

State of Big Creek Report April 2001

Prepared by the Cuyahoga River Remedial Action Plan

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What this Report is About

For four years the Cuyahoga River Remedial Action Plan (RAP) and the Northeast Ohio Areawide Coordinating Agency (NOACA) have been working together to promote the ideas of Stream Stewardship to the residents, neighborhoods and businesses in the Big Creek watershed. Stream Stewardship is the idea that each one of us is responsible for the quality of the stream that runs through our back yard. This responsibility includes understanding the environmental threats to Big Creek and taking personal actions to reduce or eliminate those threats. Stream stewardship is a shared responsibility for all the residents of Big Creek.

Who are Big Creek's residents?
One of the things that we have learned is that Big Creek is largely hidden in the neighborhoods through which it runs. Most people think of themselves as residents of Parma or Brookpark or the neighborhoods of Old Brooklyn or Bellaire-Puritas in the City of Cleveland. They don't think of themselves as residents of the Big Creek watershed, and they don't recognize that actions they take in their own backyards can affect this environment.

So one of the goals of the Big Creek Stream Stewardship program has been to reintroduce Big Creek as a place worth restoring to the people who live and work there.

For the past four years we have provided a variety of programs and events to bring people down to Big Creek, to educate them about the creek and teach them about stream stewardship. Our main goal has been to encourage Big Creek residents to become Stream Stewards in their own right.

What is a Stream Steward?

- A homeowner who properly disposes wastes and reduces the use of pesticides and fertilizers is a stream steward.
- A Girl Scout or Boy Scout who participates in a stream clean up is a stream steward.

- A college student or a fourth grader who stencils the message on storm drains that reads, "Dump No Waste - Drains to Lake" is a stream steward.

- A business or group of employees who adopt a segment of stream is a stream steward.

- A community organization that develops a neighborhood stream restoration project is a stream steward.

- A public official who coordinates resources to aid stream restoration efforts or champions stream protection ordinances is a stream steward.

This report summarizes what we have accomplished in Big Creek so far to promote Stream Stewardship to its neighborhoods and communities. It presents interesting information about who lives in Big Creek, what environmental



conditions exist in Big Creek, and what actions people have taken and are taking to restore Big Creek. The report also provides guidelines for how people can get involved in future Big Creek activities.

When we started out four years ago we set a number of goals for the Big Creek watershed. By the year 2000 we wanted to:

- Complete storm drain stenciling on 100 miles of streets;
- Establish 30 planting sites along the Creek;
- Conduct 15 group clean ups in the watershed;
- Get commitments for 10 miles of an Adopt-a -Stream program;
- Audit conditions along 15 miles of the Big Creek's riparian zone;
- Train 30 volunteers to undertake a volunteer monitoring program;
- Audit the environmental impact of 150 industrial or commercial sites;

- Convene an annual watershed wide stream festival.
- This report reports on our success in meeting those goals.
- Finally, this report presents a vision of the future of Big Creek. It invites

residents, businesses, schools and other community institutions, and local public officials to join together to further the work of restoring Big Creek to a healthier environmental condition.



Cuyahoga River
Remedial Action Plan

What is the Cuyahoga River RAP?

The RAP is a 39-member committee of community organizations, local, state and federal agencies, and businesses, who are working together to promote the restoration of the Cuyahoga River and its tributary streams, including Big Creek, with the participation of the community at large.



What is the Northeast Ohio Areawide Coordinating Agency?

NOACA is a metropolitan planning body with responsibilities in regional water quality and watershed planning, air quality and transportation planning. It is governed by a 38-member board that includes mayors, county commissioners and other local officials from Northeast Ohio.

Words to Know

Riparian Area - the land adjacent to streams, rivers or water bodies that directly affects - or is affected by - the water. The area serves as a transition between aquatic and upland environments.

Riparian Buffer - A green corridor along the banks of a river or stream that separates water bodies from developed land uses.

Headwaters - The source of a stream.

Watershed - An area of land from which surface water drains to a common outlet, such as a river, lake, wetland or aquifer.

