



Watershed Center at Valley Water Mill
Federal Grant Final Report

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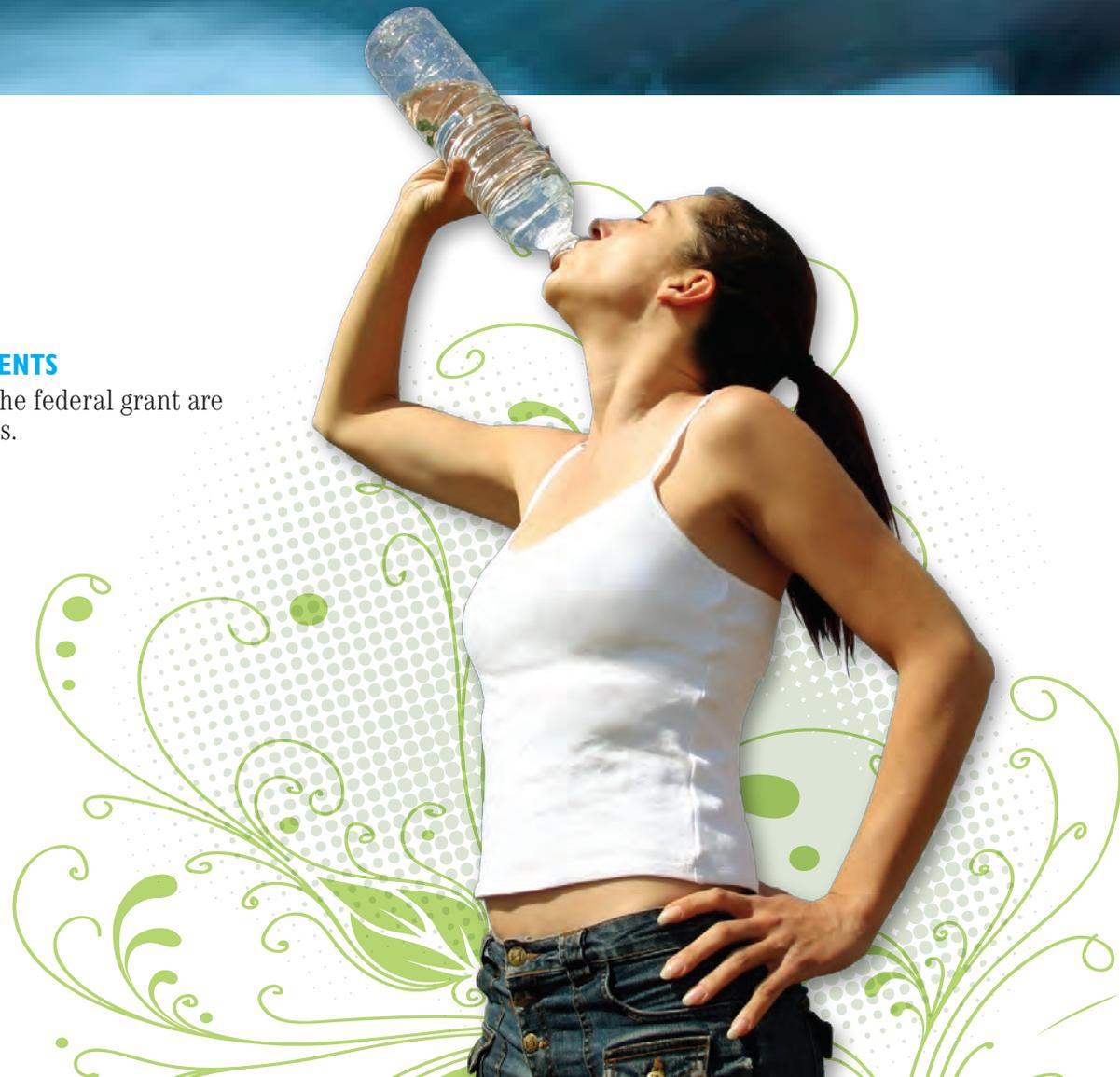
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INTRODUCTION

Clean water is essential for economic prosperity, environmental health, and quality of life. Surveys have repeatedly shown that people in southwest Missouri are vitally interested in the quality of their streams, lakes and groundwater. Unfortunately, with its high rate of growth, the region is also experiencing increased problems with both water quality and quantity. For the most part, water quality problems have been of the non-point variety, which means that public education and involvement are critical to resolving them. In an effort to protect and conserve water resources and teach people how to become better stewards of their water, the Watershed Committee of the Ozarks began a project in 1999 to develop a watershed education facility at Valley Water Mill in Springfield, Missouri.

Watershed Center Clean Water..for Life

The Watershed Center is intended as a gathering place from which to launch a variety of community education and demonstration initiatives. It will serve (and has already served) as a great science-based field trip site for students, as well as a training facility for water and design professionals. Even casual users will find demonstrations and take-home messages about watershed practices and water and energy conservation measures that anyone can adopt. The guiding philosophy of the Watershed Center is simply stated: “Every drop of rain that falls is precious, a resource to be safeguarded, not wasted.”

The Watershed Center is slowly becoming a reality. Most of the planned structures have been built, including the Parks Outdoor Initiatives Building and the Lakeside, Streamside, Wetland and Spring-side Learning Stations (outdoor classroom structures), Fishing Platforms and Pedestrian Bridge. The dam has been renovated, lake sediments cleaned from the reservoir, and a wetland area restored. Trails have been built around the entire site, part of them already paved and handicapped accessible. Initial site grading for the main building is complete, and funds are being raised for this final piece of

the project, the construction of the main education building, which should receive a LEED certification level of at least “gold.”

