GIS Project ROI and Benefits Report

Project Name: Project Name: Routine Technical Assistance Geoform

Department or Division: Forestry, Fire & State Lands (FFSL), Forest Stewardship Program

Project Manager/Sponsor: Bill Zanotti, Forest Stewardship Program Manager

Project Completion Date: February 2, 2017

Executive Summary: (Concisely state the problem and its impact on the organization then describe the solution and its impact on the organization)

All our division Foresters conduct technical assistance under the USFS funded, Forest Stewardship Program but there is no central or consistent mechanism to record this work effort. Without a uniform process for recording field notes and call in requests, the program's data quality was inconsistent and the resulting workflow was more laborious than it needed to be. Producing the USFS required annual report can take a week of effort or more. Since this program data was aggregated infrequently, the Forest Stewardship Program Manager (PM) had no way of knowing, throughout the year, what stewardship work had been performed or where in the state it was, or was not, happening. The GIS team completely rebuilt this workflow and the method of storing and accessing the program's data. The solution now uses an online Geoform that collects each routine technical assist data record either at the Foresters' computer or smart device - reducing this task from 30 minutes to 12 minutes and this task is repeated 500-600 times a year. We've eliminated the labor intensive data aggregation process and now use a single database that tracks the location of where assistance is provided. This is a new spatially-enabled capability. Now, the PM can see, on a daily basis, what and where stewardship work is being done so that guidance can be provided to ensure program goals, such as the amount of assistance in Forest Priority Areas, are achieved. The data entry process is now standardized, producing better quality data and the creation of the USFS report can be done in minutes, not weeks. We now have visible management insight into this this program, a more effective workflow that has resulted in avoiding 176 hours of labor and a return on investment of 138%.

Describe current workflow or limitation: (Be as detailed as needed)

The existing workflow of tracking and reporting the interactions between Foresters and the public was done through independent Forester spreadsheets which were shared with the PM for compilation. The PM is responsible to report all landowner assistance, landowner education, incidental contacts, and if any recommendations or accomplishments were made to the USFS on an annual basis. This means that the PM would send out an email or phone call to the six area Foresters and request their spreadsheet of their recorded interactions. After waiting for/receiving data, the PM would work to combine those spreadsheets into a single spreadsheet and then tabulate values. The workflow necessitated numerous steps and communications between Foresters and the PM. Numerous interactions with the public may have not been reported due to the inaccessibility of Foresters' reporting sheet, thereby producing a loss of recollection when the Forester was back in a position to report. This lack of data ultimately leads to under reporting (poor data quality/reliability) and loss of details and trends. This workflow was inefficient due to the amount of time the PM had to spend waiting for Foresters to send their information and the amount of time the PM had to spend processing numerous Excel files.

Describe proposed enhancement: (Be as detailed as needed)

Enhancing this workflow involved creating an online Geoform through ArcGIS Online (at no additional cost to the division), which enabled all Foresters to access the same database for reporting. The process of creating the Geoform was to take the current Excel spreadsheet structure and use that as the schema for the new form. This was done in collaboration with the PM and the Foresters. Designing the form was an incredibly simple process through the Geoform configuration tools. With Forester feedback, enhancements were made to the structure of the form. The enhanced workflow allows the Foresters and the PM to quickly access a web map shared through ArcGIS Online and analyze the spatial distribution of stewardship assistance for the first time. Foresters and the PM have access to the database, which they can quickly export and download as an Excel file for further analysis and reporting. This enhancement has automated the aggregation of landowner interaction data. Having this data at a user's fingertips has added a level of transparency to the number, and types, of interactions that our Foresters are engaging in on a day-to-day basis.