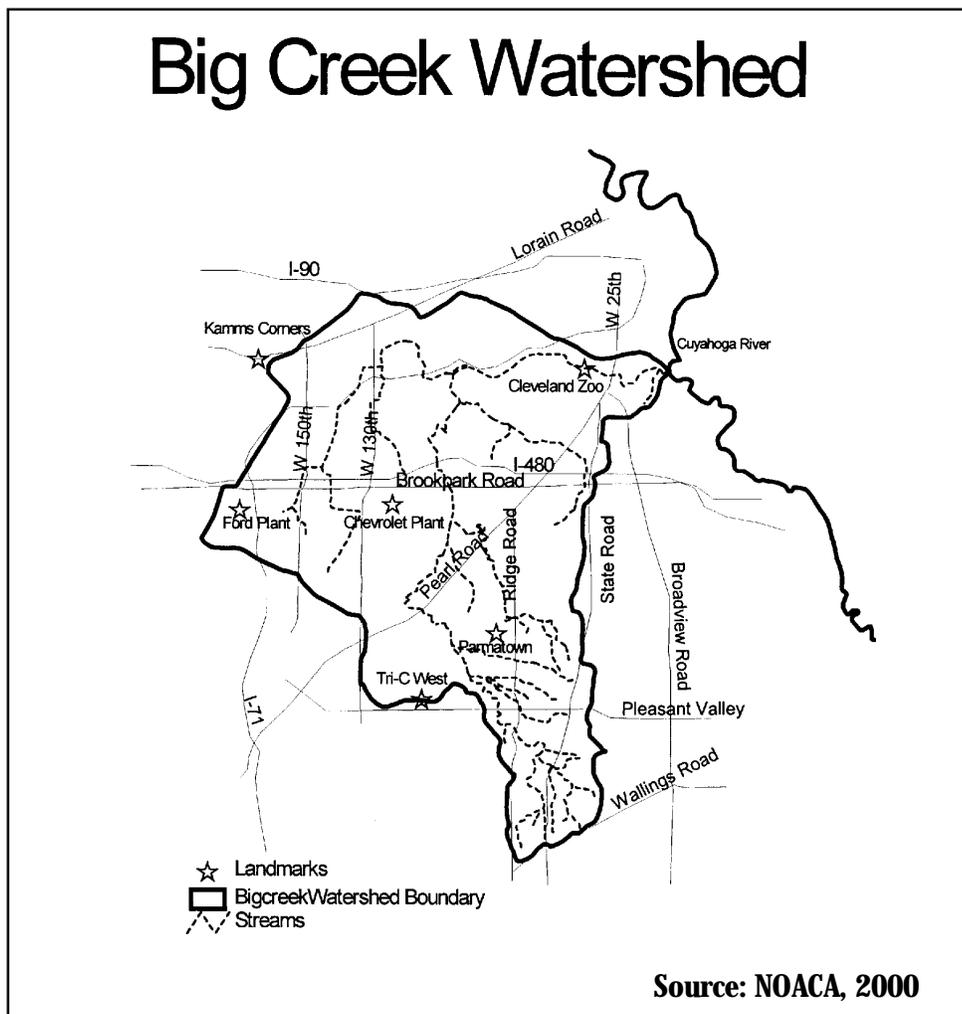
Facts About Big Creek

Watershed Area

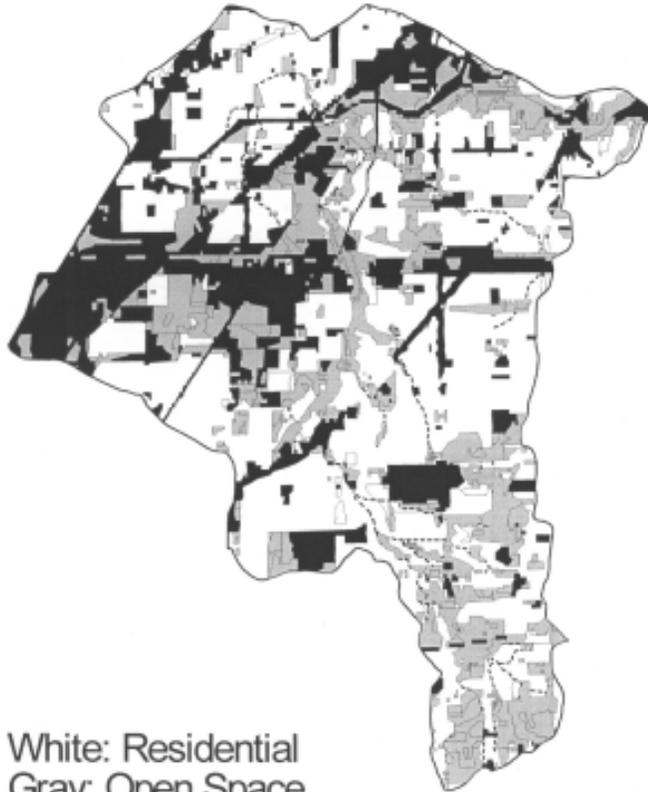
The Big Creek watershed drains almost 40 square miles of urban land in the southwestern neighborhoods of the City of Cleveland and seven suburbs in southwestern Cuyahoga County including portions of Brooklyn, Brooklyn Heights, Linndale, Parma, Parma Heights, Brook Park and North Royalton.

Big Creek consists of two main branches: the East Branch which begins in the City of North Royalton and flows north; and the West Branch, which begins in the City of Brook Park and flows northeast. Each branch of Big Creek has a major tributary: In the East branch there is Stickney Creek which originates in the City of Parma and flows northwest; in the West

branch there is the Chevrolet Branch which also begins in Parma but flows northeast. The mainstem of Big Creek flows east through the Cities of Brooklyn and Cleveland where it merges with the Cuyahoga River just south of the Harvard Road crossing about seven and one half miles above the Cuyahoga River mouth.



General Land Use in Big Creek



White: Residential
Gray: Open Space
Black: Business and Governmental

Most of Big Creek is an open stream. The exceptions are two major sections in underground culverts including a half mile stretch underneath the Cleveland Zoo; and about two and one half

mile stretch of the West branch between West 117th Street and Puritas Avenue. The mainstem of Big Creek used to flow where I-71 now runs. When the freeway was built, Big Creek was relocated into

a concrete channel running parallel and south of the I-71 right-of-way.

Denison Avenue and Trisket Road bound it roughly on the north, I-71 on the west, and State Road on the east. The southern boundary slopes in a rough diagonal line running from near Snow Road near I-71 to Pleasant Valley Road between West 130th and York to Wallings Road near State Road.

