

The Montana Land Information Act

FY 2014-2015

The 2005 Montana Legislature passed the Montana Land Information Act (MLIA). The Act reads, in part:

"The purpose of this part is to develop a standardized, sustainable method to collect, maintain, and disseminate information in digital formats about the natural and artificial land characteristics of Montana. Land information changes continuously and is needed by businesses, citizens, governmental entities, and others in digital formats to be most effective and productive. This part will ensure that digital land information is collected consistently, maintained accurately in accordance with standards, and made available in common ways for all potential uses and users, both private and public. This part prioritizes consistent collection, accurate maintenance, and common availability of land information to provide needed, standardized, and uniform land information in digital formats."

**A REPORT TO THE 64th MONTANA LEGISLATIVE SESSION AS
PROVIDED FOR BY MCA 90-1-404(L) AND MCA 5 -11-210**

Compiled by the Montana State Library

December 1, 2014

Table of Contents

Executive Summary	1
MLIA and Geo-Services.....	2
Montana Spatial Data Infrastructure (MSDI) and the MLIA.....	4
The MLIA Grant Program.....	7
Montana Land Information Account	9
Conclusion	10

Executive Summary

As amended during the 2013 Legislative Session, the Montana Land Information Act (MLIA) (90-1-404 MCA) grants authority to the Montana State Library (Library) to coordinate the development of geographic information system standards for creating land information. As envisioned by the 63rd Montana Legislature, the amendment (HB38) has brought an orderly transition of the authority and associated duties of the department to the Library. The Montana Land Information Account (Account), created under 90-1-409 MCA, provides the Library, along with our data partners and grant recipients, critical financial resources needed to create, integrate, maintain and distribute the core locational data required to meet the state's business needs.

In today's connected world, the map -- and the data behind the map -- is a common language that allows diverse interests to communicate. The demand for the data and applications created by efficient use of MLIA funds is now almost insatiable. Yet significant challenges loom on the horizon. Post recessionary economic forces have reduced MLIA collections at a time when demand for use of the funds is increasing. Inflationary triggers were not built in to the funding mechanism of the Account causing not only stagnation but also declining funding limiting the ability of the Library to meet data demands. The Montana State Library respectfully submits this report to the 64th Legislature as both a celebration of the accomplishments achieved through effective administration and as a caution that without increased support for the creation and use of geographic data, Montana will find itself at a disadvantage whether competing with other states for new economic opportunities, providing for the health, welfare and safety of our citizens, or protecting our precious natural resources.

MLIA and Geo-Services

In 2014 geography isn't about memorizing state capitols or names of major rivers. Montana realtors, bankers, farmers and citizens seeking location based information use digital maps every day. The data we expect to be on our phones and tablets instantly is creating jobs and economic growth globally and here in Montana. Directions Magazine, using a 2013 study by Oxera entitled "What is the economic impact of Geo?" estimated *that the global geo services industry "is valued at up to \$270 billion per year and pays out \$90 billion in wages. In the U.S., it employs more than 500,000 people and is worth \$73 billion."*

What is the economic impact of GEO SERVICES

Geo services are:



Geo services global revenues are \$150-\$270 billion per year

Video games industry \$25 billion

Geo services \$150-\$270 billion

Airline industry \$594 billion

Geo services global added value is around \$100 billion per year



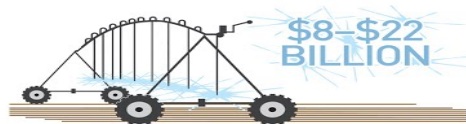
Geo services save:



Geo services facilitate competition, leading to savings from reduced prices among infrequently bought goods and services of up to:



Geo services can improve agricultural irrigation, helping to achieve global cost savings per year of:



Source: Oxera (2013), 'What is the economic impact of Geo?', January.

Geo services aid faster emergency response: for example, in England Geo services may have helped to save at least 152 lives per year



Students educated using Geo services can expect



3% higher average wages five years after graduation than those who weren't

A 2009 analysis conducted by the Montana Department of Administration concluded that the Montana Cadastral Database offers *“financial benefits to the private sector, state agencies, and private citizens (that) far exceed the cost of the investment. At a minimum, the cadastral infrastructure has returned \$46,000,000 in value over the last 10 years, with the real benefit total being probably far greater.”*

The Montana Land Information Act (MLIA) and the associated account has been an unprecedented success as documented through the success stories associated with the Montana Spatial Data Infrastructure (MSDI) and the MLIA grant program provided in this report. Unfortunately, it is increasingly evident that the current State MLIA business model that funds much of the creation, maintenance, integration, standardization and dissemination of core geographic data and services is both volatile and cannot keep pace with the demand. A review of the Account is provided on page 8 This review demonstrates to the Governor, Legislature and other state and local policy makers the need to consider additional and/or alternative funding sources in order for the State to continue to meet the demand for geographic data and services.

