

La Crosse Area Climate Change Adaptation Study

1 Introduction

The Association of State and Territorial Health Officials (ASTHO), in conjunction with the Centers for Disease Control and Prevention - National Center for Environmental Health, awarded a grant to the Wisconsin Department of Natural Resources (WDNR) to demonstrate methods for increasing the level of coordination and communication between the disparate programs involved in addressing the public health consequences of climate change. WDNR focused on bringing public health to the climate change discussion by engaging several state agencies and local community partner groups. Success has been demonstrated through not only strengthening partnerships but in moving climate adaptation from discussion to implementation of local government adaptation priorities.

1.1 Environmental Issues and Need for the Study

The Wisconsin Initiative on Climate Change Impacts¹ (WICCI) seeks to educate communities, businesses and individuals about the science of climate change as well as the projected trends in climate for Wisconsin. Working Groups are created by the WICCI Science Council to conduct science-based assessments of potential climate change impacts on specific regions, ecosystems, human health, communities and industries in Wisconsin and to make recommendations on adaptation strategies.

The WICCI Community Climate Adaptation (CCA) Working Group is charged with assisting communities with climate adaptation. The workgroup has conducted a number of educational workshops over the past several years for Wisconsin community staff and officials to inform them about the science of climate change and to conduct exercises in which they identify health and environmental issues and impacts from evolving climate-related events. Community leaders were also asked to identify adaptation actions and strategies that will help them to reduce the negative effects of climate-related events. They also explore the barriers that they will likely face in implementing climate adaptation over time.

Upon completion of past educational workshops, the working group moved on to other communities and left local decision-makers to determine how to move forward with adaptation

¹WICCI is a successful collaboration, jointly led by the Wisconsin WDNR and the University of Wisconsin-Madison's Nelson Institute for Environmental Studies, that includes more than 70 federal, state, academic, and private sector entities. University researchers, WDNR scientists, and private and public sector professionals from throughout Wisconsin participate on the WICCI Advisory Committee, Science Council, and Working Groups. For more information, see <http://www.wicci.wisc.edu/>.

measures and funding. As a result, very little was being accomplished to advance community climate change adaptation. There is a need for the working group members and state agency programs to continue working with community decision-makers to facilitate discussion so they can determine where specific adaptation actions and strategies fit into community plans, budgets and daily decisions. The ASTHO funding allowed us to look at the broad picture of community, environmental, and human health relative to community climate adaptation priorities.

1.2 Project Accomplishments

This study explored and documented various communication and technical assistance options for the city and county of La Crosse, Wisconsin, taking the effort beyond the educational and interactive process used at the February 28, 2012 workshop, as summarized Appendix A. As a result of this effort, WDNR and its partners have a replicable process for a community climate adaptation assistance program that can be scaled up for state-wide use.

The project demonstrated assistance and follow-through with the City and County of La Crosse so that they would (1) include climate change adaptation in several community planning efforts and develop a commitment to consider climate change in relevant future plans and community decisions, and (2) implement one or more climate change adaptation projects to address the community's top priorities through at least the planning and funding stages.

Experience and relationships developed during the project will benefit future efforts to provide in-depth assistance from WDNR and Wisconsin Department of Health Services (WDHS) staff and WICCI scientists to other Wisconsin communities. The project resulted in a process that can be adapted to assist local governments state-wide.

1.3 Project Partners

The "Building Partnerships for Climate and Health in Wisconsin Communities" was executed by a broad coalition, including project staff, government partners, and private non-profit organizations. The study area, called "the community", focused on the city of La Crosse with consideration given to county and regional environmental and health management priorities.

Project partners include WDNR, WDHS, WICCI staff, CCA Working Group members, and leaders of several La Crosse area organizations:

- Sally Kefer - Study Project Manager, WDNR and CCA Workgroup Co-chair
- Steve Arnold - Program and Policy Analyst, WDNR
- Shelly Shaw - WDHS, left project 2012-03-22
- Megan Christenson - Epidemiologist, WDHS
- David Liebl - Statewide Outreach and Stormwater Specialist, UW-Extension and WICCI Scientist
- Carolyn Betz - Program Manager, UW-Madison Nelson Institute and WICCI
- Amy Peterson - Planning and Economic Development Administrator, City of La Crosse

- Nick Nichols - Sustainability Coordinator, La Crosse County
- Marilyn Pedretti - Chair, Sustainable La Crosse Commission
- Jackie Eastwood - Transportation Planner, La Crosse Area Planning Committee
- Greg Flogstad - Director, Mississippi River Regional Planning Commission
- Coulee Partners for Sustainability

2 Process for Community Engagement

2.1 Approaching La Crosse Area Local Government

In 2009 and 2010, WICCI and WDNR conducted several community workshops to inform communities about Wisconsin's changing climate and to discuss climate adaptation. These were half-day sessions, with no follow-up from WICCI or WDNR. It was not clear whether local officials followed up on their high priority adaptation strategies.