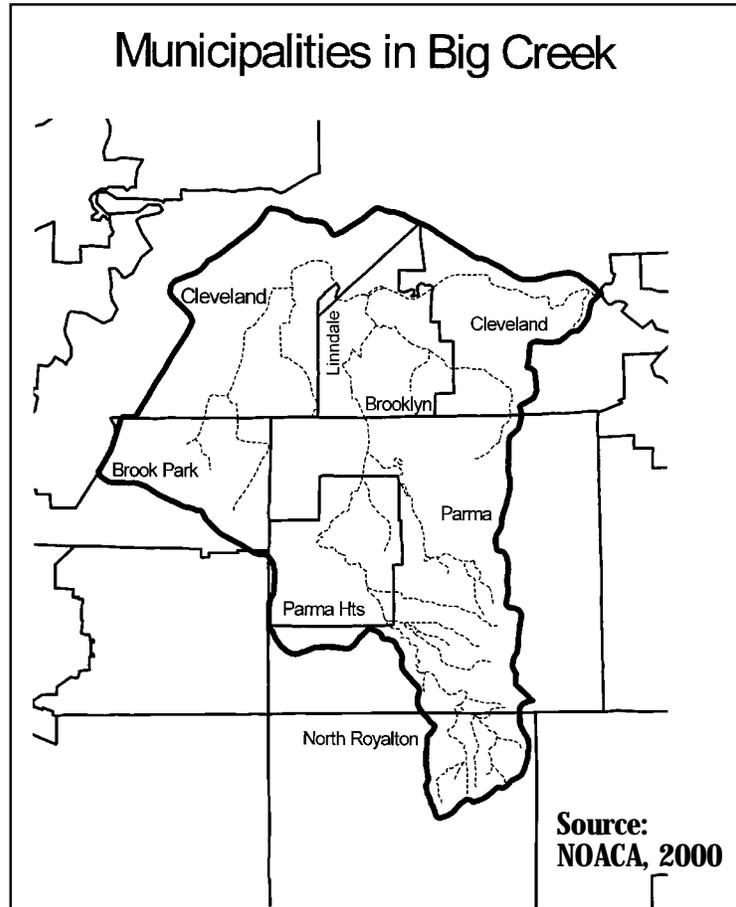
Neighborhoods

The Big Creek watershed is a mostly residential area that includes some of Cleveland's oldest neighborhoods, including the Old Brooklyn area that was first settled in the 1820s. Settlement in the Cleveland neighborhoods progressed from east to west with areas east of West 140th Street settled in the late nineteenth and early twentieth centuries.

Cleveland's westernmost neighborhoods and the suburbs immediately south of Cleveland were settled as part of the great post-World War II boom. Only a few areas remain undeveloped within the watershed today and these are under intense development pressure. The undeveloped areas

are located primarily in the southernmost portion of the watershed, in the Cities of North Royalton and Parma. This area contains the sensitive and threatened headwaters of Big Creek. Today more than 170,000 people live within the Big Creek watershed; that constitutes a population density of over 4,400 people per square mile.

Like much of the rest of the Cleveland area, the Big Creek watershed is a melting pot of urban ethnic communities. Families from northeastern and southern Europe began to settle in the late nineteenth century: Germans, Czechs, Slovaks, Poles and Italians were drawn to the west side and the opportunity to work in the slaughterhouses along West 65th Street. Others found jobs in the Flats or among the industries that located along the rail lines



spanning the west side. African Americans - who worked on the railroads - settled in the area near Linndale, joining families from southern and southeastern Europe. Like other areas within metropolitan Cleveland, the Big Creek watershed boasts a number of active ethnic churches and clubs.

Major transportation thoroughfares include I-71 and I-480, Pearl and Ridge Roads, Bellaire and Puritas Avenues, Brookpark Road, Snow Road and Pleasant Valley Road. Cleveland Hopkins Airport lies just to the west of the watershed boundary.

Business and commercial centers are scattered throughout the Big Creek watershed. They include Brooklyn Center, one of the oldest commercial districts in the City of Cleveland. This was a hive of commercial activity as early as the American Civil War period. ParmaTown Mall at the junction of Ridgewood and Ridge Roads, and Southland Shopping Center at W 130th Street and Pearl Road are located in the watershed, but one can find shopping and commercial areas along most of the major roadways in the area. There are



concentrations of industry along Brookpark Road: the Ford Motor Company's Brook Park Engine Plant complex and the General Motors Corporation's Chevrolet Parma Plant are located in this vicinity. Other industrial concentrations may be found along Ridge Road, in the Big Creek Valley, and along Jennings Rd. The valley of the mainstem, east of Ridge Road, was used historically as a dumping ground and this practice continues today. There are concentrations of scrap yards, demolition operations and construction-debris landfills next to the lower mainstem, especially east of West 25th Street and the Zoo.

Some of the area's oldest parkland is located in the Big Creek watershed. Brookside Park, now the site of the Cleveland Zoo, was acquired by the City of Cleveland in 1894. The 165-acre zoo was relocated from the east side of Cleveland to Brookside Park in 1908 and is administered today by the Cleveland MetroParks. The MetroParks also operates Big Creek Reservation and the Brookside Reservation within the watershed. In 1998 the MetroParks opened the Ohio Canal Reservation that sits opposite the mouth of Big Creek along the east bank of the Cuyahoga River. Residents also benefit from the presence of many neighborhood parks located throughout the watershed.

