



Priorities for Monroe County

Environmental Health Report Card

October 2005



About the Cover

The Monroe County Environmental Management Council held its second annual environmental photography competition and show in 2005: *Capturing Environmental Treasures in Monroe County*.

The pictures on the cover include some of the winners in this competition:

<u>Location</u>	<u>Title</u>	<u>Photographer</u>	<u>Place</u>
Upper Left	Mt. Hope Cemetery in Winter	Pramodh Seneviratne	1 st Place Novice Landscape Best in Show
Upper Right	Milkweed	Maureen O'Byrne	1 st Place – Advanced Plantlife
Lower Left	Deer	Maureen O'Byrne	3 rd Place – Advanced Wildlife
Lower Right	Green River	Matt MacDonald	3 rd Place – Advanced Landscape

Monroe County Environmental Health Report Card

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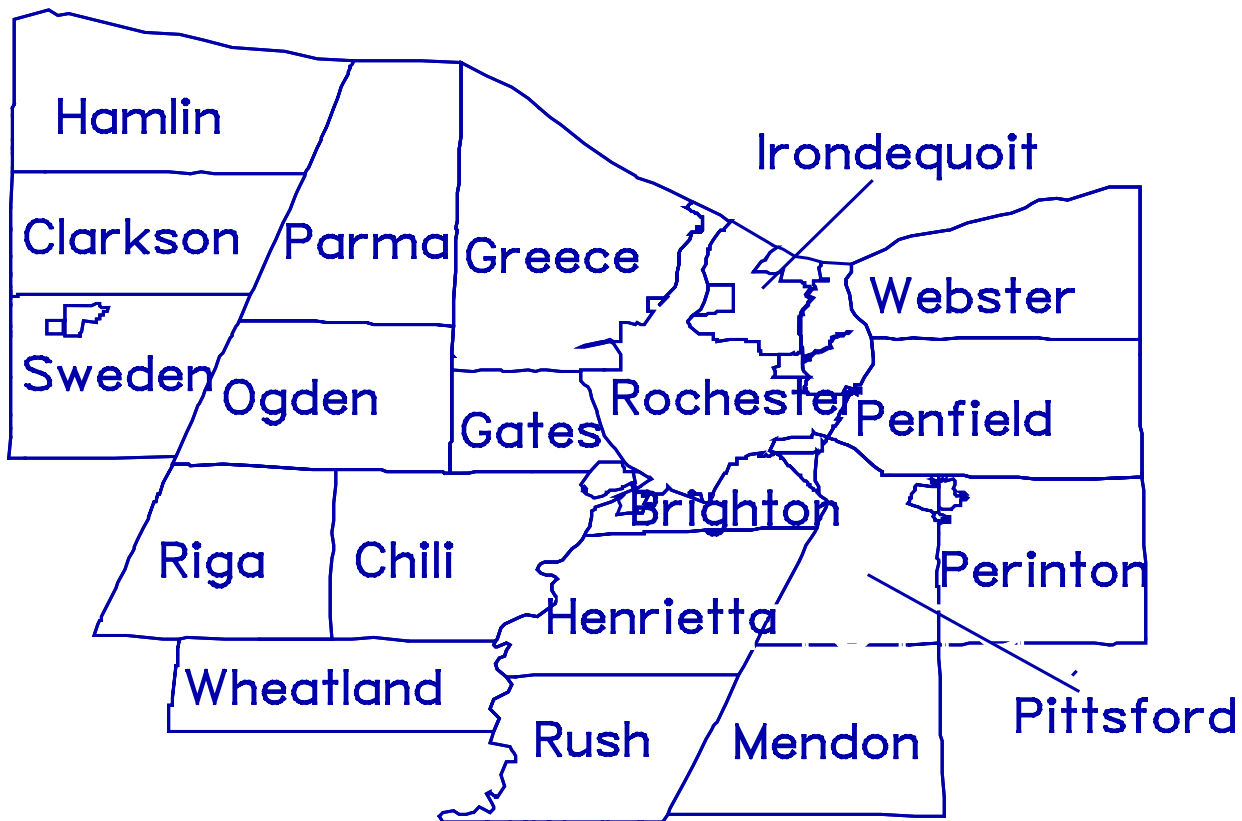
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INTRODUCTION

Description of County

Monroe County comprises an area of approximately 660 square miles in Western New York State. It is bordered on the north by Lake Ontario, on the east by Wayne County, on the south by Livingston and Ontario Counties, and on the west by Orleans and Genesee Counties. The City of Rochester is almost perfectly centered within the county, surrounded by a ring of developed suburban towns. These towns, in turn, are surrounded by a secondary arc of semi-rural towns. The Genesee River, flowing North, bisects the county, descending over a series of three falls within the city for a total drop of 235 feet before flowing into Lake Ontario. The New York State Barge Canal, descending to the East, also bisects the county and crosses the Genesee River, on grade, just a few miles South of downtown Rochester.

Monroe County, NY



Population

According to 2000 census data, Monroe County has 735,343 residents and Rochester has a population of 219,773 within its city limits. Rochester is the third largest city in New York after NYC and Buffalo.

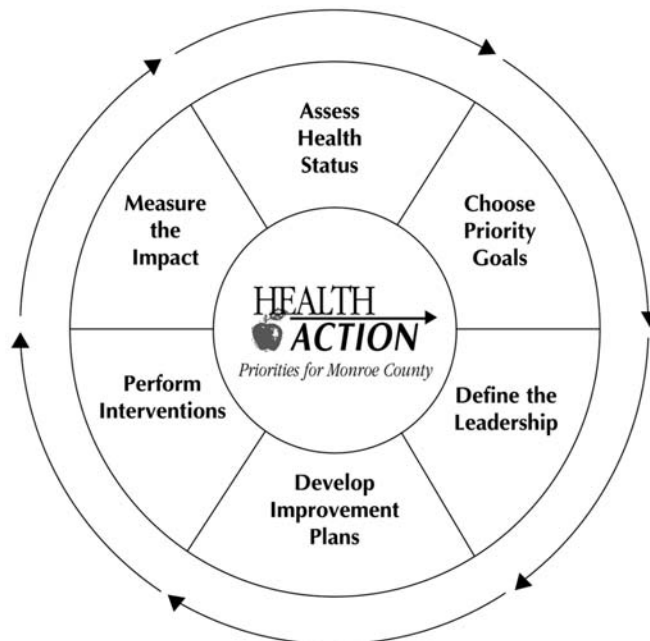
2000 CENSUS Population Numbers	MONROE COUNTY	CITY OF ROCHESTER	SUBURBS
Total population	735,343	219,773	515,570
Total Under age 18	188,256	61,735	126,521
Under 5 years	46,977	17,227	29,750
5 to 9 years	54,661	18,733	35,928
10 to 14 years	55,725	17,233	38,492
15 to 17 years	30,893	8,542	22,351
18 to 24 years	69,674	25,589	44,085
25 to 24 years	97,480	37,652	59,828
35 to 44 years	118,293	33,057	85,236
45 to 54 years	102,728	25,014	77,714
55 to 64 years	63,133	14,749	48,384
65 to 74 years	46,468	9,992	36,476
75 to 84 years	35,676	8,179	27,497
85 + years	13,635	3,806	9,829

Source: 2000 Census

HEALTH ACTION Overview:

In 1995, Monroe County health care and planning organizations formed a partnership called **HEALTH ACTION: Priorities for Monroe County**. The vision of **HEALTH ACTION** is continuous, measurable improvement in health status in Monroe County. **HEALTH ACTION** oversees community health improvement in five areas of focus. These include maternal child health, adolescent health, adult and older adult health and environmental health

HEALTH ACTION involves individuals, healthcare systems, businesses and the public health community. It is a process that includes six phases of a continuous cycle: The first phase of the cycle, assessing health status, results in the production of health report cards in each focus area.



The release of the Environmental Health Report Card in 1999 was a significant step in building a community agenda to address important issues in the environment, particularly those that impact human health. Eleven goals to improve the health status of the environment in Monroe County were included in the 1999 report card, based on the EPA's December, 1996 document "Environmental Goals for America"

- 1) Ensure Clean Surface Waters
- 2) Ensure Safe Public Drinking Water
- 3) Improve Outdoor Air Quality
- 4) Improve Indoor Air Quality
- 5) Reduce Lead Levels in Children
- 6) Reduce Toxic Chemical Releases
- 7) Prevent Accidental Releases
- 8) Ensure Safe Disposal of Solid Wastes
- 9) Continue Restoration of Contaminated Sites
- 10) Reduce Exposure to Rabies
- 11) Reduce Exposure to Foodborne Disease

Priorities for Action 1999 - 2004

The Board of Health asked a subcommittee to consider impact on human health, amenability to change, practicality of new interventions, degree of local control, and availability of resources in determining priorities for action.

The report card was presented to several groups in the community who provided input about each of the eleven goals.

The list was consolidated to six issues:

- 1) Reduce the incidence of foodborne illness in the community
- 2) Reduce human exposure to second hand smoke.
- 3) Increase pollution prevention efforts with homeowners
- 4) Increase pollution prevention efforts with small businesses
- 5) Reduce industrial releases of toxic substances to air, water and land
- 6) Reduce pollutants discharged to waterways in stormwater and wastewater.

Responses from the community were tallied and reviewed by the Environmental Advisory Committee to the Monroe County Board of Health.

At its meeting on February 3, 2000, the Monroe County Board of Health approved the following priorities for action for environmental health in Monroe County:

- ◆ Increase pollution prevention efforts with homeowners
- ◆ Increase pollution prevention efforts with small businesses
- ◆ Reduce industrial releases of toxic substances to air, water and land
- ◆ Reduce pollutants discharged to waterways in stormwater and wastewater

Leadership groups were formed to address these priorities for action. Progress reports for each of these goals are reported on pages 9 through 11.

Priorities for Action 2005 – 2010

The release of the 2005 Environmental Health Report Card provides a current assessment of the state of the environment, including four new goal areas:

- 1) Land Use
- 2) Transportation
- 3) Energy
- 4) West Nile Virus

Beginning in the fall of 2005, the Monroe County Board of Health will lead a process to encourage participation of community stakeholders in re-assessing priorities for action in Environmental Health.

Format of this Report

This report is divided into two sections as follows:

- ◆ A progress report on the priorities for action from 1999
- ◆ A goals section that provides background and current data related to each goal, with updated information for each.

Sources and Interpretation of Data

The goals address the issues that have the greatest impact on the community. When possible, data from Monroe County are compared to state and federal data or regulatory standards, or comparative data from other areas. Data in the report card come from a variety of sources including the Monroe County Department of Public Health, NYS Department of Health, NYS Department of Environmental Conservation (NYSDEC), US Environmental Protection Agency, other governmental agencies, businesses and other organizations.

Goals and Trends in Environmental Health

Achieving improvements in the environment requires the involvement of individuals, businesses, environmental organizations and government agencies at the local, state and/or federal levels. Issues can be very complex and the impact of proposed changes must be carefully evaluated. The involvement of all of these groups contributes to long-term positive change.

Trends were determined by an analysis of the measures available for each goal. It is important to understand with the complexity of these issues there is sometimes insufficient data to make a determination. The determination of a trend is based on the expertise of environmental health professionals.

Questions or comments regarding the Environmental Health Report Card may be directed to:

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Progress Report: Monroe County Environmental Health Priorities for Action 1999 - 2004

In 1999, the Monroe County Board of Health designated four priorities for action to improve the health of the environment in Monroe County. This section describes activities addressing each of these four priorities.

Priority for Action: Reduce pollutants discharged to waterways in stormwater and wastewater:

Local Activities:

- Stormwater Coalition Established: The Monroe County Stormwater Coalition was formed in 2000 as a result of the recognition that many municipalities in Monroe County would be affected by new federal stormwater rules. The Monroe County Department of Public Health was identified as a leader in the state on water quality issues that could facilitate collaboration among the municipalities in their compliance. This strategy maximizes resources and reduces duplication of effort. An Inter-Municipal Agreement was drafted and signed by each municipality in 2004. The new stormwater regulations, effective January 8, 2003, set forth a policy that municipalities that meet certain demographic criteria must have a stormwater implementation plan by 2008. The plan must include six key items: education; public participation; best management practices at construction sites both during and after construction; measures to address illicit discharges; and a pollution prevention program to educate key businesses and municipal facilities that may contribute to stormwater pollution. In May 2004, the NYS Department of Environmental Conservation awarded over \$300,000 to the Monroe County Department of Public Health to support these efforts.
- Construction site erosion and siltation: The Phase II stormwater regulations will require that construction site erosion and siltation is minimized.
- Atmospheric deposition/impervious surfaces: The Monroe County Environmental Health Laboratory has conducted monitoring regarding atmospheric deposition (pollution from the air that falls to the ground) in partnership with the U.S. Geological Survey. Efforts to mitigate atmospheric deposition are focused on managing the runoff from impervious areas.
- Irondequoit Creek Watershed Collaborative Recommendations for Comprehensive Stormwater Management (including Developers Packet): Monroe and Ontario Counties, their Soil and Water Conservation Districts, five towns and three villages have developed common water quality goals and common stormwater report and pollution prevention plan procedures for developers.
- Irondequoit Bay Wetlands Project: A weir has been constructed on Irondequoit Creek to manage water flows so that stormwater makes contact with natural wetlands south of Irondequoit Bay. Monitoring has been conducted that shows that these natural wetlands are removing some nutrients and sediment that would otherwise enter Irondequoit Bay and contribute to algae blooms. Operation of the weir and continued monitoring is expected to continue until at least 2006.
- Road Deicing Task Group Initiated, 2001. A draft problem report was prepared. Efforts were initiated to track de-icing product usage and to analyze impacts of various de-icing products. Program goals include developing education programs for users of de-icers and to develop an education program for the general public.
- Loss of fish and wildlife habitat: The Rochester Embayment Remedial Action Plan (RAP) identified habitat loss causes due to filling and draining of wetlands, removal of riparian vegetation, and sedimentation. Other

contributing factors include road salt usage, lack of fluctuation in lake levels, development near shorelines, impacts of polluted stormwater runoff, and stream-bank erosion. Criteria have been established to determine milestones to use to judge when loss of fish and wildlife habitat problems have abated.

- **Constructed wetlands:** The Department of Public Health, Planning Department, Soil and Water Conservation District, and municipalities who are members of the Irondequoit Watershed Collaborative make efforts to encourage or require the creation of constructed wetlands to mitigate the negative impacts of impervious surfaces that generate stormwater runoff.
- **Lawn Care:** An educational program has been implemented that targets homeowners at the neighborhood level with an educational campaign and technical assistance to reduce usage of lawn care products that could negatively impact water quality. To date, approximately 100 homes in 3 pilot neighborhoods have successfully participated in this project. Grants have been received to expand this program into other areas of the County.

Priority for Action: Reduce industrial releases of toxic substances to air, water and land:

Local Activities:

- **Kodak:** Kodak has spent millions of dollars to better control their emissions and has set measurable goals for reductions in emissions, energy and water use.¹
- **ISO 14001:** Several companies including Kodak, Xerox, Heidelberg Digital, Arnold, Pulsafeeder, Delphi and Rochester Plating Works have received ISO 14001 certification which requires that these companies maintain an Environmental Management System (EMS) that minimizes harmful effects on the environment caused by its activities and achieve continual improvement of its environmental performance.

Pollution Prevention efforts with small businesses:

Local Activities:

- **Monroe County Strategic Environmental Management Initiative:** The Monroe County Department of Public Health, Rochester Institute of Technology and the Industrial Management Council developed the Monroe County Strategic Management Initiative (MCSEMI). As part of this program, RIT provided a series of training sessions and other technical assistance for small and medium sized businesses to develop environmental management systems and to apply for ISO 14001 certification. The Industrial Management Council helped to recruit businesses. Costs for the program were supported with a grant from the New York State Department of Economic Development. Several businesses developed environmental management systems resulting in better pollution prevention and cost savings, but none formally applied for ISO 14001 accreditation.
- **Household Hazardous Waste Facility:** The Conditionally Exempt Small Quantity Generator (CESQG) program continues to grow. The HWW facility received a permit from New York State Department of Environmental Conservation to accept hazardous waste from small businesses if they met certain criteria. The CESQG program was designed to assist smaller businesses with the management and disposal options of hazardous waste. From 1995 through 2001 the CESQG program has accepted hazardous waste from 547 businesses
- **Pollution Prevention Education and Outreach:** Best Management Practices (BMP) is a program through the Industrial Wastes Control section of Department of Environmental Services in collaboration with the Silver council that targets image processors such as Photo Finishers, Commercial Imaging, Diagnostic and x-ray film processors. The BMP defines the treatment options, performance standards and record keeping requirements. This program is expected to reduce the amount of silver discharged to wastewater treatment plants, increase

¹ 2002 Kodak Park Environmental Annual Report, p.6.

the amount of silver recovered, avoid new administrative burdens and encourage water conservation and pollution prevention efforts. Workshops were held in 2002 that were attended by 225 individuals. Since then over 200 inspections have been done by Department of Environmental Services at the request of dentists, doctors and image processors in an effort to update their facilities.

- Dentists: A new effort to enlist greater involvement of dentists in recycling and pollution prevention is being spearheaded by the Monroe County Department of Environmental Services (DES). DES is developing a program to require dentists to adhere to best management practices to minimize the discharge of mercury, silver, and other pollutants to the public sewer system. The Small Business Pollution Prevention Task Group presented a pollution prevention program for the Monroe County Dental Society.
- Metal Finishers: The Monroe County Department of Pure Waters and the USEPA co-sponsored a pollution prevention workshop of permitted Metal Finishers. The workshop was a hands-on demonstration on how to reduce water consumption, improve metals pre-treatment removals and save money based on performance measures.
- Auto recyclers: A pollution prevention training was developed and hosted by the Department of Environmental Conservation (Region 8), City of Rochester and Monroe County. The DEC (Region 8) delivered a pollution prevention manual and poster to all auto re-cycling facilities in Monroe County.
- Computer Recycling: DEC and EPA requires businesses and other organizations to properly dispose of idle, obsolete or non-working electronic equipment to prevent releases of lead, mercury and other toxic chemicals.

Priority for Action: Increase Pollution Prevention efforts with homeowners:

Local Activities:

- HUD Lead Based Paint Hazard Control Grant Program: This is a \$2.1 million grant from the Department of Housing and Urban Development awarded to Monroe County in 2002. The grant is a collaborative effort by the Monroe County Department of Health in partnership with the City of Rochester; The Rochester Housing Development Fund Corporation; Greater Rochester Housing Partnership; The Housing Council in the Monroe County Area, Inc.; Neighborhood Housing Services of Rochester, Inc.; and other governmental and community agencies. The grant targets 420 lead-safe housing units in high-risk neighborhoods. Approximately \$1,563,825.00 is available for the implementation of a combination of permanent abatement and interim control of lead hazards in each of these units.
- Household Hazardous Waste Facility: In November of 1998 Monroe County unveiled a new, modern HHW Facility. The new facility doubled the size of the operations area and storage capacity. This allowed them to change their operating hours to serve residents on a weekly basis instead of once a month and better serve Monroe County residents. Over 7000 residents were served in 2001.
- Car Repair: A brochure is being developed to distribute to individuals who purchase autos at auto auctions and other do-it-yourself auto mechanics to educate them on ways to prevent pollution of the environment from fluids and hazardous materials contained in vehicles.
- Lawn Care: The Great Lawns/Great Lakes program has been developed to educate homeowners at the neighborhood level, provide homeowners with soil tests, and makes recommendations for lawn care that protects the environment.
- Mercury: The Monroe County Department of Environmental Services provides citizens with a mercury-free thermometer if they turn in a mercury thermometer at the Household Hazardous Waste Facility.