A WDNR representative informed a City of La Crosse staff member about these workshops at a flood management conference. In an introductory discussion, City of La Crosse Planning Department officials extended an invitation to work in partnership on an educational and planning effort through the Sustainable La Crosse Commission, with the City Planning Department serving as the official contact for the work.

2.2 La Crosse City and County Initial Meeting

On 2012-02-21, WDNR, WDHS, and La Crosse project staff drove around La Crosse neighborhoods to observe the unique features and issues facing each area, including the riverfront, French Island, Gundersen Lutheran Medical Center, universities and technical schools, new development on the south side, bluff development in the Town of Shelby, the \$30 million flood protection walls along Pammel Creek and the base of the bluffs, Losey Boulevard, the highway business area along the Interstate (including Onalaska), and the historic downtown district.

Project staff then met with City and County government leaders at City Hall. The meeting was documented. It was valuable to meet key leaders at this point, but getting input from them was difficult because they had not yet established a base of knowledge on climate change nor were they familiar with the language of climate change. We've discussed this "chicken and egg" question several times as to whether we should have conducted the climate adaptation workshop first and then met them. Logically it seems to make sense to meet with community leaders to introduce a project and lay out the issue of climate change "terminology" to increase their familiarity and comfort level with the topic. We took the large-format (34" x 44") project maps and acetate overlays with us. They turned out to be excellent props, as community staff made notes on the overlay indicating the locations of the first stories they told about the impacts of extreme weather events. City staff displayed the FEMA flood maps of the area, which attendees found very helpful for the discussion. A single map of the city and surrounding towns

and physical features would have been sufficient for this purpose, and the discussion. The acetate overlay may be easier to use than the vellum we purchased for the workshop.

2.3 Community Climate Change Workshop

A major milestone for the project, serving as the kick-off event for the La Crosse area, was a workshop for community leaders on climate change adaptation, held on 2012-02-28. The 2012-02-21 meeting with La Crosse staff proved to be helpful in preparation for the event. The event was sponsored by a non-profit group called Clean Wisconsin, which provided lunch, coffee and dessert from a La Crosse restaurant.

2.3.1 Workshop Goals

The workshop had the following goals for participants:

- a) Gain an understanding of climate science principles.
- b) Learn about projected climate change for Wisconsin.
- c) Discuss actual local experiences and perceptions of our changing climate.
- d) Impart understanding of the term “adaptation” to climate change.
- e) Have participants identify adaptation actions and strategies to reduce or prevent negative climate-related impacts.
- f) Have participants describe the barriers to adaptation actions and strategies.
- g) Have participants identify the tools and resources to overcome barriers.

In keeping with the ASTHO study objectives, to go beyond awareness and education and to develop a scalable process for communities incorporating health into the climate adaptation discussion, workshop leaders emphasized that the La Crosse community should work toward an action plan that they would later execute.

2.3.2 Workshop Agenda

The meeting format was expanded from community climate adaptation workshops previously presented in Wisconsin. The agenda included the following elements:

1. Welcome
The WDNR study project manager introduced the goals for the workshop and led the day’s activities. The co-chairs of the city-county Sustainable La Crosse Commission welcomed attendees and outlined their hopes for the outcomes. Project staff members were introduced.
2. Presentation on “The Science of Climate Change” that included forecasts for Wisconsin over the next 50+ years. The state stormwater coordinator from the University of Wisconsin-Extension, presented on behalf of WICCI and took questions from attendees. [The presentation](#) is archived on the project SharePoint site.
3. Interactive session, small group discussion and feedback
Project staff took turns facilitating a series of six questions with attendees, which included: community observations of changes in climate over time, issues and impacts of the changes, adaptation accomplishments to date, possible adaptation measures, barriers to adaptation

actions and strategies and possible solutions, and their vision for a future La Crosse area that is adapted to climate change. Small groups of four or five attendees discussed, recorded, and reported their answers back to the entire assembly. Workshop findings are recorded in the workshop report in [Appendix A](#).

