Business Plan to Improve Communication for MSL GIS Coordination



FINAL

June 23, 2022 by:



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1 Executive Summary

This business plan lays out the objectives, tasks, implementation plan, resource requirements, and risk management for the Montana State Library (MSL) to achieve one of the strategic goals identified in the 2022 Montana State Library *GIS Coordination Strategic Plan*: "Improve Communication for MSL GIS Stakeholders". The 2022 strategic plan discusses the need for this strategic goal and the benefits of achieving it. Among other reasons for the strategic goal, there are three that are especially important.

- 1. Targeting communications with specific stakeholders and stakeholder groups so they are better informed about GIS Coordination in Montana.
- 2. Improving public awareness of GIS resources available in Montana.
- 3. Improving communication processes used by the Library to make them more efficient.

The business plan does not create a full communications plan for the Library's GIS coordination activities, in the sense of a manual or a handbook to which the Library turns for every communication action. Instead, it builds substantial sections of that handbook.

The plan begins by defining four objectives that, when achieved, accomplish the aims described above. The approach to each objective is described along with the tasks necessary to accomplish the objective.

Resource requirements and costs are then provided as estimates. This section includes assumptions that underlie the cost estimations. Risks are described along with mitigation strategies.

The implementation plan that achieves the objectives and thus the programmatic goal of this plan is then presented. The plan includes a timeline tied to the objectives and tasks described earlier in the document. A budget plan accompanies the implementation plan.

Business plans are intended to put capabilities and changes in place. Like any tangible project with tangible outcomes, it is important to monitor the success of the plan's outcome. This is especially important for this business plan because improving communications is not a singular effort; better communications is a continually migrating target as MSL builds on successes and has an ever-increasing audience of stakeholders and as means of communication change. The final section of the business plan suggests how to measure success and refine the continuing tasks initially created here.

2 Program Goal

The Montana State Library (MSL or "the Library") has a well-developed public information program and many communication resources. The 2022 Montana State Library *GIS Coordination Strategic Plan* defined a strategic goal of "Improve Communication with Geospatial Stakeholders". This strategic goal grew out of interviews, workshops, and surveys conducted as part of the research for the strategic planning process. The research showed that stakeholders think MSL does a good job of informing them about its activities and responding to their queries. However, stakeholders and MSL staff also thought there were opportunities to communicate even more effectively. The strategic plan discusses the rationale and benefits of this strategic goal in detail and includes proposed actions to meet the goal. Recommendations made in the *GIS Coordination Strategic Plan* are:

- 1. Create and execute a formal communications plan for GIS activities within the Library
- 2. Reorganize the Library GIS web content to make it easier to discover and use
- 3. Define incoming communication pathways for support requests and public inquiries

This business plan describes how to put these recommendations into practice. The activities described here include creating the key elements of a formal communications plan, how to evaluate and then improve the Library GIS website, and building systematic mechanisms to make responding to support requests and public inquiries more efficient. Ultimately, all of these are components of a formal communications plan – essentially a handbook – that becomes the day-to-day guide for how GIS coordination and Library GIS services interact with the public and other professionals. This business plan builds elements of this formal communications plan. Overall, the goal is to create appropriately tailored ways to convey the benefits, products, services, and coordination efforts of the Library's work and to streamline inquiries and assistance requests from partners and the general public about geospatial information and services.

2.1 Objectives

Four objectives are stepping stones to achieving the program goal (Table 1). Each objective is discussed below, describing how it will be achieved. The timing of each objective's actions is discussed in the "Implementation Plan" section (Section 5).

Program Goal:	Improve Communication with Geospatial Stakeholders								
Objective 1:	Audiences are defined and appropriate communications methods and content are determined for each audience								
Objective 2:	Incoming communication pathways for support requests and public inquiries are clearly defined								

Objective 3:	The Library GIS web content is structured for ease of use and discoverability							
Objective 4:	An event schedule is maintained, engaging Library stakeholders and building awareness of geospatial resources.							

Table 1. Business plan objectives

2.2 Achieving Objectives

Objective 1: Audiences are defined and appropriate communications methods and content are determined for each audience

One of the challenges facing MSL is that it must communicate with many different people, ranging from highly technical geospatial and mapping professionals to the general public who may simply seek a map. One way to deal with this variation is to define major groups as audiences, then determine how best to communicate with each audience, and where possible, devise templates to use in those communications.

Audiences with whom MSL communicates are:

- General Public Montana citizens and others who make use of the Library's resources or have found the Library by some means (e.g., as a result in an internet search).
- Geospatial professionals Survey, GIS, and mapping professionals who use geospatial software and data on a regular basis as primary parts of their work
- Affiliated Professionals Researchers, managers, scientists, educators, and students who use geospatial data and software within the subject matter of their work, often in sophisticated ways, but for whom the creation, editing, and analysis of spatial data support their work rather than being the focus of it.
- Library Professionals Professional librarians who use geospatial services, especially, but also geospatial data in assisting, educating, and providing answers to the public.
- Educators Primary and secondary educators, with various levels of GIS expertise, who use geospatial services and data within their curricula.
- Decision-makers and Policy Leaders Elected and appointed officials, managers, and executives for whom geospatial data, services, and analytics are tools that may be used in creating policies and deciding upon courses of action both fiscal and non-fiscal.

Table 2 lists common methods of communication and the audiences defined above. For each audience (column) in the table, communication methods (rows) are categorized as primary (P), secondary (S) or not useful (blank). This provides a guide to how the Library should communicate with each audience when it has occasion to do so. The nature of a communication may determine which of the primary methods are appropriate. For example, when a dataset of interest to geospatial professionals has been



updated (perhaps data pertaining to surveyed monuments) the matrix in Table 3 indicates that the update should be publicized on the MSL web site, through some mass email mechanism (e.g., a mailing list), and through in-person presentations if they occur. The technical support platform is also a primary means to communicate with this audience but that is less appropriate for a data update announcement.

	General Public	Geospatial Professionals	Affiliated Professionals ("ologists")	Library Professionals	Educators	Decision- makers and Policy Leaders
MSL Web Site	Р	Р	Р	Р	Р	Р
Telephone/Web Meeting						S
In-person Meeting		S	S			
Broadcast News Media (e.g., Radio, TV)	Ρ					
	Ρ					
Print News Media						
Other Websites (e.g., news.mt.gov, Hub, StoryMap)	S	S	S		S	S
On-Demand Video and Podcasts		S	S	S	Ρ	
Email		S	S	S	S	Ρ
Mass Email Delivery System		Ρ	Ρ	Ρ	Ρ	
	S	S				
Social Media						
ServiceNow (or other technical support platform)		Ρ	Ρ			



In-Person Presentations	Ρ	Ρ	Ρ	Ρ	Ρ
Webinars	S	Р	Р	Р	S
Conference Sponsorships	S	S			S
Local Government Guides					S

 Table 2. MSL audiences and communications methods. Values in cells indicate whether a communication method is

 primary (P) or secondary (S). Empty cells indicate methods that may not be useful.