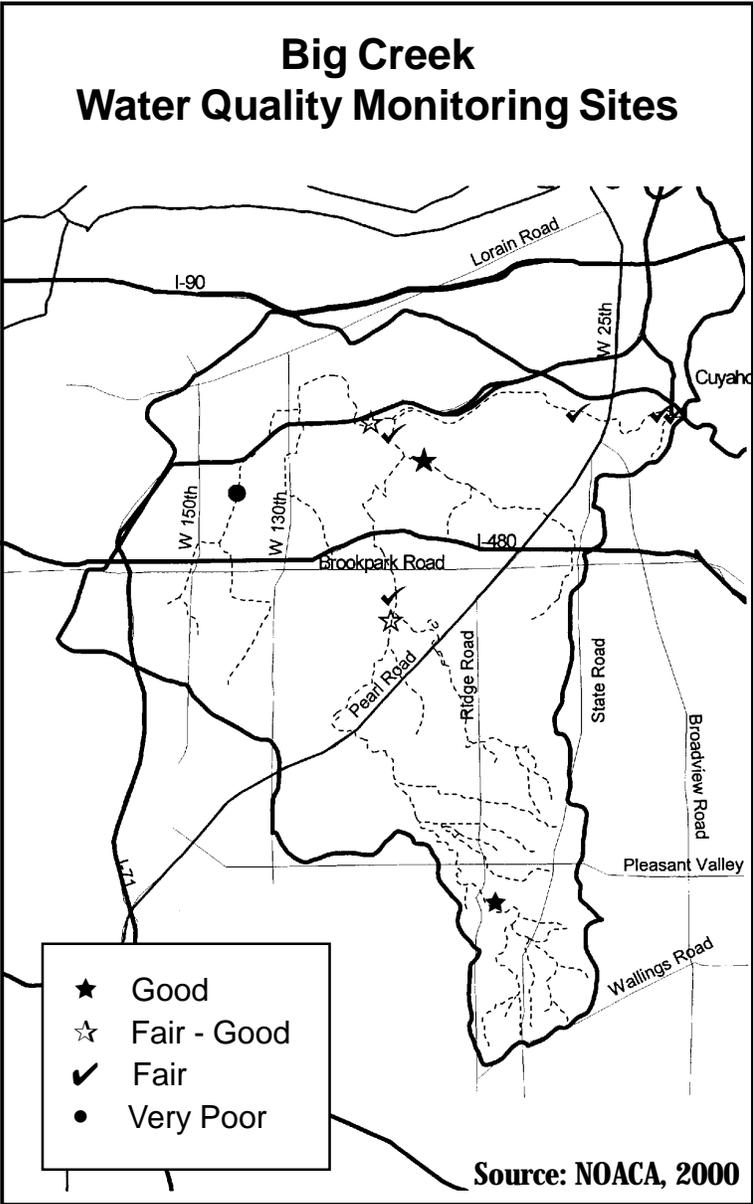
Environmental Conditions

Environmental conditions in Big Creek, though generally poor, are typical of older urban communities with high-density development and aging infrastructure. These include sewer outfalls, runoff from urban streets and neighborhoods, stream channel modification, degraded riparian zones, dumping, and streamside commercial/industrial uses incompatible with stream protection goals.

Water quality in Big Creek is monitored by several agencies including the Northeast Ohio Regional Sewer District (NEORS), the Cuyahoga County Board of Health and the Ohio Environmental Protection Agency.

The NEORS monitors water quality on an annual basis at six sites in the watershed. The Ohio EPA monitors water quality at three sites in Big Creek as part of its intensive environmental assessment that is conducted every five years. These agencies test for a number of water quality, fish and aquatic life quality characteristics.

Ohio EPA's most recent survey of Big Creek indicated numerous violations of water quality standards for bacteria. Sources of bacteria in the watershed include sewer overflows, sanitary sewer overflows and urban runoff. Reports of sanitary discharges into



The symbols indicate water quality conditions at sites monitored by agencies and RAP volunteers.

Big Creek are not uncommon. These have been due to illegal tie-ins, and breaks or blockages in sewer lines. Ohio EPA reports that

many of these problems appear to stem from the Stickney Creek watershed.

The Cuyahoga County Board of Health has monitored for fecal coliform bacteria in numerous areas of the Big Creek watershed. They report dramatic improvements in areas of Parma Heights due to the sewerage of Olde York Road. Bacteria readings remain high in portions of Parma and Brooklyn due to high numbers of failing home sewage systems.

No violations of other water quality standards were observed. This is a marked improvement from the conditions that existed in the watershed through the 1960's.

Ohio EPA employs several assessment tools to gauge the quality of fish and other biological organisms residing in streams. One of these is the Qualitative Habitat Evaluation Index (QHEI), which measures the quality of physical habitat for aquatic life. Using this index, stream habitat quality in Big Creek is fair on average, although individual sites range from good to very poor. Ohio EPA reported QHEI scores that are fair or fair to good for the three sites it monitors in Big Creek.. Five of the six NEORSN sites in Big Creek are rated fair or fair to good. One site, on the West Branch near Puritas Road, was rated very poor. Degradation of habitat in Big Creek is largely due to the effects of flash flows that scour the stream channel of natural cover during rain events. These flows also leave deposits of silt and other material

on the stream bottom. Such deposits smother the stream bottom and further limit the quality of the habitat available to aquatic organisms

There is another indicator of trouble in the stream. Ohio EPA also reported poor scores in Big Creek on the biological indicators used to assess the fish populations in the stream. While several fish species are present, they consist of pollution-tolerant types and are indicative of degraded habitat and nutrient enrichment conditions.

Things seem to be getting better, however. Ohio EPA has observed improvements in the diversity and number of fish species from the grossly polluted conditions that still existed in 1984 to less polluted conditions measured in 1996.

Riparian Buffers

A riparian buffer is a green corridor along the banks of a river

or stream that separates water bodies from developed land uses. The riparian buffer provides protection from the harmful effects of such uses. In the Big Creek these green spaces are heavily disturbed. Particularly bad areas include the lower mainstem, the area upstream of Brookside Park where the channel was relocated during the construction of I-71, and the stretch between Brookpark and Biddulph Roads.

The best areas tend to be located in the Cleveland MetroParks and the areas in the headwaters of Big Creek where there is less development. These latter areas are the ones most at risk as development pressure is high in these areas.

It is very important to protect those riparian corridors that still function well. It is equally important to begin to restore the many stretches that no longer function well.



Summary of Big Creek Stewardship Program Activities



◀ Willow Posting



▲ Recognizing Citizen Volunteers - with Susan Davies, WEWS-TV 5



▲ Storm Drain Stenciling

A key objective of the RAP Stewardship Program in Big Creek has been to involve citizens and community leaders in a variety of stream stewardship activities. Big Creek is a highly urbanized stream that is largely invisible to its residents. It was apparent that creating an awareness of this often neglected, urban stream, and its connection to the Cuyahoga River and Lake Erie was an important first step in the effort to involve citizens. Quite a few programs, activities and events have been developed in an ongoing effort to raise the public's awareness and to build support for restoring Big Creek.

Initial Community Meetings

In 1996 three community meetings were held that focused on the theme, "Big Creek: The Creek in Your Own Backyard." The meetings were scheduled throughout the watershed in an effort to maximize outreach and participation. Nearly 120 people attended the meetings. They learned all about the creek, helped pinpoint problem areas in the watershed, listened to some ideas for correcting and restoring problems and learned about how to get involved

in action steps for restoring the creek.

Most of the Big Creek watershed residents who attended the workshops felt that the creek's water quality was in the fair to poor range. In addition to poor water quality, the residents also expressed the following concerns with the creek: flooding in certain locations, illegal dumping in residential areas, unsightly and oil-laden junk yards, smelly water, presumably from poorly maintained septic systems or sewers, high erosion in certain locations, and poor habitat in many areas along the creek.

Workshop attendees pinpointed improved water quality as the most important goal of the stream stewardship project. When citizens were asked if they would get involved, many of those in attendance committed to participating in at least one stewardship activity. The phrase, “the stream in your own backyard”, became the tagline for encouraging public involvement throughout the duration of the project.

