Use of NEXTMAP data for pipeline route planning

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Presentation Content

- Intermap Technologies
- NEXTMap USA
- Pipeline route planning
- Conclusions
Intermap Technologies

• We are a Mapping Company
  – 215 employees 4/5 offices worldwide
  – Denver based
  – $40m/year turnover

• Specializing in:
  – IFSAR data (including value-added)
  – Large Acquisitions (National, Regional, Custom Programs)
  – Off-the-Shelf Product Line
NEXTMap USA

• NEXTMap Programs:

  - USA is 6th National Program
  - Inexpensive commercial Data
  - Elevation (DSM, DTM)
  - ORI
  - National coverage (multi-Year)
  - AOI purchase (per route, block, etc.)
  - Simple License
Residential Region
Route Examples
DTM created by TerrainFit™
Uses unedited DEM
Can use 3D vectors to edit the DTM

Note the removed pylons
Pipeline Route Feasibility and Planning

- Huge capital expenditure risk
  - Typical as built costs of $2m per mile

- Short timescales (Weeks)

- Large corridors (In excess of 10km wide)
  - Varied route options within a corridor

- Significant safety and environmental sensitivity
Technical requirements

• Visible imagery of corridors
  – Aerial imagery, typically 0.25 – 0.50m pixel resolution

• Critical requirement for elevation data for a number of functions
  – HCA
  – Gradient
  – Pipeline cross-slope analysis
  – Flooding
  – Visual impact assessment

• Alternatives to date:
  – USGS 30m or equivalent (low-res, inexpensive)
  – LIDAR (availability, expensive)
Case study area using NEXTMap data
Overall study area

- Major strategic pipeline route
- Complex terrain in South Wales
- Steep sided valleys
- Environmental, farming and habitation considerations
Detailed area

- Complex terrain
- Steep sided valleys
- Environmental, farming and habitation considerations
Pipeline Route Terrain Assessment

- EDX 50 (GS 30m equivalent)
- NEXTMap DTM
- NEXTMap DSM
Pipeline Route Terrain Assessment

2m Contours
Pipeline Route Terrain Assessment

- Aerial imagery
- Slope Assessment
  - Yellow = 5-10%
  - Red = above 10%
Pipeline Route Terrain Assessment
Pipeline Route Terrain Assessment
Land Slip Risk Assessment
Cross Slope Threat

- Integration of:
  - Aerial imagery
  - Pipeline route
  - Elevation data

- Accurate cross-slope analysis
- Land stability
- Potential pipeline strain
Flood risk & spill modeling

- Inundation at this point
- AGI site secured by road embankment
- Low elevation area
- High precision height data
Infrastructure Update

Infrastructure change assessment
Update of aerial image data
Conclusions

- Significant improvement in terrain analysis
- Correct use of ORI data will increase the project life of aerial imagery
- Significant new data set for planning major transmission pipeline routes through rapid data availability and cost effectiveness
- Correct use will significantly reduce project risk at feasibility
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