But the Watershed Center is about much more than a site. It also includes the idea that we must work, educate, and collaborate over entire watersheds. For this reason, the Watershed Committee has used part of this federal grant funding to build partnerships, work with private landowners in the watershed, collaborate with other organizations and agencies on watershed-related projects, and provide community education at events and sites remote from the physical location of the Watershed Center.



PROJECT OVERVIEW

For almost ten years, the Watershed Committee of the Ozarks has been working to develop the Watershed Center at Valley Water Mill. Established in 1984, the Watershed Committee, originally called the Watershed Management Coordinating Committee, was charged with protecting the current and future sources of public drinking water for the Springfield-Greene County Community. The organization has remained true to this mission over its entire twenty-four year history.



At several meetings of the organization's board in 1997 and 1998 the idea of a permanent "home" for the organization was discussed, preferably located in the watersheds of immediate interest. The Board was also very interested in providing a place where community education

could occur on an ongoing basis, and where demonstrations could be provided to show the public what better watershed practices actually looked like. The Executive Director and Jeanette Unsell, an interested Board member, began to look into this possibility.

In 1999, the Committee called together the leadership of its three financial sponsors—city of Springfield, Greene County and City Utilities of Springfield—to discuss whether the Springfield community would support and use a watershed education facility. The response was overwhelmingly positive. The sponsors stressed that such a facility would be an ideal place to demonstrate new ideas and techniques such as rain gardens and wetland filters for runoff, and would provide a wonderful opportunity for the community and local water groups to showcase successful watershed protection initiatives.

The three financial sponsors each contributed funding at this point to hire a professional to conduct a needs assessment, which was completed in 1999 after interviews with over ninety community leaders. Again, these people supported the idea of a watershed education facil-

ity, and said they would use such a facility provided the costs were kept reasonable. With this show of support, the Board then felt confident to proceed with the project, forming a Project Task Force with eighteen new members to help the Board with project planning. This Task Force met first in 2000 and almost every month thereafter for about five years.

With the assistance of the Task Force, the Watershed Committee in 2001 hired an architectural firm, BNIM of Kansas City, to help with plans for the center, which was from the beginning intended to be very "green," or energy and water efficient. BNIM specialized in green initiatives, and one of the partners in the firm had even helped with the development of the LEED system itself. BNIM became in large measure the philosophical guide for the project, pointing out that watershed education couldn't happen just at a building, or at a site, but needed to involve the entire watershed. This thought expanded the plan into new areas and launched many of the ideas that later bore fruit with the federal assistance that would arrive a few years later.

Beginning in 2002, The Task Force also assisted the Watershed Com-



mittee in developing a solid business plan for the Watershed Center, using the help of a consulting firm. This plan identified the intended service area, estimated visitation numbers, developed a five-year operating budget, and included information about the programs and costs of comparable facilities across the United States. In 2003 the Task Force, working with teachers and other local educators, developed an Education Plan for the Center, identifying target audiences and the physical facilities that would be needed for each program area. The three main target groups identified were; youth (science-based field trips, e.g.); professionals (e.g., septic tank installers and stormwater engineers); and casual users, such as fishermen and trail users.

The Task Force also helped the Watershed Committee Board find

a suitable site for the project. City Utilities, which owned about ninety acres of land in the drinking watersheds on the north side of Springfield, indicated that this property, called Valley Water Mill, might be available for the project. The Board of CU subsequently approved a lease with the Watershed Committee to establish the Watershed Center on this publicly-owned land. Later, the Springfield-Greene County Parks Department would become a third party to this lease agreement, since the Valley Water Mill property received a designation as a community park. This was a very beneficial development for the Watershed Committee, since the Parks Department would assume maintenance responsibility for the ninety acres and its improvements.

Using the basic plan laid out by BNIM, the Watershed Committee and Task Force began implementing many of the site amenities at Valley

Water Mill, primarily using sponsor and grant funding, including: 1) excavating 14,000 cubic feet of sediment from the reservoir, which had largely filled with sediment over the thirty years since last cleaned; 2) enhancement of about two acres of wetlands, including the installation of over thirty species of wetlands plants; 3) completion of a two and one-half mile walking trail around the entire site, which will connect all the outdoor learning stations with the main building; 4) construction of five outdoor classrooms or “learning stations,” including structures at the lake, spring, stream, wetland and forest; 5) completion, with Springfield-Greene County Parks, of a 2,200 square foot outdoor education/maintenance facility on the site, featuring a vegetated “green” roof and living landscape walls (and also a very energy efficient structure); 6) recently opened a recycled steel pedestrian bridge across the dam; and 7) two fishing

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platforms at the lake, made primarily with recycled plastic.

Plans for the Watershed Center, and for the main education building, have evolved and changed in various ways since the beginning of the project. The plan for the main building was developed through a partnership with a second architect, Butler-Rosenbury of Springfield. After lengthy discussions about the most efficient and cost-effective approach to completing the design work, this firm became the architect of record, with BNIM serving in a consulting role in the “green” or LEED practices.