Building Awareness

Communication to watershed residents has been vital to the program. To help facilitate awareness of Big Creek and to help promote public involvement in stream stewardship activities, the RAP created a slide presentation, a fact sheet, and maps for use at community meetings, and presentations to organizations such as the Kiwanis, historical societies, senior citizen groups, Girl Scout and Boy Scout Troops and schools. Since 1996, the RAP has made numerous presentations to thousands of citizens within the Big Creek watershed. Additional materials used by the staff included a **Big Creek Update**, which highlighted the program activities and successes. The Update was mailed to all the riparian landowners along

the creek, addresses that were assembled in a database, and later included within the **RAP UP Newsletter**.

In an effort to promote a continued interest in the creek and to sustain stewardship efforts, the RAP has created the **Stream**



Stewardship Handbook and Patch Program. The handbook is a reference tool that provides ideas for learning about and getting involved in creek-related projects. A colorful patch was created as an incentive to individuals or groups to get involved in multiple stream stewardship activities.

Meeting With Local Officials

Public officials, like most residents, have a vague understanding of watershed issues. Public officials in the watershed communities are residents and also key decision makers. Educating local officials has been another objective of the Stream Stewardship Program. To meet that objective, various representatives of the **Big Creek Advisory Committee** scheduled meetings in each of the communities to discuss the Big Creek watershed issues and the stream stewardship project. Since the inception of the program, the RAP has had success in involving key decision makers in stream stewardship projects such as clean ups, storm drain stenciling and stream restoration. Efforts have been made to keep local officials abreast of riparian and watershed issues, as well as notified of projects, events and restoration activities. The RAP has also attempted to engage local officials in serious watershed planning that takes a more proactive approach to protecting the stream in their backyard and for the benefit of downstream communities.

Streamside Clean Ups

The Stream Stewardship Program capitalized on the initial efforts of the **Friends of Big Creek**. This informal group organized the 1994 and 1995 Clean the Creek Days. Today, the annual event has become the most recognized event in the Big Creek watershed and the one that usually garners the most participants. Over the last six years, **Clean The Creek Day** has involved a myriad of organizations, businesses and watershed citizens. Streamside litter clean ups have become one of the most popular

stewardship activities. In fact, the goal of the Stream Stewardship Project was to conduct 5 clean ups per year. Each year the number of clean ups numbered at least 15 throughout the watershed. Clean ups provide opportunities for involvement by groups of all ages and abilities. Clean ups help to remind the public that litter and debris degrades aesthetics, harms habitat, and contributes to problems such as flooding in downstream locations. Schools, scouts, riparian landowners and adult groups have been engaged to help clean up sites identified by the

Big Creek Technical Advisory Committee and workshop attendees. Over 1,000 volunteers - corporate volunteers, scouts, members of community and fraternal organizations, schools and families - have participated in the clean ups held at sixteen (16) sites throughout the watershed. Many of those volunteers have participated in multiple clean up events.

In addition to clean ups organized by the RAP, many citizens and homeowners have taken personal responsibility for cleaning up the creek in their own backyard through our **Adopt-A-Spot Program**. Some homeowners have even worked to involve all their creekside neighbors in streamside clean ups. Because of this effort, the RAP has gained recognition as the key organization working to address stream litter and aesthetics in the watershed.

Motor Oil & Antifreeze Roundup

In working with community residents, the RAP discovered that many people were willing to help keep pollution out of local streams, but were not sure how to do it. Proper disposal of wastes has been one of the most consistent messages promoted through the Stream Stewardship Program.





By partnering with the Cuyahoga County Solid Waste District, Safety Kleen, Inc., Pennzoil Lube Stop and volunteers, the RAP helped coordinate a **Motor Oil & Antifreeze Collection Day**. Once a year, usually as an event tied into the Big Creek Clean Up, residents have delivered their unwanted motor oil and antifreeze to the appointed spot for disposal. Over 2,250 gallons of motor oil and antifreeze that might have ended up in Big Creek have been recycled or disposed in the proper location. Over 200 residents have supported the program each year, which demonstrates a need for more household hazardous waste collection days.

Storm Drain Stenciling

Another popular program has been the Storm Drain Stenciling Program. It is one of the most visible stewardship activities. Essentially, the project alerts citizens to the connection between

local storm drains and nearby waterways with a bold message that is painted near the storm drains. The message reads: “Dump No Waste-Drains to Lake.” In addition to the stencil, information on fish-shaped door hangers explains how to properly dispose of wastes that are often dumped into storm drains. Storm drain stenciling is an easy project that is best suited for volunteers over ten years of age.



Many groups that have participated in drain stenciling have also assisted with streamside clean ups or other watershed activities. The goal of the project was to stencil 100 miles of streets in the Big Creek watershed by the

year 2000. That goal was almost doubled by January 2000. Stenciling crews were trained and deployed in the following communities: Brooklyn, Cleveland (Old Brooklyn, West Boulevard area, Bellaire-Puritas area, and Westpark), Parma, and Parma Heights. School groups and scouts were responsible for most of the stenciling. To date most of the watershed has been stenciled, with the exception of the headwaters area near North Royalton, Brook Park and the northern area of Parma.



Stormwater Phase II

A note to municipal leaders: Storm drain stenciling has been suggested as an easy way to implement “Minimum Control Measures” of the Storm Water Phase II regulations.

Stream Monitoring

One of the strengths of the Big Creek Stewardship program has been the array of opportunities for different types of public involvement from the simple to the more challenging. Stream monitoring is one of the program's more challenging activities. The project involves citizens directly in the process of environmental assessment. Information that has been collected by volunteers provides the RAP with data about Big Creek and makes it possible to share local information with regional and state databases.

Stream monitoring is an important activity because scientists have learned that aquatic animals living in a stream provide a better indication of the stream's health. By monitoring the populations of visible aquatic insect larvae, known as macro-invertebrates, volunteers help to determine whether a stream is in good or poor condition.

