

CHAPTER 2:

Onondaga Creek Geography and Historical Context

First Nation

The Onondaga Creek Watershed has been part of the Onondaga Nation since time immemorial. The Onondaga Nation's relationship to this region is explained in the opening statement of their Land Rights Action (2005), quoted below. Historical and cultural information about the Onondaga Nation can be found at their website: <http://www.onondaganation.org/>.

"The Onondaga People wish to bring about a healing between themselves and all others who live in this region that has been the homeland of the Onondaga Nation since the dawn of time. The Nation and its people have a unique spiritual, cultural, and historic relationship with the land, which is embodied in Gayanashagowa, the Great Law of Peace. This relationship goes far beyond federal and state legal concepts of ownership, possession or legal rights. The people are one with the land, and consider themselves stewards of it. It is the duty of the Nation's leaders to work for a healing of this land, to protect it, and to pass it on to future generations."



image: John Kahionhes Fadden, Clear Light Publishers, 1986

11,000 Years Ago

**pre-european
settlement**

Creek cuts side tributaries; main bed forms among the glacial debris. Forest development in the watershed. Haudenosaunee practiced hunting, fishing and forest management.

Physical Setting

The Onondaga Creek valley was formed by glaciers that created a *terminal moraine* at its headwaters in Tully. Currently, the maximum creek length is estimated in a range of 27.1 to 27.4 miles (Coon 2005) to 33.04 miles (USGS and USEPA 2004). Historically the creek was more sinuous and much longer. In 1927, the section upstream (south) of Seneca Road (Turnpike) was reported to have a “tortuous channel [of] about 28 miles (Holmes 1927).” The companion section from Seneca Turnpike downstream (north) to the outlet is currently (in 2006) around six miles. Due to dynamic changes in meanders through relatively flat land, channel shape and length can change quickly in the non-engineered sections of the creek, so lengths should be viewed as approximate. The combined length of at least 34 miles around 1927 is significantly longer than the current approximation of 27.2 miles. This demonstrates that projects that increased the creek depth and channeled its banks also shortened its overall length.

In southern Onondaga County, steeply-sloped tributaries with waterfalls, rapid flow, and stream bank erosion feed the upland headwaters of Onondaga Creek, all characteristics of the hanging valleys of the Appalachian Plateau. The tributaries receive water from forested and agricultural uplands and drop steeply, with periodic waterfalls, to the two main branches in the valley bottoms that join to form the creek’s main channel (see figure 2.1).

The two branch valley bottoms and the main channel are on an ancient lakebed, (Kappel and Miller 2005) surfaced with silt loams and wetland soils (Hutton 1977). On that relatively flat surface, the two creek branches join near the southwest border of the Onondaga Nation, through which the main branch meanders northward, passing through a flood control dam about 518 meters (1,699 feet) downstream of the junction between the two branches (Higgins 2005).

Downstream of the Onondaga Nation, an engineered, incised channel controls creek flow through urban areas in the Town of Onondaga and the City of Syracuse. The artificially deep and sloped channel was built to make the water run faster, as well as deeper, in order to flush sewer wastes from the system and to reduce or eliminate floods in populated areas. The creek outlet is part of the Inner Harbor on Onondaga Lake, and located on the lake shoreline between the Metropolitan Syracuse Wastewater Treatment Plant (Metro) to its west and Carousel Mall to its east. Onondaga Creek contributes nearly forty percent of the water flowing into Onondaga Lake (EcoLogic LLC 2003). From Onondaga Lake the waters join with the Seneca-Oneida-Oswego River basin. Onondaga Lake drains to the Seneca River, which joins the Oneida River at the Three Rivers junction at Phoenix, New York, to form the Oswego River, a major tributary of Lake Ontario.



