Executive Summary:

An overview for all readers

Purpose

The Onondaga Creek Conceptual Revitalization Plan (OCRP) presents to the public and government decision-makers a conceptual plan for renewing the creek and transforming its corridor into an attractive asset. The case for revitalization is strong. The creek has changed dramatically over the past two hundred years. The symptoms of historic urban and rural change continue to impact the health of the creek and restrict the ability to use and enjoy it. The result is a creek in need of new and flexible solutions for revitalization.

conceptual: *based on ideas, formed from reasoning and imagination*

The OCRP is conceptual, meaning the people who created it were asked to "think big" and generate ideas for the future of Onondaga Creek. The Onondaga Creek Working Group was formed to advise and direct writing of the OCRP. They are a volunteer group, from many different backgrounds, who live or work in the Onondaga Creek watershed. Some ideas in the OCRP might never happen, others will happen quickly. Most will occur gradually and need plenty of community support and patience. Overall, revitalization will take a long time. Yet it can be accomplished, one step at a time, especially using shared community goals and a smart strategy. This, then, is the purpose of the OCRP project:

revitalization: *the act of giving new life or vigor to something*

- To discover community goals, and from those goals, create a plan, and
- Use the plan to guide improvements to environmental, social, and economic conditions along Onondaga Creek.

The OCRP does not request or demand any financial commitments; funding sources must be determined once next steps are selected and put into practice. Funding is uncertain at this time, yet the cost of doing nothing is arguably greater for future generations. Without action now, benefits of revitalization may never be realized.

There are many possible benefits of creek revitalization:

- Generating renewal in surrounding neighborhoods
- Creating recreation and education opportunities
- Forming new cooperative ways to manage Onondaga Creek as a treasured resource
- Adding the creek back into the urban landscape as a natural place
- Linking diverse communities
- Fostering economic growth and development
- Promoting local pride
- Restoring and protecting the natural environment

To realize benefits, the OCRP must be put into practice. Key next steps are:
1) Continuing the Onondaga Creek Working Group, to act as a community voice to guide revitalization and engage the public in continued discussion, and
2) Begining demonstration or pilot projects that show the public real results.

Existing Conditions and Problems

Onondaga Creek begins in southern Onondaga County, near Tully, New York and flows approximately twenty-seven miles north, through Syracuse, to its outlet in Onondaga Lake. The Onondaga Creek watershed (see Figure E.1) is part of the larger Onondaga Lake watershed. Water from the creek and lake eventually drains to Lake Ontario.

As the City of Syracuse grew in the creek's floodplain, the creek was altered for sewage disposal and flood prevention. Using the creek to carry sewage in the past has left a legacy of continuing water quality problems today. Results from water quality testing consistently show bacteria levels higher than New York State standards, especially in the portion of the creek that flows through downtown Syracuse. Rerouting the creek from its natural curves into a deep, straight, concrete and block lined channel reduced floods but greatly changed the creek's physical form and plant and animal life. During heavy rains and snow melts in the city, deep, fast flowing water in the creek channel presents drowning hazards. Consequently, creek access was restricted by chain-link fence in the second half of the twentieth century.

Industrial salt extraction may have caused or worsened muddy springs, or mudboils, in the Tully Valley, in addition to leaving the land prone to sinking. In their most active period, the mudboils released thirty tons of sediment daily into the creek. In addition to mudboils, sediment is added to the creek by landslides, streambank erosion, and stormwater runoff from the land. Sediment aggravates turbid or muddy conditions in Onondaga Creek.

The way land is used will need to be addressed to revitalize Onondaga Creek. Nonpoint source pollution is carried to Onondaga Creek and its tributary streams via runoff over the land. Nonpoint source pollution includes sediment, nutrients, and pesticides which impair water quality. Polluted runoff reaches the creek quickly when wetlands are filled and streambank plants and trees are cut down or stripped away. In urban portions of the watershed, roads, roofs, and other hard surfaces increase the amount and speed at which stormwater runs to the creek, lessening water quality. New solutions are needed to address these kinds of problems, like the introduction of green infrastructure in urban areas and the implementation of best management practices in rural areas.