GOALS - 2005

CLEAN WATERS

GOAL: Clean Surface Waters that Protect Human Health and Support Thriving Fish and Wildlife Populations

TREND: Mixed Results

MEASURES:

- A fish advisory still exists for Lake Ontario and its connecting waters including Irondequoit Bay and the Lower Genesee River. Levels of contaminants causing the fish advisory are gradually declining.
- The water quality of the Genesee River remains stable since significant improvements that took place between 1974-1994.
- Most of the major dischargers are in substantial compliance with their SPEDES permit.
- The water quality in Irondequoit Bay has improved substantially in the last 15 years.
- Ontario Beach is frequently closed on days when bathers would enjoy swimming.
- The overall bacteriological quality at Ontario Beach, as measured by fecal coliform levels, has been worse in recent years than in 1972.

CLEAN WATERS

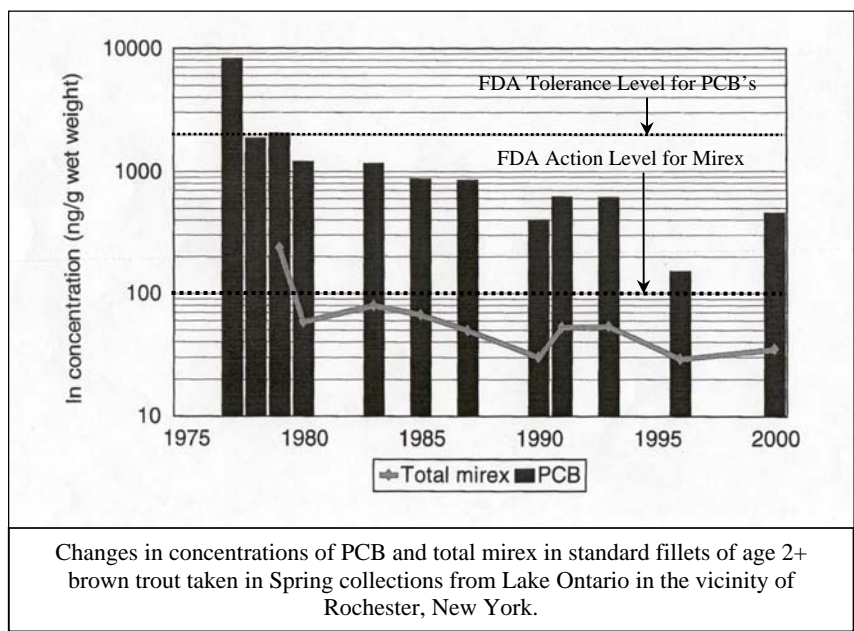
GOAL: Clean Surface Waters that Protect Human Health and Support Thriving Fish and Wildlife Populations

Presence of Chemicals Causing Fish Consumption Advisories

The New York State Department of Health continues to advise women of childbearing age and children under the age of 15 to not eat fish from Lake Ontario and its connecting waters, including Irondequoit Bay and the Genesee River downstream from the Lower Falls. It also advises all people to limit or avoid eating various species and sizes of fish from these waters.² The Lake Ontario advisories have undergone only small changes in the last five years. The combined levels of polychlorinated biphenyls (PCBs), mirex and dioxins in fish are responsible for the fish consumption advisories. All three classes of chemicals are chlorinated compounds that are resistant to biological or chemical degradation in the environment. They are insoluble in water but dissolve in fatty tissue and adhere to sediment particles.

Mirex is a manmade chemical that was used as a pesticide to control fire ants and as a flame retardant until its use was banned in the United States in the late 1970s. While the overall trend of mirex levels in brown trout collected near Rochester shows that age 2+ fish samples are now below the Food and Drug Administration (FDA) action level of 100 ng/g, some older fish exceed the FDA criterion. Average concentrations of total mirex in all the sampled fish are within the 100 ng/g limit (see chart below). The percent increase in mirex concentration from 1996 to 2000 may be attributed to the increase in lipid (fat) content of the fish tested. Mirex is found in much higher concentrations in fat than in other tissue and the increase in lipid content is of the same order as the increase in mirex.

PCBs are a family of manmade chemicals that were used in many commercial and electrical products until their manufacture was banned in the mid-1970s. Currently, the levels of PCBs in age 2+ brown trout collected near Rochester are less than one-half the FDA tolerance level of 2000 ng/g and are generally declining (see chart). However, based on data from other locations in the Lake, some species of fish caught near Rochester (for example: carp, larger brown trout, lake trout and Chinook salmon) are likely to have higher PCB levels. The increase in PCB concentration from 1996 to 2000 cannot be fully explained by the increase in lipid content. A number of ecosystem factors may, singly or jointly; affect reported contaminant



Changes in concentrations of PCB and total mirex in standard fillets of age 2+ brown trout taken in Spring collections from Lake Ontario in the vicinity of Rochester, New York.

ng/g = nanograms per gram , 1 nanogram = 0.000,000,001g (one billionth of a gram)

² New York State Department of Health Chemicals in Sportfish and Game, 2000-2001.

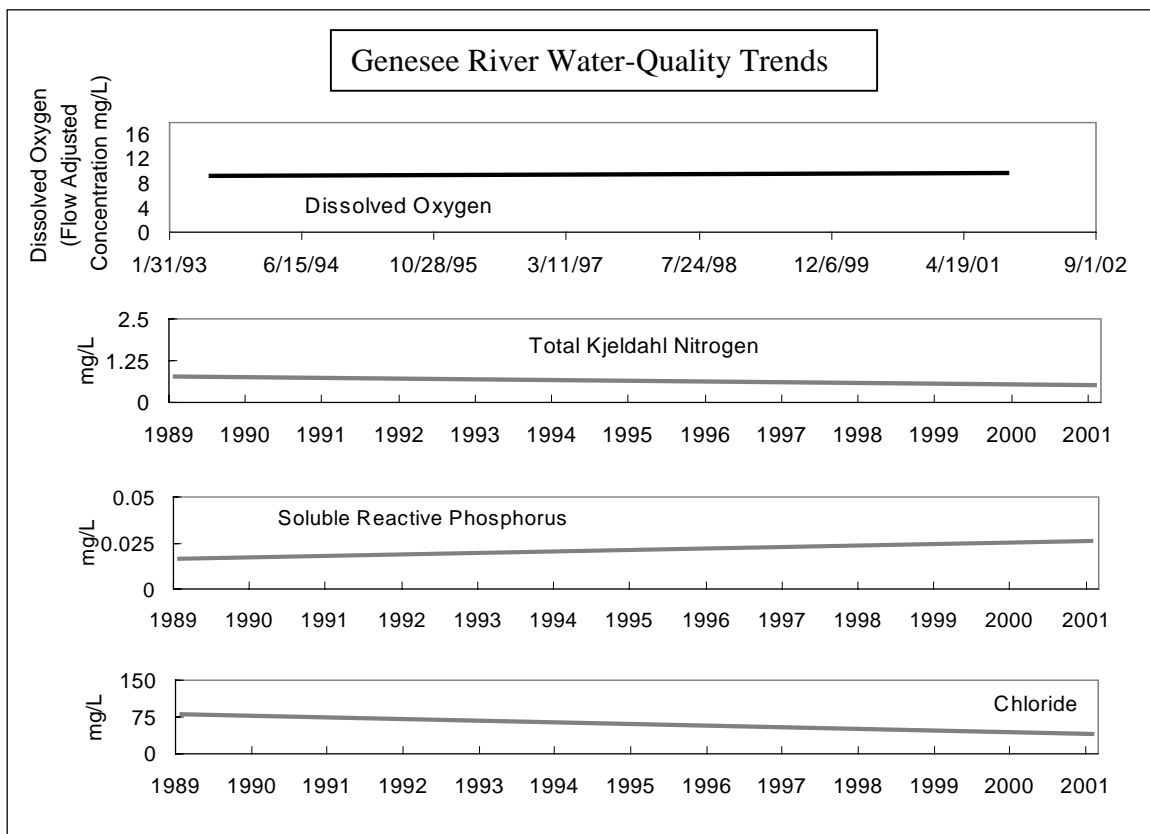
concentrations, including changes in contaminant availability, food availability or dietary composition, and sample as well as analytical variability.

Dioxins are produced as unwanted by-products in chemical manufacturing processes, incinerators and wood fires. Trend data for the levels of dioxins in Lake Ontario fish are not available. Levels of dioxin were measured in fish samples collected in Lake Ontario by NYSDEC in 1996. Those data show that the levels of dioxin in some fish, especially salmon and lake trout, continue to exceed the New York State Department of Health guideline of 10 parts per trillion. Other data reviewed by New York State suggest that the amount of dioxins in fish tissue is declining. Data from Ontario, Canada, indicate that levels of PCBs, mirex and dioxin in fish have declined substantially during the past two decades.³

Genesee River Water Quality

The water quality of the Genesee River is affected by several factors including wastewater discharges, stormwater runoff from urban and agricultural areas and sediment from bank erosion.

The US Geological Survey (USGS) established a national stream quality monitoring network in 1974. As part of this program, they collected water quality data in the Genesee River at Charlotte Docks from 1974 to 1994. Data through 1994 showed distinct water quality improvement in the Genesee River over the 1974-1994 period. This monitoring program was discontinued in 1994, but data has been collected since then at the Charlotte Pump Station, located just north of Stutson Street near the mouth of the river, by Monroe County Health Department in conjunction with USGS. Trend analysis of data collected at this station is indicative of continued improvement or maintenance of water quality in the river. Total Phosphorus for the 1994-2001 period shows no significant trend, indicating maintenance of the levels



achieved by the improvements of the 1974-1994 period. Chloride concentrations in the river continue to decline, with a statistically significant declining trend of -5.4% per year. While Ammonia concentrations do not show a significant trend, concentration of Total Kjeldahl Nitrogen, the other component of organic nitrogen, declined through the period by -5.3% per year. Soluble Reactive Phosphorus (SRP) concentrations rose slightly through the time period, exhibiting a statistically significant increase of 4.3% per year. However, SRP concentrations leveled off in late 1998, coincident with the elimination of the discharge to the river from the Gates Chili Ogden (GCO) waste water treatment plant.

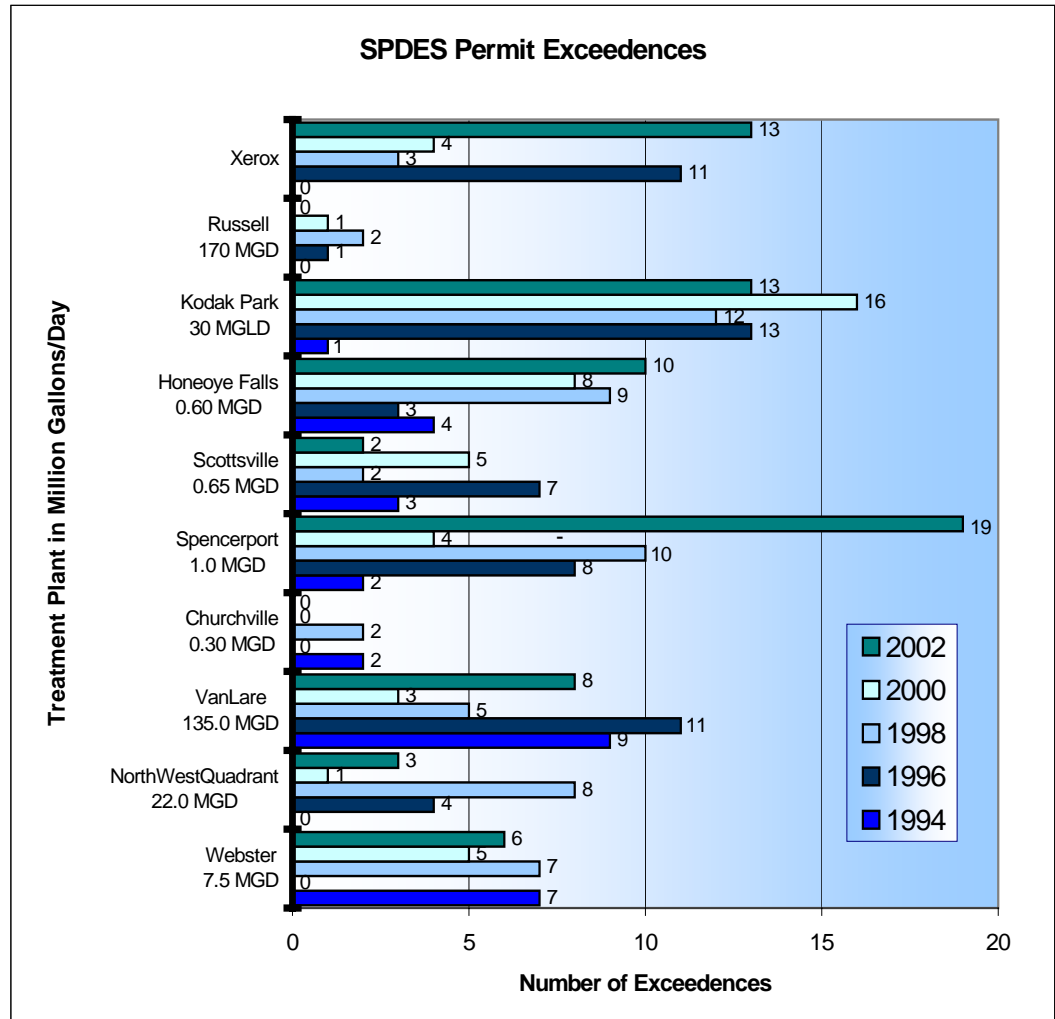
Flow adjusted Dissolved Oxygen concentrations in the river indicate a slight, non-statistically significant upward trend of about 2% per year. Flow in the river showed a slight declining trend through the period, as did concentration, but this is thought to be a result of the decline in flow. As conditions in the Genesee have generally improved and entry of oxygen demanding substances has been controlled, oxygen concentration has approached the point where it is limited by temperature. During the 1994-2001 period, sampled oxygen concentration fell below the NYSDEC recommended 5 mg/L concentration on only two occasions, both associated with late summer low flow/high temperature conditions; flow adjusted concentrations did not fall below the NYSDEC standard.

Discharges for treated wastewater that make their way to the Genesee River include those from the Gates Chili Ogden (GCO) wastewater treatment plant prior to closure in December 1998; the Villages of Churchville, Scottsville and Honeoye Falls; Kodak; and RG&E's Beebee Station (closed in 1999). Each of these facilities has a permit to discharge specific amounts of certain pollutants.

In 1997 Monroe County completed a glycol recovery project at the Greater Rochester International Airport, which eliminated most of the glycol discharge to the Genesee River.

Wastewater Discharges to Waterways

In accordance with federal laws, the New York State Department of Environmental Conservation regulates municipal, industrial private, commercial and institutional wastewater discharges. State Pollution Discharge Elimination System (SPDES) permits, granted to these facilities, limit the kinds and amounts of pollutants that can be discharged from any one location to a specific body of water.⁴ In Monroe County, approximately 170 permits have been granted. Sixty-three of those permits regulate municipal and industrial discharges. Although occasional SPDES exceedences do occur, most of the listed major dischargers are in substantial compliance with their SPDES permit.



The number of discharge permit exceedences for five sample years at all municipal wastewater plants and the major industrial sites in Monroe County are shown on the chart.

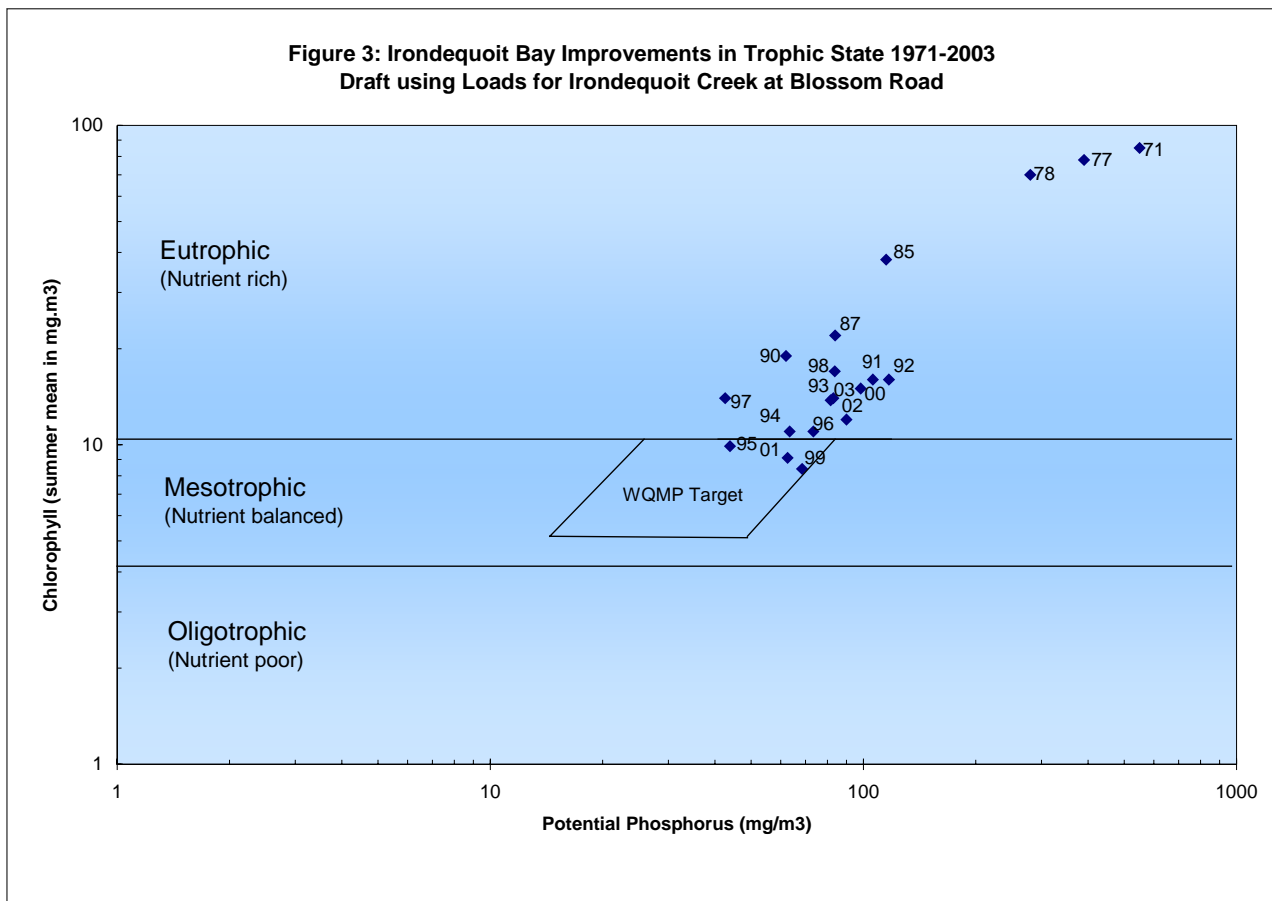
³ Gates/Chili/Ogden plant closed in 1999. Municipal violations were for high flows, solids and nitrogen exceedences due to rain or snow melt. All of the Churchville exceedences were for nitrogen and have been corrected by improving the aeration system at the plant. Scottsville exceedences were related to heavy rain or snow melts which resulted in flow, solids and percent removal exceedences. Since the VanLare treatment plant serves the City of Rochester and its combined sanitary/storm sewer system, the plant is impacted by wet weather events. In 1996, there was a 40% increase in precipitation as compared to the 30-year average for the area. Wet weather activity resulted in high wastewater flows that were responsible for roughly 50% of the permit exceedences in 1994 and 1996.