Montana Spatial Data Infrastructure (MSDI) and the MLIA

The MSDI is a collection of 15 core data themes that individually, or in concert, provide the base map data critical for geo-services to operate. While not all work on MSDI themes is funded by the MLIA, the coordination that the MLIA supports is the glue that holds everything together. The fifteen data themes are listed below.

Administrative Boundaries

Cadastral

Climate

Elevation

Mapping Control

Geographic Names

Geology

Hydrography

Hydrologic Units

Land Cover

Orthoimagery

Soils

Structures and Addresses

Transportation

Wetlands

The following table suggests that MSDI usage, based on consumption of online web services, is generally rising. Not surprisingly the two largest consumptive services are those based on land records, the base map services associated with the cadastral web site, and the multi-year imagery service.

Table 1
Service Usage in
MBs(MSDI and Base
Map Services)

Month	Service Usage in MBs(MSDI and Base Map Services)	Distinct Users
2013 July	352815.25	31703
2013 August	357701.07	34512
2013 September	456467.95	34627
2013 October	383668.43	36220
2013 November	366985.90	37470
2013 December	372273.58	29165
2014 January	375229.47	32837
2014 February	342123.51	32668
2014 March	398680.89	39837
2014 April	491606.95	37775
2014 May	398218.04	39661
2014 June	436674.48	38570
TOTAL:	4732445.52	425045

These usage statistics reflect overall societal demand for data and maps wrapped inside web applications. Citizens expect geographic data in map form when they want to solve problems, whether it is to find a restaurant or a hunting spot. Policy makers expect geographic data in map form when attempting to equitably assess the value of property or equitably distribute funds for education. When prospective business owners use the

state's site selector application (<http://svc.mt.gov/gov/siteselector>) to evaluate potential investment property, they leverage the power of MSDI.

MLIA statute requires that the Library annually develop a land information plan that describes the priority needs to collect, maintain and disseminate land information. To examine progress on identified FY14 land plan challenges, one can look at accomplishments in the following areas, which are directly related to MLIA funding:

1. The transition of custodianship of the digital Public Land Survey System (PLSS) from the Bureau of Land Management (BLM) has been completed with the first release of CadNSDI Montana Vintage on 7/1/2014 as an export from the Esri Parcel Fabric. The Library began our first adjustments to the parcel fabric based on GPS and photo interpreted control in October 2014, thus meeting user demand for higher accuracy parcel data that better aligns with aerial photography.
2. The Geographic Names framework was updated in July 2014 with the June 1, 2014 release of the federal Geographic Names Information System. At this time, the Library became aware that the U.S. Geological Survey (USGS) also maintains a list of the unofficial alternate names that are known for all the features and a file with historical information and other notes. The Library extracted the data and users of the Library's Topofinder web application can now find features whose alternate or historical names match the search criteria.
3. The Montana Hydrography Working Group has been reinvigorated and meets quarterly to discuss hydrography data needs. Each of the core water-related State agencies (DEQ, DNRC, FWP), as well as the U.S.G.S., U.S. Forest Service, National Park Service, and the Montana Climate Office, participate in the working group. Efforts over the past year have primarily focused on improved transparency to the hydrography stewardship process with the overall goal of making demonstrable progress improving the quality of the hydrography dataset. Notable accomplishments include publication of a stewardship and edit submission guide, ongoing development of workflows to leverage existing hydro-related datasets to systematically find and fix data issues throughout a sub-basin, and development of a web application that allows users to submit and track hydrography revisions online. Improving hydrography data quality will assist in meeting the goals and objectives of the State Water Plan.
4. In an effort to provide improved GIS collaboration to support public safety communications, the Library has met several times with the Department of Administration's Public Safety Communications Bureau. Because Next Generation 9-1-1 relies so heavily on GIS data and tools, implementation, especially in rural Montana, will bring substantial data challenges related to addresses and boundaries. In order to insure public safety, address information and emergency service zone changes will need to be updated on a daily basis.