1700

1695

early settlement

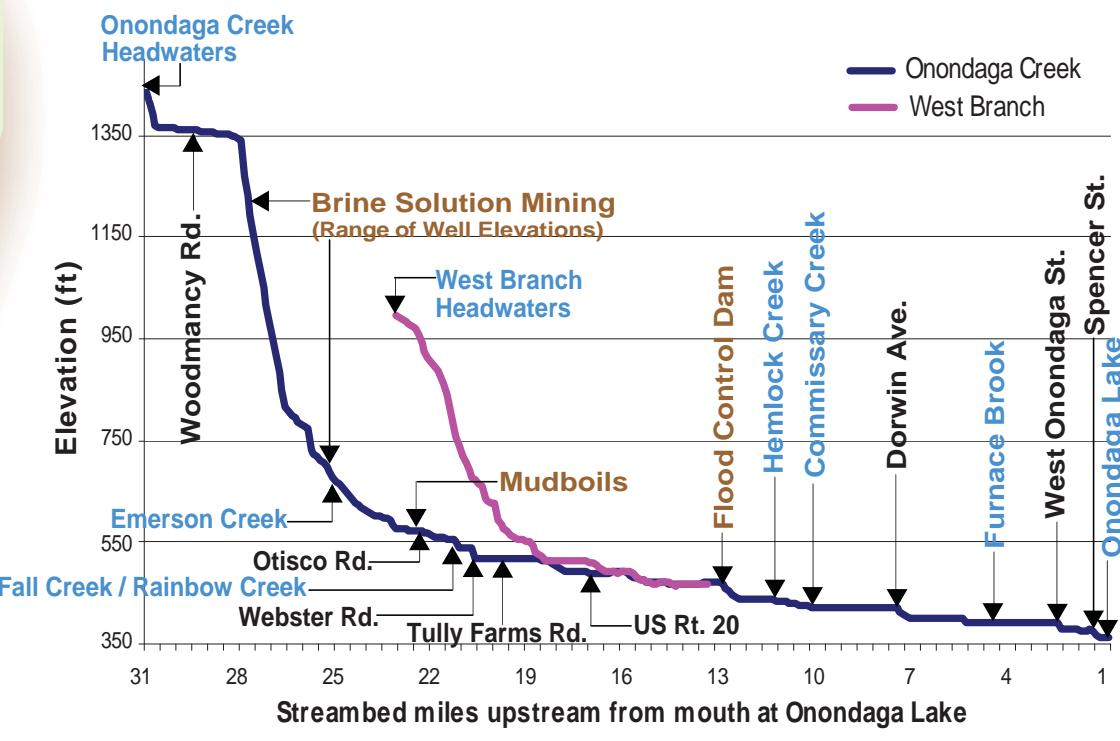
Salmon and eels documented in Onondaga Lake by Jesuit Missionaries.

