MAINE LIBRARY OF GEOGRAPHIC INFORMATION

LiDAR and Orthoimagery Acquisition in the Unorganized Townships

THE CHALLENGE

County government must request funding from Legislature to cover the costs of providing services to property owners in the UT's. These services typically cover roads, public works, public safety, snow removal, solid waste disposal, fire protection, ambulance service, administration, and capital outlays.

State services include Education, Taxation, Land Use Planning Commission, Forest Protection, Forest Service, Department of Environmental Protection, General Assistance and the Fiscal Administrator for the Unorganized Territories.

Leaf off imagery and LiDAR data would improve the quality and more efficient delivery of county and state agency services. This by itself has not been a sufficient argument for spending money on acquiring imagery and LiDAR data. However if property owners in the unorganized territories were to perceive value in having this data available to use in managing their forests it would most likely have a positive response from the counties, state agencies and legislature.

LIDAR AND IMAGERY COSTS

County	sq.mi.	Annual Acquisition	24" Imagery cost @ $52.80	LiDAR @$200/sq. mi.	Total Program Cost	5 year AMORTIZATION	County 1/3 Share	State and Federal Share 2/3
Aroostook	3,657	731	$ 193,076	$ 731,347	$ 924,422	$ 184,884.50	$ 61,622	$ 277,330
Franklin UTs	431	86	$ 22,738	$ 86,130	$ 108,869	$ 21,773.72	$ 7,257	$ 32,661
Oxford UTs	538	108	$ 28,424	$ 107,665	$ 136,089	$ 27,217.76	$ 9,072	$ 40,827
Piscataquis	2,991	598	$ 157,931	$ 598,225	$ 756,157	$ 151,231.36	$ 50,405	$ 226,849
Somerset UTs	2,466	493	$ 130,194	$ 493,158	$ 623,352	$ 124,670.36	$ 41,553	$ 187,007
Hancock UTs	606	121	$ 32,016	$ 121,271	$ 153,287	$ 30,657.34	$ 10,218	$ 45,986
Penobscot UTs	927	185	48945	185396	$ 234,341	$ 46,868.21	$ 15,621	$ 70,303
Washington UTs	1,021	204	$ 53,926.53	$ 204,267	$ 258,194	$ 51,638.74	$ 17,211	$ 77,459
TOTAL	**12,637**	**2,527**	**$ 667,250**	**$ 2,527,460**	**$ 3,194,710**	**$ 638,941.98**	**$ 212,959**	**$ 958,423**

The current orthoimagery program allows us to acquire 24" (60cm) leaf off imagery for just $52.80/ Sq. Mi. (8.25 cents/acre or 20.4cents/hectare) LiDAR acquisition costs have been steadily declining. In 2013 the costs acquisition in southern Maine were $252/sq. mi. (39.4 cents/acre or 97.3 cents/hectare) We have good reason to believe we could reduce this cost further by contracting directly rather than through the USGS and there could be further savings if the acquisitions were substantially greater than 2,000 square miles annually. If these costs were shared between county state and federal sources the impact on any one governmental unit would be reduces substantially. The scenario outlined in the above table would place 1/3rd of the burden on the UT property tax, thus reducing the burden to just 13 cents per acre. If this were amortized over a five to ten year period the impact on property taxes would be very small.

The GeoLibrary does not have budget allocations for acquiring either of these data sets. Funding comes from state agencies on an ad hoc basis when they can find justification for data acquisition in their budgets. This does not allow us to set a consistent program. The GeoLibrary pursues partnerships with federal agencies and others

to acquire more data as the opportunity presents itself. This does not allow for leveraging the full potential for costs savings to the state.

POTENTIAL FUNDING SOURCES

It would be preferable for the GeoLibrary to have a consistent source of funding for acquiring geospatial data. This would allow the Board to maximize its ability to leverage funding from other sources willing to partner with the Board. Potential sources for funding include fees related to development and permitting, state bonding, county and/or state taxes.

The following scenario shows the potential impact on a forest land owner in the Aroostook County unorganized territory. With the costs spread out over both forestland and developed parcels the impact on forest owners per acre is even less than the amount projected earlier. If this were amortized over a five to ten year period the costs would be far smaller than a onetime charge.

Sample Scenario for timberland owners:
Aroostook County UT
2014 Valuation = $624,900,000
2014 County UT Budget = $666,768.30
Mil rate for County UT Budget = .001067

Aroostook County 1/3 share of the cost for LiDAR acquisition would be $410,413
UT Budget of $666,768 + 410,413 = $1,077,181
New UT Budget Mil rate = .001724

Northern Lights Timber Company owns 27,014 acres valued at $3,633,573 (approximately one average size township)
Aroostook County UT assessment without LiDAR is; .001067 X $3,633,573 = $3,877.02
Aroostook County UT assessment with LiDAR is; .001724 X $3,633,573 = $6,264.27

The additional cost for 27,014 acres of LiDAR is $2387.25 or 8.8 cents per acre. By amortizing acquisition costs over five to ten years the impact would be reduced to less than two cents and acre.

BENEFITS TO FOREST INDUSTRY (from state led acquisition of Geospatial data)

- Reduces cost of acquisition
- Provides better response from permitting agencies
- Reduces time documenting stream locations
- Improves and reduces costs for harvest road access and routing
- LiDAR reduces costs for acquiring forest Biometrics
    - Canopy heights
    - Stem size
    - Biomass
    - other

FOREST INDUSTRY LISTENING SESSION QUESTIONS

Do forest industry landowners support a state led program?
Will they encourage county and legislative leaders to provide funding for geospatial data acquisition?
Will they volunteer to help design a program that makes sense for the forest industry?