Communication templates make it faster and easier to convey information to different audiences. Filling in a template is simpler than creating new messaging for each episode of communication. Templates will be of various types depending on the communication medium being used; web pages, email templates, social media posts, and mass emails are the most common types. The topic of the message will also determine the appropriate methods (as discussed above). Consequently, templates need to be developed for combinations of topic, audience, and method. Table 3, also included as Appendix A, lists these combinations. Some topics may have multiple templates for a single type of medium because each template addresses a different set of audiences, e.g., "We are having an event" has four mass email templates because the different audiences would get slightly different emails tailored to their interests. Up to 39 templates may need to be devised, but this number could be lower if some templates can be used for multiple topics or methods.

Торіс	Audience	Method	Templates
1. This is new data - data		Website, Other websites	1
updates, announcing new	Geospatial Professionals		
data	Affiliated Professionals	Mass Email	1
	General Public	Website, Other websites	1
	Geospatial Professionals		4
	Library Professionals	Broadcast News	1
	Educators Decision-makers and Policy		1
2. We are having an event	Leaders	Social Media	1
	Geospatial Professionals	Website	1
	Affiliated Professionals Library Professionals	Mass Email	1
3. Something is broken	Educators	Social Media	1



		ServiceNow	1
		Website, Other websites	1
		In-person Meeting	0
	Geospatial Professionals Affiliated Professionals	Mass Email	3
4. Legislation or policy-	Library Professionals Educators	Social Media	1
related to data and information	Decision-makers and Policy Leaders	In-Person Presentations, Webinars	1
		Website, Other websites	1
	Geospatial Professionals	Mass Email	2
	Affiliated Professionals Decision-makers and Policy	Social Media	1
5. Grant programs	Leaders	Webinars	2
		Website, Other websites	1
		Broadcast News	1
	General Public	On-Demand Video and Podcasts	1
	Geospatial Professionals Affiliated Professionals	Mass Email	3
	Library Professionals Educators	Social Media	1
6. Hey, we did something cool!	Decision-makers and Policy Leaders	In-Person Presentations, Webinars	1
	General Public Geospatial Professionals Affiliated Professionals	On-Demand Video and Podcasts	1
7. Did you know (some fun	Library Professionals Educators	Mass Email	3
fact or something - like Mapping Mondays)	Decision-makers and Policy Leaders	Social Media	1
		Total Templates Needed:	39

Table 3. Topics, audiences, methods, and number of templates needed.



By identifying topic, audience, and method, then using an appropriate template, the speed of MSL communications can be increased with less effort on the part of Library staff. Additionally, by defining and following a planned schedule of communications for each combination of topic, audience, and method, MSL will achieve its desired cadence of outgoing communications with its stakeholders. As discussed above, the rules for outgoing communications, shown in Tables 2 and 3, along with the schedule, templates, and "how-to" directions to use them, become part of the comprehensive MSL communication plan.

Objective 2: Incoming communication pathways for support requests and public inquiries are clearly defined

MSL responds to a large number of inquiries every year, and this places a substantial workload on MSL staff. MSL uses a spreadsheet to track many, but not all, inquiries. This request log can be used to estimate the level of effort expended in responding to inquiries and the nature of those inquires.

Table 4 shows that requests have increased almost every year. The average time spent responding to each request (calculated by summing the "duration" category associated with each request and then dividing by the number of requests) has remained relatively constant at around 13 minutes. However, because the number of requests has increased over time, the number of hours MSL staff expends annually has increased. In 2020, over 3 person-weeks were spent responding to inquiries.

Period	Requests (n)	MSL Person-Hours	Minutes Per Request
2016 Q4	46	8	10.4
2017	234	53	13.6
2018	018 363		11.6
2019	427	85	11.9
2020	540	130	14.4
2021	488	108	13.3
TOTAL	2098	454	_
AVERAGE (2017-2021)	410	89	13.0

Table 4. Requests responded to by Library GIS staff, 2016 through 2021. Time estimates are derived by summingthe number of requests by response time expended categories.

The request log also reveals that most inquiries concern the cadastral service and data, elevation, orthoimagery, or general GIS and account for about 85% of all requests (Figure 1). For these most frequent categories, most requests (around 60 to 80%) are categorized as technical requests, meaning

that they are questions that GIS staff answer as opposed to directing them to other offices or agencies.



Figure 1. Distribution of request categories

The time and effort spent responding to inquiries is considerable but is also part of GIS coordination and the Library's overall role. The goal of this objective in the business plan is to make the process of responding to inquiries more efficient in two ways:

- 1. By having the process be less disruptive to other work being performed by staff.
- 2. By reducing the time taken to respond to inquiries.

The former is especially important – the overall goal of GIS coordination and service is hindered by having key staff answering public inquiries instead of doing work for which they are uniquely suited. The latter, reducing the time to respond to any single inquiry, is needed because one can expect that the number of inquiries and requests will continue to increase.

Build and Maintain a Knowledge Base

Since many information requests are similar, reference materials can save time and effort in responding to them. Rather than a Library staff member having to either know the answer or find someone who does, a well-organized knowledge base can lead them to an appropriate answer. A system by which questions get answered, as much as possible, also creates consistency in responding to questions and

allows for staff with varied skillsets to answer questions by using the reference materials. In short, a body of answers to common questions can help prevent interrupting otherwise busy staff and can reduce the time and effort needed to provide a response to an inquiry. The Library is exploring available agency-wide knowledgebase tools which could be used to meet this need.

A knowledge base can include many forms: web pages, frequently asked question (FAQ) documents, internal checklists, "how-to" videos, a database or searchable table of questions and answers, and ticketing systems that allow support responses to be found by the public. To be effective, the knowledge base should have a well-defined structure that is easy for staff to understand and that lets people find their own answers.

The most common questions should be FAQ pages on the MSL website. FAQ entries can contain links to other internal or external resources. The request log should be reviewed to determine what questions the FAQ pages contain. Because cadastral, elevation, and imagery are the most common (logged) inquiries, these should be the focus of FAQ page development.