The main education building, as currently designed, should achieve a LEED rating of at least “Gold.” It will include public meeting spaces, a publicly-accessible water quality laboratory, teacher resource center and office spaces and will feature a host of water and energy conservation demonstrations such as rainwa-

ter harvesting, ground-source heat pumps, low water-use plumbing fixtures, natural daylighting, healthy indoor air and recycled materials in construction. Five Watershed Committee employees will be housed at the facility, along with one DNR person (water and wastewater operator trainer), one MDC person (a Community Conservationist), and two employees of the Springfield-Greene County Parks Department (Outdoor Initiatives/Education Specialists).

In 2004, the Watershed Committee began working with a fund-raising consultant and developed a goal of about \$3.0 million to complete the project, subsequently reduced to \$2.5 million with revisions to the floor and site plans. The Task Force was dissolved and a Steering Committee was established to help with the fund-raising effort, recruiting several members retired from the original Task Force. This group has been able to help the Watershed Committee raise over \$1.1 million



to date. The Watershed Committee hopes to wrap up the fund-raising and break ground on the final piece of the Watershed Center Project in 2009. In anticipation of this construction, the Watershed Committee had contractors working at the site in the fall of 2008 to perform initial site grading, including the installation of the building pad and the stormwater features such as wetland filters and rain gardens. Groundbreaking on the main building in 2009 would be very appropriate, as the Watershed Committee will next year be celebrating twenty-five years of service to the community.

GRANT COMPONENTS AND ACCOMPLISHMENTS

In this section, the work components under the federal grant will be discussed in more detail in individual sections. It should be stressed that this grant only allowed funding for and applied to certain activities and expenditures related to the development of the Watershed Center, as stated in the funding agreement that was signed by EPA and the Watershed Committee of the Ozarks. Since the total project has many other facets, these will be discussed in the section of the report titled “other project components,” so that



reviewers will be given a feel for the full range of work that has been performed in the development of the Watershed Center.

Section I: Project Management

Until recently, the Executive Director of the Watershed Committee served as the manager for the Watershed Center Project. Loring Bullard has been the Director of the organization since 1989, and in that role has overseen budgets, personnel and programming for the not-for-profit organization, which in 2008 had an annual operating budget of about \$300,000. He thus has eighteen years of experience in non-profit administration, grants management and financial reporting.

In his role as project manager for the Watershed Center, Mr. Bullard received support from the Watershed Committee Board of Directors and

particularly from the other staff, especially the Operations Manager (Matt Keener) and Office Manager (Kelly Guenther). The education and demonstration features of the project were also assisted by the Watershed Committee’s Education/Outreach Coordinator (Mike Kromrey) and the Projects Coordinator (Stacey Armstrong). Together, this team dealt with all of the issues and problems, both major and minor, which accompany a project of this magnitude.

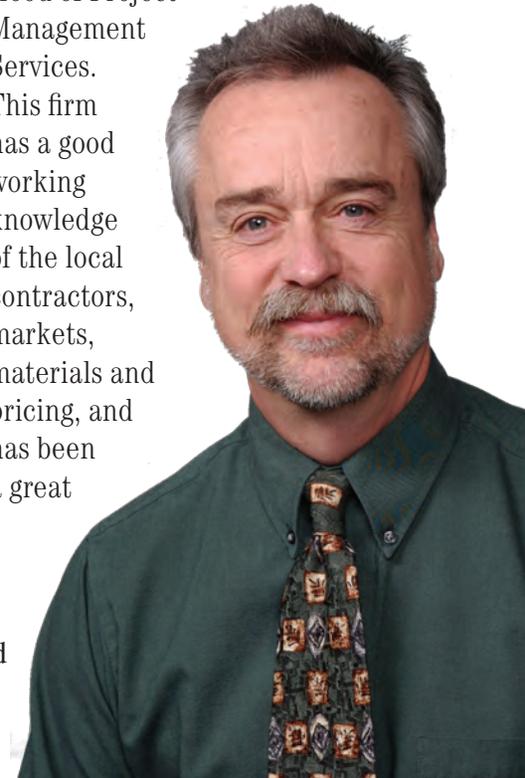
In the early stages of the project, the Watershed Committee hired a management consulting firm, Castrey and Associates, to oversee the technical aspects of the education/outreach components of the grant, including the development of the interactive kiosk and the karst kids game. Total costs for these services during the grant period were almost \$32,000.

During the construction of the Lakeside Learning Station, the first major structure at the site, the Project Architect, BNIM, served in the project management and coordination capacity for that component. For the Streamside and Springside Learning Stations, which were relatively complex but smaller in scale, the

Operations Manager served as onsite manager with technical and design support from the architects. When the Parks Outdoor Initiatives/Maintenance Building was constructed, the Parks Operations Manager served in the project management role, since Parks Department personnel were to occupy that structure and parks funding was used for the majority of the construction.

As plans for the main education building progressed, the Watershed Committee realized that a formal project manager would need to be brought on board. In 2007, after a lengthy selection process, the Watershed Committee hired Robert Hood of Project Management Services.

This firm has a good working knowledge of the local contractors, markets, materials and pricing, and has been a great



Loring Bullard

asset to the Watershed Center team. Federal funds provided through this grant have been used to pay for these services. Project Management Services will work on a per hour basis through the final construction of the main education building. Fees paid to Project Management Services for work performed during the grant period total \$26,000.

Section 2: Site Assessment

Once the Valley Water Mill parcel was selected as the project site, and the landowner (City Utilities) had approved a lease agreement for the establishment of the Watershed Center on this publicly-owned land, the next steps were to evaluate the property and determine if any environmental problems existed, and whether cultural resources might be harmed or impacted by development at the site.