5. The Montana Climate Office has developed MSDI and Montana Association of Geographic Information Professionals (MAGIP)- compliant procedures to publish statewide seamless datasets of daily, monthly, and yearly minimum temperature, maximum temperature, mean temperature, precipitation, greenness (NDVI), enhanced greenness (EVI), evapotranspiration, and potential evapotranspiration. Those researching natural disasters, such as wildfire and flooding, make use of this data when determining management best practices for natural resource crisis handling.
6. While federal funding support of MSDI continues to trend downward, the MT Natural Heritage Program (MTNHP) was able to negotiate a \$250,000 grant to complete wetland and riparian mapping on BLM lands. With staff reductions at the National Wetlands Inventory, MTNHP is the only reliable source of the most current wetlands data needed for a variety of permitting applications.
7. A new two year enterprise license agreement with Esri has been successfully negotiated for agencies of the State of Montana to be in effect for the FY16/17 biennium. The agreement saves in software licensing costs and provides almost unlimited agency access to GIS tools for Montana state employees that would not be available if negotiated individually.
8. The expired Montana geospatial strategic plan was replaced by a shorter term strategic vision for FY 14/15. Endorsed by MLIAC and the Montana Association of Geographic Information Professionals (MAGIP), the plan serves as a guide for efficiently addressing GIS related issues such as best practices and standards, professional education and efficient collaboration.
9. The Montana Site Selector application <http://svc.mt.gov/gov/siteselector> was created for the Governor's Office of Economic Development by the State in an effort to spur business development in Montana.

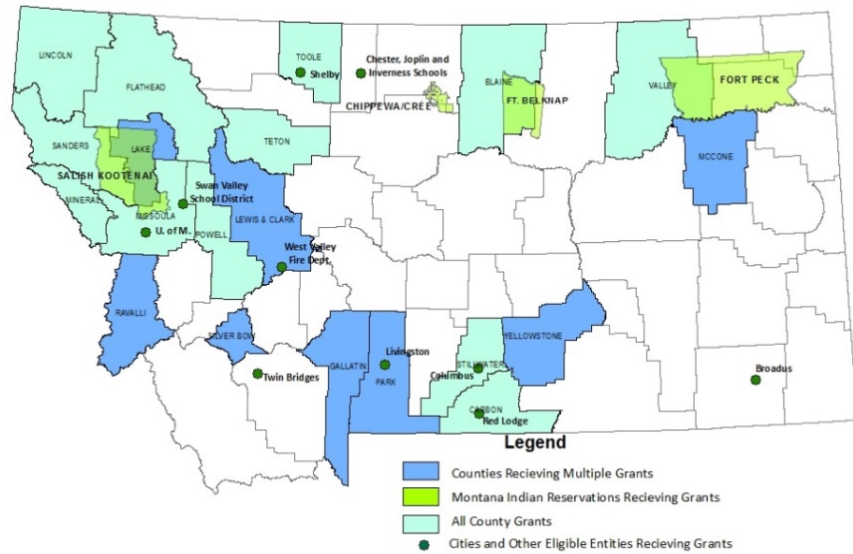
The MLIA Grant Program

In addition to planning for administration and the ongoing development of the Montana Spatial Data Infrastructure, the Montana Land Plan provides criteria used to award dedicated MLIA grant funds to local and tribal governments. The FY14 and FY 15 MLIA grant program provided funding to counties, local communities and tribes for projects that contributed to and/or advanced the MSDI; supported multi-jurisdictional geographic information consortiums; used GIS to solve local issues to improve quality of life and promoted the sharing of land information through the Montana GIS Portal. Two Montana school districts have also received grants to train the next generation of GIS analysts, cartographers and problem solvers.

The Montana Land Information Advisory Council had the foresight to give the kids a chance. This is what OUR student leadership team has done: Set up classroom activities for teachers and students from grades k-12; updated the cemetery maps using Computer Aided Design; assisted with the design and installation of the base station antenna mount; provided technical support to the teachers (they are currently gathering data for the water mains and city infrastructure through the GIS independent study); gathered data points for the cemetery; met with county, city, and school officials; presented their project to the Montana Association of Geographic Information Professionals; and they continue to make their way with GIS and create maps. Future development includes the implementation of GIS within the newly updated Outdoor Classroom. – Gail Shatkus, Liberty County Community Partnerships Program Manager