The request log is an excellent tool and its use, in some form, should be continued. The log itself should be replaced by the ServiceNow ticketing application (discussed below). Whatever method is used to track inquiries, when lengthy or complicated answers seem to recur, these need to be considered as either additions to FAQs or as additions to the overall knowledge base (perhaps in a searchable document of technical answers or in a database with keywords and search capabilities).

FAQ pages and some form of searchable storehouse of answers are the highest priority forms of knowledge base to develop for two reasons. First, FAQs support self-help, reducing staff effort and interruption; second, the searchable storehouse of answers, even if it is just an internal resource, allows general staff to respond to many questions without taking up the time of higher-level or unique experts.

Concentrate all Support in ServiceNow

The State and the Library are implementing ServiceNow - a digital workflow management tool. ServiceNow should become the primary means through which requests and inquiries are sent to the GIS group. All email inquiries should be routed to ServiceNow. This can also help reduce the on-call telephone support load by informing callers that the MSL website and the ServiceNow help system may provide answers without waiting for a voice call with MSL staff. The website should also provide a means of submitting a ticket to ServiceNow, through a Contact Us type of form. The ServiceNow tickets need to be reviewed quarterly to see if additional answers need to be added to the website, the FAQ pages, or the internal knowledge base.

Restructure the Support Team

Eight staff rotate the duty of responding to public inquiries. Because the GIS group within the Library is small, this means that senior staff are part of the rotation, even though they are already quite busy with other duties that are unique to their job. Answering public inquiries can mean that something more



important for GIS coordination and services does not get done. Consequently, shifting the primary response duty to four individuals, a Tier 1 support team, may have an overall benefit to MSL GIS. Reducing the number of staff engaged in responding to requests and inquiries is obviously aided by all the other actions in this objective: self-help through FAQs, routing inquiries efficiently, using a ticketing system to organize and concentrate effort, and building a reference library of answers in an internal knowledge base. For requests that are beyond the capability of a Tier 1 support team member to respond to after exhausting the resources available, a Tier 2 level of support may be required. This could mean reaching out to senior staff with the unique expertise required for assistance.

No one at MSL has a primary job duty of answering inquiries. So, responding to requests and questions takes someone away from other work. This is especially problematic when one is in the middle of a task and is interrupted by having to respond to an inquiry. Staff assigned to inquiry responses should do so in scheduled, planned, blocks of time to minimize the disrupting effect of task-switching.

Define and Follow the Decision-tree for Handling of Requests

Defining pathways for responses to inquiries that lead to answers helps staff know *how* to respond to a request, simplifying the response process (Figure 2). The request handling pathway endpoints shown in Figure 2 then specify actions one would take to respond to the request.



Figure 2. Support request types and response pathways.

For example, consider the pathway if a request came in about whether an MSDI dataset can be used in a commercial product. The MSL respondent could first identify this as a general question about data – a "General Data-Related Request". The request type concerns "Acceptable Use". The answer to the inquiry would be found wherever the Library has organized responses to this type of request – perhaps in an internal document on acceptable use or on an MSL website FAQ page about the MSDI. The point is that the request handling pathway leads the MSL staff person to the answer to the inquiry quickly.

Having a compendium of answers already prepared will make answering requests much simpler. The Library has a lot of support resources in-hand already. The task is to organize these resources and make sure they are articulated with the request response pathways above. Continuing the example given in the previous section about using MSDI data in a commercial product, the MSL staff person answering that inquiry must be able to *direct the inquirer quickly and easily* to the appropriate web page or email them the data use policy statement. The library of "answers" will change over time and need to be updated. As new materials are developed, they need to be incorporated into the resource library, and the guidance for handling types of requests revised to incorporate the new materials.

Escalation of a request is also part of having a well-defined workload for those who respond to inquiries. Certain inquiries or requests need to be routed to other staff who serve as higher-level support tiers, those who are not routine responders to inquiries. This should be done through an escalation process. Each of the pathways above should have an escalation "step" as part of the guidance for responding to the request. ServiceNow may even automate the escalation process, allowing a first-tier responder to simply flag a request and the software then knows how to escalate it appropriately.

Objective 3: Library GIS web content is structured for ease of use and discoverability.

Search terms such as "Montana GIS data" or "Montana GIS services" return the Library's GIS Coordination page (msl.mt.gov/geoinfo). The research conducted for the strategic plan revealed that only about 30% of GIS stakeholders characterized their visitation to the MSL website as "frequent" (Figure 3).



Figure 3. Survey responses concerning the MSL website (research conducted in 2021).

Follow-up interviews and discussions with GIS stakeholders revealed that, while they knew that the Library is an important source of GIS information, they were unaware of the breadth and depth of data and services available. One impediment to this knowledge was the MSL website. Users felt that rather than the website helping one to find GIS information of various sorts, one had to first know what was available through the website. With that foreknowledge, one could then search through the website to find the desired information, data, or service.

The Library updated its website between the strategic plan research and the present. The current Geographic Information Home page (Figure 4) is an improvement over an older tree-driven menu. However, it may still presume too much knowledge on the part of a website user, especially one new to the Library and to Montana GIS in general.



Figure 4. Geographic Information Home page on the Library website (msl.mt.gov/geoinfo; April 2022).

For instance, if one is unfamiliar with the Library's data holdings and services, how would one decide between a data list and a data bundler? Is the Montana Spatial Data Infrastructure (MSDI) a different kind of data than what is in any of the other data choices? Is the Water Information System an application, data, or something else? One can figure these things out by clicking and exploring links (see Figure 5), of course, but it is hard to understand the relationship between the home page choices and, perhaps more importantly, not easy to know which links will yield useful results.

The very important role that the Library has in building, promoting, and especially coordinating geospatial work throughout Montana is invisible until one goes to the GIS Coordination page. Many states have an actual bureau called something like the "geographic information office" within state government; the Library is that "geographic information office" for Montana but this is not readily apparent from the opening pages of the website. Until they are educated about the Library serving this role, many geospatial professionals do not realize the Library *is* Montana's geographic information



office. Non-professionals find this even more confusing, even though one might logically associate a library with a place that has maps.



Figure 5. Partial map of URL links from the Geographic Information Home page (msl.mt.gov/geoinfo; April 2022).