	Project ROI Inputs	Notes	Calculated fields (no need to enter)	
Current Workflow Costs: (Enter values in next column)				
Hours to complete current workflow	0.5	Time spent on data entry	Current workflow cost	$12.50
Hourly wage rate*	25.00	Typical Forester rate	Current annual cost	$7,350
Annual occurrence of workflow	588	# of 2016 assists-baseline		
Other workflow costs (consumables/travel exp., etc.)				
Enhanced Workflow Costs				
Hours to complete workflow after enhancement	0.2	Time spent using Geoform	Enhanced workflow cost	$5.00
Hourly wage rate*	25.00	Typical Forester rate	Enhanced annual cost	$2,940
Annual occurrence of workflow	588	# of 2016 assists-baseline		
Other workflow costs (consumables/travel exp., etc.)				
Enhancement Production Costs and Savings				
Hours to complete enhancement	5.0	Creating GeoForm/Web Map	Enhancement cost	$100.00
Hourly wage rate*	20.00	Typical GIS Analyst rate	Initial Annual Savings	$4,310
Annual maintenance costs of enhancement, if any	$20.00	Application refinements	Future Annual Savings	$4,390
Projected ROI				
			Initial Year ROI	**138%**
ROI=Savings minus Enhancement Cost divided by Enhancement Cost plus Enhanced Annual Cost			Future Annual ROI	**144%**

Tangible Benefits to the Organization: (i.e., quality or quantity improvements, effects to throughput, cost avoidance, better decisions, etc.)

Benefit 1: Removed a poorly functioning workflow that left management blind for most of the year and freed up 176 hours of staff time -for each assist record entry the savings was .5 hr.(current) -.2 hr. (enhanced) = .3 hr.(savings) x 588 = 176 hrs. avoided)

Benefit 2: Created standards for data entry that improve data quality and quantity. Now, foresters can track trends (new capability) and determine areas that require attention, i.e., more responsive to needs and opportunities (new operational insight). For the first time, management has 24/7 awareness of this program's activity and progress towards operational goals.

Benefit 3: Provided an application with a friendly user interface that staff enjoy using - compared to spreadsheets and numerous email communications that were necessary to report activities. As a result, the program provides a more comprehensive view of staff activity and the benefits from it.

Tangible Benefits to Others Outside the Organization: (i.e., other divisions, state agencies, stakeholders, public, etc.)

Benefit 1: Agencies that support FFSL programs, like the USFS with their grant funding for the Forest Stewardship Program, can gain access to our data and maps informing them of the work their dollars are enabling along with our results. This provides greater transparency and can increase their confidence in our program and therefore provide a basis for continued or increased funding in the future

Benefit 2: The improved quality, completeness and accessibility of our stewardship technical assist data can provide agencies that work together with FFSL insight into the areas of the state that can benefit from future project planning and investment.

Benefit 3: While this program data is not open to the public, components of our data and web maps could be created very quickly in order to share this information with a broader audience and perhaps encourage more property owner engagements.

Meaningful Measures of Success: (Describe how can/will the project be measured - what is needed to implement regular measurement?)

We can now quickly and easy query/measure the stewardship database to determine where, when and how many technical assist records have been completed and by whom. This is a new measurement capability to assess program effectiveness. With regard to the validation of this ROI report, we can periodically test for how much time is saved by using the GeoForm method of data collection.

Measurement Observations: (Interval varies depending on project, typical may be 3-6 months, 1 yr., 2 yrs., and 3 yrs. after completion date. The purpose of these observations is to record measurements, validate ROI projections, and adjust workflows as necessary for continued improvement)

Date: 5/2017, After only a few months of use, the total number of assist records entered into the new database is above average suggesting the adoption of the GeoForm is proving to be an improvement over the previous process.

Date: 2/2018, After one year, we have determined that it takes considerably less time for the Foresters to process data collection using the GeoForm than was originally tested. We now complete that process in less than 5 minutes or .08 of an hour. This efficiency saves approximately 231 hours of work, lowering the labor cost to perform data collection, thus providing more time for Foresters to improve the state's forests and help our residents manage their forested properties. Using this new workflow cost information, the annual ROI now yields a 468% return - this roughly translates into a workflow that operates 3.5 times better than the old way of doing business.

Date:

Submitted by: Sean Edwards, Senior GIS Analyst	**Date: 3/9/2017**
Project Sponsor/Manager Confirmation by: Buck Ehler, GIS and Technology Manager	**Date: 3/13/2017**

*Generalized wage rates are used for simplicity and consistency: Intern $15/hr., General Clerical $20/hr., GIS Analyst $25/hr., GIS Manager $30/hr., Division Professional $35/hr.