Using grant funds (again, after a selection process—for brevity, this step will not be repeated in each section—all procurements and contracts were subject to the approval and voting of the Board of Directors of the Watershed Committee, as directed in the Procurement Policy submitted to EPA and approved for use in this project), the Watershed Committee hired Environmental

Works of Springfield to conduct a Phase I Environmental Assessment of the site. This work was performed in 2004 and a full report is available from the Watershed Committee office. One small spill from previous work was noted (which had been cleaned up—a spill from a fuel tank), and records were searched extensively, but no significant environmental issues were identified at the site. Cost of this component was about \$900.

Next, the Watershed Committee undertook a Cultural Resources Survey. Missouri State University received the contract for this work, which was performed in 2004 and 2005. A final report is available. The investigators researched records and found that at least three parcels had been previously occupied on the larger Valley Water Mill property. They also performed onsite soil pit tests, finding several artifacts, both from Native Americans and later European settlers. This was not surprising, since the large spring on the site would have served as an attractant to both groups. However, according to the researchers from the Center for Archaeology at MSU, none of the planned construction areas on the site would disturb known or suspected cultural sites, and none of these work areas were

found likely to impact future investigations. The contract for this work was about \$7,200.



Section 3: Design Services

The Project Task Force and Watershed Committee initially received qualifications from and interviewed a wide range of architects who were interested in the project. Because it was from the beginning planned to be a “green,” LEED certifiable project, there were several local architects who expressed interest, but at that time none of them had LEED trained professionals on their staffs. In this instance, BNIM of Kansas City clearly stood out as an architect that really “got it,” both in terms of green building practices and in understanding the “watershed connection,” getting people in

the watershed outside of the project site into the program.

BNIM was hired in 2001 and to their credit, worked with the Watershed Committee and Task Force through thick and thin over many years, finally producing a schematic design in 2004 (which is available electronically). This design package included all of the ideas and development plans for this entire ninety acre parcel, not just the buildings. Therefore, it was of a scale and size that required long periods of planning and evaluation, frequent adjustments, and to some extent, revising of plans and drawings.

Relationships between architects and owners are sometimes rocky, but BNIM maintained high professional standards and integrity throughout this long project. Therefore, the firm remained on relatively good terms with the “owner.” However, on the Watershed Committee side, some Board positions changed hands in the intervening years, and with some of the Board members, especially those with only a brief “history” with the project, the continuing costs of maintaining the architectural services, which they deemed to be overly expensive, became an issue.

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With this as a background, the Watershed Committee hired Butler-Rosenbury and Partners of Springfield in 2006 to complete the construction drawings for the main education building and a few other components. BNIM agreed to serve in an advisory role from that point, reviewing and commenting on plans, particularly as they related to the LEED certifiable aspects of the project. Butler-Rosenbury, in turn, contracted with EMSI (Environmental Management Services International) to oversee the LEED certification process and to work with the owner and architects to make sure that LEED features were properly designed, constructed and documented.

Architectural services constituted the single largest procurement through the federal grant, approaching \$416,000. BNIM was paid a total of almost \$288,000 from the grant, and Butler-Rosenbury \$78,000 (plus \$50,000 non-federal). Again, because this project is so unique

and complex, the fee percentage of this project is significantly higher than in a “typical” construction project. If only building construction costs are considered (\$2.2 million for the main education building, \$750,000 for the Parks Building, and \$250,000 for the Lakeside Learning Station—all designed by BNIM and Butler-Rosenbury, for a total of \$3.2 million), then the architectural fees would be about 13%. If the entire project site and its development is considered (about \$5.5 million), then the fees would be about 7.5%.

Section 4: Technology and Office Support

Office equipment upgrades and additional professional services were required in order for the Watershed Committee to manage the development and operation of the Watershed Center. Since the Watershed Committee staff would be delivering scores of field trips and workshops and presentations to community groups, cooperating agencies and organizations, and potential donors,

the development of high quality presentation materials was a must. The Watershed Committee purchased a digital plotter in order to produce large format maps and posters, as well as a printer, laptop, scanner, integrated phone system, GIS equipment and office support materials. The Watershed Committee did not purchase, as originally intended, a videoconferencing unit (equipment), because the issue of obtaining fiber optic access at the Watershed Center site put this option in doubt.

Section 5: Laboratory and Monitoring

Through this grant, the Watershed Committee sought to upgrade its current water monitoring and

laboratory programs, solidify partnerships with other agencies and organizations in environmental monitoring, and further develop plans for a publicly-accessible water quality laboratory, since the Watershed Center plans call for such a laboratory in the main education building.

Since southwest Missouri is largely characterized by karst topography, with plentiful sinkholes, caves, springs and losing springs, the Watershed Committee decided to develop the capacity to perform dye tracing experiments in order to determine groundwater flow paths, and purchased a scanning spectrofluorometer for this purpose (\$12,000). This instrument is very similar to the ones currently in use at Ozark Underground Laboratory and the Environmental Laboratory of the Missouri Department of Natural Resources. It will allow trained personnel to conduct very accurate dye tracing studies, including the detection of optical brighteners. During the grant period, DNR laboratory staff from Rolla traveled to Springfield to train Watershed Committee personnel, and other partners, on the use of this instrument.