Timeline not to scale

1,000 Years Ago

pre-european settlement

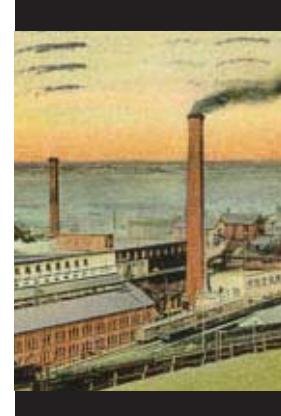
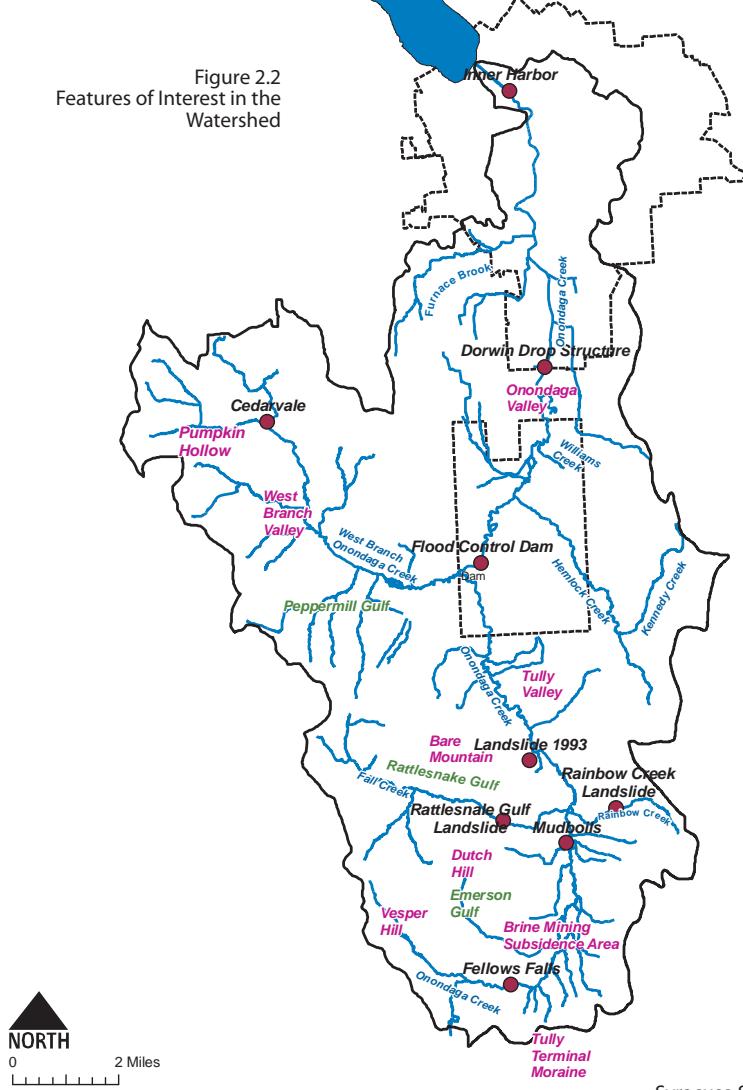
Pine, fir, hemlock, elm, birch, hickory trees leave pollen in creek outflow to Onondaga Lake. Low-impact agriculture produced corn, beans, and squash.



Early Development And Industry

Starting in the late 1700s and throughout the 1800s, European settlers came to the area in great numbers, facilitated by development of the Erie Canal, and drawn by the salt industry and agriculture. The Onondaga Valley was heavily utilized for grain production, orchards and later, dairy farming. The forests of the valley bottom and side slopes were cleared for agriculture (Nyland et al. 1986). By the mid-1800s, a salt industry developed in Syracuse; first for a multitude of uses, then primarily for soda ash production (Kappel 2000). Over-exploitation of *brine aquifers* in Syracuse spurred the late 1880s discovery of halite (rock salt) 1100-1400 feet below the surface at the southern end of the Tully Valley. From 1889 to 1986, the Solvay Process Company, becoming Allied Signal and now Honeywell International, mined approximately 200 million tons of salt, removing 150 feet of salt deposits (marked as Brine Solution Mining on Figure 2.1 and Brine Mining Subsidence Area on Figure 2.2). Removal of the deposits caused the land surface to collapse as early as 1920. These and larger collapses in the 1940s resulted in land subsidence visible in the Tully Valley today (Yanosky and Kappel 1997). Additionally, phenomena known as mudboils continually discharge sediment into Onondaga Creek in the Tully Valley. The mudboils were first observed in the 1890s and later caused water quality problems downstream for Onondaga Creek (See Chapter 3).

Figure 2.2
Features of Interest in the Watershed



1896

Deforestation in the southern part of county leading to flood.



1894

Increased water flowing through the sewer system to creek.



1868

First sewage commission created.



1867

Onondaga Creek commission created. Goal: straighten creek from State pump house to the Lake.

1865

'Great freshet' flood in creek.