Irondequoit Bay Water Quality

The graph below uses diamonds to indicate the trophic status of Irondequoit Bay in each year from 1971 to 2003. Trophic status is the measure of a water body's production of plant matter and it is related to nutrient (in this case phosphorus) availability. Levels of trophic status are defined as:

- Eutrophic: High plant productivity due to an abundance of dissolved nutrients, usually resulting in increased growth of algae and other aquatic plants and in depletion of dissolved oxygen;
- Mesotrophic: Moderate plant productivity due to a moderate amount of dissolved nutrients;
- Oligotrophic: Low plant productivity due to a deficiency in dissolved nutrients.

In the graph, the vertical axis, chlorophyll *a* concentration, represents plant production. The horizontal axis represents the *potential* phosphorus concentration, which is an estimate of total phosphorus available for biological activity. Only a portion of total phosphorus is available as a nutrient. Note that both the vertical and horizontal axes are logarithmic scales.



The trophic status target goal for Irondequoit Bay was established in 1985 in the Irondequoit Basin Framework Plan, with the objective of making the Bay suitable for recreation, such as swimming and fishing. The target goal is depicted as the box in the middle of the graph. Irondequoit Bay fit into the eutrophic classification throughout the 1970s and 1980s and has been approaching the mesotrophic target goal classification during the 1990s and fit the mesotrophic depiction in 1999 and 2001. Improvements in

Irondequoit Bay's trophic status are due to the reduction of nutrients to the Bay and habitat improvement by oxygen supplementation in the summer, which is done by MCDPH. Key projects that reduced nutrients to the Bay included the Pure Waters programs that diverted nearly all wastewater from the Bay and an alum project that sealed off nutrients in the Bay sediments.

Beach Closings

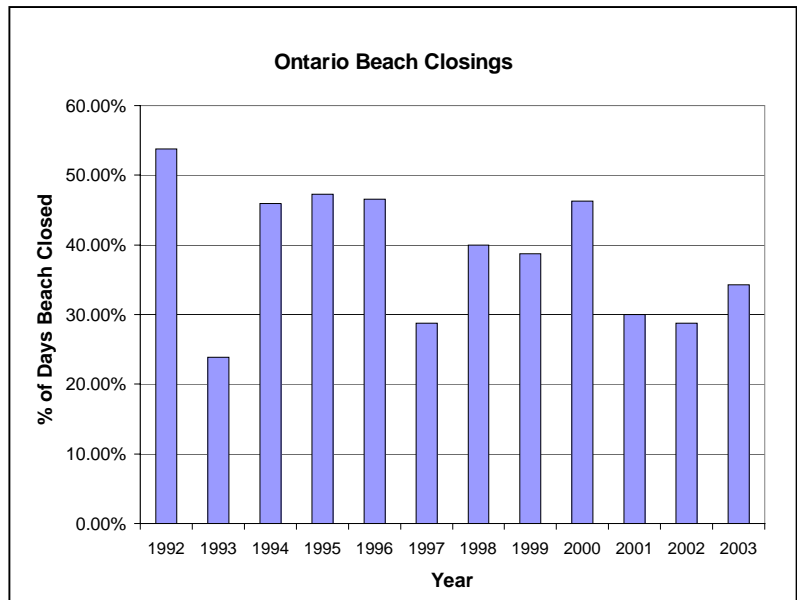
There are four beaches available for swimming in Monroe County:

- Ontario Beach is public and is located in Charlotte on the shore of Lake Ontario to the west of the Genesee River outlet.
- North Ponds Park has a public beach located in Webster, north of the Route 104 Expressway.
- Gravel Ponds is a private beach located in the Town of Wheatland.
- Hamlin Beach State Park is on the shore of Lake Ontario in the Town of Hamlin.

In the past, the Monroe County Department of Public Health has monitored the water at all of these beaches. In 2003, responsibility for monitoring at Hamlin was assumed by the New York State Office of Parks, Recreation and Historic Preservation. The beach most affected by water quality fluctuation is Ontario Beach. The water quality at the other beaches is generally good.

For the period 1995 to 1999 Ontario Beach was closed for swimming 40% of the time during the bathing beach season. For the period from 2000 to 2003 the beach was closed an average of 35% of the time during the bathing season.

Since the late 1990's, an accumulation of algae, that has been extremely difficult to remove from the beach, has been a key contributor to beach closings. In more recent years, algae has caused fewer closures due to a change in the standards of how much algae causes a hazardous condition. A greater volume of material is allowed before closure. Partial openings⁵ of the beach have also been added to the operating protocol, reducing the number of complete closures. Five criteria are used to determine when Ontario Beach should be closed to protect public health. The chart below describes reasons for closure in recent years.



Reason for Closure (%)	1995	1996	1997	1998	1999	2000	2001	2002	2003	Mean
Excessive Algae	51	38	14	12	37	41	17	7	2	24
Water Clarity	38	38	60	35	47	27	38	86	48	46
Bacteria (in prior day samples)	7	3	0	9	8	16	42	0	26	12
Local Rainfall	4	12	9	20	6	15	3	2	0	8
Genesee River Flow	0	9	17	24	2	1	0	5	24	9

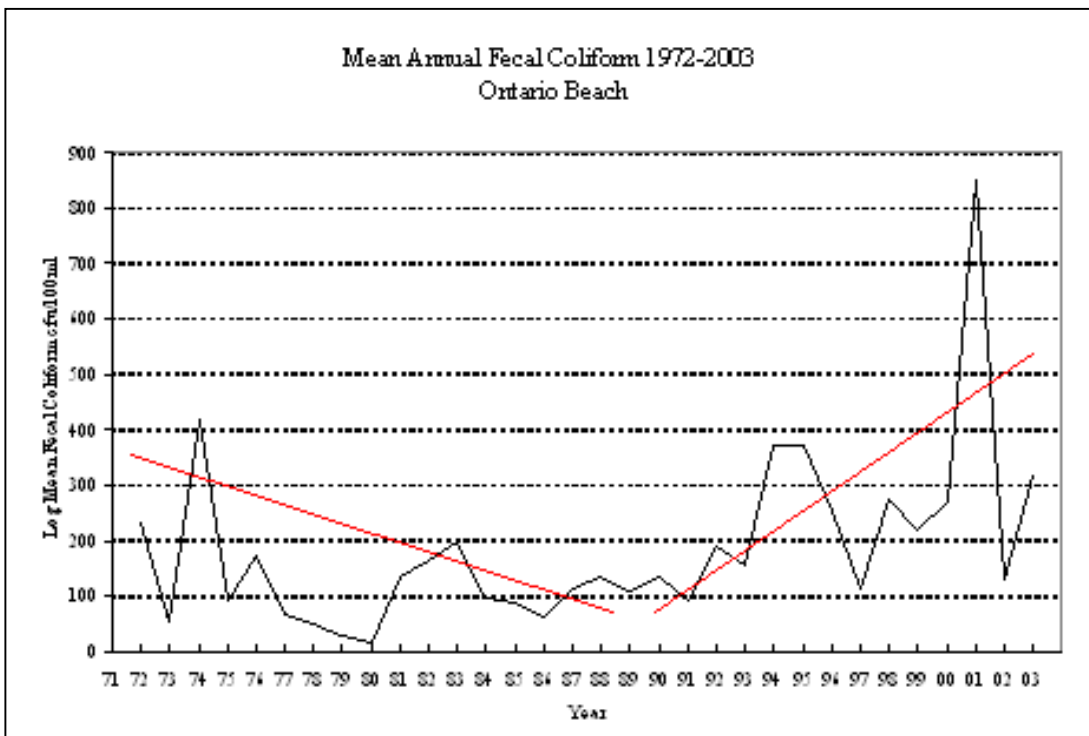
⁵ Partial openings/restrictions refer to when part of the beach is open, as only some sections of the beach are impacted by adverse conditions.

It should be noted that the primary reasons for closure fluctuate from year to year. In 2000, excessive algae was the most frequent cause of closure. In 2003, algae was only a cause for complete closure on 2% of days, but led to restrictions 65% of the time. Excessive algae is a problem because it carries high levels of bacteria.

The most frequent reason for beach closure on average is poor water clarity. In 1998 and again in 2003, the water clarity was affected by high flow events in the Genesee River. High flows are not always caused by local rainfall. In 2003, two storms in the southern tier in late July and early August produced record high flows in the Genesee River from late July until after the end of the beach operating season. Fine particulates that cause poor water clarity can serve as a substrate for bacterial growth and reduce penetration of ultraviolet light which kills bacteria.

Studies have shown a definite relationship between the amount of "indicator" bacteria in coastal and Great Lakes waters and the incidence of swimming-associated human illnesses. "Indicator" bacteria include total and fecal coliform, enterococcus and E.coli. Some indicator bacteria are not directly harmful to humans but are relatively easy to test for and are typically found in the presence of harmful viruses and bacteria.

The graph shows that the fecal coliform levels at Ontario Beach have fluctuated significantly with a trend downward to 1993 and sharply upward since then. The spike in 1974 is due to a single day when the fecal coliform levels were 20,000 cfu/100 ml. The beach was not open for swimming when samples were collected from 1972 to 1976, so there was minimal beach maintenance ongoing when the high value fecal coliform count occurred in 1974. The lack of maintenance may have contributed to the high fecal coliform values. The downward trend through 1992 is seen as a result of environmental improvements including the Combined Sewer Overflow Abatement Program (CSOAP).

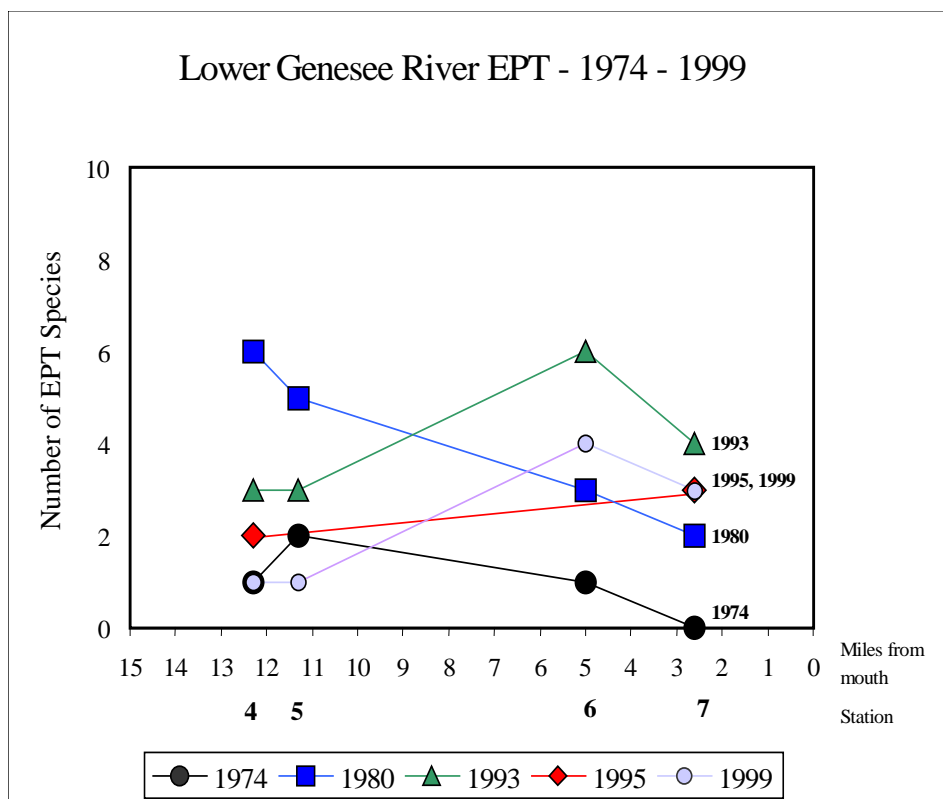


The upward trend in fecal coliform bacteria levels at Ontario Beach starting from 1993 is possibly related to the proliferation of the zebra mussel, which subsequently altered the ecology of the lower Great Lakes,

including the seasonal succession of algae. This change in algae growth and composition has, in turn, provided conditions that fuel the growth of bacteria. An abundance of *Spirogyra* early in the season has extended the time period that Ontario Beach water quality is impacted by algae. Matting and clumping algae (*Cladophora*, *Spirogyra*, and *Ulothrix*) accumulate along the shoreline and decay to form a green manure. The presence of decaying algae enhances bacterial growth by providing organic carbon and nutrients. The longer span of time that algae accumulates also contributes to conditions that enhance bacterial growth. The overall bacteriological quality, as measured by fecal coliform levels, has been worse in recent years than in 1972.

Fish and Wildlife Population and Habitats

Macroinvertebrates are good indicators of water and habitat quality for other aquatic species. Two methods of using macroinvertebrate indicators to depict the quality of the lower Genesee River are reported here.⁶ The first is the “EPT” method, which uses *Ephemeroptera* (mayfly), *Plecoptera* (stonefly) and *Trichoptera* (caddisfly) as indicators because these species require good water quality (see Figure below).



A more comprehensive method is the Biological Assessment Profile or “BAP” method, which reflects the diversity of the macroinvertebrate community and the numbers and water quality tolerance of each species, as well as the EPT value. The BAP is expressed as the amount of impact on macroinvertebrate species (see following table).

⁶ Information obtained from Bob Bode, New York State Department of Environmental Conservation

Water Quality Based on Biological Assessment Profiles

Year	Site 4: 0.5 miles upstream of Canal	Site 5: 0.5 miles below Elmwood Ave. bridge	Site 6: 0.1 mile below Ridge Road bridge	Site 7: opposite Genesee docks, above Turning Basin
1974	Moderately impacted	Moderately impacted	Moderately impacted	Severely impacted
1980	Slightly impacted	Slightly impacted	Slightly impacted	Moderately impacted
1992	Slightly impacted	Slightly impacted	Slightly impacted	Moderately impacted
1995	Severely impacted	No samples	No samples	Slightly impacted
1999	Severely impacted	Severely impacted	Slightly impacted	Slightly impacted

The figure and table indicate that, overall, water quality has improved between 1974 and 1999 at the two sites closest to the mouth of the River (6 and 7). The trend appears to be reversed at the two sites further from the mouth (4 and 5). This was likely due to the very dry low-flow summers of 1995 and 1999. Samples at sites 4 and 5 were dominated by a tolerant midge that is found in nutrient-enriched, slow-moving rivers where algae blooms develop. Sampling results can vary from year to year, depending on River flow and time of sampling relative to season and storms.

NYSDEC 1992-1993 studies⁷ report a diverse and moderately abundant fish community below the Lower Falls. Over the long term, over-fishing, degraded water, degraded habitat quality and non-indigenous species resulted in the loss of native fish species in the lower Genesee River.

Urban stormwater runoff and lack of stream-bank vegetation have lessened the water quality of streams. Urbanization, agriculture, deforestation and filling of wetlands have decreased the amount of habitat available to terrestrial species. Many municipalities have programs to preserve open space, natural wetlands and to construct additional wetlands that improve the quality of stormwater runoff from urbanized areas before the runoff enters a stream or the River.

In Monroe County, programs are proposed to monitor the amount of wetland and streambank habitat and the presence or absence of amphibians, lake sturgeon and mink as indicators of habitat quality.

⁷ New York State Department of Environmental Conservation. 1995. *Lower Genesee River Study*.

LAND USE

GOAL: To Plan Development that Conserves Resources, Preserves Natural Habitats and Encourages Walking for the Benefit and Protection of Public Health

TREND: Mixed Results

MEASURES:

- Sixteen towns and the City of Rochester have at least one Mandated Environmental Conservation Practice in their review process.
- The number of urban square feet per person is increasing.
- In the last 20 years, 51,570 acres of farmland was developed or became idle.
- Town of Sweden has instituted a Right to Farm Law to preserve the farms in their town. Seventeen of 30 areas determined to be environmentally sensitive have been preserved partially or in their entirety.

LAND USE

GOAL: To plan development that conserves resources, preserves natural habitats and encourages walking for the benefit and protection of public health

In Monroe County the trend has been to develop land for residential use. The communities that are being built require the use of cars to perform everyday tasks. An automobile dependent population is less physically active. This contributes to obesity, diabetes, high blood pressure, cardiovascular diseases and other health problems. Other results from this pattern of development include more traffic accidents, more automobile usage resulting in more air pollution and loss of green space. As open space decreases more impervious surfaces are created. Parking lots become a source of non-point source pollution and contribute to flooding. Preservation of wetlands and other natural filters is important as these areas contribute to protect our drinking water supply. Impervious surfaces also act as heat islands and can significantly raise the temperature in some areas. Preserving some of the natural environment also contributes to cleaner air. Farming is a resource that adds to the economic and aesthetic viability of the community.

The Genesee/Finger Lakes Regional Planning Council Regional Development Analysis (March 2002) (<http://www.gflrpc.org/Publications/DevelopmentAnalysis.htm>) makes reference to Governor Pataki's Quality Communities Task Force in 2000. "It developed comprehensive planning strategies that promote economic development, environmental protection, and quality of life. Its final 2001 report recommends, among others, the adoption of the following principles:

- Promote agriculture and farmland protection
- Conserve open space and other critical environmental resources
- Encourage more livable neighborhoods
- Strengthen intergovernmental partnerships"

Land Use and Health

Diabetes and obesity are on the rise for not only adults but also for children. Physical activity helps prevent these and many other diseases. Many research studies have found that the easier it is for a resident to walk in their neighborhood the more likely they will be to do so. The number of walking trips individuals take increases significantly if there is a school, a store or a park in walking distance.

The American Journal of Health Promotion published an article entitled "Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity." "This exploratory study seems to indicate that, after controlling for individual differences, those living in sprawling counties are likely to walk less in their leisure time, weigh more, and have greater prevalence of hypertension than those living in more compact places. Combined with other research from public health and urban planning, there is moderate support for the assertion that urban form can have significant (positive or negative) influences on health and health related behaviors."⁸

⁸ Ewing R, Schmid T, Killingsworth R, Zlot A, Raudenbush S. "Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity." American Journal of Health Promotion. Sept/Oct. 2003: vol. 18: no.1 ; 47-57, p.56

Land Use Statistics

Each town surveys its own lands and submits a tally to Monroe County Department of Planning and Development. This data is influenced by individual interpretations.

2002 Land Use In Monroe County	Acres	% of Total Area
Agricultural	102,338.05	26%
Residential	138,626.68	35%
Vacant Land	73,211.65	19%
Commercial	17,283.64	4%
Recreation And Entertainment	11,890.74	3%
Community Services	16,962.79	4%
Industrial	8,793.37	2%
Public Services	7,823.46	2%
Wild, Forested, Conservation Lands And Public Parks	14,550.91	4%
Total:	391,481.29	100%

Included in this data is the County Park system that has 21 parks totaling 12,000 acres of land.

Development and Conservation

The Genesee/Finger Lakes Regional Planning Council has land use maps of the area. These maps give a good representation of urbanization within the county. Using census data and the data from the Genesee/Finger Lakes Regional Planning Council the following information was compiled for Monroe County.

Year of Census/Year of Mapping	1990/1988	2000/1999
Population	713,968	735,343
People per Square Mile	1070	1103
Square Feet Per Person	26,044	25,272
Urban Square Feet Per Person	1455	1839

According to the Monroe County Department of Planning and Development, there were a total of 88 major development projects proposed in 2002. There were 49 projects consisting of residential or non-commercial activity and the other 39 were for commercial development. Building permits issued for new construction of single family homes have remained stable over the past few years with 1515 permits issued in 2000, 1402 permits issued in 2001 and 1474 permits issued in 2002. Planned projects for 2004-2006 include the potential development of 6229 acres. Over 5500 of those acres would be for residential projects.

