Benefits of High Resolution Airborne Sensor Analysis for Road Condition Monitoring

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Reduce Road Maintenance Cost by Early Detection of Road Hazards

Geo-Location (Latitude – Longitude) and Documentation of Road Hazards
TAMUK
Keystone Aerial Surveys
Tetra Tech (Geomastics)
How Serious Is The Eagle Ford Shale Regional Road Situation Today?

According to a recent news release from Caller.com: “It could cost one Eagle Ford Shale county (DeWitt) as much as $432 million to provide county roads capable of handling the heavy pounding of oil field traffic for 20 years, according to a study released Monday (July 1, 2012).”

The study from DeWitt County (led by County Judge Daryl L. Fowler) underscores the funding challenge facing South Texas and the entire state as it enjoys the economic benefits of new oil and gas booms. The estimate of $432 million for 20 years is nearly six times what the county would normally budget for road repairs, based on 2012 budget allocations.

- 3,250 expected wells served by 331 miles of county road
- 45 miles of road maintenance at $80,000 per mile, per year
- 187 miles of basic reconstruction at $920,000 per mile
- 99 miles of major reconstruction at $1.9 million per mile
The Problem . . . The Result
**Road Damage Examples**

- Crocodile cracking
- Pothole: more dangerous

- The effective damage done to the road is roughly proportional to the forth power of axle weight
- Early detection of pavement damage means **saving the budget for road maintenance**
### Road Damage Assessment Options

<table>
<thead>
<tr>
<th>Approaches</th>
<th>Brief Description</th>
<th>Cost</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>Road Patrol on the ground, Citizen Call-In &amp; Report</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>More recent</td>
<td>laser altimeter sensor deployed on a vehicle</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td><strong>New Technique</strong></td>
<td><strong>Airborne High Resolution Road Assessment Monitoring</strong></td>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
</table>

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Proposed

Airborne High Resolution Road Assessment Monitoring

FAST-TRAC
TAMUK College of Engineering has the hardware and software to provide the data mining services to support Airborne High Resolution Road Assessment Monitoring. Including:

- A high performance computer cluster with 256 cpu cores
- Four 240-Core GPUs (NVIDIA Telsa C1060)
- Image processing software package: ENVI5.0 and IDL8.2
- ArcGIS software package
- High speed Internet infrastructure to disseminate data
- 20 T Byte Storage (1T = 1000 G)
Who Benefits From Subscribing to Data Collected & Stored?

- Stake Holders
- TxDOT
- COG’s (Council of Governments)
- DHS
- DOT
- Law Enforcement Agencies
- First Responders

What Is The Cost To Subscribe??
TAMUK

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Road Data Access Process

Sign Up

1. Register a testing account on the data portal server
2. Submit your customized data and data mining request
3. Retrieve your thematic map layer or original images from the data server at TAMUK
In Conclusion

http://www.laredosun.us/notas.asp?id=25770

“HB 2300 calls for a part of the revenue generated from mineral industry to be allocated among the counties that are affected by the movement of the Eagle Ford Shale trucks.

"If this law is approved, these additional resources will be distributed from September 1 of this year and will be devoted exclusively to road infrastructure costs"
One Texas representative has filed a bill to use $1.4 billion from the rainy day fund to repair roads in counties affected by such traffic. Photo: San Antonio Express-News File Photo


Another, put forth by state Rep. Jim Keffer, R-Eastland, chairman of the House Energy Resources Committee, would inject $1.4 billion into a fund for energy-related road repair.

Stakeholder Sign up Process To Participate in Pilot Project

QUESTIONS?