The issues described above are in no way due to a lack of pertinent geospatial program information, data and data services, web maps and viewers, or other kinds of content at the Library or on the Library website. The problem is one of website organization: with so *much* to offer a website user, users may have too many choices; experienced users or those that are generally familiar with state GIS efforts will persist to find what they seek. Others just turn away. **A solution is to organize the MSL Geographic Information website around three core ideas:**

- First, most users come to the website for a specific purpose or goal, so create page flows for the most common goals that guide a user toward achieving goal.
- Second, some expert users come to find specific website resources, so make it easy for them to search and sort available web resources (data, data services, technical guidance, etc.).

• Third, GIS coordination, guidance, and expertise are important services provided by the Library, so structure the website to facilitate learning what the Library is doing with GIS and how to work with the Library.

In other words, give many users a guided experience but also make it easy for users to explore and find within the website.

Common tasks for a website redesign are captured in Appendix B. Following the redesign, MSL will need to publicize and maintain the website.

Publicize website changes

The launch of the website revisions is newsworthy. The public is certainly a stakeholder in the Library's GIS coordination and GIS systems. A flagship workflow or application could become the subject of a news release, driving public users to explore the new site by first leading them to a web page that most will find interesting and useful. For mapping professionals and partners, the Library should use existing and new channels to inform them of the website changes and as with the public audience, highlight especially useful pages by including links to them so that users are enticed to visit the revised site. From that information, MSL partners can choose to further publicize MSL's offerings through their own channels.

Maintain the website

Websites need to be maintained. Part of the design and functional requirements process can include determining which pages will need to be refreshed on a scheduled basis. The web platform itself may assist maintenance by pushing changes from one page to all others that use the same content automatically.

Metrics for the website should be aggregated monthly and examined for anomalies such as very slow page response times. Anomalies need to be investigated if they affect the usability of the site's pages. At a minimum, there should be a quarterly review meeting with appropriate MSL Geographic Information and Library technical staff and public information officers to identify any changes or substantial updates.

Objective 4: An event schedule is maintained, engaging the Library stakeholders and building awareness of geospatial resources

The Library stages and participates in a variety of events that are of interest to geospatial stakeholders and other interested parties. Systematically publicizing events such as webinars, presentations, meetings, and training opportunities help the library engage with stakeholders and the public. Events are opportunities for people to involve themselves in planning and other activities, e.g., MLIAC meetings. This furthers the Library's coordination role.

This objective is relatively easy to achieve. MSL must:

- Identify a calendar platform and related communication methods by which events will be publicized
- Assign staff responsibilities for maintaining and promoting events using the calendar platform and other appropriate methods and templates (as discussed above within Objective 3)
- Consistently review events and possible events to determine if they are appropriate to participate in and publicize
- Publicize appropriate events using the calendar and other communication pathways

3 Requirements and Costs

The resources and funding requirements are discussed below for each objective. Risks are addressed holistically for the program goal in the final part of this section.

3.1 Assumptions

During the analysis of required resources and funding the following list of assumptions were made.

- Existing MSL staff will perform the tasks necessary to support the business plan's implementation. Alternate cost estimates for consultant work are provided in case MSL decides to engage external resources to perform some of the tasks, notably the website activities.
- Whether MSL will need to hire a vendor to perform changes to the website cannot be determined until functional requirements and design changes to the website are better defined.
- The current MSL web site framework will continue to support geospatial applications and allow integration with other geospatial services and sites.
- The cost of new software cannot be estimated until functional requirements and design changes to the website are better defined.
- ServiceNow is currently being implemented and will be operational at the start of the business plan implementation.

3.2 Resource and Funding Requirements

For each objective, a **team** needs to be defined and **roles** assigned. These are the people who are going to implement the business plan and take responsibility for making it happen. Additionally, non-human resources such as **technology or software** will need to be lined up for use or acquired if not already available within the Library's existing resources. Table 5 lists the resource requirements for each objective (also included in Appendix A). The first step for each objective is to confirm these resource requirements and update as needed.



	Objective 1 Objective 2		Objective 3	Objective 4
	All objectives should have an assigned Project	Manager role to plan the details of the implementation	on, ensure the objective is being worked on, it's meeting the stal	weholders' needs, is completed on schedule, monitors
	Communications Lead to lead, plan, perform,	Content creators and managers to build the	Business Analyst to gather and understand business	Events Coordinator for maintaining event calendar
	and delegate the communications activities.	knowledge base and FAQs content for the website	requirements and translate them into technical requirements	and promoting events (with Communications Lead)
			Stakeholders to provide detailed feedback on unmet needs	
			with current website and business use cases for requested	
			improvements. This could include MSL staff and the MLIAC	
	Content creators to create and maintain the	ServiceNow platform expert to help configure	sharing known issues or opinions on the current website. Also,	
	content categories and templates, based on	directing emails and setting up a solution for passing	the known power users, existing partners, or even a broader	SMEs/domain experts for channelling events to team
	their subject matter expertise.	phone requests into the system	survey of the geospatial community	for review
		Ther I Support to review and respond to the support		
		requests during designated support response times.	Designer to translate technical requirements into excellent	
		Includes a reference librarian and 3 GIS staff.		
		her 2 Support to assist the Her 1 Support team	Evisting wahaits alotform CME to halp team understand	
Teams/Roles		should a request require advanced subject matter	constraints and provide recommendations for meeting	
		doesn't vet have	requirements within said constraints	
		udesh t yet have.	Content creators and managers to assist with manning	
			existing content to the new content areas and gather or	
			develop new content to be added	
			Website Developer or Configuration Expert to implement the	
			changes. Whether a web developer is needed will depend on	
			the requirements and the architecture decisions. Eg. if ArcGIS	
			Online platform is used, a website developer may not be	
			required unless customization is needed to extend the	
			templated resource.	
			Testers to verify that the new website changes are complete	
			and working as expected. Coordinate with	
			developer/configurator on any changes or bug fixes needed.	
	1		Taskaslass (Aushitastura liftha quisting platform proports to a	
			many constraints to achieve the requirements then	
			notentially new web application /technology may be required	
			This could be either a configurable templated solution a COTS	
			vendor supplied solution, or a custom-developed solution.	
	Calendar for scheduling planned	ServiceNow for concentrating and tracking all	This also includes development and staging environments if	Calendar for scheduling semi-annual event planning
	communications	support requests	required, depending on the technology chosen.	meetings and events
Non-human			Software for capturing requirements, creating mockups,	
Resources			developing a workplan, capturing and tracking testing results.	
			There are many products readily available for supporting these	
			tasks that the Library may already have access to such as	
		Calendar for scheduling quarterly reviews of	spreadsheets, slides, and project planning Gantt charts.	
	Documents for drafting and collaborating on	requests and decision tree, and designated support	Additionally, some free or low-cost products are available, for	Communication methods (see
	communications content	time	example, eg. jira, asana, moqups or similar mockup tools.	Methods/Stakeholders Matrix) for promoting events
	Communication methods (see	Request handling decision tree to guide support		
	Methods/Stakeholders Matrix)	team in efficiently responding to requests		

Table 5. Resource requirements (human and non-human) for each objective.