The Genesee/Finger Lakes Regional Planning Council Regional Development Analysis lists the Towns and City and what practices they have included in their municipalities. All of the towns and the City of Rochester have some provision for Environmental Conservation Practices. Most of these municipalities have at least one of the following conservation practices as a mandatory provision. The following chart shows the number of towns that have a mandatory or encouraged/proposed provision. The city was counted with the towns so it was not singled out. If a town had a mandatory and a proposed provision it was only counted once for the mandatory provision.

Towns or City Practices (18 Towns in Monroe County and the City of Rochester)	Number with Provision out of 19	
Environmental Conservation Practices	Mandatory Provision	Encouraged or Proposed
17 of 19 have at least one mandated practice in this category.		
Dedication of Open Space	8	0
Open Space Easements	2	7
Land and Open Space Conservation	5	11
Development Restrictions in Environmentally Sensitive Areas	1	9
Vegetation Retention / Enhancement (trees)	6	4
Preservation of Natural Habitat	4	6
Preservation of Wetlands	6	6
SEQR (State Environmental Quality Review) Guidelines	8	7
Recreational Practices		
Creation of Parks or Recreational Space	8	8
Agricultural Practices		
Agricultural District	4	2
Right to Farm Law	1	2
Farmland Protection	1	13

Farms

According to the 2002 Census of Agriculture, the current area in Monroe County being used for agriculture totaled 106,600 acres.⁹ Since 1982, agriculture census figures indicate that approximately 44,000 acres of farmland has become developed, idled or vacant. Since 1997, Monroe County lost 6,517 acres of farmland or 5.7 percent of the total. Decline of agricultural lands continues but at a slower rate than the ten years prior to 1997. Conversely, the number of farms has increased, attributing to a reduction in the average farm size. The total number of farms is now 631, an increase of 28 farms since 1997. Agriculture is still one of the area's largest land based industries and farmland protection and promotion plans are encouraging the economic viability of family farms.

Monroe County Farms	1997	2002
Farm numbers	603	631
Farmland (in acres)	113,075	106,600
Farm Total Sales (in millions)	\$51.5	\$53.9

According to the 2002 Census of Agriculture, the 106,600 farm land acres in Monroe County included; 84,592 acres in cropland, 3,157 acres in permanent pasture, 9,486 acres in woodland and 9,326 acres in other use. Of the 631 farms in Monroe County there were; 23 dairy farms, 42 equine, 105 vegetable, 104 nursery/greenhouse, 200 field crops/forage and the remainder includes beef, specialty crops, other livestock and poultry.

Besides New York State Right to Farm Laws, the town of Sweden has instituted a local Right to Farm law. These laws set forth a process to mediate complaints by non-farm neighbors about farming

⁹ 2002 Agriculture Census

operations and practices. Many people want to live out in the country and move next to a farm. Then they realize it is not exactly what they expected and cite non-conforming and incompatible adjacent land use. Hence, public nuisance complaints arise, which can become burdensome to farmers and agricultural landowners. For the town of Sweden, farming is a desired land use activity that greatly contributes to the economic viability of the town, reinforces the special quality of life and provides the visual benefit of open space. As part of the RTF law in Sweden, the commencement of private nuisance suits against farmers who engage in sound agricultural practices are prohibited.

Preservation of Environmentally Sensitive Areas in Monroe County

In 1991 the Environmental Management Council (EMC) initiated a study to determine which areas in Monroe County were environmentally sensitive and should be targeted for preservation. The EMC formed a committee, Preservation of Environmentally Sensitive Areas (PESA) Committee and asked municipalities, environmental groups and the public to submit sites that they felt should be preserved. Over 200 sites in Monroe County were submitted. The Committee developed criteria and a ranking system and ranked each site. Using the ranking system, the Committee created a list of the highest-scoring sites. These sites were then studied in detail and field trips to each site were conducted. The final report was published in 1994 and listed 28 sites that should be preserved. Since the report was published, two additional sites have been added to the list. To date, 17 of the 30 sites have been either preserved in their entirety, partially preserved or are in the process of being preserved.

In 2004, a committee was again convened to update both the report and the process of evaluating open space sites. The criteria will be refined using GIS and expert resources and new sites will be solicited and assessed using the new criteria and resources. As sites are recommended for preservation, the PESA Committee reviews the information submitted and determines if the sites meet the criteria developed for preserving a site. A site can be recommended for preservation at any time by anyone. Preservation of land will allow for protection of wildlife habitats as well as assurance that future generations will have the opportunity to enjoy lands that would have otherwise been developed.

SAFE DRINKING WATER

GOAL: To Ensure that All Public Water Suppliers Provide Consumers with Consistently Safe, Potable Water in Full Compliance with Federal and New York State Drinking Water Standards

TREND: Stable

MEASURES:

- No Maximum Contaminant Level violations have occurred for any public supplier.
- No Total Coliform Rule violations have occurred for any public supplier.
- No Giardia or Cryptosporidium have been found in the public water supplies.
- There have been no Boil Water Advisories since 1987.
- Public suppliers have submitted all required Vulnerability Assessments, appropriate certifications and required Emergency Response Plans to the Monroe County Department of Public Health

SAFE DRINKING WATER

GOAL: To Ensure that All Public Water Suppliers Provide their Consumers with Consistently Safe, Potable Water in Full Compliance with Federal and New York State Drinking Water Standards

Sources

There are three main Public Water suppliers in Monroe County. The Monroe County Water Authority (MCWA) services most of the county and has a year-round treatment plant in Greece (Shoremont) and a seasonally operated treatment plant in Hamlin (Brockport). The City of Rochester Bureau of Water & Lighting (CRBWL) services the City of Rochester and sells water to the MCWA to serve the towns between the city and their treatment plant in Hemlock, NY. The Village of Webster obtains its water from village-owned well fields.

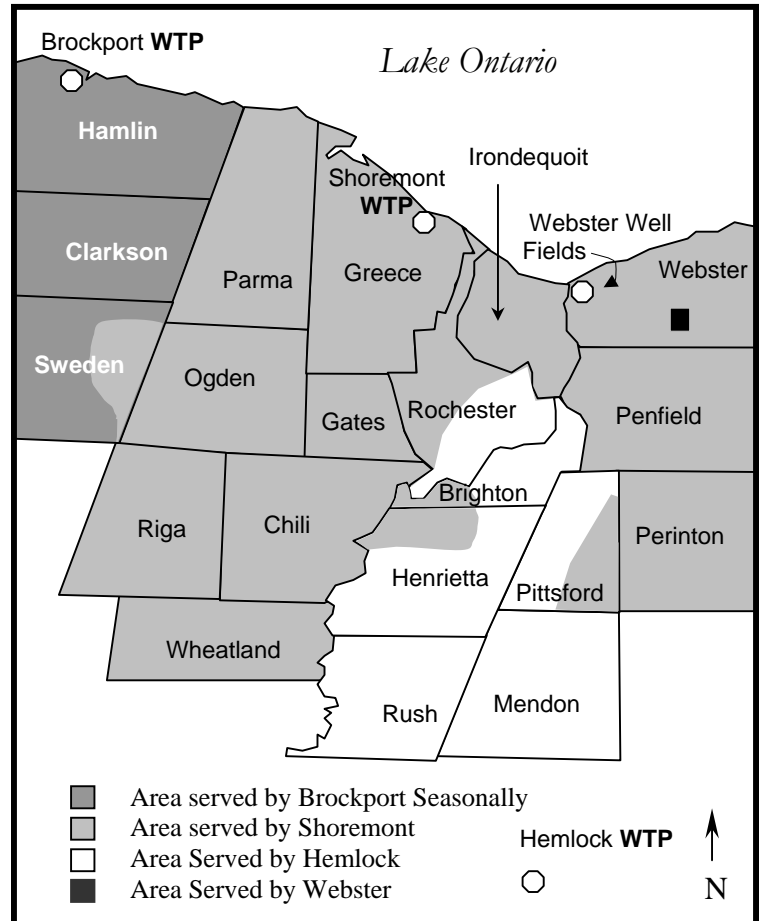
Surveillance

The Monroe County Department of Public Health (MCDPH) is responsible for monitoring public water supplies for compliance with Subpart 5-1of the New York State Sanitary Code, Public Water Systems. The state code standards are equal to or exceed all federal drinking water standards.

To insure compliance, the MCDPH reviews monthly water treatment operation reports and sampling results submitted by suppliers. All treatment facilities are inspected annually by the MCDPH. In addition, the MCDPH also reviews and approves plans for all treatment plant and water main distribution installations and modifications. All new water distribution systems are disinfected and sampled by MCDPH before being placed into service.

Water Quality Sampling

Samples are collected at representative points by the MCDPH throughout the county's distribution systems for analysis at the Monroe County Department of Environmental Services Environmental Laboratory. Annually, the Lab performs 5,700 tests surveillance-monitoring samples. Each water supplier routinely collects and analyzes samples throughout their water distribution system. Over 100,000 tests are performed on treatment plant and distribution system samples each year.



Drinking Water Standards

Established drinking water standards are referred to as Maximum Contaminant Levels, or MCLs. An MCL is the maximum permissible level of a contaminant in water that is delivered to any user of a public water system. The New York State Sanitary Code specifies MCL's for a variety of parameters. Also specified within this code are monitoring frequencies for the parameters, as well as public notification requirements, should a violation of a MCL occur. Monroe County has had no Boil Water Advisories since 1987.

From 1996 through 2004, there were no Maximum Contaminant Level violations for MCWA, the CRBWL, or the Village of Webster Water System. The quality of water provided by Webster, the CRBWL and the MCWA consistently meets or exceeds all New York State Health Department and Federal EPA drinking water standards.

Water Quality Testing

Total Coliform Bacteria

The total coliform test is the standard test for evaluating the microbiological quality of water. The coliform group of bacteria serves as indicator organisms in that their presence indicates that potentially harmful microorganisms may also be present. If coliform bacteria is present in a water sample it is tested for fecal coliform. The presence of fecal coliform in a water sample indicates that the water has the potential of causing illness to humans. The MCWA and the Webster Water System have had no total coliform rule violations per the NYS Sanitary Code.

The City of Rochester Bureau of Water and Lighting (CRBWL) is one of several large suppliers nationwide that have been granted a variance from the total coliform bacteria MCL. Such a variance can only be granted to suppliers of water that demonstrate that the violation of the total coliform MCL is the result of a harmless type of persistent growth of total coliform in the distribution system.¹⁰ This variance will exist indefinitely or until such a time that it is no longer necessary.

Giardia/Cryptosporidium

New York State law requires water suppliers to notify their customers about the risks of cryptosporidiosis and giardiasis. Cryptosporidiosis and giardiasis are intestinal illnesses caused by microscopic parasites. Although there are routes of exposure other than water, they are found in lakes and streams and represent a potential health problem for anyone drinking untreated or poorly treated water. Cryptosporidiosis can be very serious for people with weakened immune systems, such as chemotherapy patients, dialysis or transplant patients and people with Crohn's disease or HIV infection. These "at risk" populations should consult with their healthcare providers to discuss the need for taking extra precautions such as boiling water, using a certified bottled water or a specially approved home filter. Individuals who think they may have cryptosporidiosis or giardiasis should contact their health care provider immediately.¹¹

¹⁰ The variance from the total coliform MCL does not release any supplier from public notification should total coliform be observed as a result of fecal or pathogenic contamination, a treatment lapse or as a result of a problem in the operation and maintenance of the distribution system.

¹¹ From MCWA/City of Rochester Bureau of Water and Lighting 1997 Annual Water Supply Statement

The Village of Webster, MCWA and CRBWL all have tested for giardia and cryptosporidium in the water supply since 1994. To date, no giardia or cryptosporidium has been found in the finished water supply.¹² Webster's water comes from wells and is not prone to this type of contamination.

Annual Water Quality Reports (AWQRS)

Since 1996, Section 1150 of New York State's Public Health Law has required community water systems, serving 1,000 or more service connections, to prepare and provide Annual Water quality Reports (AWQR) to their customers.

In 1996, Congress amended the Safe Drinking Water Act. A provision was added that requires every community water system that serves 15 or more service connections used by year-round residents or regularly serves at least 25 year-round residents (water system is not shut-down during the year) to deliver to their customers an AWQR.

In 2001, the New York State Department of Health amended Part 5-1.72 of the State Sanitary Code to adopt the Annual Water Quality Report requirements prescribed by the federal government.

These regulatory revisions result in an AWQR prepared by systems serving fewer than 1,000 service connections which includes information on the water source and water treatment, the levels of any detected contaminants, and compliance with drinking water rules, plus general educational information. The regulatory revisions require systems serving 1,000 or more service connections to prepare a report that includes the aforementioned items as well as information on non-detected contaminants, water use, water source restrictions, water conservation measures and the cost of water.

Emergency Preparedness and Security

Recent events such as Y2K and 9/11/01 have raised the public's awareness as to the importance of having a safe water supply.

On June 12, 2002, President Bush signed the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act) into Law. The Bioterrorism Act amends the Safe Drinking Water Act (SDWA) by adding section 1433. Section 1433 requires that community water systems that serve a population of greater than 3,300 persons do the following:

- Conduct Vulnerability Assessments
- Certify to EPA that the Vulnerability Assessments were conducted
- Revise their Emergency Response Plans (ERPs) taking into account the results of the Vulnerability Assessment
- Certify to EPA that their ERP has been completed.

MCDPH has received all the required Vulnerability Assessments, the appropriate certifications and the required Emergency Response Plans. For security reasons, the contents of these documents can not be published here.

¹² In order to ensure the removal or inactivation of Giardia and other microbial contaminants, State Sanitary Code Subpart 5-1 requires that a treatment plant's finished water turbidity (a measure of water clarity used to check filtration performance) be less than 0.5 turbidity units (NTUs) 95% of the time. The finished water for all of the water treatment plants in 1997 was less than 0.16 NTUs, 95% of the time.

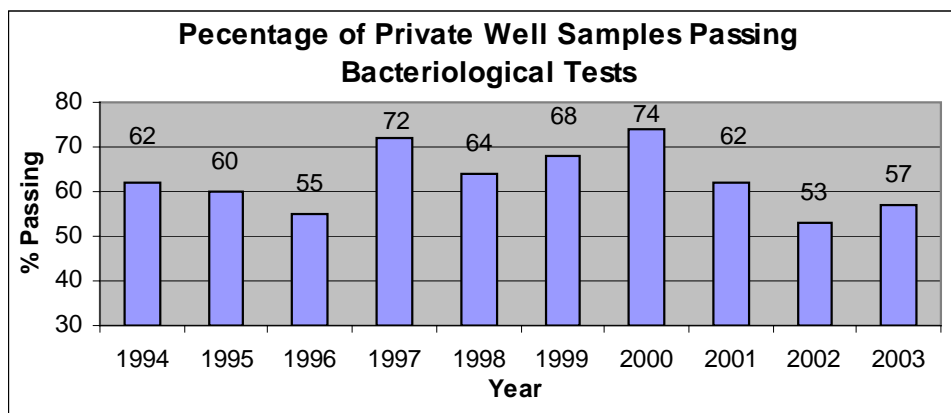
Non-Community Water Supplies

A non-community water system is a water supply used part-time by the public. Non-community water systems can belong to a church, a daycare center, a migrant farm worker living quarters or a children's summer camp. These water systems must meet the same bacteriological standards as the community water systems. Non-community water systems that have poor bacteriological quality must install treatment systems to meet state sanitary code requirements. In 2003 there were 15 non-community public water systems in Monroe County.

Private Water Supplies

A private water supply serves a residence and is most often a ground water supply from a well. The construction of private wells is not currently regulated in New York State or Monroe County. Approximately three percent of Monroe County residents rely on private water supplies. The MCDPH advises owners of new or existing private wells to help ensure the proper construction and protection of their water supplies.

The MCDPH also educates private well owners on how to best maintain their well systems to prevent water contamination, which could lead to waterborne illness. If a well owner suspects a problem, the MCDPH may be requested to test the water. Well water samples are also analyzed to satisfy mortgage requirements for property transfers. The graph below shows the results of these tests. The frequency of failing samples may be due to contaminated home plumbing systems and is not necessarily an indication of the source water quality.



CLEAN AIR

GOAL: Improve Ambient Air Quality and Reduce Overall Exposure to Airborne Pollutants

TREND: Improving

MEASURES:

- All ambient air monitoring stations show Monroe County to be well below the National Ambient Air Quality Standards for Carbon Monoxide, Sulfur Dioxide, Ozone, Particulate Matter (PM-10), and Lead.
- According to the US EPA Air Quality Index there have been some days when the air quality may impact human health.
- Between 1991 and 2001, Kodak Park has reported reduction in its annual air emissions by 9.9 million pounds, a 72% reduction.
- Between 1987 and 2001, Kodak Park methylene chloride annual emissions were reduced by 8.05 million pounds, a 90% reduction. NYSDEC lowered the annual guideline concentration from 8 ppb to 0.6 ppb. Kodak emissions were below the required 8 ppb old standard but do not meet the 0.6 ppb new standard.

CLEAN AIR

GOAL: Improve Ambient Air Quality and Reduce Overall Exposure to Airborne Pollutants

Populations Most Affected by Air Pollution

While air pollution can effect the health of the entire population, the health of certain groups is more seriously impaired by elevations in levels of specific pollutants. Children inhale more air per pound of body weight and thus, on a proportional basis they inhale more air pollutants than adults do. Children are more prone to respiratory infections because they are less likely to be conscious of exposures and their own symptoms and can be more seriously impacted by air quality problems. The health of patients with chronic pulmonary and cardiovascular diseases can be worsened by air pollution. Similarly, patients with asthma or allergies may experience both acute and chronic harmful effects due to exposure to air pollutants. People living in densely populated industrial areas, in high traffic zones and those downwind from air pollution sources are put at disproportionate risk from exposure to air pollutants.