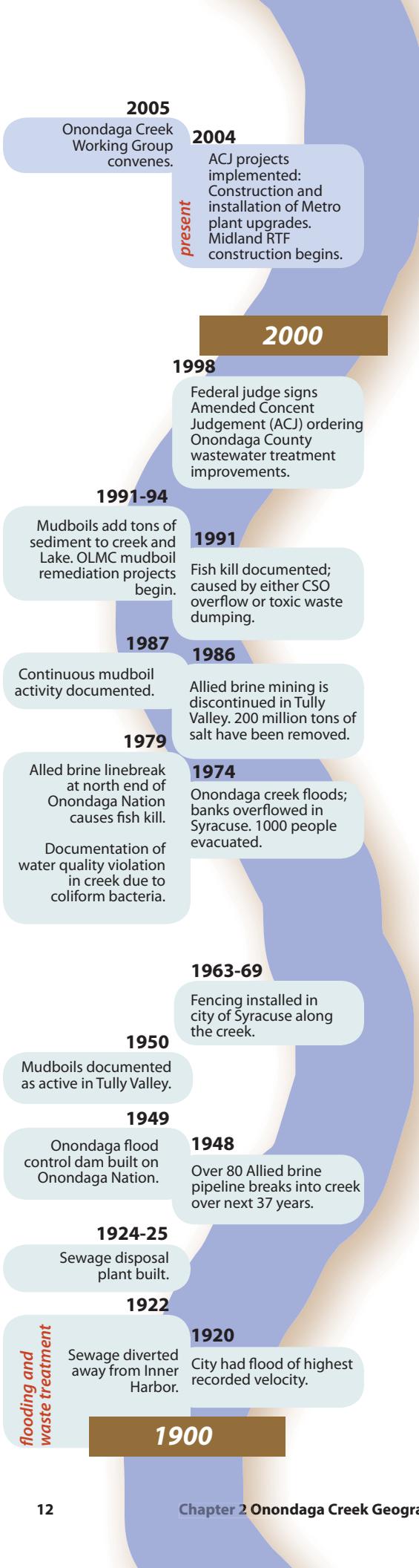
1822-23

early development & industry

Erie Canal constructed across creek, Onondaga Lake level lowered.

1800

Photos:
Syracuse Salt Industry



Flooding And Waste Treatment (Figure 2.3)

Nine miles of the creek are within the City of Syracuse. In the early 1800s, mills were built along the water within the city, especially along the Seneca Turnpike, for processing grain raised in the Onondaga Valley (Munson 1969). City leaders were concerned with flooding and human waste in Onondaga Creek in the 1860s. The first sewage commission was created in 1868 and the right to use the creek for sewage disposal was established in 1872. Beginning as early as 1854, the process of straightening sections of Onondaga Creek commenced to speed the removal of sewage. In 1901-1902 flooding caused much property damage, followed by a 1915 flood with 50% more damage. This in turn led to more channel straightening and deepening. A major flood in 1920 led to the City of Syracuse's 1927 report on flood-control. The report was used throughout the 20th century by the City of Syracuse, the State of New York and the Army Corps of Engineers to guide policy and construction (Holmes 1927). Flooding has occurred, though more rarely, since the 1927 designs were implemented with the construction of a dam in 1949 up until the last *channelization* in 1963 (see Figure 2.3).