Volunteers wishing to participate in stream monitoring are trained to use the kick-seining method of collecting bugs and scoring the stream. RAP staff has held three training sessions for volunteers in Big Creek. The goal was to train 30 volunteers. Fifteen volunteers



from the Big Creek watershed have been trained so far. Of those trained, four have been regularly collecting and reporting data. One volunteer, a professor from Cuyahoga Community College, has established a program at the college and works with college students to monitor various sites along Big Creek.



Streamside Plantings

Citizens have enjoyed being involved in projects where they actually see a difference as a result of their work. The goal here was to establish 30 planting sites along Big Creek. The RAP's streamside planting projects, while falling short of the overall goal, have been some of the most successful in terms of public participation. Planting sites along Big Creek have included sites on the East branch near the Walmart store on Brookpark Road, a site on Guardian Avenue along the Chevy Branch, on Stickney Creek near the Cuyahoga County Library on Ridge Road, and a site along the Chevy branch near West 131st Street and Gilmore Avenue.

Chevy Branch Projects

Big Creek's two-mile long Chevy Branch winds its way north through the West 130th /Puritas-Bellaire neighborhood. Portions of the stream are impacted by channelization, buildings on the floodplain, and illegal dumping. Fortunately this small branch of Big Creek has become a key area for restoration efforts.

Not only have there been a number of successful clean ups, but the overall community has been engaged in everything from community workshops, planning meetings and actual stream restoration projects.



Focus on the Chevy Branch was an outgrowth of the combined efforts of the Northeast Ohio Regional Sewer District's survey of the creek, the RAP's stream stewardship program, as well as a grant from U.S. EPA. In seeking ways for the creek to hold more water without increasing erosion, the District

teamed up with the RAP, City of Cleveland, Davey Resources, Inc., Biohabitats, Inc., Westown Community Development Corporation, West Park Community Coalition and local residents to conduct a demonstration of bioengineering methods to improve the stream's capacity to store water. Local residents learned about the potential stream restoration at a community workshop. They expressed their concerns regarding safety issues near the creek and were very instrumental in influencing the project leaders about the type of vegetation they wanted to see along the newly restored stream banks. The City of Cleveland conducted

the heavy earth-moving portions of the stream restoration. Twenty-four volunteers provided the finishing touch to the project site by planting the remaining vegetation along the stream banks. A smaller restoration project, which included a clean up and stream bank restoration was also

completed on the Chevy Branch along West 131st Street. The project was coordinated by the Cuyahoga River RAP with the cooperation of Bellaire-Puritas Development Corporation and technical assistance from the Northeast Ohio Regional Sewer District. Volunteer support was provided by Key Bank employees who chose this as their "Neighbors Make a Difference Day" project.

Milligan Gardens Restoration Site

Further upstream, the Chevy Branch runs parallel to Milligan Avenue, right along the sidewalk. Here the street is prone to flooding even during smaller rainstorms. The Bellaire Puritas Development Corporation, in collaboration with the RAP, NEORS and URS Consultants, and Biohabitats, Inc., has been teaching residents about the value of the stream in their community. This group is now actively engaged in creating a remediation plan for the area.

To date, three community meetings, including a design charette, have been held to teach residents about the watershed and ecological ways to improve water quality and habitat. Twenty nearby residents have attended the meetings and they are very supportive of restoring the floodplain and improving stream conditions. Student interns, hired

by Bellaire Puritas Development Corporation, recently surveyed the site and found many wetland plants and animals including muskrat, tadpoles, toads, and a variety of birds. The interns have formed a Youth Environmental Group to help with clean ups, storm drain stenciling and plantings.

Both restoration projects on the Chevy Branch, in addition to the various clean ups and drain stenciling projects, have demonstrated that the community is very interested in learning about the “stream in their backyard” and getting involved to improve water quality and habitat for the benefit of the creek and their neighborhood.

Annual Big Creek Water Festival

Engaging the public has been a major objective of the stream stewardship project. In an effort to capture new audiences, the RAP created the **Big Creek Water**



Festival. The goal of this annual event has been to outreach to watershed residents who may not have been reached through other programs about watershed issues and the creek in their own backyard. The upbeat theme, interactive exhibits, and workshops have proven to be a popular way to reach the public.

The first Water Festival was held at Parma Heights City Hall in 1996. Thirty-five watershed residents, elected officials, and the media

attended, along with various agency representatives. For the following two years, the Water Festival was held at Parmatown Mall in an effort to outreach to a broader audience. Twenty exhibitors provided entertaining environmental activities, focused on water and habitat, for hundreds of visitors that walked through the mall.

Thanks to a partnership with Cuyahoga Community College, the 1999 and 2000 Water Festivals were held on the college’s Western Campus. These educational events featured four workshops and included an interactive exhibit area. Nearly 1000 middle school children from local schools, home school children, day care children, college students and faculty, senior citizens, and parents and teachers attended this one-day program.



Stream Stewards

Over the last four years, hundreds of people have volunteered on stream stewardship projects and events. These volunteers have helped promote the program, organized clean ups and stenciling projects, attended community meetings, assisted with planting projects, and adopted stream segments to monitor. The program's success would not have been possible without the help of these volunteers, especially those who have been committed to long term involvement. Each year, the RAP has recognized those individuals who exemplify the meaning of stream stewardship.

In addition to education, the water festival has also become the venue used to recognize Stream Stewards - outstanding and committed volunteers who have assisted in a variety of remediation projects. Twenty-two exemplary volunteers from the Big Creek watershed have been honored since the inception of the program.



Poster Contest

Conducting a poster contest seemed like another good idea for heightening awareness of Big Creek. A packet of information was produced and mailed to all of the schools in the watershed. Four schools submitted artwork, which was critiqued by a diverse panel of judges.

A first place winner and two runners-up were chosen for their creativity and simplicity of message.



The winning poster, created by a fifth grader at Metro Catholic Parish School, featured a fish with words cut out that read: **Save The Big Creek or This [the fish] Will Die.** The poster was designed for a billboard overlooking Big Creek by Eller Media, Inc.