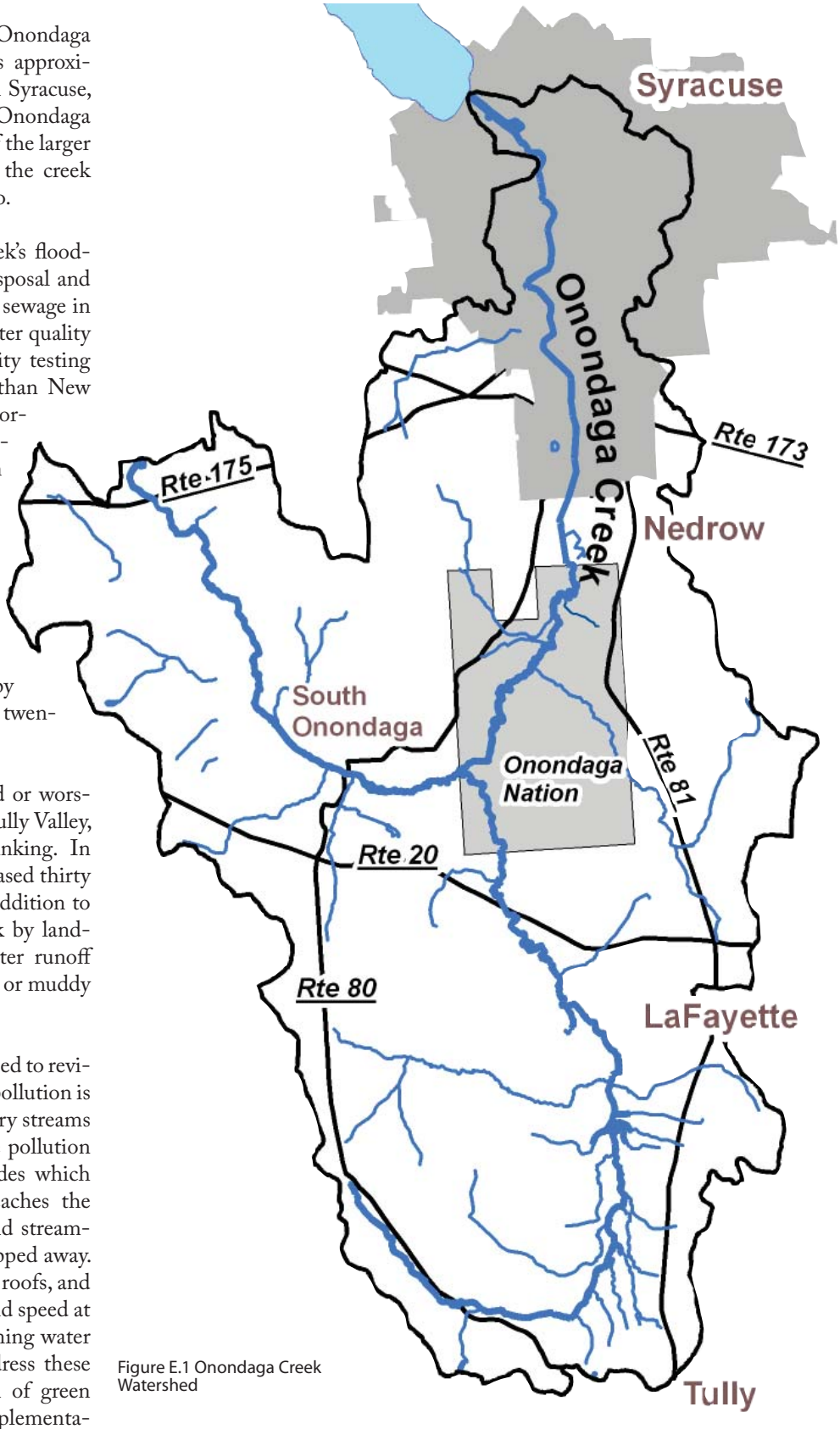


Figure E.1 Onondaga Creek Watershed

watershed:
the area of land that drains into a specific waterbody

green infrastructure:
managing storm-water to mimic natural processes to percolate or reuse on-site runoff

best management practices:
methods that prevent or reduce water pollution from nonpoint sources

Existing conditions on Onondaga Creek, from top to bottom: At Armory Square, roofs and parking lots speed stormwater to the creek. Chain-link fence restricts access in Syracuse for safety purposes. Turbid water in the creek in Tully Valley. Near the headwaters of Onondaga Creek, rocks armor the bank next to natural falls at Woodmancy Road. (Photo credits: Knowlton Foote and OEI)

Salt mining was performed in the Tully Valley for nearly one hundred years (1889-1986) by injecting water through deep wells into underground salt deposits. The brine solution was brought to the surface and piped by gravity-feed to the shore of Onondaga Lake where the salt was used in soda ash production via the Solvay Process. By the early 1960s, water was no longer injected into the ground, the drilling of wells and rock fracturing allowed upper groundwaters to infiltrate and dissolve lower salt deposits. Photo: Tully Historical Society.