Table 6 summarizes the level of effort (LOE) estimated to accomplish each objective. Additional detail is provided in the implementation plan (Section 5) for LOE estimates (hours), and cost estimates broken down by task and objective. To complete all four objectives in a 15-month time frame, it will require 0.3 FTE (Full Time Equivalent) in total. As described above, this work will not be accomplished by only one person as there are multiple roles required for each implementation team. Additionally, some of the effort noted in the plan begins the ongoing maintenance required. Therefore, the estimated LOE is shared across all the identified roles and some of the maintenance activities. Cost estimates are only provided for the cases where outside services may be engaged in exchange for some internal MSL staff effort. This table is also included in Appendix A.

			Cost Estimate
Objectives	Hours	FTE	(Outside Svcs)
Objective 1: Audiences are defined and appropriate communications methods and content are determined for each			
audience	94.5	0.045	\$0.00
Objective 2. Incoming communication pathways for support requests and public inquiries are clearly defined	107	0.051	\$0.00
Objective 3: The Library GIS web content is structured for ease of use and discoverability	400	0.192	\$40,800.00
Objective 4: An event schedule is maintained, engaging the Library	20	0.014	\$0.00
Totals	630.5	0.303	\$40,800.00

Table 6. Level of effort (LOE) summary for accomplishing each effort in hours and in proportion of a full-timeequivalent (FTE, based on 2080 hours per year).

3.3 Risks

Potential risks to the implementation and ongoing success of Improved Communication with Geospatial Stakeholders should include a statement of the risk, the probability of the risk materializing, the impact of the risk to the effectiveness of GIS Coordination, how the risk could be mitigated, and level of financial consequence due to the risk or cost of mitigation. A risk register including this information is displayed in Table 7 and is also provided within Appendix A.



Risk		Probability	Impact to		
Num	Statement of Risk	of Risk	Effectiveness	Mitigation of Risk	Financial Consequence
1	No action is taken to implement this plan	Low	High	Implement the business plan	None
Objectiv		tions method	s and content are d	letermined for each audience	
2	Stakeholders still report being unaware of the Library's	Low	High	Carefully review the communication stakeholder groups, distribution lists, methods, and	None
	activities			content/topics to ensure they are updated, comprehensive, and inclusive.	
3	Stakeholders change over time	High	High	Keep the distribution lists updated as changes in stakeholders are identified.	None
Objectiv	ve 2. Incoming communication pathways for support req	uests and pul	blic inquiries are cl	early defined	
4	Website changes are not implemented in a way that allows for self-help materials	Low	Medium	Ensure prioritized requirements include this content.	None
5	Staff do not pass requests that come to them through other channels to ServiceNow	Medium	Medium	Educate and communicate with staff on the importance of forwarding requests to ServiceNow for tracking. Continuously educate customers about using the ticketing system and it's henefits rather than reaching out to individuals if unnecessary	None
6	ServiceNow cannot receive live phone calls	High	Low	Have a backup plan for handling phone calls. E.g., have a designated support phone number that captures voicemails which are listened to during designated response times. The voicemail message should direct to the self-help materials on the website and to the ServiceNow ticket submittal form.	None
7	Tier 1 support staff need more assistance from Tier 2 than expected	Medium	Medium	Ensure Tier 1 staff have appropriate training, are following the guidance of the decision tree, the decision tree is updated.	None
8	Support requests increase over time and the 4 Tier 1 support staff cannot keep up	Low	Medium	This plan should reduce the number of support requests if fully implemented. However as MSL provides more services and more data, the number of requests will increase. Therefore over time there may be cause to add more time to the dedicated response times or add more Tier 1 staff.	Unlikely, but maybe if additional support staff is required beyond the current estimate of .10 FTE
Objectiv	e 3: The Library GIS web content is structured for ease o	f use and disc	overability		
9	Appropriate resources not made available for website improvements	Medium	High	Make available the appropriate resources. This might include consultants if in-house staff cannot be made available or doesn't have the necessary skills	Maybe, if external consultant is needed
10	Implementation team does not agree on website change requirements or mockups	Low	Medium	Revise requirements or mock-ups for a win-win situation where both sides are happy. If necessary, engage an unbiased facilitator.	None
11	MSL staff does not have the necessary skills to implement the requirements	Medium	High	Have a back-up plan to engage staff from IT or a consultant	Maybe, if external consultant is needed
12	Existing website platform's contraints limit the ability to implement priority changes to the website	Medium	High	Consider workarounds or alternate solutions to solving the need that are within the constraints of the existing platform. Have a back-up plan to use alternate integrated technology to supplement/compliment the features of the existing website.	Maybe, if additional technology is required that is not already in MSL's possession
13	Workplan reveals that changes will take longer than expected to implement	High	Low	Prioritize the requirements to design the workplan so that the most valuable features are developed first. Launch the minimum viable product (MVP) earlier and make incremental improvements over time. Alternatively, wait until the changes are done - the site stays status quo during this time. Alternatively, engage more resources to speed up the work.	Maybe, if external resources are engaged.
14	Implementation team is not happy with website changes made	Low	High	Properly vett the staff (or consultant) who will make the website changes prior to engaging on the project.	Maybe, if the work needs to be redone by an external consultant.
15	Issues are found in the new website after production launch	Medium	Medium	Thoroughly test the staged website for all possible workflows, on multiple browsers and devices.	None
Objectiv	ve 4: An event schedule is maintained, engaging MSL Geo	oInfo stakehol	ders and building a	awareness of geospatial resources.	
16	There are too many events to consider participating in	Medium	Medium	Divide and conquer, delegate - not all events need to be (or should be) attended by the same individual(s). Prioritize and carefully choose the events that will bring the most value to MSL and it's stakeholders.	None
17	The event calendar is not maintained	Medium	High	Maintain the calendar and attend the events as planned	None
18	The events are not promoted as much as desired	Medium	High	Promote the events through appropriate communication pathways and on schedule. Develop a promotion schedule for events (i.e., initial announcment date should be x weeks prior, reminder should be 1 week and 1 day prior and day of)	None

Table 7. Risk register.