4. Summary, suggestions for next steps, and thanks to participants

The recurring themes of participant feedback on the workshop questions were reviewed with the group. Participants were invited to subscribe to one of the GovDelivery mailing lists for future announcements. Ideas for future climate adaptation forums were suggested and there was consensus on interest in holding them. Ideas for follow up included: community officials coordinating on climate adaptation during project planning and development on all large scale community initiatives; identifying applicable public and private grants or other funds to support adaptation planning and implementation and identifying sources of technical support for city infrastructure decisions related to climate adaptation.

Recommendations for climate adaptation were made for: La Crosse Plan for Sustainability, town, village, city and county comprehensive plans, City Parks and Recreation Outdoor Strategic Plan (which includes community forestry), La Crosse County Health Improvement Plan, La Crosse County All Hazards Mitigation Plan, Ports and Harbor Plan, and County Conservation Plan. Many ideas were listed for the City's Neighborhood Revitalization Plan and for City Engineering and Public Works project decision-making.

3 Materials developed to enhance community discussions

A number of tools have been developed to enhance outreach to community leaders, staff, and the public. Some of these will work with every community; others must be created for each participating community. They are listed here for easy reference.

3.1 Information Technology Tools

Software for this project includes Microsoft Office 2010 (preferred) or 2003 and Adobe Acrobat X Pro for general document creation, Adobe Creative Suite 5.5 (CS5.5) or later for report writing, the Google Earth Plug-In for Internet Explorer (license required for government agencies) to participate in WeAdapt.org, and ESRI ArcGIS Explorer for geographical information, all running on Windows 7 (preferred) or XP.

WDNR staff explored possible geographical information systems (GIS) support, using ArcGIS Explorer and ArcGIS Explorer Online, and obtained a number of large-format maps of the La Crosse area from WDNR GIS Project Manager. Shape files for La Crosse County, minor civil districts, and City of La Crosse neighborhood planning areas were imported into ArcGIS Explorer and ArcGIS Explorer Online. It may be useful for a project staff member to have some ArcGIS training and a full ArcGIS license, but with the excellent support from the WDNR GIS manager, that has not been needed to date.

A folder “Climate Change Adaptation” was established on WDNR Bureau of Science Services shared storage. All pathnames herein are relative to that folder. The folder is only accessible to WDNR staff and is used for secure back-up and storage of working documents shared among WDNR project staff. The folder [\\Central\ss\Climate Change Adaptation\La Crosse](#) has been established for documents specific to the La Crosse study. New folders will be established for new community climate adaptation projects.

A [Microsoft SharePoint server](#) for the project was activated on 2012-03-30 to enable sharing of documents between WDNR, WDHS, UW-Madison Nelson Institute, City of La Crosse, and La Crosse County personnel. Participants need SharePoint Client Access Licenses (CALs) and Wisconsin Web Access Management System (WAMS) or WI Division of Enterprise Technology Microsoft credentials (e.g., “dnr\arnols”) to access the server. Project staff contact information, meeting minutes and agendas, presentations, draft and final reports, and similar documents are shared among project participants using SharePoint.

Two electronic mailing lists have been established for the project using [GovDelivery](#), the bulk mail vendor used by WDNR. WDNR project staff administer the lists (called “topics” by GovDelivery).

“Wisconsin Climate Change Adaptation”, with over 150 subscribers, is the larger and more inclusive mailing list. Topic administrators can send “bulletins”, in GovDelivery parlance, to subscribers on such subjects as scientific results, climate model predictions, funding and educational opportunities, and adaptation project reports.

A more focused mailing list is “La Crosse Area Climate Change Adaptation Study”. With only six subscribers, this low-volume list is specific to the present study, and will be used (along with the Wisconsin Climate Change Adaptation list) to distribute project deliverables, such as the workshop summary and final report. A version of the narrower list could be created for each community or area undertaking a climate change adaptation review, or we could abandon the narrow list and simply use the main list for everyone, suggesting that those with only a tangential interest in climate change adaptation could drop off the list when their area’s study is complete.

Individuals were asked to subscribe to only one of these topics to avoid receiving duplicate bulletins. Bulletins sent to La Crosse Area Climate Change Adaptation Study should always be sent to Wisconsin Climate Change Adaptation also.