Drivers and Goals – A guiding image for Onondaga Creek's future

A comprehensive vision for the future of Onondaga Creek is a key finding of the OCRP. A series of meetings with the public and stakeholder organizations posed open-ended questions to participants to gather visions (or goals) and concerns for the future of Onondaga Creek. These visions and concerns underpin the conceptual plan and will guide creek revitalization. All of the visions and concerns from over 350 meeting participants were sorted into top themes:

Vision: Recreation in a clean, natural waterway and fishing opportunities from a healthy fishery.

Concerns: Lack of funding; government apathy or inability to achieve the goals desired; sewage and sewage treatment; and pollution and garbage.

The Working Group established drivers and goals for Onondaga Creek revitalization. The drivers act as key areas of focus. The goals describe where the creek should be in the future. The drivers and goals were developed by the Working Group after studying the condition of Onondaga Creek and listening to the public during community meetings.

The goals are meant to function as a guiding image for Onondaga Creek revitalization; in other words, the goals are meant to be strived for, or worked towards – they represent the vision for the future of Onondaga Creek. Time will be needed to achieve all of the goals; some sections of the creek will realize goals before others. Each of the five drivers (water quality; human health and safety; ecological health and habitat; access, recreation and use; and education) is represented by an illustration and an explanation in italics, appearing on this page. The drivers and goals reflect what the community said, as illustrated by direct quotes received during public meetings.

Goals are listed on the facing page. They have been shortened and simplified from their original wording. The original version can be found in Chapter 5 of the OCRP.

stakeholders:
those who have a share or an interest in an issue

water quality:

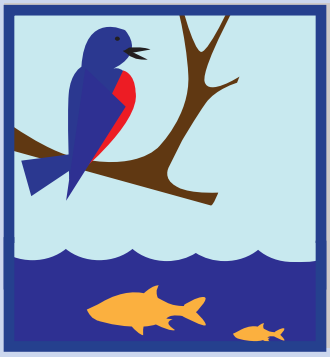
Improving the biological, chemical, and physical conditions of Onondaga Creek (often measured by a waterbody's ability to support life).

"Good water quality everyone can share and enjoy. (S)omething to be proud of."

human health & safety:

Fostering a state of wellbeing for people in the Onondaga Creek watershed, free from risk and disease.

"Can we enjoy the creek and still protect the environment - people need to feel safe/secure using the corridor."



ecological health & habitat:

Fostering an environment for native species (plants and animals) that provides safe food and water.

"The creek becomes wonderful habitat for fish, birds and other animals."

access, recreation, & use:

Allowing everyday activities and enjoyment in and around Onondaga Creek.

"Travel along entire creek from lake to headwaters- have a path, nice lighting, banners, benches, programmed spaces."

education:

Sharing knowledge about Onondaga Creek and its environs.

"… I would like to see the creek used as an educational tool for surrounding school communities."

Goal A. Throughout the watershed, achieve water quality to the standard that:

- supports varied fish and wildlife and
- supports types of recreation that put people in contact with the creek.

Goal B. Water should be clear and attractive, free of garbage.

Goal A. Achieve water quality so that human contact with water is safe.
Goal B. Reduce the possibility for drowning, damaging floods, and liability.
Goal C. In the City, make a new policy for the fence along Onondaga Creek. The policy must balance the need for safety and access.

Goal A. For the whole creek system, increase the presence, extent, and types of plant life along the banks of Onondaga Creek. In turn, this increases fish, wildlife and bird diversity in the creek corridor.
Goal B. System-wide, restore the natural conditions and environment for fish that prefer or require cold water at times during their life span. Trout are an example of cold water fish. At the least, no changes to the creek corridor should make conditions worse or stop cold water fish from moving up- or down-stream.
Goal C. Increase the ability of wetlands to perform their natural functions, such as storing water and providing habitat. Restore wetlands by reconnecting wetland areas to the creek.
Goal D. Use native species of plants, fish and animals in restoration projects.