Photo:
Flooding in Nedro circa 1950

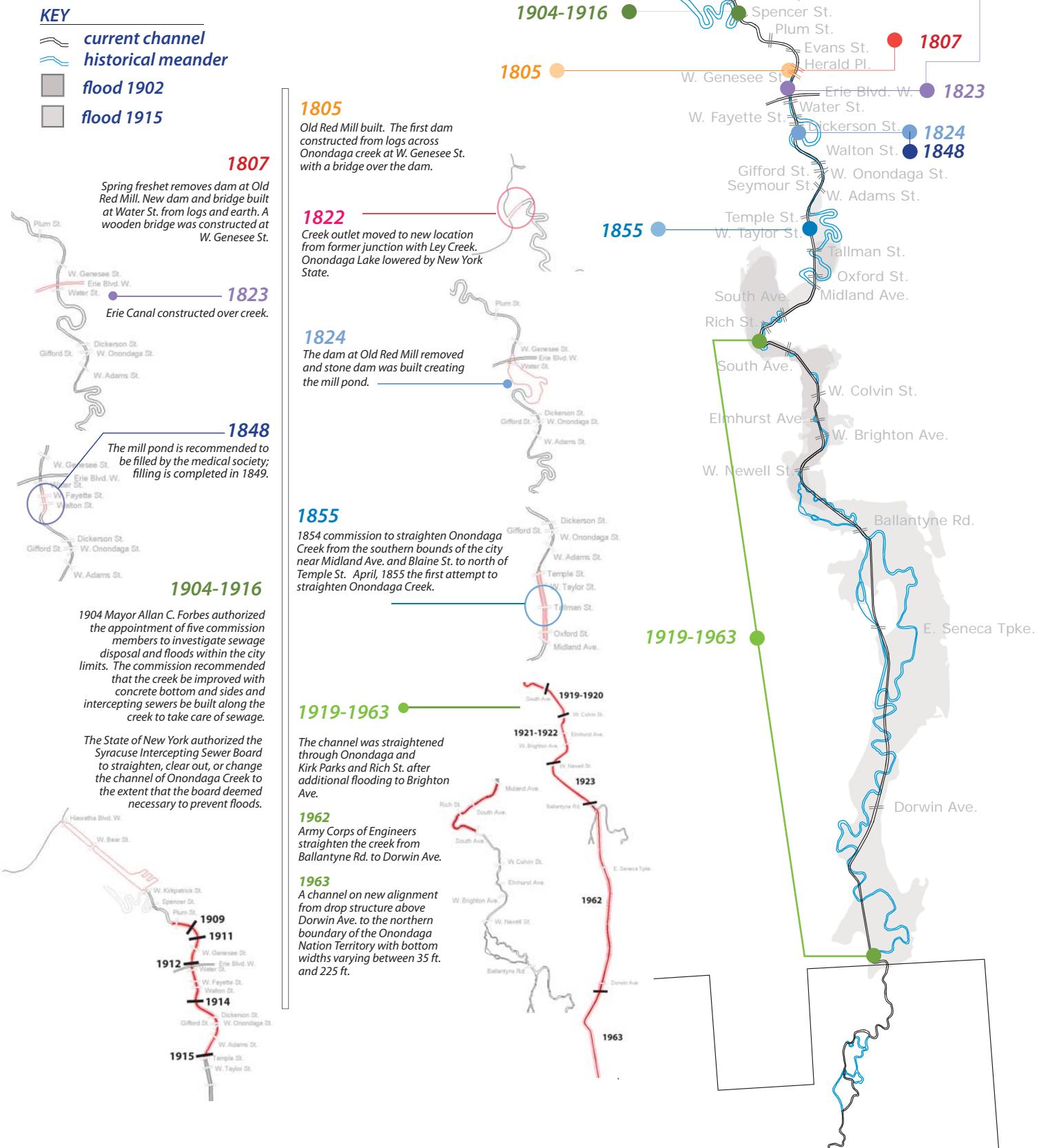
Water quality and waste treatment are recurring themes in the City's relationship to Onondaga Creek. The first Syracuse waste treatment facility was built in 1924 with two trunklines paralleling Onondaga Creek. The trunk-lines carried sewage and stormwater to the treatment facility. These pipes were equipped with *combined sewer overflow* (CSO) points that released into Onondaga Creek when the pipes reached capacity. The waste treatment facility was quickly outgrown. Debate continued until 1954 about appropriate technology and location for a new sewage treatment plant. The current treatment plant, called Metro, is located on the southeast shore of Onondaga Lake. Construction and upgrades have occurred in a series of stages from 1956 to the present. Onondaga County acquired treatment responsibilities from the City of Syracuse in 1954 and maintenance responsibility for the main interceptor sewer in 1971. Atlantic States Legal Foundation (ASLF) initiated a citizens' lawsuit against Onondaga County in 1986 over Clean Water Act violations in Onondaga Lake. In 1998, ASLF, New York State and Onondaga County settled litigation with an *amended consent judgment* (ACJ) to implement a schedule for sewage treatment plant improvements at Metro plus a commitment to address bacteria problems caused by CSOs along several tributaries. This work is proceeding and there have been significant improvements in lake water quality due to the improvements.