4 Implementation Plan

4.1 Implementation Phasing and Milestones

The implementation plan to meet the Program Goal is straightforward and consists of the four objectives with tasks in each phase. Each task has a timeline. The plan is presented as a 15-month timeline. *However, It is estimated that all the initial one-time tasks can be accomplished within 9 months* and the ongoing or quarterly tasks go on from there.

Some of the steps needed to implement this plan were completed by MSL and AppGeo during the development of this business plan (e.g., initial recommendations for website improvements, development of communications method matrix, request handling decision tree, list of templates needed, implementation teams roles required). Therefore, only the implementation steps remaining to complete are presented here. Each task has an associated estimated level of effort (hours) and cost estimates if applicable. Cost estimates are only provided for the cases where outside services may be engaged. The implementation plan is presented in Table 8 below and is also provided as part of the Appendix A.

		Cost Estimation										Cost Estimate	e			
Objectives and Tasks	Timing Notes					Timeli	eline in M		onths				Hours	(Outside Svcs)	Budget Notes	
		1	2 :	3 4	5	6 7	7 8	9	10 1	1 12	13	14 15				
Objective 1: Audiences are defined and appropriate communications methods and content are determined																
for each audience													94.5	ŞU.UU	Objective 1 lotal (0.045 FTE)	
Identification realize (DM ethons) shills and ensures and all			+	+	++	+	+-	++	+	+	+	\vdash		<u> </u>		
- Identity team roles (PIV), others), skills, and resources needed			+	+	++	+	+-	++	+	+	+	\vdash	<u> </u>			
Confirm communications methods matrix (provided by Appiceo)			-	+	+	+	+	+	+	+	+	\vdash		·	CIS Dress Library Dress Educations @ 4 percent hourse 'Olegista and Desision Malvary @ 9	
Davalon distribution list for each audience (stakeholder group)														,	las Pros, Library Pros, Educators @ 4 person-nours, Ologists and Decision-Iviakers @ 8	
Categorize outgoing communications content/tonics		+		+	+	+	+	+	+	+	+	\vdash	20	1	personniours	
		+		-		-	+	++	+	+	+	\vdash	<u> </u>		Assuming 1 hour per template needed. Number of templates needed is based on Topic	
Develop a content template for each method + audience + topic combination (as appropriate)													39		Templates table.	
Develop a communications schedule for each method + audience + topic combination		+	+						-	+			19.5		Assuming .5 hr per template.	
Use the communications schedule and methods matrix to guide actual communication (ensure primary		+	+	+			-									
methods are employed)	Ongoing												0		This is just part of the communication activity.	
Objective 2. Incoming communication pathways for support requests and public inquiries are clearly																
defined													107	\$0.00	Objective 2 Total (0.051 FTE)	
Develop implementation team													2	2		
- Identify team roles (PM, others), skills, and resources needed																
Build and maintain a knowledge base	Ongoing												32	2	assumes 2 days to initially develop content, then 1hr/month to maintain it with new conte	
- Put prominent link to self-help materials on the Geo page															included in website changes implementation.	
Concentrate all support in ServiceNow	Ongoing															
- Eliminate "live" phone support; Direct emails to ServiceNow													8	3		
- Review requests quarterly to identify changing/increasing demands; Add to Knowledge Base/FAQ	Quarterly												16	i		
Restructure the Support Team																
- Structure support as Tiered: Tier 1 and Tier 2													1	L		
- Reduce number of people providing (Tier 1) support from 8 to 4													1	L		
- Concentrate Tier 1 response times to specific hours													1	L		
Define and follow the decision-tree for handling of requests	Ongoing															
- Finish building out the Decision Tree with guidance on how to handle each type of request													24	ŧ.		
- Train Support Team on using the Decision Tree													6	i		
- Review the Decision Tree quarterly and adjust as needed	Quarterly												16	5		
Objective 3: The Library GIS web content is structured for ease of use and discoverability													400	\$40,800.00	Objective 3 Total (0.192 FTE)	
Develop implementation team													2	2		
 Identify team roles (PM, others), skills, and resources needed 					\downarrow			\square								
Evaluate existing website				\perp	+			\vdash					24	1		
- Compile feedback on existing user experience								\square								
Define Functional Requirements and Design						\rightarrow	-	\vdash	\rightarrow	\rightarrow				\$12,800.00	Only a cost if a consultant would be hired to assist with ~1/2 of this LOE.	
- Define and confirm requirements					+	\rightarrow	-	\vdash		\rightarrow			24	1		
- Mockup the changes required					+			+					24	1		
- Identify website platform constraints		+			+	\rightarrow	_	++	\rightarrow	+		\vdash	8	8		
- Confirm existing or select new or additional software		+				\rightarrow	_	\vdash		\rightarrow		\vdash	8	8		
- Map existing content to new content areas		+				+	_	++	_	+			24			
- Gather or develop new content to be added		+					_	$ \rightarrow $	\rightarrow	+		\vdash	40	0		
Implement website changes								$ \rightarrow $	\rightarrow	+		\vdash				
- Determine if work is in-house or contracted							_	++	\rightarrow	+	-		8	8		
- Hire vendor, if work is contracted		+	\rightarrow		+		-	++	\rightarrow	+	-	\vdash	24	-	May not be required. If required, see rough estimate for contractor costs.	
- Purchase software, if new software is needed		+	\rightarrow				+-	++	\rightarrow	+	-	\vdash	24	TBD	May not be required. If required, software costs need to be determined.	
- Create a workplan for website changes		+	-+	+		_		+	-	_	-	\vdash	16	\$3,200.00	Only a cost if a consultant would be hired to do this task instead of internal staff.	
- Implement changes (in dev/staging)		+	\rightarrow	+	+				+	+	-	\vdash	120	\$24,000.00	Only a cost if a consultant would be hired to do this task instead of internal staff.	
Verify that changes are completed and working properly		+	\rightarrow	+	++	+	+		+	+	-	\vdash	20	0000000		
- Launch/deploy the new website content to production		+	+	+	+	+	+-		-	+	-	\vdash	4	\$800.00	Only a cost if a consultant would be hired to do this task instead of internal staff.	
Publicize website changes (see Objective 3)		+	+	+	+	+	+		-	-			2			
Maintain the website	Ongoing	+	+	+	+	+	+	+					24	-		
- Reconvene team on quarterly basis to evaluate needed updates	Quarterly					-	-		-				-			
objective 4: An event schedule is maintained, engaging the Library stakeholders and building awareness of													20	50.00	Objective 4 Total (0.014 FTF)	
Develop implementation team													23	90.00	instante rista (autility)	
- Identify team roles (PM, others), skills, and resources needed			-	+	+	+	+	++	-	+		\vdash	+	1		
Add events to the calendar																
														1	Assuming 2 people convene each time and communicate the results to other staff as	
- Convene a semi-annual event planning meeting, review events and add to the calendar	Semi-annual												6	5	appropriate.	
- Add rolling updates and additions	Ongoing												12	2		
	Ongoing with focused													1		
Promote events to appropriate audiences using appropriate communication methods	semi-annual efforts												9			
													630.5	\$40,800.00	Goal Grand Total (0.303 FTE)	
		_	_	-			_	-	-							