Goal A. Throughout the watershed, establish a system of linking trails to connect rural and urban neighborhoods.
Goal B. Add, maintain, and protect open spaces, along the Onondaga Creek corridor and its tributaries.
Goal C. Make creek access a priority for both urban and rural land use decisions.
Goal D. Local governments should establish ways to manage land and coordinate recreation/access projects to support a naturalized, attractive creek.
Goal E. Throughout watershed, governments must adopt a new commitment to Onondaga Creek revitalization.

Goal A. Provide varied educational experiences and opportunities for all ages.

- Use signs, including signs that mark watershed boundaries
- Use outdoor education centers
- Strengthen existing community educational facilities
- Use interpretive trails
- Use gardens with diverse plants
- Use community creek restoration projects and clean-ups
- Use teaching materials specific to the Onondaga Creek watershed

diversity: *the variety of organisms found within a specified region*

habitat: *the environment where a population lives; it includes all things an organism needs to survive*

native species: *an animal or plant that originated in a particular place or region*

tributary: *a stream that flows into another, larger body of water*

open space: *land that is not intensively developed for agricultural, commercial, residential, or industrial use*

Recommendations - Process steps and pilot projects

Recommended Process Steps

Based on the experience of other communities, the process of creek revitalization is rarely quick; nor does it follow a straight line. Revitalization will be a long-term process, accomplished in many steps. Each project builds on the momentum from previous successful projects. Continued momentum encourages others to lend support and resources. For this to happen, many processes must occur at the same time.

Key next steps:

- **Continue the Onondaga Creek Working Group. The Working Group is the cornerstone of putting revitalization into practice. The Working Group can act as the community voice of the watershed, starting and coordinating projects with a clear process open to the public. Many of the following process steps can be started and coordinated at the Working Group table.**
- **Start work to achieve the watershed goals.**
- **Coordinate ongoing projects that affect Onondaga Creek.**
- **Communicate OCRP goals to build community support for creek revitalization.**
- **Continue to gather data to learn as much as possible about the Onondaga Creek watershed.**
- **Commence an outreach program to the governments within the Onondaga Creek watershed. Program objectives could include the initiation of steps towards the crafting of intermunicipal agreements; establishing land management practices that support a naturalized, attractive creek; and introducing tools available to municipalities for the prioritization of creek and tributary protection as possible strategies for dealing with difficult problems like nonpoint source pollution and stormwater management.**
- **Create a funding strategy. An important need exists for a group capable of long-range thinking to coordinate the funding strategy. Financial resources must be used wisely to meet as many stakeholder goals as possible. Fundraising and coordinating public/private partnerships are another key aspect of the funding strategy.**
- **Start action on demonstration projects. Demonstration projects mobilize community activity and show tangible results to the public.**

Recommended Pilot Projects

A pilot projects list was developed during the process of drafting the OCRP, see Table E.1. Projects are arranged from easier to implement (#1) to more difficult to implement (#11). Corresponding drivers are listed by number. In the last three columns, the shading shows where projects are most appropriate for sections of Onondaga Creek; urban, rural and transitional (the section of Onondaga Creek that transitions between rural and urban). Pilot projects are intended to meet more than one driver and work towards multiple goals of the OCRP. As stated, the Working Group is an appropriate group to plan projects and use resources effectively so that projects meet as many goals as possible.

intermunicipal agreement:
agreements between governments to cooperate on land use planning and regulation

Table E.1 Recommended Pilot Projects

	Recommended Pilot Projects	Description	Action Items	Revitalization Maps, By Letter	Corresponding Drivers*	Urban	Transitional	Rural
1	Living fence demonstration project	Create a natural barrier with shrubs, trees, or other vegetation next to the creek, to act as a barrier instead of fencing.		E, F2	2,5			
2	Alter the bankside mowing regime	Allow plant growth near the edge of the creek, to benefit fish and wildlife habitat, instead of frequent mowing.		E	3,5			
3	Shade tree planting pilot project	Plant shade trees in the riparian areas of Onondaga Creek to provide habitat and moderate water temperature.		A, C, E, F2, G/H, K, L	1,3,5			
4	Green infrastructure demonstration site	Manage stormwater runoff by integrating soils and vegetation into the landscape.		E, F, L	1,3,5			
5	Comprehensive littering education pilot program	Develop and present litter prevention education to both school children and watershed residents.			1,2,3,5			
6	Non-native species control, native plants restoration at hot spots	Remove non-native plants and replace with native plants, in areas where non-native species have become well established.		A, E, F, G/H, I, L	3,5			
7	Rural/agricultural BMP demonstration site	Install and practice innovative rural best management practices to manage runoff; site should be accessible for local landowners to assess function.		A, C, G/H, I, J, K, M	1,2,3			
8	Trail creation/ connection demonstration site	Create new and/or connect existing recreation trails where desired in a visible, accessible place, near Onondaga Creek.		E, F2, L	4			
9	Conservation easement/access demonstration site	Institute a conservation easement/ access site with a willing private landowner; site should be accessible for local landowners to assess function.		E, C, G/H, L	3,4			
10	Flood and stormwater retention demonstration site	Install a basin that retains stormwater for infiltration, pollution reduction and downstream water quality improvements.		E, F2	1,2,3			
11	Channel modification demonstration site	Returning a stream channel section to as natural a condition as possible, given current constraints, while creating a safer, stable, non-erosive channel.		E, F	2,3			