The second major item of laboratory equipment purchased was a Ground





Penetrating Rader unit, which can be used to detect voids, such as imminent sinkhole collapses, under the ground surface. This instrument, which was purchased in cooperation with Missouri State University through a cost-sharing and use agreement (federal grant share \$27,000), has already been used for several projects related to subsurface studies.

In conjunction with the Stormwater Division of the city of Springfield Department of Public Works, the Watershed Committee also purchased twenty tipping bucket rain gages (\$8,400 from federal), which have been set up on buildings all over the urban area of Springfield. These gages report online, and the data is readily accessible to qualified users. Information from this gaging network has already proven valuable

in watershed modeling and runoff models and calculations. About \$5,000 worth of laboratory supplies were also purchased with this grant.

Section 6: Business Plan

The Board of the Watershed Committee, as well as the Project Task Force, stressed that a very solid business plan would be needed to efficiently operate the Watershed Center, as well as to provide confidence to potential donors and supporting agencies. The Committee therefore hired a business plan consulting firm, Consult Econ, which in 2004 prepared the plan after a long series of meetings with local project planners. The business plan considered the potential service area of the Watershed Center and provided forecasts of the expected levels of visitation. The essential program elements of the Watershed Center, the levels of interest in these programs, and the potential for the generation of site revenue were considered. The consultant visited with the managers of facilities similar to the planned Watershed Center in other parts of the U.S. in order to obtain estimates of visitation, operating costs and revenues. With this financial information, the consultant then prepared a five year operating budget for the facility.

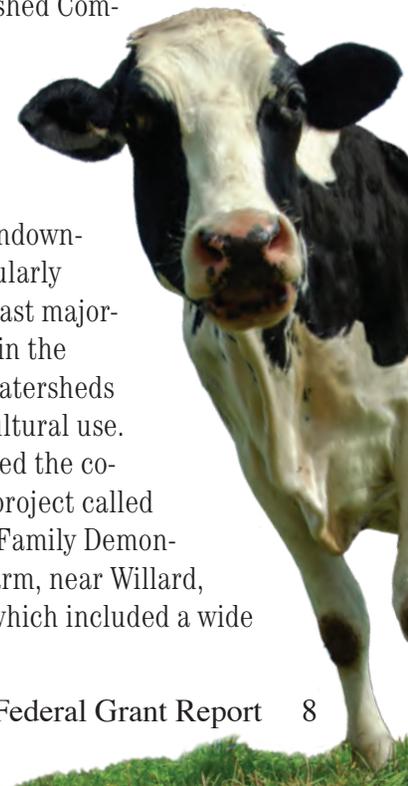
While completed some time ago, the Business Plan remains relevant today. The Board and staff refer to the plan when working on annual operating budgets. However, the plan was never meant to be a static document, but rather a working tool that needs to be consulted and revised periodically. This document is available electronically. The total costs for this component were about \$31,000.

Section 7: Demonstration Projects

As mentioned in the introduction, the planners of the Watershed Center realized early on that not all of the work connected with the Watershed Center should occur at the Valley Water Mill site. Relationships and ideas and projects would need to extend to the entire watershed. With that in mind, the Watershed Committee entered into a series of demonstration projects, both off and on the Valley Water Mill site. These projects not only helped educate people and improve water quality in the watershed, but they also created new partners and constituents. These were people who would not only support the idea and programs of the Watershed Center, but would also be more likely to use its facilities.

Accordingly, the Watershed Committee provided initial engineering and design services for the Habitat for Humanity Low Impact Development Project, located in Greene County, in the public drinking watersheds, just a few miles from the Watershed Center. Funds were used to hire Intuition and Logic, a St. Louis-based engineering firm, to develop plans for rain gardens and vegetated infiltration basins and other stormwater features of the low-income residential subdivision. This project is now nearing completion, and has been held up as a shining example of environmental and social stewardship by many local community leaders.

The Watershed Committee was also interested in working with agricultural landowners, particularly since the vast majority of land in the drinking watersheds is in agricultural use. This inspired the cooperative project called the Rader Family Demonstration Farm, near Willard, Missouri, which included a wide





variety of best management practice demonstrations, including managed grazing, alternative watering and livestock exclusion from drinking water sources. This has been a very successful partnership with a high profile agricultural producer, and the farm will now be available for a variety of field trips and landowner “field days.”

At the Watershed Center site itself, a variety of water quality demonstration projects have been installed. The Parks Department Outdoor Initiatives/Maintenance Building, a 2,200-square foot structure that is itself “green” and LEED certifiable, was a project undertaken by the Parks Department after the Valley Water Mill site was designated a community park. This facility provides office space for educators, as well as functioning as the maintenance center for the entire Watershed

Center site. The Watershed Committee contributed to the “green” aspects of the project by paying for the design and installation of the vegetated green roof. This has already become a focal point for many field trips and a destination of interest for the growing number of professionals who are interested in green building practices.

Also completed at the Watershed Center, and utilizing a portion of federal funding in the construction of associated demonstrations, is the very unique and beautiful Lakeside Learning Station, the first outdoor classroom facility to be built at the site. This station, which resembles an open-sided picnic pavilion, features high fly-ash content concrete block wall construction, a recyclable steel roof, FSC certified sustainably grown and harvested wood in glu-lam roof support beams, native landscaping with Buffalo grass sod, and a roof runoff absorption system. It contains a restroom, large storage rooms for tables and chairs, a fireplace and pull-down screen for programs. Designed by BNIM, this structure is itself LEED certifiable.