The Quality of the Air that We Breathe is Dependent on The Outdoor Ambient Air Quality

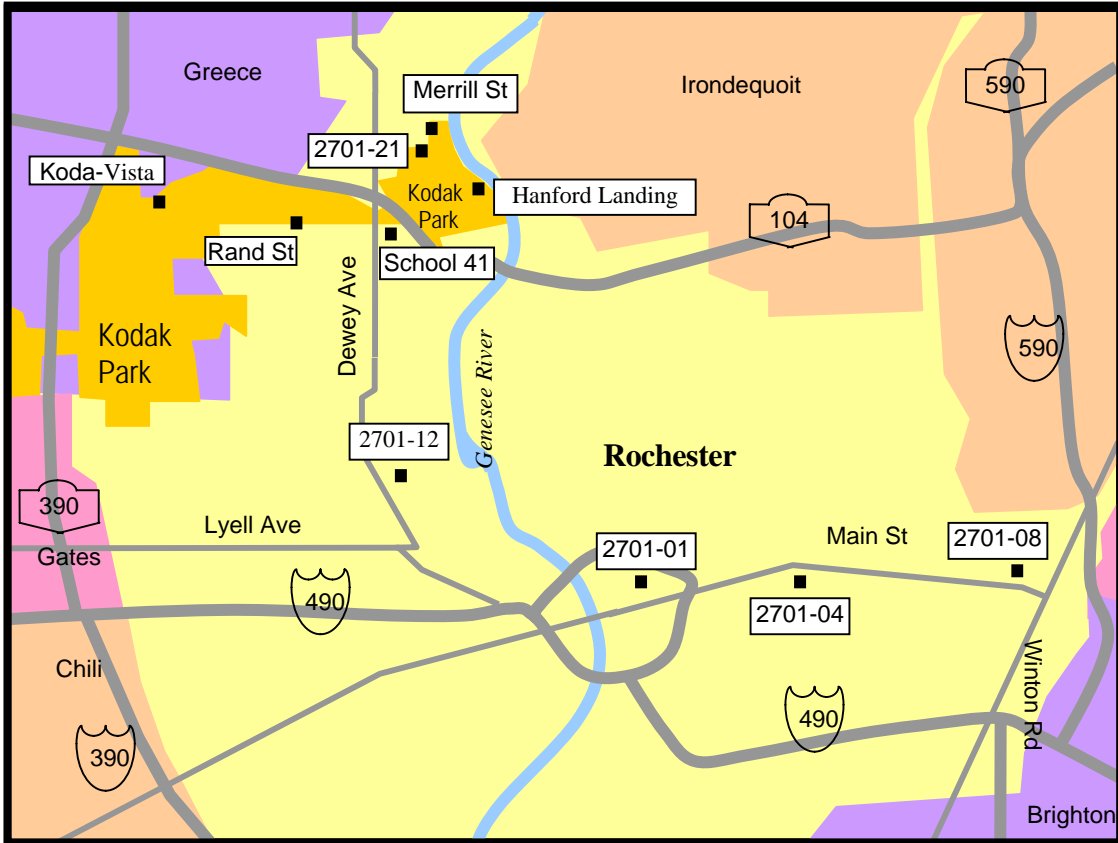
National Air Ambient Quality Standards (NAAQS) have been established by the Federal Clean Air Act and its Amendments for seven criteria pollutants at the level needed to protect the public health with a built in margin of safety. These seven pollutants are Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Sulfur dioxide (SO₂), Particulate Matter (PM₁₀) whose diameter is less than 10 micrometers and Particulate Matter (PM_{2.5}) whose diameter is less than 2.5 micrometers. Some pollutants, PM₁₀, PM_{2.5} and SO₂, have standards for both long-term (annual) and short-term (24 hours or less) exposure. These were established to protect people from any adverse health effects associated with chronic or acute exposure respectively.

Air Monitoring in Monroe County

The ambient air monitoring network in Monroe County consists of six sites operated by the New York State Department of Environmental Conservation's (NYSDEC) Bureau of Air Quality Surveillance. These sites are referred to as 2701-01, -04, -08, -12, & -21. Continuous air monitors that provide real time data are located at 01 and 08.

Since 1990, air samples have also been collected at up to seven locations around Kodak Park. Monitoring data collected by Kodak is shared quarterly with the NYSDEC and the New York State Department of Health (NYSDOH). Monitoring occurs to document methylene chloride in the ambient air. Due to consistently low methylene chloride readings, sampling was discontinued in Irondequoit at the end of 1995 and at the Ridgeway Avenue site in mid-1996.

Current Air Monitoring Sites



Both EPA and DEC have areas on their web site that can be accessed to find out historical and current data for air monitoring. These sites can also be accessed for more information on how Geometric and Arithmetic means are calculated. The web addresses are:

<http://www.dec.state.ny.us/website/dar/bts/airmon/aqipage.htm>

EPA <http://www.epa.gov/air/data/index.html> or <http://www.epa.gov/air/data/geosel.html>

Criteria Air Pollutants¹³

AAM = Annual Arithmetic Mean

AGM = Annual Geometric Mean

PPM = parts per million

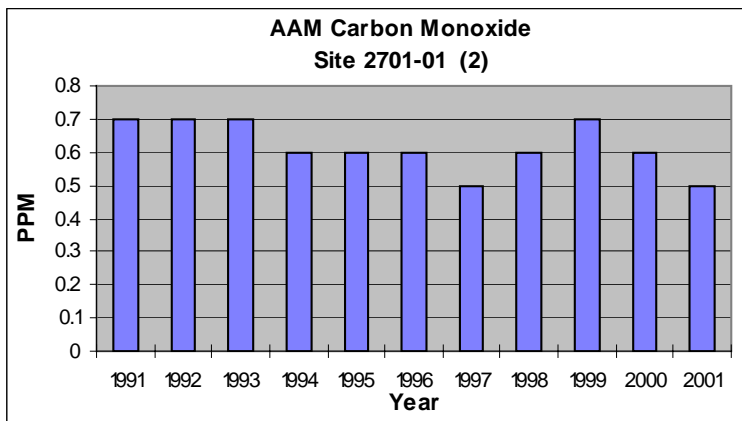
ppb = parts per billion

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

1 μg = 0.000001g

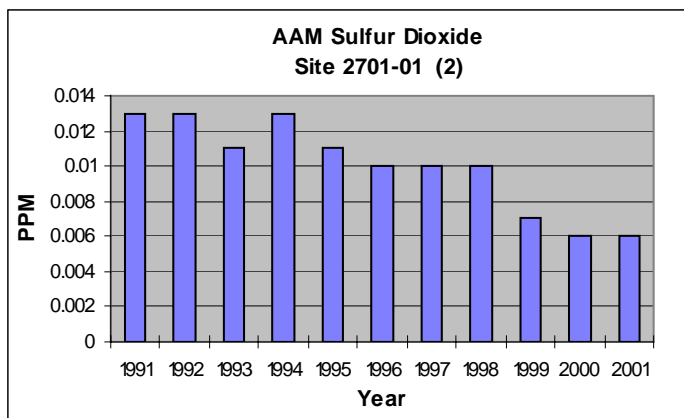
Number in parenthesis on graphs represents the number of sites monitoring that pollutant. The graph displays a single site with the higher readings.

Carbon Monoxide (CO) is the most prevalent among all air pollutants found in urban atmosphere and



is produced primarily by the incomplete combustion of fuels and other organic materials. Motor vehicles constitute the largest single source of CO. The most serious effect of CO is its ability to enter the bloodstream by displacing the oxygen that is carried to the cells. There is no annual NAAQS for CO, instead it is measured by one and eight hour averages. Monroe County is well below the set standards.¹⁴

Sulfur Dioxide (SO₂) is emitted from fossil fuel (coal, oil) power plants and boilers, ore smelters, oil refineries and stationary combustion sources used for space heating. Human exposure can result in irritation of the respiratory system. Plant exposure can result in leaf injury, thereby suppressing growth and yield. SO₂ emissions result in corrosive effects to electrical equipment, building materials and textiles. Current levels are less than one-third the NAAQS (0.03ppm).¹⁵



Ozone (O₃) in the upper ten to thirty miles of the atmosphere forms a protective layer that filters dangerous ultraviolet rays from the sun. At ground level, ozone can have an adverse effect on health; irritate nasal, throat, bronchial and lung tissue; attack components of the body's immune system, harm forests, lower crop yields and damage plastics, rubber and other building materials. In the lower atmosphere ozone is produced by a chemical reaction in the presence of sunlight, nitrogen oxides and hydrocarbons.

Since air contains approximately 78% nitrogen, oxides of nitrogen are formed during high temperature combustion of fuels in power plants and engine exhausts. Hydrocarbons are released into the environment by vapor losses from storage, dispensing and burning of fuels and from industrial solvents used in manufacturing, cleaning and degreasing. Trees and forests also release hydrocarbons into the environment. Ozone can mix with other pollutants to create an air pollution condition called smog, which reduces visibility and inflames eye tissue. According to the NYSDEC the main source of ground level ozone is automobile exhaust.

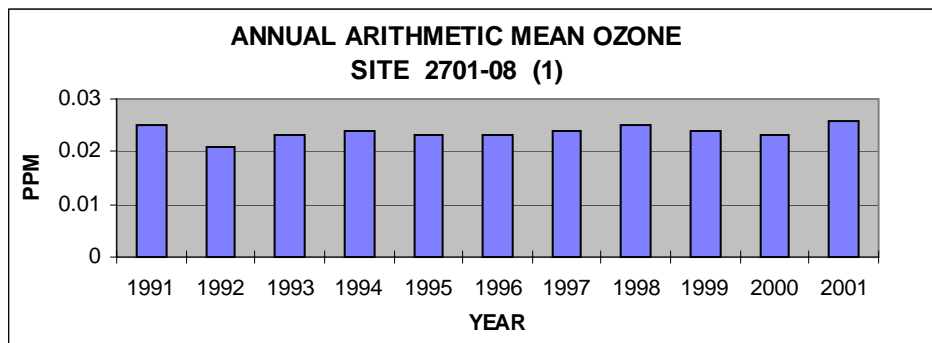
¹³ Data collected from Annual NYSDEC Air Quality Report, Ambient Air Monitoring System. Data available at www.dec.state.ny.us/website/dar/reports/index.html

¹⁴ One hour average maximum value not to exceed 35.0 ppm more than once per calendar year. Eight hour (non-overlapping) running average maximum value not to exceed 9.0 ppm more than once per calendar year.

¹⁵ Twelve month average not to exceed 0.03 ppm. Running three hour average maximum not to exceed 0.5 ppm more than once per calendar year. 24 hour average (calendar day) maximum not to exceed 0.14 ppm more than once per calendar year.

The national ambient air quality standard for ground level ozone has been revised by EPA after legal review by the nation's courts. The 4th highest daily maximum 8-hour average is not to exceed an average of 0.08 ppm during the last three years with the standard not exceeded unless the average of the 4th

maximum 8-hour concentration is greater than 0.084 ppm.

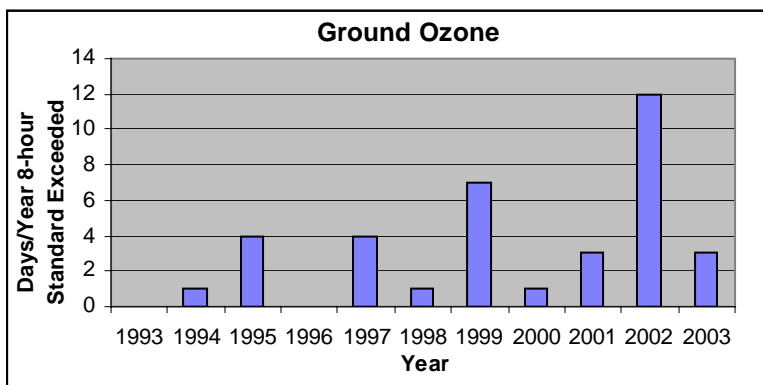


Monroe County is well below the NAAQS (0.08ppm) for the Annual Arithmetic Mean. However, similar to Carbon Monoxide, Ozone is also measured

by one and eight hour averages. The one hour average has not exceeded the EPA's standard of 0.12 ppm between 1993 and 2003. The eight hour values are a moving average of eight 1-hour values.

When ozone levels in the outdoor air are predicted to be greater than 0.08ppm (when averaged over an eight hour period) an ozone health advisory is issued by NYSDEC in cooperation with NYSDOH. At these times it is recommended that: "All people, especially children, those who exercise or work outdoors, and those with respiratory diseases (such as asthma), should consider limiting strenuous outdoor physical activity during the afternoon and early evening hours when ozone levels are the highest. Individuals experiencing symptoms (shortness of breath, chest pain or cough) should consider consulting their doctor."¹⁶

The Ground Ozone chart displays the number of days per year the eight hour standard has been exceeded. Exceeding this standard is a summertime phenomenon as sunlight and heat speed up the chemical processes that produce ozone.



Particulate Matter consists of small particles of solid/semi-solid material, liquid droplets or a combination in ambient air. It can originate from many sources among which are stationary and mobile sources of burning fossil fuels, some industrial processes, photochemical reaction of gaseous pollutants and windblown (fugitive dust) from roadways, agricultural processes, construction sites, soil, biogenic materials and wildfires. In addition to reducing visibility and causing respiratory problems, airborne particulates can be corrosive to textiles and building materials. "Health studies have shown a significant association between exposure to fine particles and premature mortality."¹⁷

PM_{2.5} is the abbreviation for particulate matter or liquid droplets with an aerodynamic diameter smaller than 2.5 micrometers (approximately 1/30 the width of a human hair). These particles are often formed by processes that involve combustion and from chemical reactions in the atmosphere. "Exposure to

¹⁶ NYS DEC website: www.dec.state.ny.us/website/dar/bts/airmon/advise.html
¹⁷ US EPA website: www.epa.gov/ttn/naaqs/pm/pm25_index.html

PM_{2.5} can cause short-term health effects such as irritation (e.g., eye, nose, throat or lung), coughing, sneezing, runny nose and shortness of breath. Exposure to PM_{2.5} can also worsen medical conditions such as asthma and heart disease. Elevations in PM_{2.5} have been associated with a rise in death and hospitalization rates. People with heart or breathing problems, children and the elderly may be particularly sensitive to PM_{2.5}.¹⁸

Hazy, stagnant days when there is low humidity are the days when PM_{2.5} levels tend to be highest. Going indoors may reduce the risk of exposure if the indoor area is not impacted from other sources. Indoor sources include candles, tobacco, frying and other fumes or smoke. PM_{2.5} is a new standard. Particles of this size were first monitored in 1999. Measurements showed levels of PM_{2.5} that were below NAAQS standards. In 1999 it was first monitored at site 2701-01. For 1999, the annual mean was based on less than 75% of available data. This pollutant is still being monitored.

Inhalable Particulate PM _{2.5}	NAAQS Standard	1999	2000	2001	3yr average
Annual Mean in µg/m ³	3 Year Average Not to Exceed 15 µg/m ³	10.7	11.8	11.7	11.4
Average of 98 Percentile in µg/m ³	3 Year Average Not to Exceed 65 µg/m ³	28.1	28.4	37.5	31.3

Sampling for inhalable particulates (PM₁₀) was **discontinued** on December 31, 1998 due to levels consistently less than 25 µg/m³ in Monroe County, half the NAAQS of 50 µg/m³. Sampling for **Total Suspended Particulates** was **discontinued** on 6/15/96 due to consistently low levels.

Lead is most commonly found on particulates in the inhalable size range. The major sources are industrial emissions from lead smelting operations and lead-containing paints on older buildings. Leaded gasoline was a major source of lead until unleaded fuel became the standard. Inhalation and ingestion by infants and children can severely impact mental function. Sampling was terminated on June 15, 1996 due to consistently low levels. The highest AGM recorded was in 1985 and it was 0.36 µg/m³. However after 1988 there was not an AGM above 0.05 µg/m³. Monroe County was well under the 1.5 µg/m³ limit between 1985 and 1995.

Nitrogen Dioxide (NO₂) is a highly corrosive and strong oxidizing agent produced from the reaction of atmospheric nitrogen and oxygen during high temperature combustion processes such as burning of fuels (coal, oil, gas) and internal combustion engines (motor vehicles). It can cause inflammation of the lungs and bronchial tubes. NO_x (a combination combustion by-product of nitric oxide (NO) and (NO₂)) contributes to haze, reduces visibility, injures plant tissues, deteriorates fabrics and forms nitrate salts that corrode metal. Nitrogen Dioxide is not currently being monitored in Monroe County due to consistently low ambient levels in the past.

18 <http://www.dec.state.ny.us/website/dar/bts/airmon/aqi4cast.html>

US EPA Air Quality Index¹⁹

The Air Quality Index is an index for reporting daily air quality and is another way of checking the air quality in the community. The purpose of the AQI is to help people conclude when air pollution is reaching unhealthy levels in their communities. EPA calculates the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone (O₃), particulate matter (PM), carbon monoxide (CO), sulfur dioxide (SO₂) and nitrogen dioxide (NO₂). The higher the AQI value the greater the health concern. The AQI uses the same monitors and data as NAAQS. AQI has six categories for air quality:

The Air Quality Index

When the AQI is in this range...	...Air quality conditions are...	...And that means...
0 to 50	Good	...Air pollution poses little or no risk.
51 to 100	Moderate	...There may be a moderate health concern for unusually sensitive people.
101 to 150	Unhealthy for Sensitive Groups	...Members of sensitive groups (those with lung or heart disease) may experience health effects.
151 to 200	Unhealthy	...Everyone may begin to experience health effects and the effects are more serious for sensitive groups.
201 to 300	Very Unhealthy	...A health alert is triggered and everyone may experience more serious health effects.
301 to 500	Hazardous	...A health warning of emergency conditions is triggered and the whole population is more likely to be affected.

Number of Days in Each Category of the Air Quality Index for Monroe County²⁰

Category	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Good	331	339	353	337	330	327	293	270	277	290
Moderate	33	22	13	24	34	31	72	88	75	71
Unhealthy Sensitive	1	4	0	4	1	7	1	6	11	4
Unhealthy	0	0	0	0	0	0	0	1	2	0
Very Unhealthy	0	0	0	0	0	0	0	0	0	0
Hazardous	0	0	0	0	0	0	0	0	0	0
Pollutant(s)	O ₃	O ₃	None	O ₃	O ₃	O ₃	O ₃	O ₃ PM _{2.5}	O ₃ PM _{2.5}	O ₃ PM _{2.5}
Unhealthy Pollutant category describes pollutants responsible for Unhealthy Sensitive or Unhealthy days. There have been no Very Unhealthy or Hazardous days in Monroe County. PM _{2.5} monitoring did not begin till 1999.										

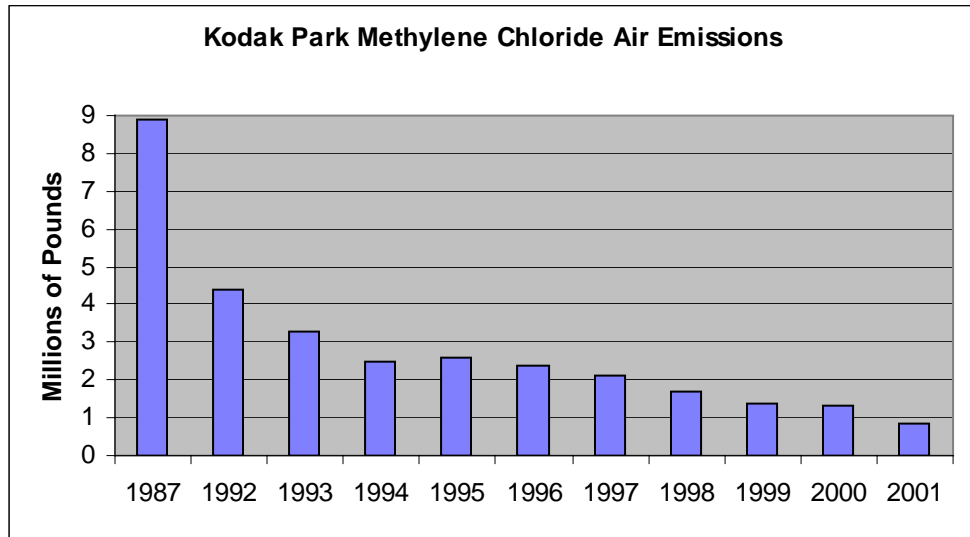
¹⁹ This information was taken from the EPA web site and can be found at: www.epa.gov/airnow/aqi.html

²⁰ This data was generated from the EPA web site and can be accessed at: www.epa.gov/air/data/geosel.html

Major Emission Sources in Monroe County

Because of its size, Kodak Park is a major contributor to overall air emissions in Monroe County.

The chemical used in greatest volume at Kodak Park is methylene chloride. This data is self-reported by Kodak. Between 1987 and 2000 air emission of this chemical have been reduced by 7.5 million pounds. Annual average concentrations of this chemical were at or below New York State Department of Health guidelines at all Kodak Park ambient air monitoring locations.