Local, Tribal and Other Applicants Receiving MLIA Grants

FY 2008 Through FY 2015



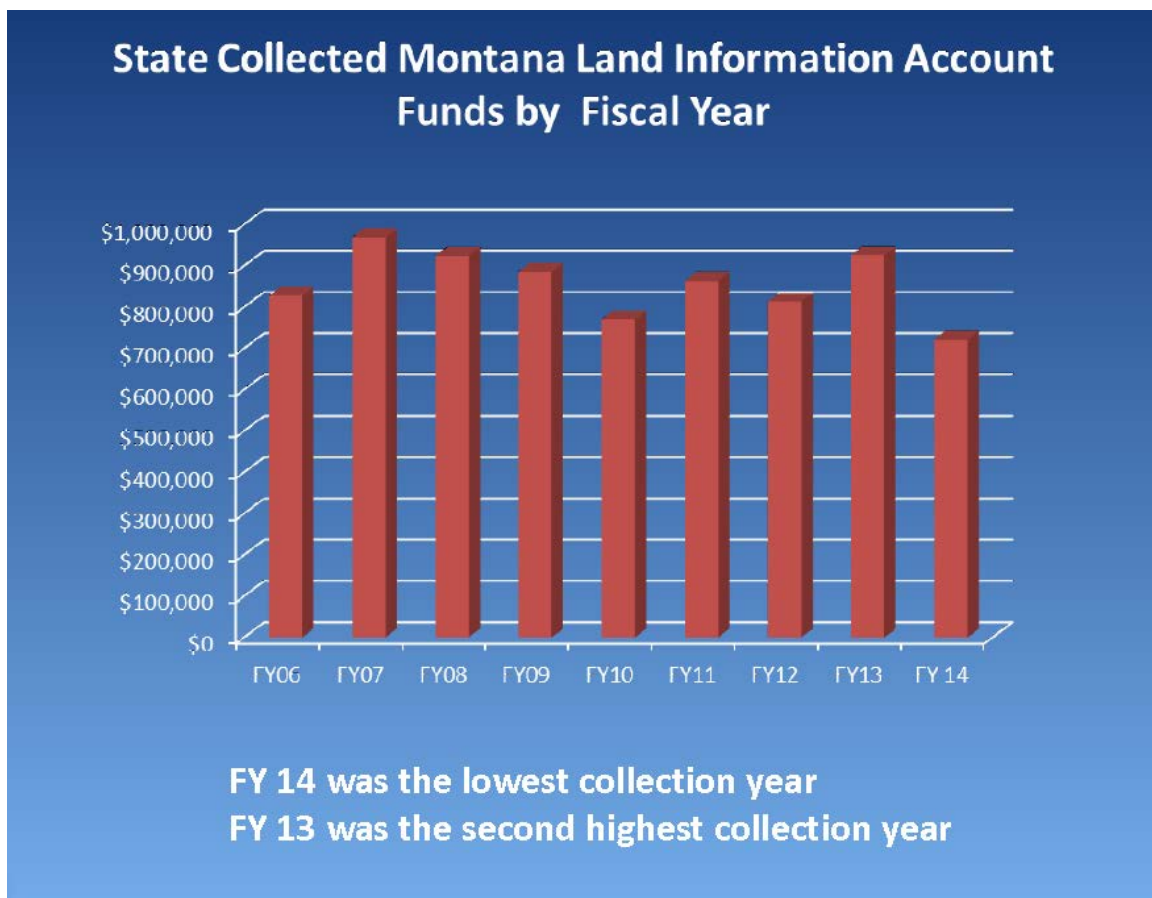
In FY 2015 the following local entities shared more than \$300,000 in grants, which is the highest amount awarded at the local level since the creation of the act.

MLIA FY15 Applicant	MLIA Share	Leverage Amount
Carbon County PLSS	\$33,000	\$31,050
Park County PLSS	\$20,000	\$10,000
Twin Bridges PLSS	\$20,850	\$4,979
McCone County Road Asset Inventory	\$12,966	\$3,442
Shelby Water Utility	\$36,050	\$40,379
Sanders County Web GIS	\$15,152	\$2,440
Mineral County Cemetery Mapping	\$14,723	\$4,801
Livingston - GIS Development	\$18,900	\$5,176
University of Montana Fire Atlas	\$18,973	\$6,776
Powell County Land Use Inventory	\$15,870	\$28,238
Ft. Belknap FTBGIS	\$23,365	\$64,703
Teton County Web GIS	\$14,852	\$1,500
Blaine County GIS Program	\$19,552	\$19,980
Broadus Metadata	\$20,000	\$30,500
Lincoln County Web GIS	\$18,740	\$28,470
Land Plan Estimate of Available Funds (\$300,000)	\$302,993	\$282,434

These grant funds leveraged an additional \$282,434 to support the development of land information at the local and tribal levels. In FY12, local and tribal grants in the amount of \$174,326 were approved (no local or tribal grant applications were denied), leveraging an amount of \$170,912.