As part of the dam renovation project of City Utilities, the Watershed Committee was able to participate in a water quality/quantity demonstra-

tion project as part of the trail and floodwall on the dam. This involved the use of a concrete trail and floodwall for passing the 100-year event, in lieu of a concrete overflow channel, which would have removed much of the existing vegetation from the dam site and constituted an eyesore. Instead, the Watershed Committee used federal grant funding to create a demonstration of water quality/flooding control as part of the overflow structure.

Also included in the demonstration features of the site are pervious concrete pavement, rain gardens and wetland filters for the main education building and parking lot. The rough grading and initial site preparation for these practices were performed in the late summer and fall of 2008, just before the expiration of the federal funding.

Cost breakdowns for the demonstration features were as follows: 1) surveying work, all projects,

\$13,000; 2) Engineering and design services, all projects, \$124,500; 3) Rader Demonstration Farm, demonstration practice construction, \$15,000; 4) Excavation and grading contracts (two projects), \$52,000; 5) Construction, Lakeside Learning Station Demonstration, \$65,000, Demonstration Pervious Parking Lot, \$170,000; and 6) Green Roof Demonstration, \$179,000.

Section 8: Education/Outreach

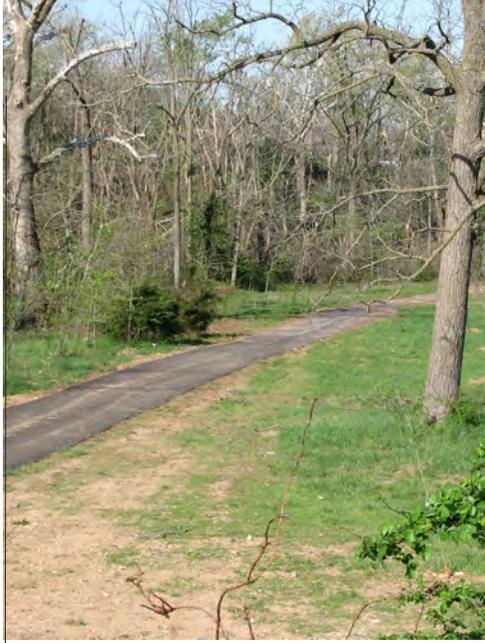
In 2003, the Watershed Committee, in cooperation with local teachers and non-formal educators, developed an Education Plan for the Watershed Center. This document is available electronically. The plan sets out the target audiences of the center, the objectives of the educational offerings there, and the design and program elements that will be needed to support those objectives.

Three primary target audiences were identified in the planning



process: 1) youth, particularly students who would use the Watershed Center as part of a guided educational experience or as the culminating experience for a classroom unit (e.g., visiting the wetlands at the Center after studying wetlands in earth science); 2) professionals who deal with some aspect of water or watersheds (e.g., septic tank installers, wastewater engineers, stormwater engineers) or with green building (e.g., LEED architects), or with education and outreach (e.g., Missouri Stream Teams, teachers, professional organizations like Homebuilders); and 3) casual users, such as people who come to fish or walk the trails, who will also be targeted with watershed education messages.

The plan also discusses the facilities that will be needed and to a large extent, these have already been built. The outdoor classrooms or “Learning Stations,” such as the Lakeside Station mentioned above, were designed to accommodate 25-75 students each, providing an interesting location by a stream, spring, wetland, lake or forest for hands-on, interactive learning about the environment and water quality protection. Each of these stations is also connected by the



walking trail around the site, and two of the stations feature areas to store educational materials for onsite use.

Early in the project, the Director of the Watershed Committee researched and wrote a book about the history of the local water supply, featuring new information about the Valley Water Mill site and vicinity that had not been compiled or described elsewhere. Funds from this grant were used to produce and print this book (Printing/production costs \$9,600). The book has been used as a promotional piece and incentive for project support and has been given to involved Task Force members, staff, and agency cooperators.

Also early in the project, as part of the expanded watershed outreach effort, the Watershed Committee contracted for the production of the Water Drop Kiosk. This large model of a faucet and water drop features a touch screen with information about local watersheds, water quality issues and the Watershed Center. It also hosts a cave exploration game and lists of the books and library resources locally available about water resources. This kiosk has been placed in local libraries in the Springfield area and has been heavily used. Design and construction cost of the kiosk was \$15,000.

Concurrent with this effort, the Watershed Committee purchased about \$7,000 of water education resources for the local library system. Library personnel, along with the Watershed Committee and a committee of non-formal educators, selected the materials for this collection. The “Watershed Center” logo is affixed to each book and video. Also, the Watershed Committee developed book bags for take-home use. Each bag contains a selection of educational materials on a variety of water-related topics. These can be checked out for use from the library.

In partnership with the Missouri Department of Conservation, the Watershed Committee procured a stream demonstration trailer, a mobile educational model that demonstrates many aspects of stream dynamics such as bank erosion, stabilization and channel morphology. This trailer has already been used in a variety of venues, mostly outdoors, and has proved to be a great teaching tool for kids. The federal grant provided \$11,000 to cover the design and construction costs of this model.