Kodak Park Environmental Annual Report

In July 2000, DEC's Division of Air Resources lowered the annual guideline concentration for methylene chloride from 8 parts per billion (ppb) to 0.6 ppb in order to be consistent with federal guidelines. The most recent numbers DEC has on methylene chloride concentrations are from 1998. The 2003 Kodak Park Environmental Annual Report published the results of their monitoring stations as follows. Kodak was in compliance with the 8 ppb regulation and will continue to reduce their emissions of methylene chloride.

Sampling Location (figures in ppb)	2003 Annual Average	5-Year Average 1999-2003
Koda-Vista	3.1	3.0
Rand Street	1.1	1.8
School 41	6.6	6.9
Hanford Landing Road	1.9	3.0

For more information on Monroe County air emissions go to the Toxic Free section of this document.

TRANSPORTATION

GOAL: Improved air quality and more efficient use of limited energy resources

TREND: Worse

MEASURES:

- There was a 4.8% increase in the number of people who drove to work alone between 1990 and 2000.
- There was a 22.7% decrease in the number of people who carpooled between 1990 and 2000.
- There was a 36.2% decrease in the number of people who used public transportation between 1990 and 2000.
- The Regional Traffic Operations Center has the ability to control traffic signals for rerouting traffic during construction or accidents reducing idling time of rerouted cars.
- Total On-Road Mobile Source Ozone-precursor emissions for Monroe County is 31,480 tons.

TRANSPORTATION

GOAL: Improved air quality and more efficient use of limited energy resources

Auto emissions are a major source of air pollution. Monroe County encompasses an area of 659 square miles, with 3,409 total miles of roadway and 5,400 intersections. The County's system of highways and bridges serves its transportation needs by allowing millions of trips to be made every day by automobile, bus, truck, bicycle and "on foot" to move people and goods throughout and beyond the greater Rochester area. In 2000, there were a total of 503,353 County residents that had valid Drivers Licenses for the 555,568 vehicles under registration in 2001.

Control of Traffic

The County's Department of Transportation (MCDOT) has modeled the majority of traffic signals in the County to assist with management of traffic flow through improvements in signal timing and coordination. Long lasting, energy efficient and cost saving LED (light emitting diode) type traffic signals are being installed at many MCDOT signalized intersections. The County's Computerized Traffic Control System, located at the newly constructed Regional Traffic Operations Center (RTOC) on Scottsville Road, measures and analyzes traffic conditions from sensors, has the ability to monitor up to 600 intersections and automatically control the timing of traffic signals. The less that cars idle at traffic lights the fewer emissions released and the quicker people can reach their destination.

Rochester-Genesee Regional Transportation Authority (R-GRTA) through its Regional Transit Service (RTS) subsidiary has installed a fleet wide automated vehicle location (AVL) system, completed in August of 2001, on its fixed route fleet to support improved fleet management, real time customer information and service planning.

Means of Transportation to Work

According to the 2000 Census the total population of Monroe County was 735,343, which was a 3% increase from 1990 and consisted of 286,712 households. 2000 Census Data provides some interesting observations regarding the means of transportation of workers 16 years and older with a comparison to 1990 Census data. Mean travel time to work for workers who did not work at home was 19.6 minutes.

Workers Age 16 & Over	1990 Census	2000 Census	% Change 1990-2000
Drove Alone	270,083	283,062	+ 4.8
Carpoled	37,564	29,022	- 22.7
Public Transport (Includes Taxicab)	14,765	9,421	- 36.2
Bicycle Or Walked	15,765	12,314	- 21.9
Motorcycle Or Other Means	1,508	1,793	+18.9
Worked At Home	7,403	9,407	+ 27.1
Total	347,088	345,019	- 0.6

Public Transportation

A balanced transportation system expands mobility options, decreases demand on the road system, contributes to efforts to improve air quality and improves access to employment and services. Monroe County has public transportation system provided by the RTS, which includes Lift Line. Lift Line mirrors the RTS service area providing transportation for persons with disabilities. The agency's bus replacement program has reduced the average age of the fleet to 6.8 years and enhanced service flexibility by adding smaller and more versatile vehicles. The County of Monroe in collaboration with RTS has initiated a program to transport welfare recipients to job training. Approximately 1000 Bicycles are carried on RTS bus racks each month with seasonal variation.

Bicycling and walking trails, which are integral elements in Monroe County's transportation system, reduce congestion, producing healthier citizens, and providing more livable communities. The Erie Canal paths and the Genesee River Trail provide alternative transportation routes for walkers and bikers. The Genesee Valley Greenway and the rails to trails projects are partially completed and when finished will provide even more alternative routes for recreation or travel.

Population within the City of Rochester, the core services area for R-GRTA's urban fixed route bus subsidiary RTS declined by 5.4% between the 1990 and 2000 census. RTS rider-ship, which accounts for 95.4% of total R-GRTA system ridership, experienced an annualized decrease of 3.2%.

R-GRTA Service Area	FY 90-91	FY 00-01	% Change
RTS Ridership	17,377,052	12,929,250	-25.60 %
Lift Line Ridership	148,277	193,468	30.48 %

Movement of Goods and Services

The economic vitality of the Rochester Monroe County Area is dependent on the efficient movement of goods. Trucks continue to handle the largest volume of goods while railroads are usually a lower cost mode for long-haul traffic. Trucks have a distinct advantage with the shorter haul due to their flexibility and speed. According to 1995 freight statistics, trucks handled 80% of inbound traffic and 91% outbound traffic to the Rochester Business Economic Area representing 19 million tons of transported goods. Rail traffic has continued to decline with railroads handling 20% of inbound tonnage and 9% of outbound tonnage representing 3.2 million tons. The only significant freight movement by water in Monroe County is through the Port of Rochester, which receives inbound shipments of cement for distribution throughout New York State. The Erie Canal, operated by the Thruway Authority, is currently used predominately as a recreational waterway.

Global Multimodal Industries, LLC (GMI) and their engineering consultants are currently working on Phase I of the Gateway Plan that will transform the Rochester and Monroe County, New York area into a multimodal international gateway. GMI will own and operate a multimodal terminal facility at a central location, near the Greater Rochester International Airport to provide industry with access to all modes of transportation and related services necessary for the efficient, economic and environmentally responsible movement of goods. This multimodal facility will consist of two

buildings, two freight yards, and an inter-modal rail facility with rail tower. All of these will be accessible by rail and truck. The two buildings will be partly bonded and, along with the freight yards, will have foreign trade zone status to be used for the manipulation, warehousing and distribution of any and all forms of dry goods.

A transportation infrastructure will be developed to meet the requirements of an "inland port of entry or exit" into or out of North America. That will allow Rochester to be an alternate Port of Entry for the Port Authority of New York and New Jersey and their recently announced plans for a "Port Inland Distribution Network" as well as a center of goods movement in this region. Ultimately, the services offered at this terminal facility will tie in to land, air and water modes of transportation.

Inter-regional Transportation

By offering convenient inter-regional transportation, Monroe County is a very attractive place to do business, work, live and visit. The Greater Rochester International Airport (GRIA), located four miles southwest of the City of Rochester, features a modern two-story terminal with 2 airline concourses 22 aircraft gates, a two-level roadway with separate avenues for arrivals and departures and an enclosed parking garage with 1400 spaces. It is a medium hub airport, which handles 220 flights per day to over 20 cities (22 airports) and houses the operations of 16 air transportation providers. The GRIA provides vital air transportation services to cities in the northeast and to major hubs in the Midwest. In addition, it serves as an important economic component of the air transportation network connecting western New York to other parts of the nation and the world.

In 2001 GRIA carried 685,169 lbs. of passenger freight and 2,261,495 lbs of US mail. On a typical day, the airport provides approximately 120 daily non-stop departures to 20 destinations with New York City being the most common destination with 15% of all passengers. Approximately 51% of passengers fly for business.

Airport Traffic Volume	2001	2003
Passengers Boarded	1,150,976	1,248,731
Total Passengers	2,295,178	2,492,420

Air fares in and out of the GRIA remain above national averages that puts the Metropolitan area at a disadvantage relative to similar sized communities in other areas of the Country that enjoy more competition. Amtrak currently services the Rochester Monroe County area with eleven trains per day, five westbound and six eastbound at speeds up to 79 mph while inter-city bus service is provided by Greyhound Lines and New York Trailways through a joint terminal at Midtown Plaza.

Waterways

Monroe County is home to numerous waterways including Lake Ontario, large lakeshore ponds, the Genesee River, Irondequoit and Braddocks Bays and the Erie Canal. The Canal corridor has been revitalized as a recreational boating, bicycling and walking corridor with the conversion of much of the adjacent towpath to a multi-use trail that provides a unique transportation and recreational resource for County residents. The implementation of Fast Ferry service in 2004 on Lake Ontario by the Canadian American Transportation System between Rochester and Toronto is projected to accommodate approximately 750 walk-on passengers, up to 220 cars and up to 10 trucks and buses.

Travel time is approximately 2^{1/4} hours at 50 mph. The Fast Ferry Terminal Building in Charlotte was recently completed by the City of Rochester and placed into service.

Outlook

Mobility is an important factor in the choice that Monroe County residents have made in locating their homes, where they work, and in the availability of educational and recreational centers. The state of Monroe County's environment and the amount of energy consumed by transportation are closely related to the amounts and modes of travel and the location of transportation corridors and facilities. Although fuel efficiency and pollution control technology on automobiles, trucks and buses has contributed to the maintenance of reasonable air quality levels in the Rochester Monroe County area, the number of vehicles has increased since 1990 according to the US census. The 1994 New York State Energy Plan indicates that the transportation sector remains 99% dependent on petroleum with transportation energy use growing at 0.9% per year.

Recent implementation of new air pollution control regulations by USEPA has caused Monroe County to be classified as non-attainment for the eight-hour ozone standard. In order to meet the requirements of the Clean Air Act, most 8-hour ozone non-attainment areas will be required to submit to EPA a state implementation plan to reduce the ozone level in the air and emissions of ozone precursors.

Mobile Source Contribution in Monroe Country to Smog-Forming Emissions

Total On-Road Mobile Source Ozone-Precursor Emissions (Tons)	Total All Sources Ozone-Precursor Emissions (Tons)	Mobile Sources As Percent of Total Ozone-Precursor Emissions
31,480	83,770	37.6%

Source: List of Mobile Source Emissions in the 126 Counties and 18 States Recommended for Non-attainment of the Eight-Hour Ozone Standard.

The comprehensive approach covers many different sources and a variety of clean-up methods to make sure power plants, factories and other pollution sources meet clean-up goals through the air pollution permitting process. It also requires implementing programs to further reduce emissions of ozone precursors from sources such as cars, fuels, and consumer/commercial products and activities. EPA is taking a wide range of national clean air actions that will help all areas across the country significantly improve ozone air quality. These national clean air control programs include EPA's regional ozone transport rule to significantly reduce nitrogen oxide (NOx) emissions in 19 eastern states and the District of Columbia. Clean Air Diesel Rules targeting diesel emissions from on road and off road diesel engines will help to significantly cut NOx emissions nationwide. EPA is phasing in very stringent tailpipe standards for cars, trucks, and SUVs that also reduce NOx emissions.

ENERGY USE

GOAL: To Conserve Energy and Resources

TREND: Insufficient Data

MEASURES:

- Energy use seems to have remained stable over the last few years.
- Limited local measures. Need to develop measures.
- New York State has instituted programs to make homes and businesses more energy efficient

ENERGY USE

GOAL: To Conserve Energy and Resources

Background

Energy is the backbone of business and our economy, and yet it is one of the most overlooked and least understood components. Other than a catastrophic event such as the 1991 and 2003 Ice Storms and the North East power grid blackout in 2004, power throughout the county has been safe and reliable.

Deregulation of energy has posed several interesting issues that must be addressed in order to maintain the same level of reliability that we have come to expect. The most notable are:

- **Cost** - Deregulation and a free market should produce lower costs. However, until the rules of the market and associated regulations have been put in place, there will be scenarios not yet accounted for that can cause erratic swings in the price of power.
- **Reliability** - In a regulated environment, there was a built in cushion of excess power generating ability (20-30%) commonly called “spinning reserve”. The Public Service Commission required that utilities build additional generation as their reserves fell below a prescribed level; they would then insert the costs of the new facility into the rate base and recoup those costs over an extended period of time. The reserves in New York State are marginal on peak cooling days, however independent power producers are reluctant to build plants that may only be called on during times of need.
- **Environment** - New York State is currently at odds with several mid-western states whose power plants are predominantly fossil fuel based. The prevailing winds bring acid rain, ozone precursors and atmospheric deposition into NYS, which adversely affects the environment and can cause health related problems in humans. The fossil fuel plants however, produce some of the least expensive power. In order to counteract some of the economic barriers renewable energy faces in the marketplace, the State of New York is promoting renewable energy with subsidies provided through New York State Energy Research and Development Authority.

Costs of Energy

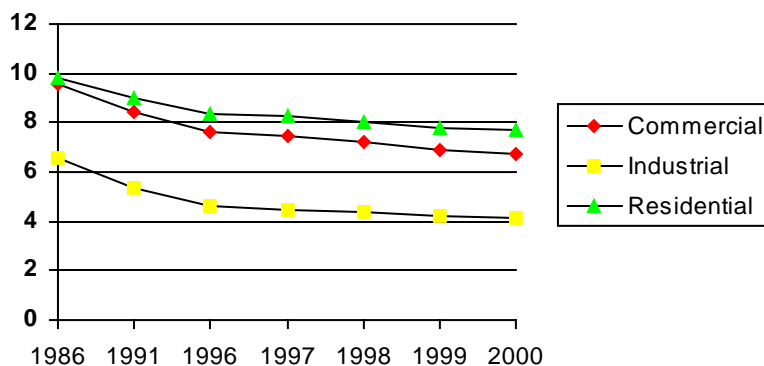
As the cost of gas and electric rise the costs of manufacturing, shipping, storage, and sales also increases. Energy use from year to year is somewhat dependent on the weather. Hot summers and cold winters create higher energy use. The cost of gasoline is usually higher in Monroe County than other areas of New York State. A major difference between New York State and the US, is the cost per unit of electrical power.

United States Average Retail Cents per kWh

(by customer Class)

Source: DOE Energy Information Administration; Table 8.15

The graph shows the average cost, by customer class for electricity in the United States. All customer classes show a decline in cost from the time period of 1986 through the year 2000. By the year 2000, Residential customers were paying under 8 cents/kWh (kWh – kilowatt hour); Commercial customers were approximately 7 cents/kWh and the Industrial sector was paying just over 4 cents/kWh.



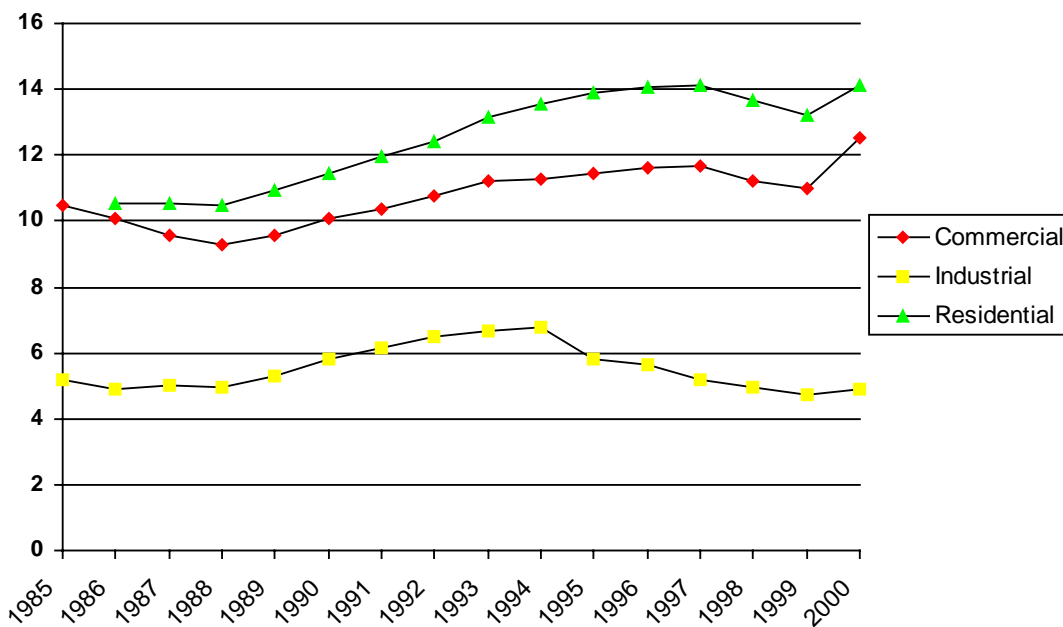
While the overall average retail cost of a unit of electricity in the US is declining, the same cannot be said for New York State.

The cost per unit of energy in NYS is more expensive on the whole, and shows the residential customers paying nearly 14 cents/kWh. The Commercial customers are paying over 12 cents/kWh. Lastly, the Industrial customers of New York are paying roughly 5 cents/kWh.

New York State Cents per kWh

(by customer Class)

Source: NYSERDA Patterns and Trends New York State Energy Profiles: 1986-2000



Energy Used

Data specific to Monroe County for energy use is not readily available. Monroe County is supplied energy by a variety of sources including Ginna Nuclear Power Plant, RG&E Russell Station, Niagara Mohawk's plant in Niagara Falls and some homeowners who have chosen to use their own means to heat or power their homes.

Rochester Gas and Electric Corporation serves customers outside the county but they are the major energy supplier for Monroe County. The following table was taken from RGS Energy Group Inc., Statement to Investors, 2002.

RG&E	1996	1997	1998	1999	2000
Electric Sales Megawatt-hours (MWH) (000's)					
Residential	2133	2139	2120	2269	2154
Commercial	2062	2119	2036	1783	1680
Industrial	2011	2011	1914	1762	1557
Municipal and other	521	537	517	482	391
Electric Distribution Customers (in thousands)					
Residential	307	309	310	311	313
Commercial	31	31	30	30	32
Industrial	1	1	1	1	1
Municipal and other	3	3	3	2	5
Percent (-)Colder/Warmer than Normal	-3.9	-2.8	15.9	6.6	1.9
Gas Sales - Therms (millions)					
Residential	6.5	5.8	3.6	5.9	6
Residential space heating	299.1	285.4	239.7	264	261.8
Commercial	70.5	65.7	53.6	43.2	41.3
Industrial	9.3	7.8	6.1	4.5	4.2
Municipal	8.1	7.3	6.4	5.7	4.6
Gas Distribution Customers at December 31 (in thousands)					
Residential	16.7	16.3	16.9	16.5	14.3
Residential space heating	240.7	243.3	249.7	246.5	251.1
Commercial	19	19.2	19.7	19.5	19.6
Industrial	0.9	0.8	0.8	0.8	0.8
Municipal	1	1.1	1.1	1.1	1
Electric Generated and Purchased – MWH (000's)					
Fossil	1513	1665	1963	1693	1548
Nuclear	4094	5120	5324	4735	4926
Hydro	249	228	190	133	208
Pumped Storage	247	239	233	233	67
Less Energy for Pumping	-370	-358	-348	-350	-101

Pumped Storage refers to hydropower where water is pumped up to a reservoir and then released at peak consumption, creating more power to meet the temporary increase in demand.