3.2 Inventory of La Crosse Area Community Plans

With the help of many contributors, WDNR and WDHS staff compiled a list of La Crosse area adopted community plans and current planning efforts, maintained at [La Crosse\La Crosse Plans.doc](#). The list is organized by subject, includes the year the plan was adopted or published, indicates whether the plan has actually been downloaded to the folder [La Crosse\Plans](#), and provides a hyperlink to plans that are available on the Internet.

The list also includes Web sites to be reviewed for plans and a list of links to related information such as GIS data. The plans in this list most pertinent to climate change adaptation have been reviewed to find references to other plans and to determine whether they are applicable to the study. This plan list and review, by either project staff or a municipal partner, is required for each new community or area participating in this process.

3.3 La Crosse Area Photography

WDNR staff photographed key locations in the La Crosse area, including the Black River Beach Neighborhood Center, new development at the south end of La Crosse, the railroad, a bike path, Pammel Creek flood walls and its outfall from Ebner Coulee, the bluffs, vistas from Grand Dad Bluff, washout repairs on Bliss Road, and a La Crosse-branded urban bike rack. WDNR staff subsequently toured La Crosse with the Planning and Economic Development Administrator and Assistant City Engineer, and photographed examples of gray infrastructure in the Johnson Street storm water basin. The group discussed possibilities for green infrastructure. These are stored in the [La Crosse\Photos](#) folder and are available for use to illustrate presentations and reports produced for the project.

4 Community Climate Adaptation (CCA) Planning Matrix

To organize the gaps we have found in community plans relative to climate adaptation planning, and from recommendations at the workshop, we developed a CCA Planning Matrix. The matrix lists the plans where vulnerabilities are best addressed and types of adaptation actions and strategies likely to be incorporated. The matrix also notes the agencies responsible for the plans. Over time, the matrix can indicate whether a measure has been addressed and whether additional work is needed to fully address the vulnerability. The initial version of the matrix below will be useful to decision makers, for community plans and updates, and for budgetary decisions. The matrix can be expanded to include the status of plans, future action items, additional reference documents, and Web links.

| Plan | Responsible Body | Potential adaptation measures |
|--|---|---|
| City of La Crosse & La Crosse County Strategic Plan for Sustainability | Common Council, County Board, City/County Joint Sustainability Commission | The multi sector action plan developed by the Sustainable La Crosse Commission describes explicit action items and makes assignments and dates for completion. This project recommended specific examples of how climate adaptation could fit into many of the actions items so that the commission may consider expanding its scope. |
| La Crosse County Health Improvement Plan | County Health department | Incorporate strategies that ensure citizens are aware of cooling center locations and how to access them, flood hazards and safety both during and after floods, high wind events and managing waste from property damage to minimize injury and exposure to mold and mildew. |

| | | |
|--|---|--|
| Confluence: The City of La Crosse Comprehensive Plan | Common Council, City staff | The plan is due to be updated soon (every 10 years). All climate adaptation actions and strategies from individual neighborhood plans may be integrated into the city’s plan. Likewise, all town, village and city plans may be integrated into the county and regional comprehensive plans to reflect the community’s approach to climate adaptation in each of the 9 planning elements over the next 20 years which is the planning period for this plan. Examples include: limitations on development and expansion of impervious surface area in the Land Use element; detailed adaptation measures for wildlife, wetland restoration and natural resources in the Natural Resources element; innovative flood and floodplain management which includes green infrastructure in the Public Utilities element; Reforestation following EAB loss and expansion of urban trees in the Community and Public Facilities element; |
| All Hazards Mitigation Plan | Mississippi Regional Planning Commission; County Emergency Manager | The partnership has discussed climate adaptation needs as identified from the February workshop and will incorporate into the current plan update. |
| County Conservation Plan | County Conservation Department | County and City coordination on high priority agricultural and other sources of non-point pollution from coulee region east of city. |
| City Area Flooding Risks | City Planning Department | Will continue to develop climate adaptation strategies that incorporate green infrastructure where feasible to mitigate new flooding that is occurring in areas outside of the flood plain. Flood prevention measures are being considered to manage the last few homes in the flood plain. Green infrastructure to benefit neighborhood revitalization, human health and fitness. |

5 Ongoing and Future Work

WDNR and WDHS will continue the partnership with the city and county to identify the means for incorporating adaptation priorities into community plans and budgets and daily decisions and operations. Several examples serve to illustrate this process.