*Drivers: 1) water quality, 2) human health and safety, 3) ecological health and habitat, 4) access, recreation and use, and 5) education

The Onondaga Creek Conceptual Revitalization Plan Chapter byChapter

sustainability: *meeting the needs of the present without compromising the ability of future generations to meet their own needs*

channelization: *human engineering to enlarge or straighten river channels to protect existing channels or adjacent structures*

The content of the OCRP is divided into nine chapters. References, an abbreviations list and a glossary are found at the end of the document. Appendices that support OCRP content and provide further information accompany the document on compact disk. The Forward and Chapter 1 explain the purpose of the OCRP, who was involved in creating it, and why it is needed.

Chapters 2, 3, and 4 set the stage for understanding OCRP results. The overview of Onondaga Creek's history in Chapter 2 provides critical background for understanding the current state of Onondaga Creek. Chapter 3 explains existing conditions of Onondaga Creek based on a series of Onondaga Creek Fact Sheets prepared by the Onondaga Environmental Institute (OEI). The fact sheets are contained in Appendix B. Chapter 4 documents the process of creating the OCRP. This chapter is meant for those interested in how technical information, public education, public meetings, and the Working Group were put together and their role in plan creation.

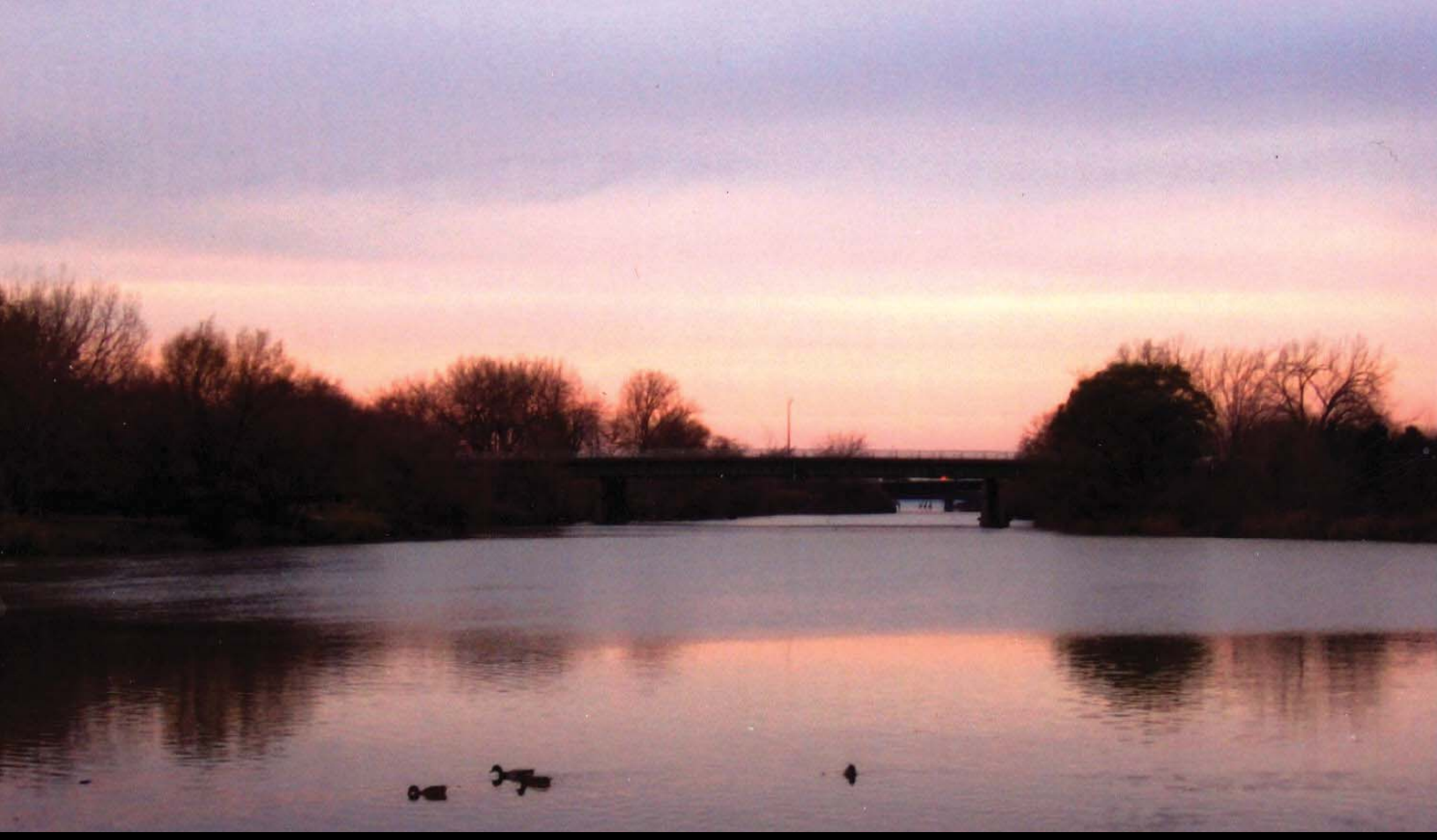
Chapter 5 documents results; it is the heart of the OCRP. Technical results are listed, including the plan itself, the Onondaga Creek Fact Sheets, and the Case Studies Guide (complete text in Appendix C), which provides examples of projects from other river revitalizations around the United States. Public education events are listed and mapped. A brief summary of results from the community meetings are presented in Chapter 5, more results are found in Appendix G. Building on the community vision and technical information, the Working Group developed revitalization maps and watershed goals. Their substantial effort forms the bulk of Chapter 5.