Table 8. Implementation Plan to improve Communication for MSL GIS Coordination



4.2 Budget Plan

As shown in Tables 6 and 8, objectives 1, 2, and 4 can be accomplished using existing staff time and therefore do not require additional funding. The only objective requiring funding is Objective 3 as MSL intends to outsource much of this work. Funding to accomplish this will probably come from a variety of sources. This includes some existing funding for website revision from the Library's current rebranding work. It may also include funds from the Land Information continued funding. Other funding sources may be identified as the implementation calendar progresses.

5 Measuring Success and Feedback for Refinement

As with all planned activities, it is important to measure success and adjust the plan and its implementation as necessary. Two levels of success should be monitored and measured, and two types of refinement should be considered.

The first level of success is the implementation of the program Goal and associated objectives. The program goal is to improve the communication with geospatial stakeholders. The program goal consists of several achievable objectives that together will result in the successful implementation of the goal. One or more tasks are associated with each objective as shown in the Implementation Plan (Table 8).

Monitoring the progress being made to accomplish each objective and task and therefore implementing the program goal is straightforward by comparing progress to timeline to produce a measure of percent complete. The Project Manager role identified for each objective's implementation team can assist with this monitoring using the standard project management tools employed (e.g., schedule, task manager, status meetings, etc.). Strategies and resource levels can be adjusted as needed to meet the timelines provided.

However, a second, more important, level of success must also be considered: Is the improved communication achieving the strategic purpose for which it was intended? While this level of success is more important, it is also harder to measure. One way to assess the success is to consider the strategic purposes for which it was formed:

- Clear, targeted publicity about the Library's statewide geospatial coordination, its services, and its role in making useful data readily available will help the public and other stakeholders recognize the value of the Library's geospatial program and understand why it should continue to grow.
- Communicating the "bigger picture" through improved web presence and other means will aid the professional community, to the benefit of all parties who use Montana geospatial information.

• Educating stakeholders about their role in the process, and how the Library acts in their interests when that interest is expressed, builds trust and investment in statewide geospatial programs.

The Library should devise a consistent means to perform self-assessments, essentially devising a selfassessment workflow and toolkit. By creating a standard assessment process, improvement can be gauged objectively. Depending on the results of each self-assessment, the Library may need to refine its efforts and plans.

Refinement can occur in two ways, necessitated by their cause and their timing. *Ad hoc* refinement is caused by an unforeseen event or set of events that require rapid intervention. For example, the Library or MLIAC may receive criticism that demands immediate action. Or perhaps there is an opportunity on the near horizon that requires a rapid response from the Library to capitalize on. In either case, a situation is presented which requires adjustment to Objectives, Tasks, or Timeline.

The other type of refinement is routine and planned. The Library should review its objectives, tasks, and timelines for refinement on a regular, recurring basis such as annually. This review should include the addition of new Objectives and Tasks to replace the Objectives and Tasks defined in this document as they are accomplished or completed. It also includes the self-assessment of mission success described above as an annual activity. Ideally, this refinement opportunity would follow the Library's annual review of the GIS Coordination Strategic Plan so that it could reflect adjustments to that document.

In any event, refinement usually includes changes to one or more of the following areas:

- Strategies. Has the big picture changed? How do the changes affect planned courses of action?
- Priorities. Perhaps events require that objectives or tasks be realigned in time, or that more (or fewer) resources are required due to complexity or a new understanding of criticality.
- Resource levels. Resource levels often include human resources, but financial and technical resources may also need to be refined.
- Objectives. Are the planned objectives still the right ones to pursue? Should an objective be added or removed, or simply realigned?
- Tasks. Tasks are associated with objectives and may require adjustment if an objective is changed.
- Schedules. Is the length of time that has been planned to implement an action or accomplish an objective still appropriate given the current environment?



Appendix A. Implementation Plan, Resources, Risks, and Templates (Excel Spreadsheet)

Appendix B. Common Website Redesign Tasks

This appendix describes the tasks commonly needed to redesign a website. They are common website design and revision tasks and have quite likely been accomplished by the Library before. Tasks, discussed in more detail below, are:

- Evaluate the existing website
- Define functional requirements and design
- Implement website changes

Evaluate the Existing Website

One of the first actions is to examine how the MSL website structures the way people use it – the user experience. At present, the user experience on the Geographic Information Home page is structured by categories that make sense to a professional user – especially a GIS expert, but also various scientific and administrative professionals too. Many users come to websites like those of MSL not certain of how to find what they want – or even what is available from the page they are on.

One of the first considerations is what the landing page for Geographic Information tells the user. The page should briefly make clear that this is the focal point for much of Montana's State GIS, both as a resource and as a coordinating body. Through links or a very brief narrative, the landing page might address:

- What is GIS?
- What does MSL *do* with and for GIS?
- What resources does MSL make available?
- Workflows and links from here

The idea of providing workflows is that the landing page provides the users with entry ramps to further pages that help them accomplish some task. Based upon the information gathered for the strategic plan and examination of other states' geographic information office websites, there are six workflows to consider:

- 1. Quickly view maps for some specific activity or purpose
 - "Where can I ...?" Examples include hunting, fishing, camping
 - "Who do I contact about...?" Examples include school districts, government offices
 - o "Where is the nearest...?" Examples include clinics or hospitals, other service centers