The Onondaga Creek watershed changed through a rich cultural past. Complex hydrological and water quality changes have resulted in a need for a multi-faceted approach to creek and watershed management.

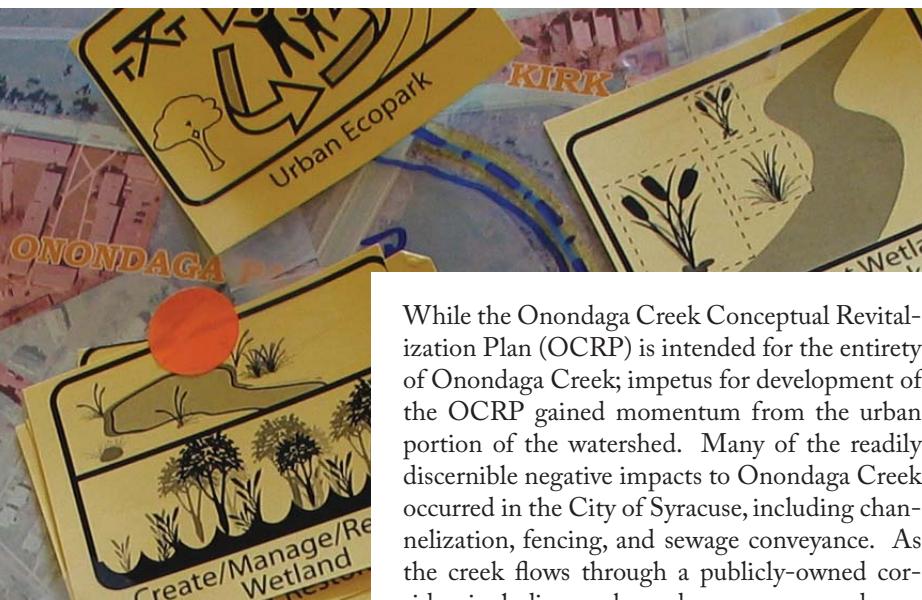
The timeline was created by Tanushree Chowdhury, SUNY ESF Environmental Studies, based on data gathered and compiled by Joan Cope Savage and Dylan Smith, Onondaga Environmental Institute

Figure 2.3

Onondaga Creek Channelization



Onondaga Creek in the City of Syracuse: Growing awareness of a natural urban asset.



While the Onondaga Creek Conceptual Revitalization Plan (OCRP) is intended for the entirety of Onondaga Creek; impetus for development of the OCRP gained momentum from the urban portion of the watershed. Many of the readily discernible negative impacts to Onondaga Creek occurred in the City of Syracuse, including channelization, fencing, and sewage conveyance. As the creek flows through a publicly-owned corridor, including parks and open space, and near homes and businesses, many urban residents had opportunities to reconsider the city's relationship to Onondaga Creek. This narrative describes the growing awareness of Onondaga Creek as an urban asset.

"The creek has always been treated as an obstacle - built over, covered, neglected, dumped in!"

Moving from that to a wide swath of publicly owned space will take a very long time - 100 years perhaps but it will be worth it"

MOST Stakeholder Meeting, March 2007

Onondaga Creek is viewed in Syracuse as a neglected and polluted waterway, yet a strong urban community voice has advocated for its potential as a natural resource over the last decade. The Syracuse Post-Standard newspaper is a good barometer of commonly held ideas about Onondaga Creek. Headlines for Onondaga Creek news articles demonstrate the view of neglect: "Long history of ignoring creek hides city bridges", "Young find themselves by aiding 'lost cause'", and "Untapped potential: unsightly creek yields large array of trout" (Kelly 2004, Kirst 2005, 2006). The fact that news headlines were generated in the local paper, however, means community groups and organizations have advocated for the creek.