Big Creek Caravan

Watershed residents had an opportunity to take a tour of the entire Big Creek Watershed that highlighted the "good, the bad and the ugly" from the headwaters to the mouth. Along the way, the 35 watershed residents learned the history of the watershed, investigated wetlands, witnessed areas where poor land use has heavily impacted on water quality and habitat, and rode along buried portions of the creek. At historic Walter's Grove, where the creek is no longer seen, the caravan participants were able to visit the old lake bed and listen to the stream flowing underground.

Week In The Creek

“Seven different days of the week, seven cool events in the creek”, was the tagline for an ambitious schedule of events in 2000 that featured something for everyone. Over 500 people attended the events, which included the 6th Annual Big Creek Clean Up and Motor Oil-Antifreeze Collection Day, a watershed bike tour, a community workshop, a creekside planning charette, a restoration project, a municipal leader roundtable and the Big Creek Water Festival.

Big Creek Signage

A west side City of Cleveland councilman has been actively involved in the Big Creek project, assisting with clean up efforts, arranging meetings with other City personnel, and supporting plans for stream restoration. To help call attention to the creek, the councilman obtained funds to pay for six signs that read: **Big Creek-Cuyahoga River Watershed**. The signs were placed at highly visible locations along the creek along the Chevy Branch near West 130th Street.



Representatives of the Big Creek Technical Advisory Group have met with representatives of the Cleveland Metroparks to discuss educational signage within the Big Creek and Brookside Reservations, pending funding. The signs would help raise awareness of the watershed for people who recreate in the Big Creek Reservation. Features that may be included on a sign include a topographic map of the water-

shed, information about the Big Creek Watershed and a call for action.

Schools and Service Based Learning

Providing opportunities for service-based learning has been another way the RAP has involved local schools. Service-based learning is a program that combines classroom learning with a community service activity. Thanks to the efforts of the Community Service Coordinator at Brooklyn Middle School, the RAP and its environmental partners provided watershed education to the district's 7th graders and then led them on stream stewardship activities such as storm drain stenciling and streamside clean ups. One year the students distributed the RAP's "Taking Action To Save Our Streams" brochure to nearly 1,000 homes in the city.



What Are the Issues Affecting Big Creek?

The water quality issues affecting Big Creek are not what they used to be! Noxious discharges from large industries and major overflows of sanitary sewers that regularly discharge human wastes into the stream are largely a thing of the past. Industrial dischargers and the Northeast Ohio Regional Sewer District have worked with the Ohio Environmental Protection Agency to address these problems. However, Big Creek is still a highly impacted stream. Why? Good question.

Big Creek is a highly urbanized stream. This means that Mother Nature has a very limited opportunity to make the stream a clean and wonderful place for aquatic organisms. Storm water used to soak into the ground or flow slowly across well vegetated landscapes on its way to the stream system. Now much of it falls on roofs, driveways, streets and parking lots and it quickly flows into a storm sewer that carries it directly to the stream channel. This process happens much faster than it did before the watershed became urbanized, causing flash floods.

Urban streams have to handle much larger quantities of water in a much shorter time span than

their rural cousins. In order to deal with these flows, the urban streams erode stream banks to develop bigger stream channels so that they can rapidly carry large storm flows. This is good for getting rid of a lot of water, but it also causes the loss of a lot of



plants and animals that live in the stream.

What happens to the fish and animals? Eroded urban streams have few places for animals to hide during storms, causing some of them to be washed away. More importantly, storm flows wash away fish and animals' hiding places in streams. Vegetation in or along a stream helps to shade and cool the water. It also provides a source of food for many organisms living in the stream. In urban areas this

vegetation is often wiped out when humans build too close to the stream's edge. High-energy storm flows remove more vegetation when stream banks erode. Excessive sediment and debris in the stream can choke some of the remaining vegetation. Without

vegetation and the benefits it provides, fish cannot survive.

The water quality in Big Creek isn't dangerous. (Storm flows are, but the water itself is not.) However, it's not great either. There are no big nasty sources of pollution to the creek. There are many small insults, however. They come from our yards, our streets, our parking lots, our businesses, and areas where we let other people dump their wastes.

Taking Action

The Big Creek Watershed is a place that needs lots of care and nurturing. Landowners need to protect streamside vegetation by keeping development away from the stream's edge. If it's already developed, replant all open areas. Every bare area in the watershed could benefit from reestablishing vegetation. Vegetation helps to soak up rainwater and slow erosion. There are lots of different plants that work to do this. It's easy to find some that are just right for your spot: big ones, little ones, flowery ones and bushy ones. Pick some and start planting.

Another thing. There is a need to clean up trashy areas. And keep cleaning them as they get trashed again. Trash breeds more trash and also attracts undesirable wildlife. Dumpers look for trashed areas to dump in. Trashed areas indicate that no one has much care for them. People tend to think: Maybe no one will care if I dump a little bit more. We all need to take constant action to break this cycle.

While busy cleaning other people's trash, don't forget to take care of your own. Think: Do you ever dump anything down the storm sewer in the street? How about the one in your driveway or garage? Did you know that any fertilizer or other lawn care

material that you use in your yard that does not get absorbed by your plants gets washed off into those same drains? So does everything that leaks from your car or gets spilled. Everything that goes in those drains comes right out into



the stream. Each year, the little bit that you add to these drains plus what your neighbor adds ... adds up. However, if we all cut back ... that adds up too!

The Big Creek Stewardship Program developed a way for watershed residents to cope with the many little things that affect Big Creek. It is called the 'Job Jar'. The Job Jar includes lots of little chores that can lead to a clean and healthy Big Creek. Review the following list of jobs; pick out the ones that you can do and do them. Encourage your friends, neighbors, local businesses, and elected officials to do some of their own. When we all get involved, we will see Big Creek as it should be: a cleaner, healthier place to enjoy.



What Remains to be Done in Big Creek?

The following identifies actions that should be undertaken by municipalities, neighborhood groups, businesses, schools and individuals and homeowners to help restore Big Creek.