- "What are the conditions at..." Examples include road conditions, but also parks, museums, and other places of interest with information on closures, hours of operation, and so forth
- 2. Quickly view maps that educate and reveal historical or contemporary trends
 - Population patterns over time
 - Current and historical land use
 - Economic outputs, and their changes over time
 - History of particular places and communities
 - Historical (paper) map holdings
- 3. Explore maps and data in sophisticated ways, especially on major areas of interest
 - Land Information Cadastral
 - Geo-Enabled Elections
 - o Covid-19
 - o Next Generation 911
 - o Natural Heritage (Plants, Animals, Lichens)
 - Other resources and sources
 - Water Information
- 4. Find data to use in a GIS software package
 - Provide users a "how do I?" guidance
 - o Download a dataset: Prepackaged datasets
 - Reaching the nonGIS folks .kml/.GeoPdf embrace new technology or existing tools.
 - Clip, zip, ship one or more datasets
 - Use a geospatial web service to stream data
 - Other data resources and sources
 - Resources for software developers
- 5. Explore how MSL can help
 - Technical support
 - General inquiries about data, maps, and cartography
 - Planning and coordination
 - o Grants
 - o Activities
- 6. Engage with international, national, regional, and statewide, GIS initiatives, planning, and activities
 - o MLIAC
 - o Grants
 - MAGIP/NSGIC/
 - o Activities
 - Professional contacts



The ideas above are not requirements – they are just starting places for defining requirements. Workflows are one such starting point. One could start from one of the workflows, building a conceptual map of web pages that support it. Then, examine the current MSL website to determine if the current user experience supports the workflow adequately. If it does, then devise a means to get the website user "into" the workflow. If it does not currently support the ideal workflow, then the conceptual map of web pages could become the blueprint for a sequence of pages or actions that would help the user. By doing this for all the workflows that MSL wishes to support, one will define user experiences. Often, when one does this in website requirements, it turns out that one can actually reduce the number of web pages needed because multiple workflows pass through the same (perhaps enriched) page.

Another important source of ideas for a better website is the 2021 MSL GIS stakeholder online survey conducted as part of the strategic planning effort. Insights from the survey include the findings:

- Many non-technical users of online maps use the MSL Cadastral web mapping application.
- Despite a very useful sounding name, less than ten percent use the Montana Digital Atlas.
- Eighty-five percent of non-technical respondents said they used online maps (including Google Maps, Bing Maps, etc.) as part of their job.
- Self-categorized technically adept respondents had other patterns of use of online materials and, especially, of MSL resources.

Bearing in mind that a goal is to help everyone use the resources and capabilities that the Library makes available, there are further insights to glean from these results.

The websites created by other states are excellent places to look for innovative ways to increase the effectiveness of GIS coordination through clever web design. Looking at other sites can also help one avoid pitfalls in design or usability. A good assessment is to visit a website and then go through one of the workflows discussed above. What worked? What failed? How could the MSL website experience use or avoid these issues? Some example sites to visit include:

- <u>https://www.mass.gov/orgs/massgis-bureau-of-geographic-information</u>
- <u>https://gis.ny.gov/</u>
- https://www.mngeo.state.mn.us/chouse/
- <u>https://gis.utah.gov/</u>
- https://rgis.unm.edu
- <u>https://www.in.gov/gis/</u>

The outcome of this evaluation is that the Library has a vision for the revised website and some reasonable level of detail about it. Gaps between the current website and the future website are identified. General approaches have been sketched out as to how (or perhaps even if) those gaps will be addressed in revision, defining objectives that functional and performance requirements must meet. In general, the importance and priority of these objectives are also established at this point, so that if one can only meet some of the defined needs the most urgent and important are addressed.

Define Functional Requirements and Design

The requirements gathering described above is the starting point for revising the Library's Geographic Information web page suite. Designing revisions to the site is the next step. Each of the capabilities and features of the revised website are formally identified in a functional requirements list so that one knows the work that will be involved in meeting each of the desired capabilities.

The web platform framework that will be used is an important part of defining requirements. One can specify an ideal design, independent of the web platform, and then alter it to make it more achievable and realistic. Alternatively, one can decide to use a specific web platform and let its limitations structure the design and requirements.

Functional requirements should be documented in formats that are easy to understand and easy to maintain. Because a website is a network, drawings that illustrate links between pages are especially useful. Initial versions of website flow diagrams may have been made in the evaluation phase; these are elaborated upon by listing each page, the page's general content, and links that lead from that page to other URLs. Because the Library already has a large amount of relevant content, many pages may be reusable, so user flow design is more about ensuring pathways (linkages and navigation) between pages than it is about creating entirely new website pages.

Diagrams are useful but written statements are also important parts of a specification. A simple written tabular form can be used to express requirements as statements that are simple, measurable, achievable, realistic, and testable ("SMART"). A written functional requirement should be phrased as capabilities or outcomes, rather than descriptions of the steps needed to achieve a capability or outcome (Figure 6).

Category	Requirement	Priority	Туре
General	All pages use MSL standard colors and fonts ("chrome")	Mandatory	Non-Functional
General	All pages have standard MSL footer	Mandatory	Non-Functional
Landing Page	Landing page contains relevant "news" headlines as links	Mandatory	Functional
	Landing page contains workflow link(s) that lead users to one of the		
Landing Page	XX workflows	Mandatory	Functional
News Page	User can choose to be added to MSL GIS email list	Desirable	Functional
News Page	User can post comments on news items	Optional	Functional

Figure 6. Example of a written requirements format.

With the overall workflows, page functions, and other requirements in hand, the Library can determine existing content, content that needs revision, or new content that must be developed. Some web pages may already be sufficiently functional that revising them can wait until a later time. Other web pages may need to be created. For example, some of the data search and retrieval pages may be acceptable now and improvements to them can be a lower priority (e.g., the Data Bundler pages). Non-functional requirements that must also be considered are traffic monitoring, usage metrics, and page response measurements.



Requirements are an important part of the website revision. Without them, one cannot come up with a realistic approach to implementation. As well, the design and requirements may help determine whether a change in web platform software should be considered or whether the Library's current web platform will support mandatory elements of the revision.

Implement website changes

The design and requirements step will have created a scope of work for website revisions. It now falls to the Library to implement the changes. An internal Library team might make all of the website revisions, or a vendor could be used. Which of these to choose, and the level of effort or costs of a vendor, are difficult to assess without the design and functional requirements for the revised website. However, rough estimates are provided as a starting point in the implementation plan (Section 5).

Whether revisions by Library staff, by a contractor, or by both, the changes need to be reviewed and tested thoroughly. The Library should ask a few external individuals to test the beta version of the website. External testers should be asked to represent typical stakeholders and should comment on both the overall sequence of pages to perform a workflow or explore resources and page content. Deployment to production, the Library's live website, follows successful testing.