After 150 years of alteration for sewage conveyance and flood control, the year 2000 may be considered the turning point for seeing Onondaga Creek as an untapped urban asset. That year the Partnership for Onondaga Creek formed and Michael Houck, a nationally known urban greenspace expert, toured Onondaga Creek on a visit to Syracuse. He noted Onondaga Creek's great

potential and pointed out that other cities have successfully reclaimed urban waterways. Houck's visit inspired greenspace advocates to organize an urban canoe trip in 2001, inviting school children and Syracuse elected officials. Cornell Cooperative Extension of Onondaga County organized the city's first creek cleanup of litter and debris in 2002, now an annual event. (Canopy and Smardon 2003)

Two community groups in particular worked to raise local awareness regarding Onondaga Creek, the Partnership for Onondaga Creek and Canopy. The struggle to reconcile municipal sewage treatment practices with the requirements of the federal Clean Water Act drew attention to Onondaga Creek's poor water quality. In 1998, an amended consent judgment settled locally initiated litigation over water quality violations in Onondaga Lake. The amended consent judgment, among other mandates, required Onondaga County to address bacteria problems in Onondaga Lake tributaries, including Onondaga Creek. Subsequently, the Partnership for Onondaga Creek formed in 2000 in opposition to a county proposed regional treatment (combined sewer overflow disinfection) facility (RTF) on Syracuse's south side, in a neighborhood of more than 70% African-American residents. The Onondaga Nation, Atlantic States Legal Foundation and the local chapter of the Sierra Club joined the Partnership to oppose the sewage treatment facility (Onondaga Nation 2007). The Partnership viewed the facility as unjust, but their mission statement also stressed their willingness to work to protect all waters within the Onondaga Creek watershed from further degradation. The Partnership has presented itself in the role of protector of Onondaga Creek and the community (Adams 2003). The Partnership still fills that role in the present, working on behalf of the neighborhood and the creek.

Some members of the Partnership for Onondaga Creek also belonged to Canopy, an umbrella organization for parks and greenspace advocates throughout the city. During 2003, Canopy took an especially active role in raising awareness about Onondaga Creek's potential for renewal, organizing an educational forum and canoe trips. The canoe trips generated media articles in which residents and visitors alike noted that Onondaga Creek appears neglected.

Syracuse Common Council President Bea Gonzalez wrote an editorial comment for the Post-Standard about her canoe experience, where she

characterized the creek as a “lost treasure” that is “a resource well worth restoring” (Gonzalez, 2003). Piotr Parasiewicz, a Cornell professor who specializes in urban stream restoration, participated in a Canopy-organized canoe trip. Dr. Parasiewicz also saw potential, and expressed his dismay at a school building that had turned its back on the creek, stating “This is the saddest picture I have ever seen...Kids should be playing near the water. They should see the resource in front of their door.” He recommended starting with the “first building blocks of the ecosystem” by allowing natural flora and fauna to return to the creek, along with its natural flow (Weiner, 2003).

Viewing the creek as a natural resource gained public momentum every year since 2000. The dialogue expanded from events and popular press to reports generated by local organizations and academia. In 2004, Forging Our Community’s United Strength Greater Syracuse (FOCUS), a local nonprofit organization, produced a report of recommendations from a series of meetings on water and waterways. Onondaga Creek was specifically considered in the report, along with Onondaga Lake and the Erie Canal. In 2006, the City of Syracuse with several partners applied for and received a visit from a Sustainable Design Assessment Team (SDAT), volunteer design experts sponsored by the American Institute of Architects. Onondaga Creek figured in two of the three main recommendations in the SDAT report, notably to “develop an environmental corridor along Onondaga Creek that supports neighborhoods, the city, and the land” (Giattina et al. 2006, p 50).