In partnership with a variety of cooperators, the Watershed Committee is also supporting the water conservation and water quality education programs already ongoing in the community. Grant funds



provided for the purchase of rain barrels and rain-barrel construction brochures in conjunction with the James River Basin Partnership and home water conservation kits in conjunction with City Utilities. Further, the Watershed Committee has sought to raise awareness about the Watershed Center and its goals through the production of a variety of small, inexpensive promotional items that can be used at fairs, community events, conferences and watershed festivals.

OTHER PROJECT COMPONENTS

In addition to the components mentioned above, there has been a continuing series of other activities and projects related to the devel-

opment of the entire Watershed Center at Valley Water Mill. Most of these have not involved the use of federal grant funds under this agreement and thus are not strictly deliverables described in this report. However, some of the work components described in the next section did involve the use of the federal grant funds, and these were noted in the previous sections.

1. Dam Renovation:

City Utilities has spent over \$750,000 in renovations to the old dam at the Valley Water Mill reservoir, which was constructed about 1900 as a rock and masonry structure. Work over the course of this grant period has included the placing of a substantial concrete footing under the dam, reinforcing the spillway, and placing a floodwall atop the earthen berm portion of the dam to pass the re-calculated one-hundred year flood event. As part of the flood wall project, the Watershed Committee committed funds to create a walkway and demonstration area on the dam. This would allow the nature trail to pass over the dam structure on a concrete walkway, provided a bridge was placed over the spillway portion of the dam.

2. Sediment Excavation

As mentioned earlier, about 14,000 cubic yards of sediment was removed from the reservoir, primarily at the upper end where sediment thicknesses were greatest and the excavation was therefore more cost effective. The reservoir was drained in preparation for the excavating work, and the sediment was tested for quality and potential re-use as landfill cover, or for other uses. In 2004, the sediment was excavated and taken to a spoil site, where it would eventually be used as a topsoil amendment.

3. Wetland Enhancement:

As part of the sediment excavation project, the Watershed Committee provided funding (through a 319 grant) for engineering, design and construction of a re-graded wetland in the upper part of the reservoir. Prior

to this time, the entire two acre site had been overgrown with Reeds canary grass, a non-native with few wildlif benefits. The Watershed Committee hired Intuition and Logic of St. Louis to design the wetland and prepare the planting plan, and Adaptive Ecosystems of Kansas City to actually plant the wetland. Over thirty species of native wetland plants were either seeded or plugged into the wetland area, which had been graded into different ecological zones such as wet meadows, bluff seeps and marshes. Upon completion of the project, the wetland consultants provided the Watershed Committee with management plans.

4. Trails:

Using funds from a DNR Recreational Trails Grant, the Watershed Committee has been able to build a circular trail around the entire



site, about two and one-half miles. Most of the trail has been mulched, and the trail on the west side of the lake, in a more “natural” setting, will be left as such. The trail on the east side, however, is intended to be handicapped accessible and paved, and will be used to connect the dam, fishing platforms, and two of the learning stations with the main building and parking



lot. One portion of the trail has been constructed with glassphalt, with funding provided through a Community Assistance Grant from the Missouri Department of Conservation. The portion of the trail on the northeast part of the site, between the fishing platforms, is a boardwalk using

recycled plastic, and the portion of the trail over the berm of the dam is made of concrete. In late 2008, the Watershed Committee was able to have a 104-foot long pedestrian bridge constructed and set over the dam spillway, using funds from a Recreational Trails Grant.

5. Learning Stations:

As mentioned above, federal funds in this grant were used to develop the demonstration aspects of the Lakeside Learning Station, including the use of native landscaping, runoff infiltration basin, and pervious parking lot. This is one of the five learning stations, or outdoor classroom structures, at the site. The second station was the Springside Learning Station, built as a platform or deck-like structure at Sander Spring, using funds from a 319 grant and labor from the local technical college in construction. The third station is the Streamside Station, which consists of large blocks of limestone by the South Dry Sac River. Funds from the Community Foundation of the Ozarks were used in this construction. Fourth is the Wetland Station, again using Community Foundation funds, which is a boardwalk



through the enhanced wetland area made of recycled plastic lumber. The last station is the Forestry Station, which uses funding from the Leo A. Drey Foundation and is a series of benches in the forested area near Sander Spring.

6. Site Demonstrations:

In addition to the demonstrations mentioned above, several site components have been constructed to demonstrate new “green” techniques for water quality. The large entrance drive was made entirely of pervious concrete. The initial grading for the parking lot has been used to rough in the locations of sedimentation basin demonstrations, rain gardens and wetland filters for runoff. A rain garden was placed

near the fishing access parking lot to capture runoff from the nearby road. This garden was developed in cooperation with the local chapter of the Sierra Club, which donated labor in addition to funding.

7. Parks Outdoor Initiatives/ Maintenance Building:

With the designation of Valley Water Mill as a community park, and the addition of another parcel of park land just across the road to the north, the Springfield-Greene County Parks Department needed a maintenance facility that could serve both parks. They also needed office space for their newly expanded Outdoor Initiatives Program, which involves outdoor education and the teaching of outdoor skills. The new

building at the Watershed Center serves both of these functions. In addition, it has a vegetated green roof, planted mostly with sedum and other shallow-rooted vegetation, and a living wall along the entrance drive and side of the bermed-in building. This building is also very energy and water efficient. The Watershed Committee cost-shared with Parks in the design of this building and paid for the green roof portion out of the federal grant. Two Parks Department employees are now housed in the building.