Municipalities should:

- Manage storm water and sediment loadings from new development and redevelopment activities.
- Coordinate with Stewardship Programs to ensure trash pick-up from local clean-up programs.
- Support storm drain stenciling programs by providing training and materials to community groups.
- Pass riparian buffer ordinances to protect streamside vegetation.
- Become more proactive in the use of bioengineering as the focus for stream bank and stream channel protection and restoration.
- Train park and maintenance personnel in the selection, use and care of streamside vegetation that offers ecological benefits while minimizing safety and maintenance issues.
- Initiate more proactive programs that encourage proper maintenance of commercial and industrial areas, particularly outdoor storage and trash disposal areas.
- Aggressively patrol areas subject to illegal dumping activities.

- Sponsor streamside activities, watershed signage programs, and other stewardship activities.
- Provide training to city service departments, parks departments, recreation departments, and engineering departments on state-of-the-art stream protection and restoration techniques; and encourage them to utilize new skills and techniques wherever possible.
- Become trained in biological and chemical stream monitoring; storm drain stenciling; clean ups; riparian surveys; stream surveys; and backyard stewardship.
- Increase funding for stream protection purposes.

- Develop elements of Phase II Storm Water Regulations.

Neighborhood Groups should:

- Organize and participate in local stream clean-up projects.
- Take part in Storm Drain Stenciling Programs.
- Help plant trees, bushes, and other plants along stream channels as part of Stream Planting Projects.
- Join the Volunteer Monitoring Program.
- Adopt a stream segment for clean-up and monitoring.



Businesses should:

- Practice Good Stewardship at your place of business.
- Support local Stewardship Groups with financial contributions.
- Encourage employees to take part in watershed activities.
- Dispose of all hazardous materials in a safe and proper manner - do not dump anything down a storm drain.

Schools should:

- Incorporate Stream Stewardship principles in school curriculums and encourage student and family participation.
- Establish annual involvement in a stream monitoring and assessment program.
- Facilitate school attendance at the annual Water Festival and other scheduled activities.
- Invite speakers from the RAP, Ohio EPA, NEORS, Cuyahoga SWCD, or elsewhere to teach a class on any number of stream-related topics.
- Conduct research projects related to Big Creek; provide the resulting information to local agencies and other interested parties.
- Train students in biological and chemical stream monitoring; storm drain stenciling; clean ups;

riparian surveys; stream surveys; and backyard stewardship.

- Provide training to others in state-of-the-art stream protection and restoration techniques; monitoring; clean ups; storm drain stenciling, etc.
- Adopt a stream segment in Big Creek to monitor and keep clean.

Individuals and homeowners should:

- Earn the Stream Stewardship patch.
- Practice good house keeping in your yard.
- Dispose of all hazardous materials in a safe and proper manner - do not dump anything down a storm drain.
- Take part in organized stewardship programs and activities when they are conducted in your neighborhood or in a park that you visit.
- Plant and maintain vegetation along the stream in your backyard if you have one.

- Let your local officials know of your concern for the streams in your neighborhood.
- Adopt a stream segment in Big Creek to monitor and keep clean.
- Become trained in biological and chemical stream monitoring; storm drain stenciling; clean ups; riparian surveys; stream surveys; and backyard stewardship.
- Train others to conduct above activities.
- Attend public hearings on development issues affecting Big Creek and voice your opinion. Get on the Ohio EPA's public notice mailing list.
- Talk to your friends and neighbors about Big Creek and stream protection needs; get them involved!



The Cuyahoga River RAP has a handbook available for residents and citizens that live near the stream. *Life at the Water's Edge: Living in Harmony with Your Backyard Stream* provides information about good stream stewardship. It is free and can be obtained by calling 216-241-2414, ext. 610.

Charting a Course for the Future - Sustaining Stream Stewardship in Big Creek

Thankfully, many organizations including governmental agencies, businesses, community groups, churches, schools, local libraries, and individuals have been involved in the Big Creek Stream Stewardship Project. This important partnership between the Cuyahoga River RAP and the community has helped to raise awareness and improve the conditions in the Big Creek watershed.

The challenge for the future is sustaining stream stewardship activities in the Big Creek watershed. The RAP has planted the seed by raising public awareness and concern for Big Creek; we have instilled a sense of ownership and responsibility among Big Creek communities to maintain and restore the Creek to a healthier state; and we have developed numerous partnerships among various local community groups, businesses, and citizens to help along the way.

However, for progress to continue, the momentum needs to be sustained at a local level. There are many opportunities for



communities, individual citizens, and organizations to take a leadership role in this stream stewardship effort. This report outlines some of these opportunities and encourages everyone to get involved.

Continuing Support from the RAP

For the past four years, the Cuyahoga RAP has taken on a leadership role for stewardship activities in the Big Creek watershed. The RAP is interested in building upon the momentum that has been gained and ensuring that the communities of Big Creek continue their involvement in restoration activities. By empower-

ing members of the community with the appropriate skills and information they need to sustain the stewardship program, the RAP is committed to providing support to assist communities and others interested in taking on a leadership role in Big Creek stewardship.

The RAP will fill this support role by helping to build partnerships through volunteer training, providing educational and technical information and other resource referrals, coordinating annual events, distributing information through our bi-annual **RAP-UP** newsletter, and facilitating/coordinating meetings and events.

Sustaining the Momentum

There are many different ways that people can get involved in stream stewardship. This program would not have been as successful without the numerous partnerships that have been developed along the way. Because there is no one central agency or organiza-

tion responsible for restoring Big Creek, it is the responsibility of the individual citizens, agencies, and organizations within the community to come together to take care of the stream's needs.

We hope this report will help motivate citizens of Big Creek to get involved and take action!

Please contact the Cuyahoga River RAP if you would like more information about Big Creek and how to get involved in your own back yard. The following materials are available at no cost:

- Fact Sheets
- Storm Drain Stenciling Handbook - The "how-to" for this fun and easy project
- Stream Stewardship Patch Handbook - Scouts, home-schooled students and other groups can earn a patch by working on a variety of projects aimed at raising awareness about water quality issues.
- *Living at the Water's Edge* - A colorful handbook for people living near a stream.
- Visit our web site at www.epa.state.oh.us/dsw/rap/cuyahog.html

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