The City of Syracuse responded to the public’s changing view of the creek. City of Syracuse Mayor Matthew Driscoll created an Office of Creek Development in March 2005. The Mayor’s initiative was designed to bring together stakeholders to achieve community consensus on creek restoration and development (Driscoll 2005). The city has moved forward on the Onondaga Creek Walk, a pedestrian/multiuse path that follows the creek corridor. A small segment of creek walk has been constructed in Franklin Square. Two new phases of the creek walk have been planned to extend the existing creek walk from the Inner Harbor southward through the city.

The Onondaga Nation is located in the Onondaga Creek watershed; the creek is a tributary of Onondaga Lake. The ecological integrity of the Onondaga Lake watershed is of profound impor-

tance to the cultural identity of the Onondaga people, as well as the League of the Haudenosaunee. In March 2005, the Onondaga Nation sued the state of New York and other parties in a land rights action for illegal land takings and damage inflicted on Central New York’s environment. The Nation’s leaders state it is their duty to work for healing and protection of this land, so as to pass it on to future generations (Onondaga Nation 2007). A series of educational meetings in Syracuse, coordinated by the Neighbors of Onondaga Nation in 2006, informed the public of the significance of the land rights action and heightened awareness of local environmental conditions, including Onondaga Creek (NOON 2007).

In 2007, Onondaga Environmental Institute (OEI) conducted an analysis of Onondaga County’s bacteria monitoring data for Onondaga Creek. Results showed that dry weather sewage releases were significant and RTFs would not remedy bacteria problems in the creek (OEI 2008). Shortly thereafter, the newly elected County Executive, Ms. Joanie Mahoney abandoned constructing the remaining RTFs in favor of alternative CSO control strategies including combinations of sewer separation, storage, pump and treat at METRO, and green infrastructure. The County Executive’s bold redirection of local CSO control policy was well received by regulators, scientists, and activists alike, thereby instilling a sense of excitement towards the future amongst the community.

Concurrently, academics at the State University of New York College of Environmental Science and Forestry (SUNY ESF) added Onondaga Creek to their research agenda. Professor Emanuel Carter conducted landscape architecture design studios for the urban sections of Onondaga Creek in 2002 and 2004. A federal grant in 2002 initiated study of Onondaga Creek as part of an urban stream restoration study co-lead by Professors Theodore Endreny and Donald Leopold. Both initiatives have generated journal articles, theses, and designs that advance the concept of reclaiming the creek as a natural urban asset.

Professor Richard Smardon compiled results from the SUNY ESF workshop associated with Canopy’s Visions of Onondaga Creek Forum in 2003. Several elements of OEI’s Onondaga Creek Conceptual Revitalization Plan project (OCRP) were based on recommendations from the workshop. OEI conducted further public visioning forums and stakeholder organization meetings in 2006 and 2007; over 350 people attended the meetings. A meeting participant at the MOST Stakeholder Meeting in 2007 articulated the view of moving Onondaga Creek from neglected obstacle to civic resource:

“The creek has always been treated as an obstacle-built over, covered, neglected, dumped in! Moving from that to a wide swath of publicly owned space will take a very long time-100 years perhaps but it will be worth it”

A comprehensive community vision for the future of Onondaga Creek is a key finding of the OCRP: participants desired recreation in a clean, natural waterway, including fishing opportunities from a healthy fishery (see Chapter 5).

In sum, while Onondaga Creek has been conceptualized as neglected and in distress, the collective community voice emphasized its potential for many years. The dialogue consistently emphasized protection from degradation, naturalization, and reclaiming the creek as a natural resource for Syracuse. The vision compiled for the OCRP confirmed the momentum towards considering Onondaga Creek as an urban asset worth restoring to a clean, more natural state for community enjoyment and benefit.