Kodak Park has two coal burning power plants that supply the Park with its energy needs. Since 1997, Kodak has achieved a 16% reduction in energy usage equaling the total energy demand of 13,000 residential properties. Such a reduction also reduces emissions. "Key energy reduction

strategies have included consolidation of manufacturing space, manufacturing waste reduction, energy-efficient lighting and investment in more energy-efficient motors and equipment.”²¹

Conservation

New York State Energy Research and Development Authority (NYSERDA) administers funds for energy programs including the New York State Energy Smart programs to make homes and businesses more energy efficient. This program includes assessments, incentives, loans and other assistance to help reduce energy use and cost. Information on alternative energy sources is also available. For more information go to: <http://www.nyserda.org/about.html> or <http://www.gflrpc.org/Energy/Program.htm>.

New York State is recognized as having about 5,000 MW of land based wind potential, enough to generate about 13 million megawatt-hours (MWh) or equivalent to 10 percent of the State's electricity consumption. As a result of electric power deregulation, the demand for clean energy is expected to rise as more consumers exercise their rights to choose cleaner sources of electricity. A new program has been instated that allows consumers to buy blocks of power to promote green energy. Information on these programs can be found at www.askpsc.org.

Wind farms could be developed in Monroe County as there is some usable wind in the northern parts of the county. However, most towns have ordinances that require such structures must remain on the property if they fall. Such ordinances along with concerns for wildlife and noise impacts make windmills impractical for most residential properties. Wind maps can be found at: <http://truewind.teamcamelot.com/ny/>

21 2003 Kodak Park Environmental Annual Report, p11.

INDOOR AIR

GOAL: To Alleviate Conditions that Contribute to Respiratory Irritation, Allergies and Asthma

TREND: Improving

MEASURES:

- The New York State Legislature passed a more stringent smoking code for work sites and public places which was implemented on July 24, 2003. This new code significantly reduces exposure to environmental tobacco smoke for Monroe County residents.
- Due to the natural geology, homes in the towns of Wheatland, Rush and Mendon are more likely to have radon levels above EPA guidelines.

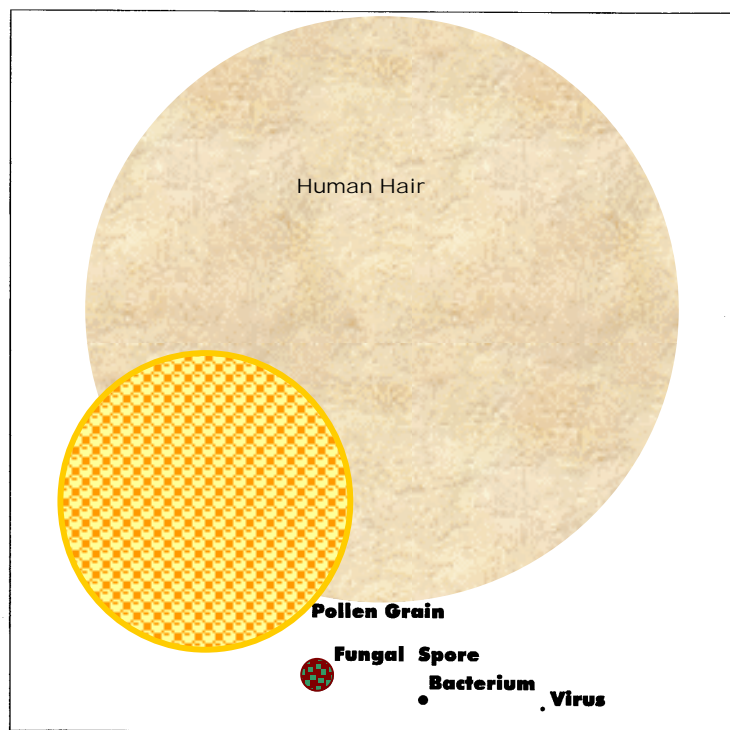
INDOOR AIR

GOAL: To Alleviate Conditions that Contribute to Respiratory Irritation, Allergies and Asthma

A number of indoor air pollutants pose specific risks for people who suffer from asthma, allergies and other respiratory problems. Chemical and biological air pollutants are found to some degree in every home, school and work place. They are known to cause eye and respiratory irritation, infections and illnesses that are from biologically produced chemical toxins. Chemical and biological air pollutants may cause chemical hypersensitivity such as chemical allergies due to flour or latex. Chronic illnesses, anxiety or depression may result when individuals develop sensitivity to certain materials.

Allergic reactions to biological pollutants can range from a runny nose to asthma. Allergen proteins of non-human origin (such as house dust mite fecal pellets, animal saliva and dander, cockroach body residues and bacterial enzymes) can trigger asthma. Bacterial endotoxins can cause fever, headache, chills, myalgia and malaise. Fungal mycotoxins may produce symptoms that range from short-term irritation to more serious health problems.

Sources of Indoor Air Pollution²²



²² Picture taken from Freudenberg BR4-HOSP 9441

Sources include background outdoor air pollutants; dust and dirt made airborne in heating and cooling systems; vapors from construction and decor materials in buildings; humans releasing metabolic body wastes, viruses and bacteria; insects and mammals shedding airborne allergens and indoor surfaces and water reservoirs where bacteria and fungi can grow.

An especially important factor is high relative humidity caused by roof or wall leakage, flooding, damp carpeting, inadequate bathroom ventilation or kitchen-generated moisture which allows fungal growth and which encourages house dust mite populations to increase. Cool-mist or ultrasonic humidifiers can release minerals dissolved in water as airborne particulates. Condensation and drip pans from dehumidifiers, air conditioning cooling coils, drains and refrigerators can also serve as reservoirs or sites for bacterial contamination.

Burning of fuels in unvented or incorrectly vented heating systems can create dangerous levels of carbon monoxide, resulting in illness or death. These heating systems, along with scented wax candles, incense and tobacco can produce airborne carbon soot particulates in addition to a variety of toxic organic compounds.

**Requests for Health Department
Assistance, Guidance and Information
Regarding Indoor Air Quality (IAQ) Impacts**

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
IAQ Health Impacts/Exposure Symptoms	703	685	758	660	692	796	734	908	911	1033	1280
Ionizing Radiation / Non-Ionizing Radiation / Electromagnetic Fields	60	81	52	48	30	15	36	20	21	28	27
Radon	172	142	88	93	63	83	188	141	188	149	234

Received By Monroe County Health Dept. Bureau of Public Health Engineering Indoor Air Quality/Toxics Control Section

Molds

Public awareness and concern about indoor mold and fungal growth have increased in the past few years. The mainstream media has focused attention on several “worst case situations.” Mold can grow on almost any substance; wood, wallboard, ceiling tiles, insulation, carpet, dirt and dust, food, fabrics, clothing, and in fact on almost all of the materials found in buildings, homes or any other structure. Molds reproduce by releasing microscopic spores that float through the air until they land on a surface where they begin to grow if sufficient moisture is present. New mold colonies can grow in as little as 48 to 72 hours.

Molds are esthetically unappealing and potentially damaging to building materials and belongings. Exposure to mold, mold spores and the volatile organic compounds that they release can cause a variety of adverse health effects. These include respiratory irritation similar to having a head cold, allergic reactions, skin irritation, asthma attacks and (in rare cases) more serious problems.

Molds or fungi are part of the natural environment. Mold and mold spores can be found virtually everywhere. There are tens of thousands of species of mold. About 70 species are common in buildings where they can thrive if conditions are right. Some molds affect health more than others and are sometimes referred to as toxic in the media. The use of the term “toxic” is sometimes misleading. Reactions to mold are mostly dependent on an individual’s sensitivity to that particular mold. The amount of mold present is also an important factor in an individual’s reaction. Because individual reactions are so varied, exposure standards have not been established.

Testing for mold in medical buildings, schools and to confirm correction of a major mold problem is sometimes appropriate. However, testing is expensive and does not provide much useful information. The general rule of thumb is any mold growth indoors is not good and it is better to spend money in an effort to resolve the problem rather than paying for testing and then performing the same remediation. While it is virtually impossible to eliminate all mold growth and mold spores, it can be minimized and controlled. Controlling moisture will severely limit indoor mold growth.

There are four major sources of indoor moisture. The first is elevated groundwater. Rainwater or snowmelt that seeps into basements can cause major problems. Diverting rain or snowmelt far away from the foundation can minimize water infiltration into the basement. Basements in general tend to be cool, dark and often have damp conditions that allow mold to thrive. Properly sized dehumidifiers should also be used in basements to remove airborne moisture. Items stored in damp basements should be kept in plastic “totes” with lids. Use of high quality furnace filters and sealing the filter slot so that basement air is not circulated throughout the home prevents the distribution of spores.

A source of mold that occurs primarily during the cold winter months is condensation of household moisture on cold surfaces like windows and poorly insulated exterior walls. All of our normal activities, including breathing, showering, cooking and cleaning, add moisture into the air. If the temperature of any surface is below the dew point, enough moisture can condense on surfaces to support fungal growth. Window sashes and closets having exterior walls are major problem areas. Closets tend to be dark, have little air circulation and can experience extensive mold growth on walls and personal items before discovery. Using bathroom and kitchen fans that exhaust to the outdoors will help mitigate this moisture source. Visible mold should be cleaned as soon as it is noticed. Long-term solutions include better insulation in walls and energy efficient windows.

The last two common moisture sources are from leaks, either in the building envelope (roof, walls, windows, etc.) or from plumbing pipes and fixtures. In both cases it is important to identify the source and correct the problem as rapidly as possible. Cleaning up the mold before the moisture source is addressed is only a temporary measure and the mold will quickly grow back as long as the water source remains. The Monroe County Department of Public Health recommends that any porous building materials that mold has started growing on such as drywall, carpeting and padding or ceiling tiles should be removed and replaced. Fungal growth is not a surface phenomenon; it can penetrate into the material itself.

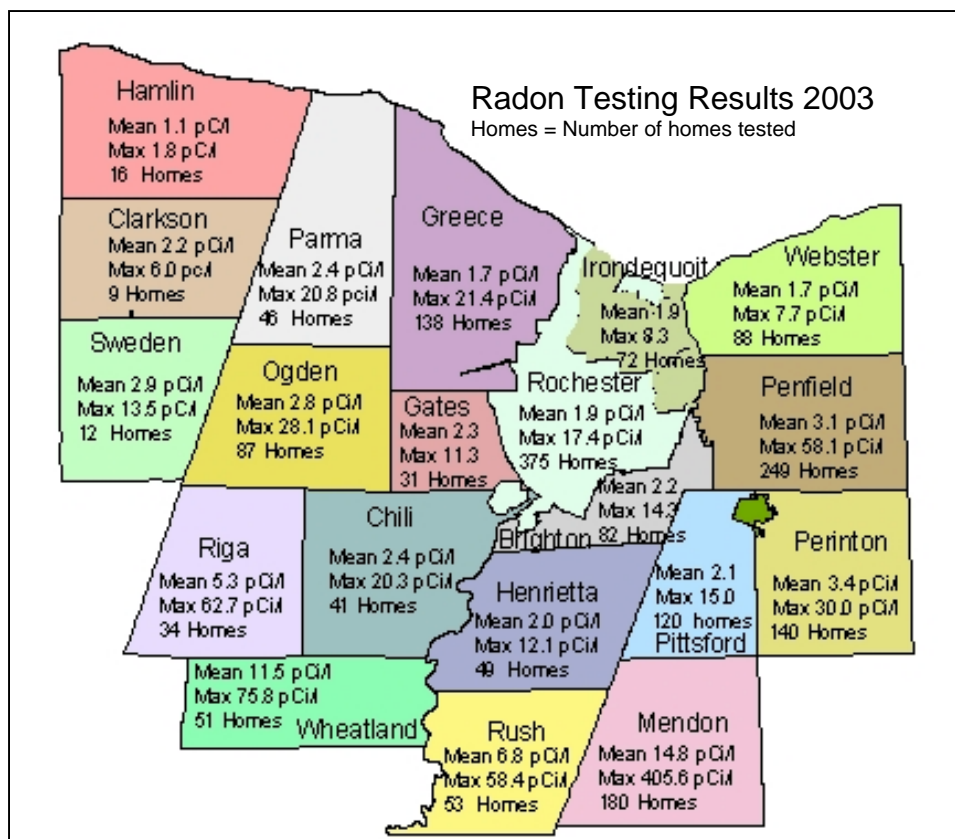
Occasionally in larger buildings there can be problems associated with the heating/ventilating/air-conditioning (HVAC) system. Generally these systems are associated with distributing the spores rather than being the source of the problem. Wetting of insulation in air distribution ductwork due to moisture sprays from HVAC cooling coils can cause fungal and bacterial growth and release of their residues into the building air handling system.

Currently, there are no federal, state or local codes or enforceable standards for airborne concentrations of mold spores or for specifically dealing with mold growth. Scientific research on the relationship between mold exposures and health effects is ongoing. US OSHA has a new publication that gives good information and guidance on addressing mold issues called [A Guide to Mold in the Workplace](http://www.osha.gov/dts/shib/shib101003.html) (www.osha.gov/dts/shib/shib101003.html). The US EPA has extensive information on their website (www.epa.gov/ebtpages/airindoormold.html) and the New York City Health Department (www.nyc.gov/html/doh/html/epi/moldrpt1.html) has also published guidelines that are widely referenced.

Locally, the Indoor Air and Toxics Section (IAQ/TC) of the Monroe County Department of Public Health can help residents, landlords and businesses deal with mold concerns by offering advice, literature and inspections if needed. In 2003, 37% of the inspections performed by the IAQ/TC staff at MCDPH were related to mold impacts. The advice of a medical professional should always be sought if there are any emerging health issues that may be related to mold in the home or workplace.

Radon

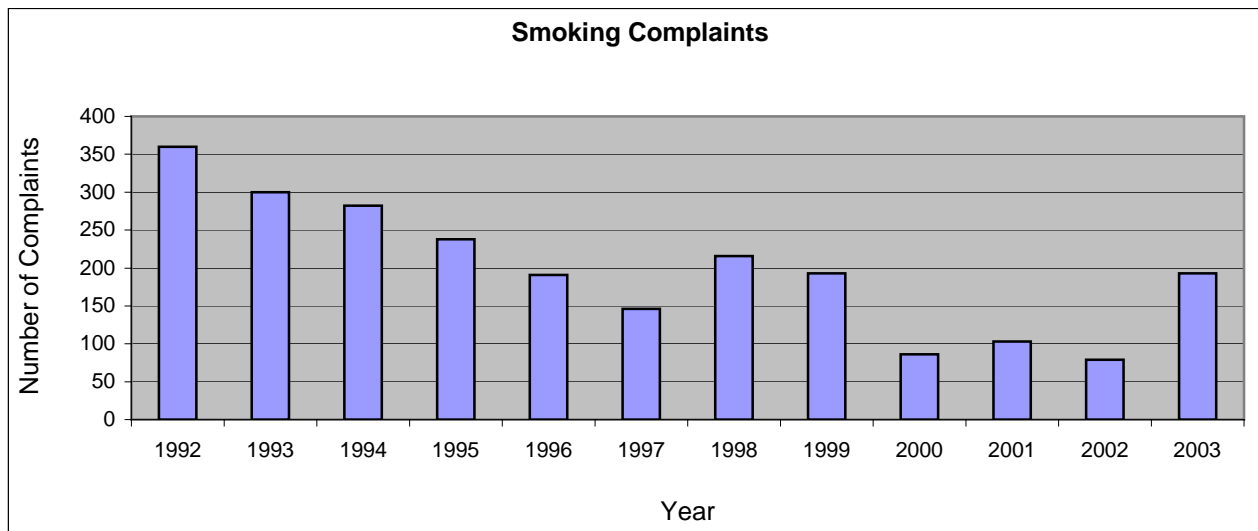
The map below is a summary of radon levels reported to the NYSDOH through 2003 for homes in Monroe County. Higher radon levels occur mainly in the southern portion of Monroe County due to the natural geology of the area. About 0.4 pCi/L of radon is normally found in out door ambient air. The average indoor radon level in the United States is estimated to be about 1.3 pCi/L. The mean radon levels are above the 4 pCi/L action level in four Monroe County towns: Riga, Wheatland, Mendon and Perinton. As of 2003 every town in Monroe County except Hamlin had at least one home test above the EPA and NYSDOH action level of 4 pCi/L. The Monroe County Department of Public Health recommends that every home be tested regardless of where it is located. Testing is the only way to know the radon level within a home. There are many options available for reduction indoor radon levels in homes.



Environmental Tobacco Smoke (ETS)

ETS is a major source of indoor air contamination and is a dynamic and complex mixture of thousands of chemicals, many of which are known to be toxic or carcinogenic (cancer causing) agents. ETS is a substance with over 4,000 chemical compounds -- including 43 known to cause cancer. Secondhand smoke is responsible for the deaths of approximately 62,000 non-smokers each year in the United States. The role of tobacco smoke as a cause of lung and other cancers, emphysema and chronic bronchitis, in addition to cardiovascular disease in smokers has been firmly established. Non-smokers, especially infants and young children are susceptible to the harmful effects of ETS. Children exposed to tobacco smoke are at greater risk for respiratory diseases and their complications.

Smoking Complaints 1992-2003 To Monroe County Department of Public Health²³



Monroe County has been a leader in addressing community environmental tobacco smoke impacts. Article VI of the Monroe County Sanitary Code regulating smoking in public places and work sites was initiated into law on August 1, 1987. The County Legislature updated the regulation in 1997. The update was divided into two parts, one with an effective date of January 1, 1998 and the other with an effective date of January 1, 1999, each with the intent of further limiting exposure of the public to environmental tobacco smoke. Effective July 24, 2003, public places and work sites across New York State must be smoke-free. All work sites (including bars and restaurants) are now included to ensure that all New Yorkers work in a safer environment. The original state law, passed in 1989, provided similar protections but in fewer work sites. More than 50% of the complaints received since July 2003 have been for bars and restaurants. The rest involve work sites and apartment buildings.

²³ New NYS Smoking Regulation went into effect July 24, 2003

LEAD POISONING

GOAL: To Reduce the Level of Lead in Children Age 0-6 Years Old Diagnosed with Elevated Blood Lead Levels by Reducing Their Exposure to Sources Identified as Lead Hazards

TREND: Improving

MEASURES:

- The number and percent of children with confirmed elevated blood lead levels has declined steadily over the last several years.
- The number of children screened with confirmed blood level $\geq 20\mu\text{g}/\text{dl}$ in the County's high risk areas has declined from 640 in 1994 to 76 in 2003.
- Over the last few years, the number of children with blood lead levels high enough to require treatment has dropped from a high of 64 children in 1994 to 6 children in 2004.
- The City and County HUD funded Lead grant programs have been removing lead from homes.
- A new local law was implemented that requires environmental investigation whenever a child 0-6 years old has two confirmed, venous blood lead screen tests, a minimum of three months apart, between 15 – 19 $\mu\text{g}/\text{dl}$ within a one year period.

LEAD POISONING

GOAL: To Reduce the Level of Lead in Children Age 0-6 Years Old Diagnosed with Elevated Blood Lead Levels by Reducing Their Exposure to Sources Identified as Lead Hazards

Lead poisoning most commonly affects children from six months to six years of age. Most children with lead poisoning never have any symptoms. However, lead poisoning is a serious illness. At mildly elevated levels lead can cause learning disabilities, behavioral problems and speech problems. At severely elevated levels, permanent damage to the kidneys and the central nervous system can occur.

The New York State Department of Health requires universal screening of one and two year old children. All other children under age 6 should be screened if they have a history of elevated lead levels and or they are at high risk for lead exposure.

