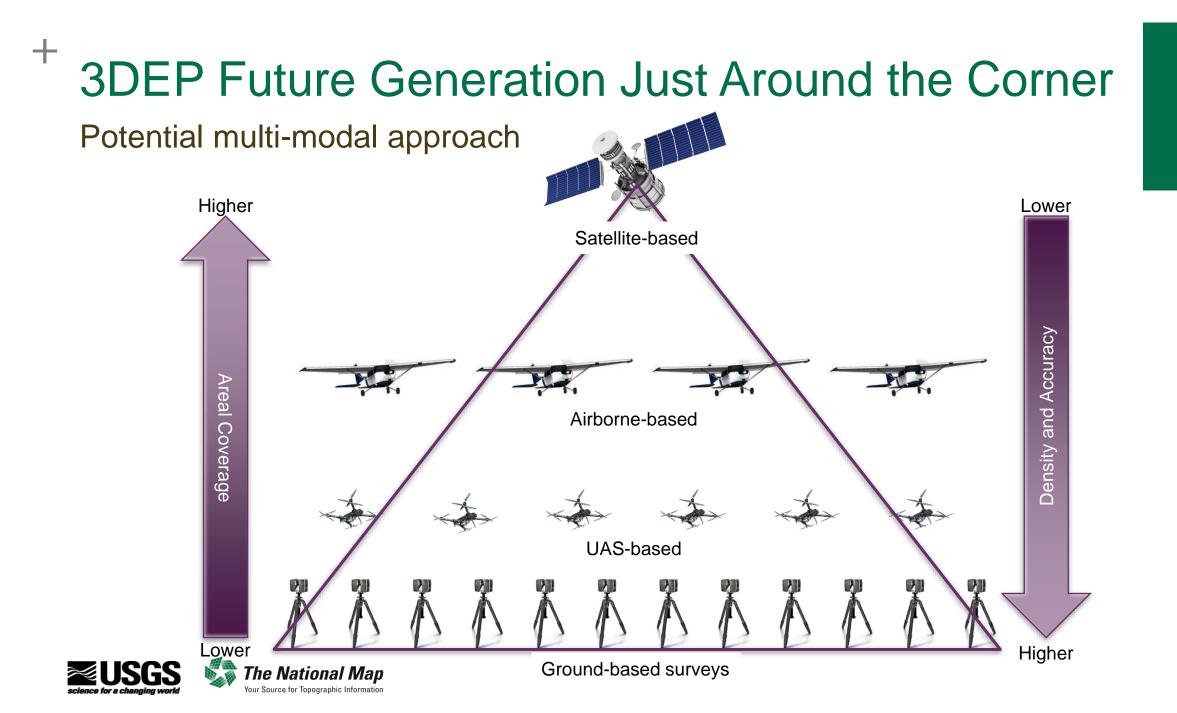
- Research and develop a 3D data model to fully integrate 3DHP and next gen 3DEP
  - Integrate other data from The National Map











### + The Transition is Underway

	<b>3DEP Baseline</b>		Next gen 3DEP	
Target Quality Level	QL2 / QL5 in AK	★★☆	***	QL1 or QL2 as proposed by partners
Scope	Topographic data	<b>\$</b> \$\$ <sup>\$</sup>	<u>*</u>	Topographic and bathymetric data
Update frequency	8 years	X	Х	5 years CONUS 8 years AK, HI, Territories
Annual costs	~ \$146M	\$	\$\$	~ \$259M
Annual benefits	\$690M	$\bigotimes$		\$7.6B

# **THANK YOU!**

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619-225-6430 office





Bismarck, ND 3D Elevation Program (3DEP)