

1. What approach should MT take to create the network they need to support height mod? [TABLE 1,2]

Table #1

- Gather together examples of what might have been prevented or mitigated with better/more height info.
 - Floodplain mapping
 - Being able to evaluate situation if more bench marks were available
- Put together a group of people such as DNRC, DOT, etc. City, County, MARLS, University (**)
- Outreach Program headed by NGS, University, AMFM....

Table #2

- Education of potential participants
- Survey of needs – identify and prioritize users
- Involvement of utilities, government agencies, vendors, private surveyors
- Political support
- Geographical and population density issues
- Who leads
- Evaluate other's process and effectiveness
 - This group today:
 1. Agree on who will lead the process
 2. Process: ID stakeholders/partners/supporters and their needs: surveyors, GIS, Agencies, utilities; present models from other states; agree on a strategy for implementation
 3. Implement: political support, fundraising, construction

2. *What should NOAA/NGS be doing to promote/support Height Mod? [TABLE 2, 3]*

Table #2

- Public education – who all should be educated
- Administer and organize
- Distribute the data
- Quality control
- Training – especially hands on
- Education of industry
- Technical assistance and data management and standards
- R&D (GNSS)

Table #3

- National CORS network? (#3)
- Help MT through grant process – liaison people to help states get started (#1)
- More communication, meetings – geared to consumers – website – coordination to see what other states are doing. (#2)

3. *How can the private sector become involved in promotion of height mod?*
[TABLE 3, 4]

Table #3

- Private offices operating own base stations
- Does private sector mean just surveying/ Engr. Community or other areas
- Lobby government officials encouraging the development of HM - Assist in development of a strategic plan – needs assessment (#1)
- Private sector can keep momentum moving in the next phase (#2)
- Monumentation by private sector – contracts (#3)

Table #4

1. Who:

- Construction
- Agriculture
- Mining / Oil and Gas
- Surveying Engr. Firms
- Trucking and Rail
- Transportation and Airports

2. How:

- Letters of support (*)
- Identify their needs and benefits (*)
- Committee to create plan/ Help write
- Committee to review plan
- Bring plan to Congressional Delegation (*)
- /user thru Congress/ Federal process

3. Implement Height Mod:

- Committee to prioritize projects
- Contract work to do
- Standards review/ protocols

4. What are the educational challenges that go with establishing height mod in Montana? [TABLE 4, 5]

Table #4

- Educate public re: impacts of datum changes
- Awareness of datums
- Educate counties/state/cities on Ht Mod issues
- Public education - Ht Mod benefits
- Identify projects
- Connection between vertical and Horizontal (i.e. Ht Mod helps Horizontal)
- Specific example of Benefits and cost saving

Table #5

- Define technical requirements
- Document benefits in term of dollars
- Education for people using new data

5. *What if any expectations are there now for MDT to bring height mod to MT? If not MDT, who? And who would develop the plan? [TABLE 5, 1]*

Table #5

- Need a statewide entity to manage
- Regional representatives or committees
- Include MARLS
- MDT has contracting authority
- Representatives from MDT, regions and MARLS develop plans
- MDT is public entity
- More eyes and ears to keep system maintained
- Public agency can accept and redirect Federal Funds

Table #1

- MARLS is supporting MDT to take the lead because they have the resources, contract admin., experience, etc.
- LIAC supports MDT; if not MDT then possibly a University
- MDT would be a partner in developing the plan, with the group identified in Question 1. MARLS representing private surveyors would know areas of need.

6. *How can MT get a pilot program or survey to show the benefits of height mod?*
[TABLE 1,2]

Table #1

- Grad student could take on pilot project; gather data, etc.
- Dave says that MDT already has enough info for pilot project.

Table #2

- Need – capabilities – political clout
- Why do we have to duplicate efforts – look at existing projects
- Water resources and wetlands management
- Irrigation
- Pilot the process of partnering, participating and funding
- Become part of a currently funded or soon to be funded project. Ex. Superfund sites

7. *What activities, issues, can be addressed by a Height Mod Program? [TABLE 3,4,5]*

Table #3

- Some crop issues
- Flood plain (#2)
- Development –sewer, storm water, highway Planning (#1)
- Fuels - Pipeline transmission
- GIS spur better horizontal network and remonumentation of PLSS (#3)
- Statewide control database - digital formats - lessen cost of terrain based mapping

Table #4

- Flood (*)
- Horizontal Drilling (Oil and Gas Exploration / extraction)
- Coal, Liquefaction / water quality
- Aerial Photography control
- Energy Transmission
- Ground Water
 - Rights and studies - Monitoring wells
 - Quality (e.g. Nitrates)
- 911 Emergency response (Flood, Hazardous spills, Quarries)
- GIS –Mapping infrastructure
- Agriculture – Flood irrigation
 - Flood irrigation
 - Fertilizer
 - Pesticides
 - Seeding
- Irrigation projects
- Rural water systems – development, fires
- Transportation – construction, rail (*)
*(Note: grouped all above Rural water systems and *'d that group also)*

Table #5

- Statewide densification
- Eliminate “local” datums
- Standardizing user data – ex. Floodplain maps
- Level elevations (ortho) on CORS stations
- Reduce cost for local entities for data acquisition
- Eliminate costly problems