

National Enhanced Elevation Assessment Summary and Program Recommendation for NGAC Review



**Kevin T. Gallagher** Associate Director for Core Science Systems U.S. Geological Survey April 17, 2012

#### + National Enhanced Elevation Assessment At a Glance

- Sponsored by the National Digital Elevation Program (NDEP) and funded by USGS, NGA, FEMA, NRCS and NOAA to:
  - Document national requirements for improved elevation data from technologies such as LiDAR and IfSAR
  - Estimate the benefits and costs of meeting these requirements
  - Evaluate multiple national enhanced program scenarios
- 602 mission-critical activities that require enhanced elevation data were identified by:
  - 34 Federal agencies
  - 50 states
  - A sampling of local governments, tribes, private and not-for profit organizations
- A national program has the potential to generate \$1.2 billion to \$13 billion in new benefits each year when fully operational



### + Benefits for Top Business Uses

#### **Annual Benefits**

Rank		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
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20	Land Navigation and Safety	\$0.2M	\$7,125M
	Total for all Business Uses (1 – 27)	\$1.2B	\$13B



#### + Current Status of the Nation's Elevation Data NEEA Inventory Results

Map depicts public sources of LiDAR in all states plus IfSAR data in Alaska





- 28% coverage 49 states
- 15% coverage Alaska
- 30+ year replacement cycle
- Program is well coordinated less than 10% overlap of coverage
- Data quality variable

#### Why is this a problem?

- Remaining 72% coverage is 30 or more years old.
- Alaska very poor quality
- Meets 10% of reported needs
- Current and emerging needs require higher quality data



## + National Program Recommendation

- LiDAR, Quality Level 2 for 49 states, IfSAR, Quality Level 5 in Alaska
- 8 year acquisition
- Average Annual Costs: \$146 M
- Average Annual Benefits: \$690 M (B/C: 4.7:1)
- Total Possible Benefits Satisfied: 58%





#### + Introducing 3DEP 3D Elevation Program

- Name of proposed program being introduced today
- Purpose to communicate that the program is more than bare earth elevation – point cloud and other basic derivatives (TBD) will be distributed and archived
- Tagline under development: 3DEP gives you the perspective to see more than just what's on the surface



#### + Annual Benefits of 3DEP To Top Agencies





#### + A Proposed 3DEP Funding Strategy Cooperatively Funded Program Executed by USGS

- Coalition of Federal agencies to commit funding annually to a national program (in rank order of benefits): NRCS, USACE, DISDI, USGS, NOAA, FEMA, EPA, USFS, FAA, and NGA at \$10 M each
- USGS additionally contributing existing base program of approximately \$10 M
- States and other partner agencies will be invited to participate at the level of \$36 M (balance of program cost)
- Collection priorities will be based on coalition partner agency needs
- Partners may buy up to higher quality level (Quality Level 1)
- Acquisition cycle scales with funding



### + 3DEP Development Next Steps

- Communications ongoing with potential partners and other stakeholders
- NGAC review of program recommendation and strategic advice on funding strategy
- Develop governance model for community review (June/July)
  - Flexible process to meet annual requirements of partner agencies
  - Use existing mechanism as the forum for negotiations: National Digital Elevation Program
  - Use lessons learned and model after successful partnerships: National Agriculture Imagery Program



# Potential NGAC Study Questions

- Review of and feedback on 3DEP: program recommendation of Quality Level 2 data and 8 year cycle
- Feedback and strategic advice on non-federal participation in the 3DEP funding strategy
- Future review and feedback on governance recommendations

