

Use of Laser Scanners in Highway Engineering

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- LiDAR Survey data can be used for
 - Right of Way Management
 - Road Asset Inventory mapping
 - Accident Spot Analysis
 - New Highway Alignment
 - Up gradation /Reconstruction of Existing Highways
 - Bridge Inspection

Advantages of LiDAR survey

- Less time consuming
- Site on desktop
- Abundant data availability
- More options during design
- Data interpolation avoided
- Less man power requirement

Challenges in conventional surveying

- Less alternatives with conventional surveying
- Data quality depends on the skill of the surveyor
- High cost of labour
- Scarcity of Trained man power
- No reliability on the data collected
- Proper planning required before survey

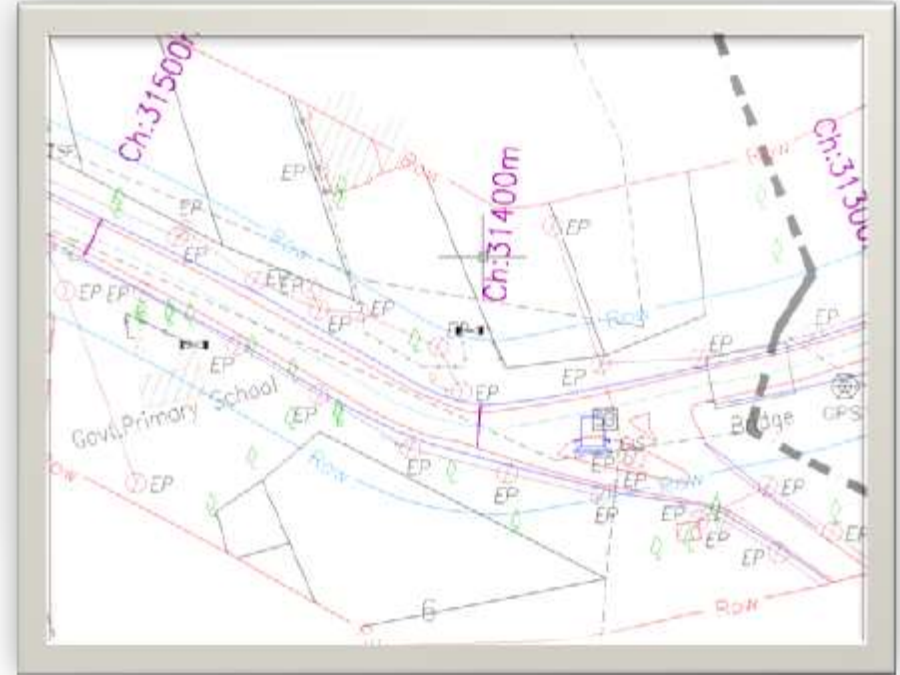
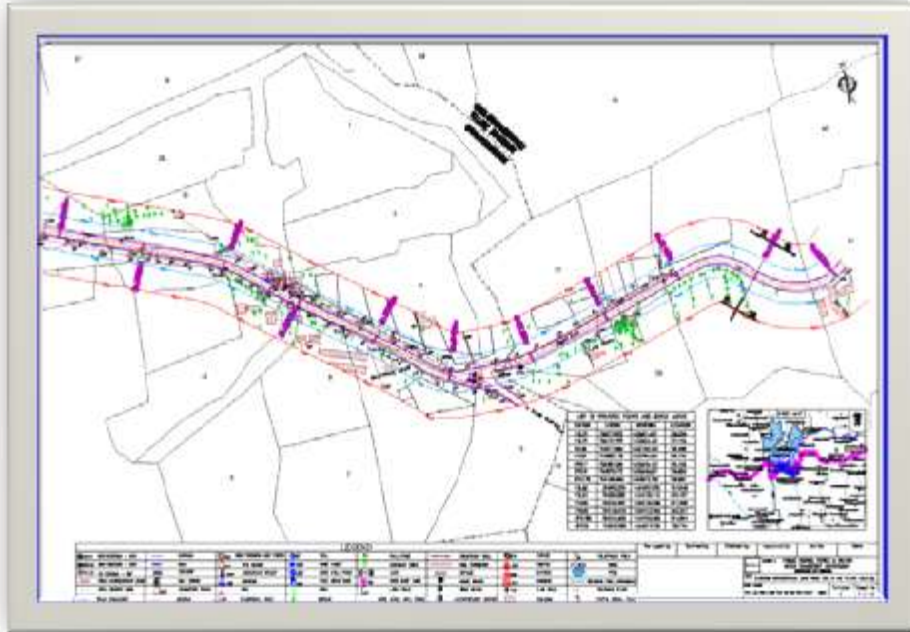
Re alignment of road using LiDAR Data

- The LiDAR can be used for the decision on re-alignment of Roads
- Easy visualization
- Many alternatives can be worked out
- No re-visits to site
- Saves time

Right of Way survey with LiDAR

- LiDAR based RoW Survey program initiated
- Project initiated during 2013
- Around 3000 Kms data already acquired
- About 2500 Kms data acquisition under progress
- Plan to complete all State Highways in phased manner

Sample ROW drawing from LiDAR Data



Accident Spot Analysis

- KPWD has initiated Black Spot (Accident spot) Analysis Program
- Pilot study taken up at 8 Locations across the state
- Survey Methodology used
 - LiDAR survey
- Proposed analysis
 - Line of sight analysis
 - Prediction modeling
 - Traffic simulation
 - Counter measures
 - Simulation of counter measures

Sample Black Spot Data used for analysis



LiDAR for re-alignment surveys

- LiDAR data can be used effectively for designing re-alignment of roads
- Advantages of use of LiDAR for re-alignment design
 - High quality of data availability
 - More options on re-alignment
 - No re-visits to site
 - More accurate estimate of quantities
 - Ease of design

Sample LiDAR Data of the survey