SUMMARY

For the last ten years, the Watershed Committee of the Ozarks has been steadily working to develop the Watershed Center at Valley Water Mill in Springfield. The receipt of a federal grant greatly enhanced and accelerated this project, providing funding for design development

and education and demonstration features that otherwise might not have been possible. The primary ideas behind the Watershed Center are 1) education: teaching people the value of our water resources and how to take care of them, and 2) demonstration: actually showing many of the methods and tools of water quality and watershed protection. To help achieve these goals the Watershed Center, as planned, contains meeting spaces, a water quality laboratory, teacher resource center, outdoor classrooms, and a host of water and energy demonstrations, all connected by a trail system on the ninety-acre site.

The final piece of the project, the construction of the main education building, is currently planned to take place in 2009 and 2010, provided funding is in place to break ground next year. The Board of the Watershed Committee has



tentatively set this ground-breaking event to coincide with the 25th anniversary of the organization next August. This building will essentially complete the overall plans for construction at the site, and fulfill a vision that has been created and driven by a large group of community partners and donors. Provided the construction can begin in the summer or fall of 2009, it is anticipated that the grand opening of the Watershed Center could occur in 2010.

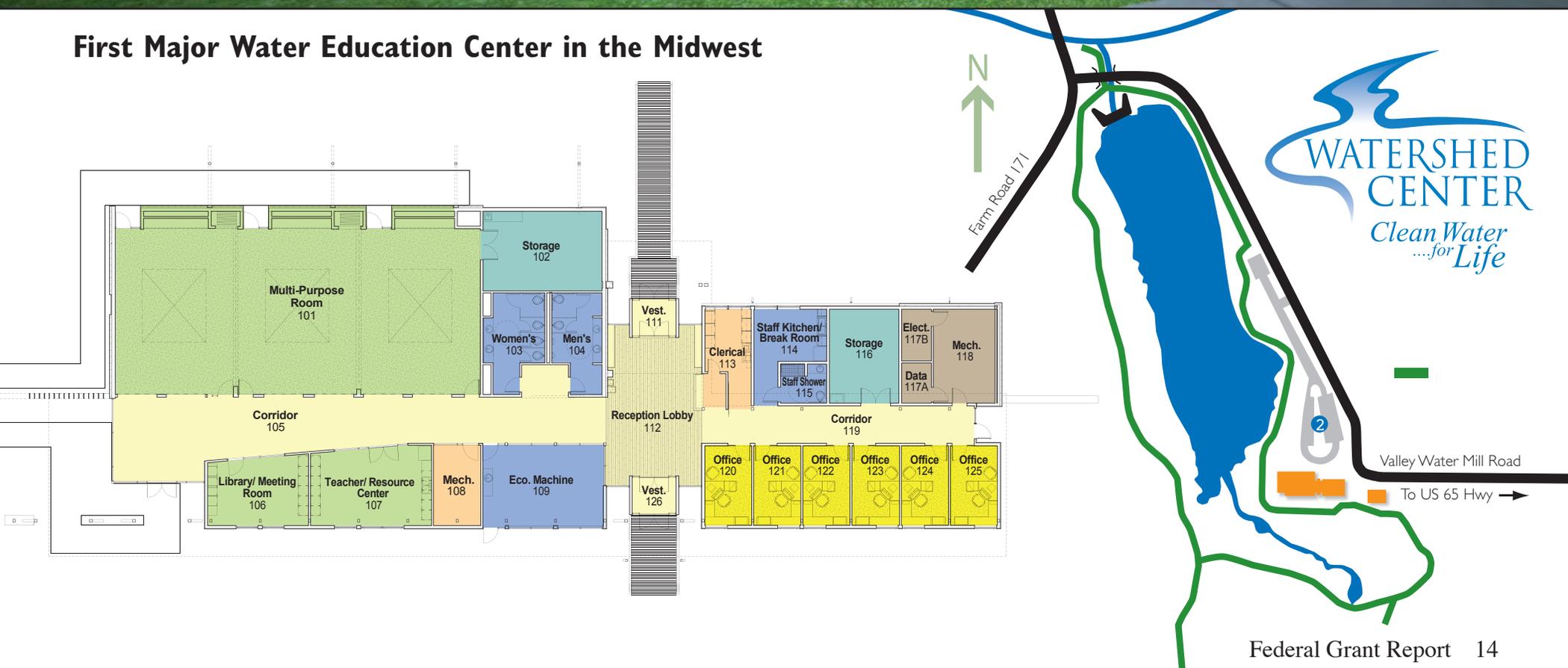
The Board and Staff of the Watershed Committee would like to once again thank Senator Bond and his staff for believing in this project and for securing federal funding assistance to help move it along. It is very doubtful that the project would have progressed very far without this early infusion of interest and capital. We would also like to thank the EPA and particularly our project

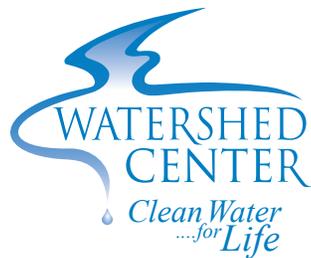
officers for making the administration and reporting requirements of the grant an enjoyable experience. We hope that the EPA officials who were able to come to Springfield and tour the Watershed Center site found it to be an interesting experience and the project a worthwhile endeavor. We hope that they left as excited as we are about the great potential that this facility offers to sustain and improve the precious water resources of our region, state and even the Midwestern United States.





First Major Water Education Center in the Midwest





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