Chapter 6 is a strategy to evaluate ongoing projects in the Onondaga Creek corridor. This chapter suggests that finding similarities between projects and the OCRP will promote collaboration among decision makers and stakeholders. In addition to coordinating with ongoing projects in the creek corridor, many factors will need to be addressed to put the OCRP into practice. Factors include flood management, safety issues, and rural and urban development. Taking these factors into consideration, Chapter 7 identifies constraints and data gaps that will affect Onondaga Creek revitalization. Constraints restrict the ability to act. In the Onondaga Creek watershed, constraints include fragmented government and community, current funding priorities, water quality and channelization. Data gaps, or missing information about the watershed, are significant; however, identification of constraints and data gaps leads to opportunities and solutions for revitalization.

Smart strategies are needed to put the OCRP into action. Strategies must maximize available funding and meet as many stakeholder goals as possible. Four types of strategies are identified and examined in Chapter 8: finding revitalization opportunities in existing land use patterns; establishing design, sustainability and ecological standards to guide future projects; exploring intermunicipal agreements between governments to manage the watershed; and seeking sources of funding. Within each, options are suggested that communities can adopt to achieve the goals of the OCRP; many require cooperation with urban and rural private landowners.

Finally, Chapter 9 reviews the content of prior chapters and presents next steps for creek revitalization. Process steps and pilot projects are described in this chapter. The OCRP serves as a starting point for meaningful change for Onondaga Creek. By setting and striving for goals, the community accepts both the challenges and opportunities possible through revitalization. Continued action is needed, particularly community participation, landowner interest and cooperation, and building a coalition between watershed citizens and government agencies at the local, state, and federal level. The OCRP is a conceptual plan, but also an invitation to watershed stakeholders for continued involvement and action.

Photos facing page: Onondaga Creek at the Inner Harbor, Syracuse. (Photo credits: Knowlton Foote and Lee Gechas)



Part of a revitalization planning map created by the Onondaga Creek Working Group in May and June 2007. Symbols on yellow cards represent revitalization options for Onondaga Creek and its corridor. Revitalization maps and a symbols key are in **Chapter 5: Revitalization Plan - Results**.