The 1.2-square-mile Johnson Creek storm water sub-basin on the south side of La Crosse is in an older, high-density, residential area of the city that is starting to experience flooding from more frequent and intense storms. Project staff identified an EPA grant program with the potential to fund the modeling, design and implementation of a green infrastructure project in the basin,

where a multi-million dollar expansion of conventional storm water infrastructure has been proposed. Project staff worked with city engineering staff to develop a successful Letter of Interest for EPA Green Infrastructure funding for the creation of a hydrologic model of the basin to enable modeling of green infrastructure alternatives. As a result of this grant, city engineering staff members will build their capacity to use public domain hydrologic models to assess future green infrastructure applications in other areas of the community.

Green infrastructure can provide multiple benefits, including reducing peak storm water flow, improving storm water quality, shading and cooling urban neighborhoods in summer, improving property values, promoting neighborhood reinvestment, and promoting health through increased transit, walking, and biking. The neighborhood has unusually wide streets, ideal for green infrastructure practices. The City's new storm water utility will eventually provide an additional source of funding for green infrastructure implementation.

WDNR staff made a presentation to the Sustainable La Crosse Commission to demonstrate how the highest priorities for climate change adaptation identified at the February workshop could be incorporated into the Plan's "Action Items" table. The commission has taken these recommendations under consideration and is furthermore proposing that a "Climate Forum" be held in the future.

Project staff members have provided specific recommendations for the update of the county's All Hazard Mitigation Plan to the authors from the Mississippi Regional Planning Commission and the County Emergency Management office.

The La Crosse County conservation staff has been notified of the community's concern about agricultural erosion from the coulee area filling backwaters along the Mississippi River. The build up of sediment is known to affect access for recreational boating on the river. This is an adaptation topic for future discussion between project staff and the county conservation staff.

6 Meeting Grant Requirements

WDNR and WDHS project managers and staff participated in the quarterly ASTHO grant conference calls throughout the duration of the grant. We reported on the status of the project to ASTHO staff and other grantees and learned from other grantees about their approaches.

The WDNR Program and Policy Analyst attended the mandatory ASTHO Climate Change Consortium on April 24, 2012 in Arlington, Virginia, where he presented an overview of the La Crosse Community Climate Adaptation project. Hours have been tracked by both the WDNR project manager and the WDNR Program and Policy Analyst. The grant was extended to allow additional time to finish the report and continue the work of the analyst. WDNR has agreed to one final pay out at the end of the grant period on July 31, 2012. This report, which summarizes the work under the grant, is the final required product. However because of this grant, the WDNR, WDHR, and WICCI partnership will continue working with the county and city of La Crosse to plan for and implement the highest climate adaptation priorities. Furthermore, using

the process we have developed, we plan to work with individual communities and other regions in Wisconsin to accomplish similar results.

7 Next Steps

We set out to review La Crosse area community plans to identify opportunities to incorporate climate change adaptation (“gaps”), identify barriers to filling the gaps, and suggest solutions to overcome the barriers. We also intended to develop a standardized, scalable process to extend the review process to communities and regions around Wisconsin.

There are many gaps, as climate change adaptation is a new topic for almost all the organizations in the La Crosse area, especially with respect to planning and day-to-day operations. The barriers may be summarized into two main categories: knowledge gaps and resources (time, money, expertise, etc.). Some knowledge gaps are in the underlying science and require research to make the best decisions on adaptation; most are in communication of additional information from those who have it to those who need it. Both efforts require resources. Thus, the next steps revolve around obtaining financial and staffing resources at the state and local levels to build awareness, transfer knowledge and technology and implement solutions across the entire spectrum of community services.

Resources are also needed to more fully integrate climate adaptation into La Crosse area government planning and human services. . In the coming months, we will seek additional resources in the form of government and foundation grants to advance climate adaptation, integrating climate adaptation planning and implementation into the fabric of local government operations. The goal is that climate adaptation becomes a core responsibility of all appropriate government units, just as equity, public safety, transparent governance, prudent financial management and sustainability are expected throughout government.

For the long-term success in incorporating climate adaptation into La Crosse area community plans, adaptation needs a permanent home in local government programs, including human health. Because the City and County have already established a joint Sustainable La Crosse Commission, and climate adaptation is necessary for sustainability, ordinance and policy changes should ideally be made to include climate adaptation as a programmatic element of the Commission and its respective City and County program policies.