Montana Land Information Account

The Montana Land Information Account is funded through document recording fees as described in MCA 7-4-2637. For each dollar per page MLIA recordation fee, 25 cents is retained by the county and 75 cents is deposited in the state MLIA account. The state portion of the account has averaged approximately \$850,000 annually yet encounters rather volatile swings. FY 13 had the second highest year of collections at \$926,068 while FY 14 had the lowest collection ever at \$721,748. These types of swings make it extremely difficult to plan for and administer the Library's Geographic Information Program and makes the MLIA grant funding unpredictable.



Investigations into why the collections have dropped have been inconclusive. Rising interest rates have slowed home refinancing and increased home sales have not materialized to compensate. Much of the land in northeast Montana has already been leased for oil and gas production slowing those document recordations. An analysis of FY15 first quarter collections does not show any signs of improvement. The FY16 budget as proposed in this plan is \$752,000, approximately \$200,000 less than the FY15 budget. Whatever the reasons behind the volatility, the impact has debilitating consequences.

While the Library believes that the current distribution of MLIA funding for GIS coordination, MSDI maintenance and development and local/regional grants has been

efficient, ultimately over time, the funding cannot meet growing demand. Other funding sources must be found to bridge the gap.

If those sources cannot be found, the end result is instability in the foundation of the programs that the MLIA has traditionally supported including State GIS coordination, MSDI development, and a grant program that has become increasingly popular. As proposed, the grant program will receive half of the \$200,000 reduction. At a time when these grants are building local GIS capacity, these cuts will significantly slow that growth.

The Library will also be negatively impacted as its portion of the MLIA account is reduced by \$100,000. Starting immediately, the Library will need to identify: 1) areas of budget savings, 2) potential sources of additional income, and 3) MSDI activities that will not be funded if new income sources do not materialize. If new income sources do not materialize, some combination of the following consequences will be unavoidable:

- Lack of the ability to fully meet the FY 16 Land Plan priorities in the areas of land records, water, and addressing.
- The Montana Natural Heritage Program's ability to revise the current Land Cover, including their ability to solicit field data from partner agencies; coordinate data collection efforts, standardize and/or update the mapping units to newly developed National Vegetation Classification standards. They also risk losing their .8 FTE ecologist/image analyst whose position is half-funded by MSDI, resulting in loss of extensive ecological knowledge and institutional memory.
- Lack of the ability to provide match for funding opportunities that support projects, especially in the Land Cover and Wetlands themes.
- Outreach, education, requests for information and general MSDI coordination efforts may be impacted.

While it may appear that only the Library and potential local grant recipients will be negatively impacted, the consequences will eventually trickle down to the users of the data. Real estate agents and local bankers may not be accessing the most current parcel data. Public safety officials may be routing vehicles to inaccurate address points. Developers may not realize that wetlands occurrences would impact their proposals. And policy makers may not have the spatial information necessary to make informed decisions.

Conclusion

Thanks to the leadership of the State Library and the Montana Land Information Advisory Council – and with funding from MLIA – Montana is meeting its goals to provide standardized, statewide geospatial data that can be readily used by our fellow citizens. And it is being used as evidenced by the following examples:

- The Library's cadastral application (<http://svc.mt.gov/msl/mtcadastral/>) is the 4th most used state web page.

- In state and out of state hunters use Fish, Wildlife and Parks Hunt Planner (<http://fwp.mt.gov/hunting/planahunt/>) to access updated maps with hunting regulations and statistics.
- Citizens concerned about air quality access current information using the Department of Environmental Quality's Today's Air application (<http://svc.mt.gov/deq/todaysair/>)
- Citizens can access travel information, including road conditions through the Montana Department of Transportation's interactive map at <http://roadreport.mdt.mt.gov/travinfomobile/>.

One of the State Library's long range goals is to promote partnerships and encourage collaboration. We often say that collaboration is the tide that raises the communities we serve. It is this collaborative spirit and an emphasis on open access to shared information -- something that is at the heart of the Library's mission -- that sets Montana apart in our ability to manage and provide access to land information.

Because of our statewide approach to develop, integrate, preserve, and provide public access to this information -- much of which is supplied by our partners at the local level - - users of this data do not have to worry about whether the information resources will end when they hit the county border. The broad use of this data and the economic value it provides is evidence that the tide is rising. If this statement is to be true in the future, then we must work together to ensure that the State of Montana continues to have the resources and capacity to continue this vital work, which impacts every Montana industry and community.