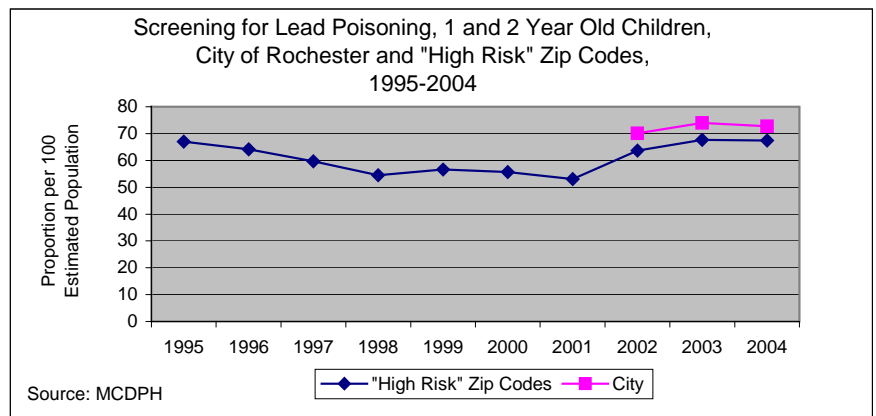
In Monroe County during 2004, more than 13,000 children under age 6 were screened for lead poisoning. The number of children screened has declined over the past decade from a high of 19,000 in 1995. The decline may be due to several factors including a decline in the birth rate, fewer children testing positive for lead resulting in fewer children needing annual screening and/or providers focusing on screening only the highest risk children.

Children ages 1 and 2 years old who reside in the City of Rochester are at highest risk for lead poisoning. A majority of the houses in the city (79%) were built before 1960 and are likely to contain lead paint. Young children are more likely to exhibit “hand to mouth” behavior which could result in the ingestion of lead paint or dust.

In 2004, over 4,000 city children ages 1 and 2 years old were screened for lead poisoning. This represents about 70% of this population.

The Monroe County Department of Public Health maintains a database of all childhood blood lead tests. Prior to 2002, records in the lead screening database did not contain census tracts, so city residences had to be defined by “high risk” zip codes.²⁴ Zip codes are not a pure definition of city residences because several zip codes overlap into the suburbs. For the purposes of looking at trends in this report card, we will use high risk zip codes as the definition of the city.

The table on the right shows the proportion of 1 and 2 year old children screened in “high risk” zip codes for 1995-2004 and in city census tracts for 2002-2004.

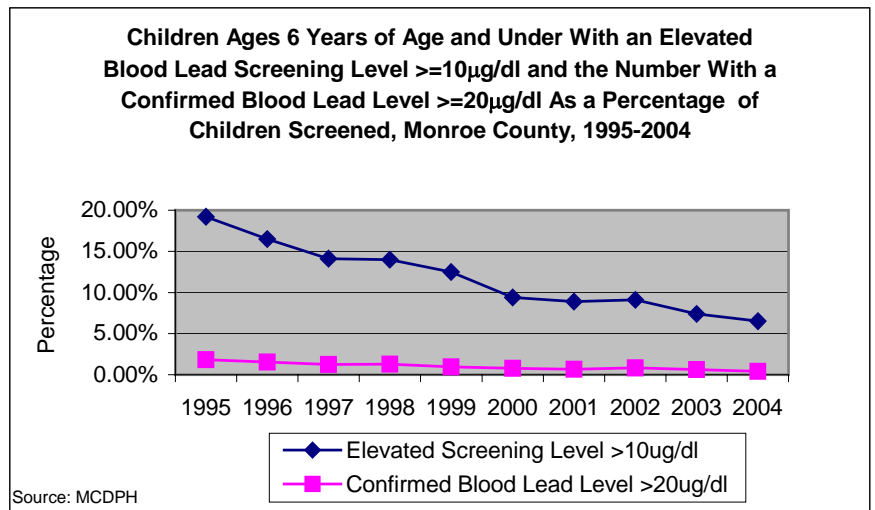
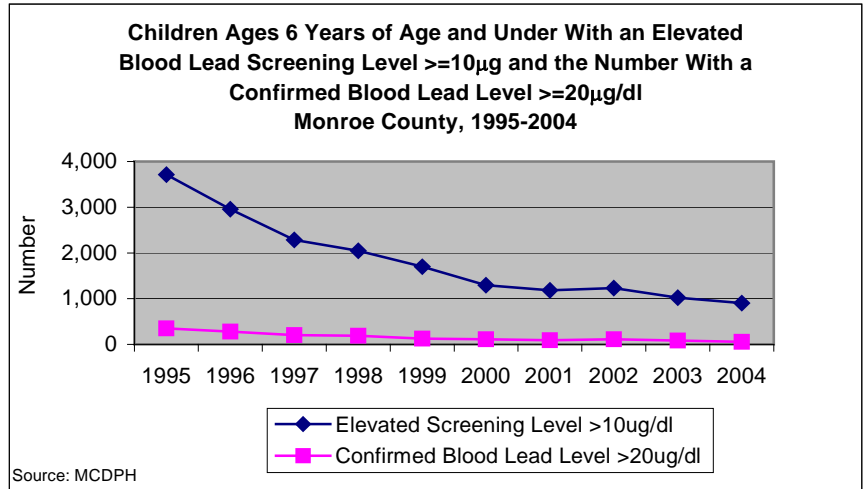


24 14604, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 19, 20, 21.

The screening rate in the high risk zip codes declined between 1995 and 2001, then increased and by 2004, the rate was comparable to the 1995 rate. The rate in the city (defined by census tracts) increased between 2002 and 2004.

In 2004, 57 children had a confirmed lead level $\geq 20\mu\text{g}/\text{dl}$ and 900 children screened had an elevated screening level $\geq 10\mu\text{g}/\text{dl}$. Ninety six percent of the children with a level $\geq 20\mu\text{g}/\text{dl}$ and ninety-one percent of those with a screening level $\geq 10\mu\text{g}/\text{dl}$ reside in the city. The charts to the right depict the number and percentage of children screened with elevated lead levels.

In the past decade, declines were seen in both the number of children screened and the percentage of those screened who had confirmed elevated lead levels $\geq 20\mu\text{g}/\text{dl}$ and elevated screening levels $\geq 10\mu\text{g}/\text{dl}$. The decline in the percentage of children with elevated lead levels may be due, in part, to the decreased screening rate among high-risk 1 and 2 year old children that occurred between 1995 and 2001. Between 2001 and 2004 however, the screening rate of high risk children improved, but the percentage of those with confirmed elevated lead levels continued to go down. Therefore the decline in the number of children with elevated lead levels is probably not solely due to the decline in screening rates but to a true decrease in the number of lead poisoned children as well.



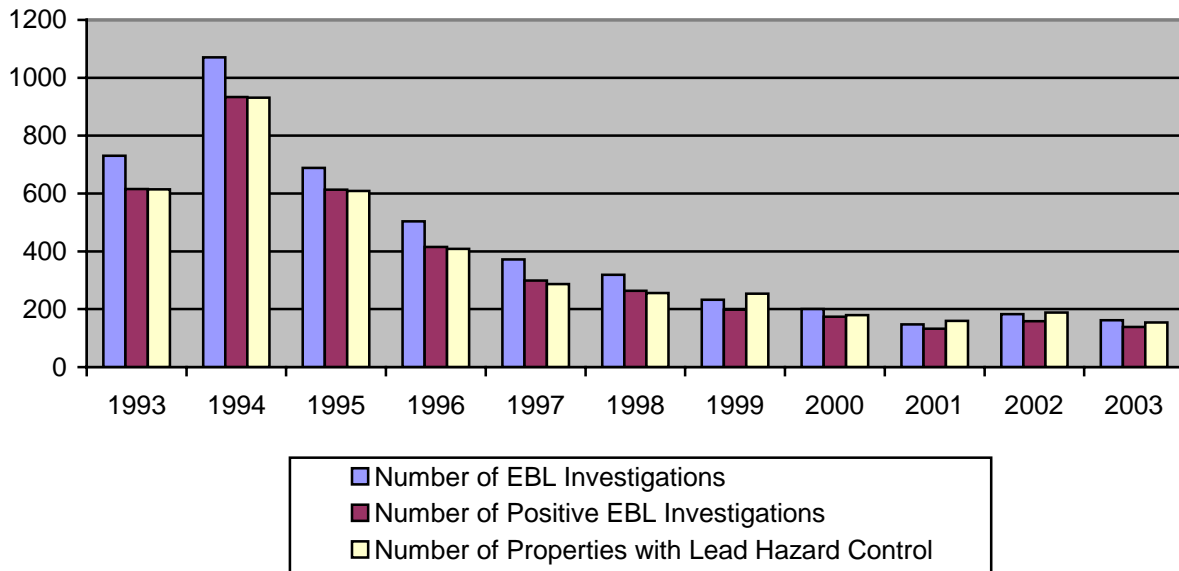
Over the last few years, the number of children with blood lead levels high enough to require chelation treatment has dropped from a high of 64 children in 1994 to 6 children in 2004.

When a child has an elevated blood lead level, interventions are implemented based on the level.

- With a confirmed lead level at $\geq 20\mu\text{g}/\text{dl}$, a comprehensive environmental investigation of the sources of lead in the environment and intensive medical follow-up are required.
- With a confirmed lead level between 10 and 19 $\mu\text{g}/\text{dl}$ (micrograms per deciliter) parents receive educational materials and counseling about potential lead hazards in their child's environment.
- A new local law, implemented on October 1, 2003, requires an environmental investigation whenever a child 0-6 years old has two confirmed, venous blood lead screen tests, a minimum of three months apart, between 15 – 19 $\mu\text{g}/\text{dl}$ within a one year period.

Reduction of environmental lead hazards is a critical part of a child’s treatment. Lead hazards can be reduced in the home through the use of lead hazard reduction measures such as paint film stabilization, enclosure, and component replacement and cleaning. The number of elevated blood lead (EBL) investigations is dependent on the number of children who are identified with confirmed elevated blood lead levels as indicated in the chart on the previous page as “Children screened with confirmed blood lead levels $\geq 20 \mu\text{g/dl}$ ”. The following chart shows the EBL property investigations from 1993 through 2003.

Lead Poisoning Prevention Program Environmental Statistics 1993-2003



TOXIC FREE COMMUNITY

GOAL: To Reduce Toxic Chemical Releases in Monroe County

TREND: Stable

MEASURES:

- In Monroe County, industries report that total annual toxic releases to air, water and land have been reduced by over 16 million pounds between 1988 and 2003, a 70% reduction. The majority of this reduction was made between 1988 and 1994. Levels continue to drop but at a steadier pace.
- Pesticide use has remained stable in the years reported.
- Pesticide concentrations at drinking water intakes were below Federal and State standards.
- Several Persistent Bioaccumulative Toxic Chemicals have been added, or had their threshold amount reduced in the Toxic Release Inventory Reports.

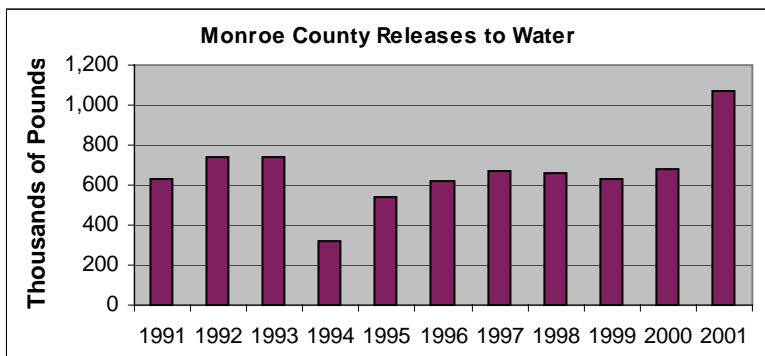
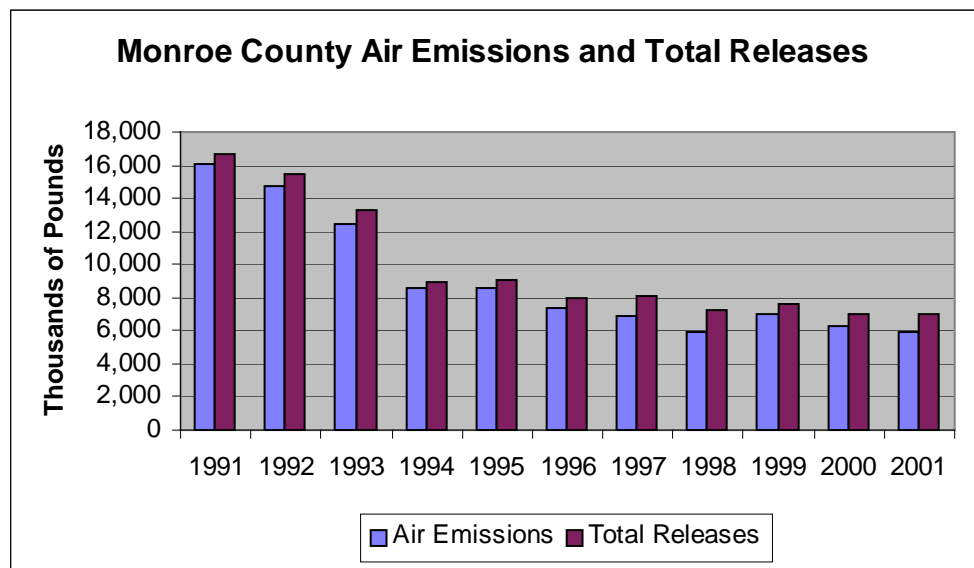
TOXIC FREE COMMUNITY

GOAL: To Reduce Toxic Chemical Releases in Monroe County

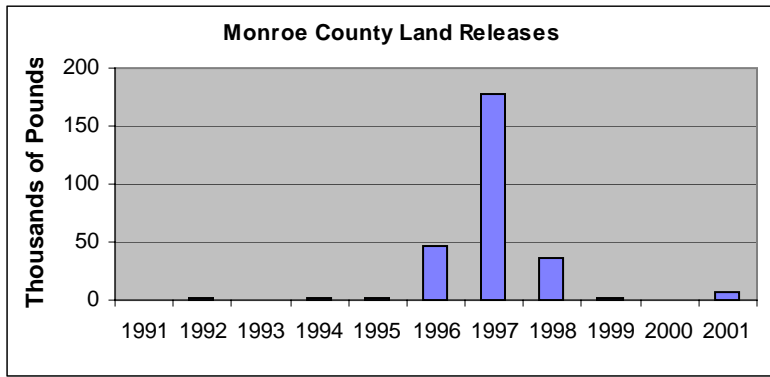
The 1986 Superfund Amendments and Reauthorization Act (SARA) Title III was established by Congress to provide information to local governments and citizens about possible chemical hazards in their communities and to support emergency planning for preventing and ensuring a quick response to chemical accidents. The SARA Emergency Planning and Community Right-To-Know Act provision contains annual reporting requirements for manufacturers using potentially hazardous chemicals that are released to air, water and land. This information is stored in a database known as the Toxic Release Inventory (TRI) and can be used to measure progress in reducing chemical releases and off site transfers from manufacturing facilities. This data is self-reporting by individual companies. The Environmental Protection Agency (EPA) has created a TRI explorer on the web at <http://www.epa.gov/triexplorer>. The data for the Monroe County Toxic Release Inventory and the Kodak Park Toxic Release Inventory in the following pages was compiled from the EPA TRI Explorer. The EPA occasionally conducts surveys to estimate the quality of this data. These surveys can be found at http://www.epa.gov/tri/tridata/data_quality_reports/index.htm.

Monroe County Toxic Release Inventory

Releases to the air include "stack" and "fugitive" emissions. Stack emissions are releases that occur through confined air streams such as stacks, vents, ducts or pipes. Fugitive emissions include equipment leaks, evaporative losses and releases from building ventilation systems.

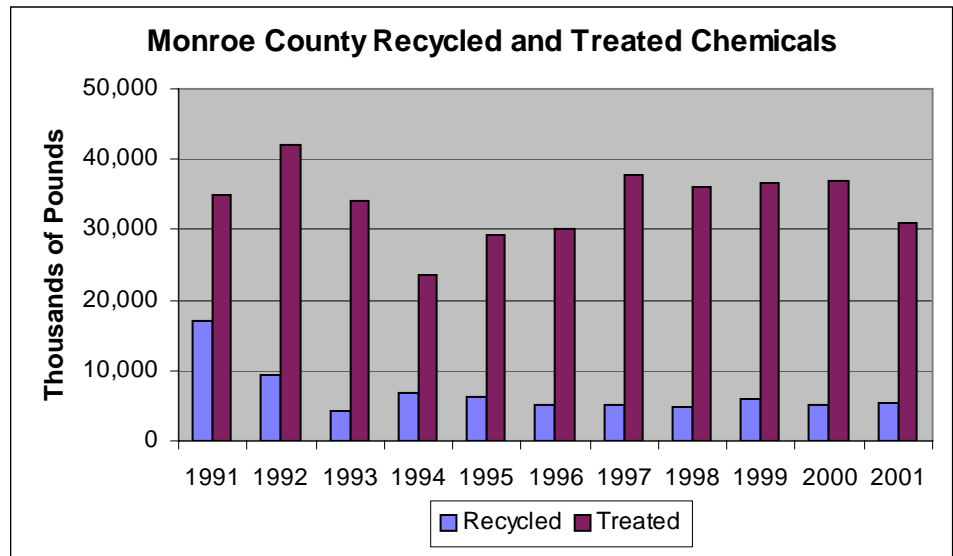


Surface water releases include releases from contained sources such as industrial processes, outflow pipes and open trenches in addition to storm water runoff.



Land releases include disposal or burial in landfills, agricultural land treatment/application (applied or incorporated into the soil), closed surface containers or uncovered holding areas used to volatilize and/or settle waste materials and other disposal methods such as spills, leaks or waste piles.

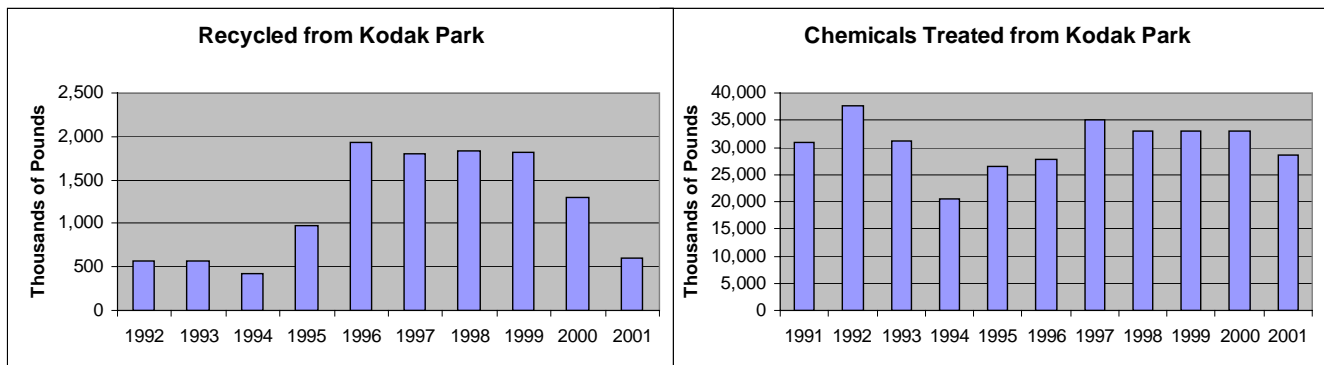
The recycled category includes the total amount of the toxic chemical actually recovered for reuse and recycled on-site. It also includes all amounts of the toxic chemical intended to be recycled and sent off-site for that purpose. Off-site recycling consists of less than 8% of the recycling for the years reported.



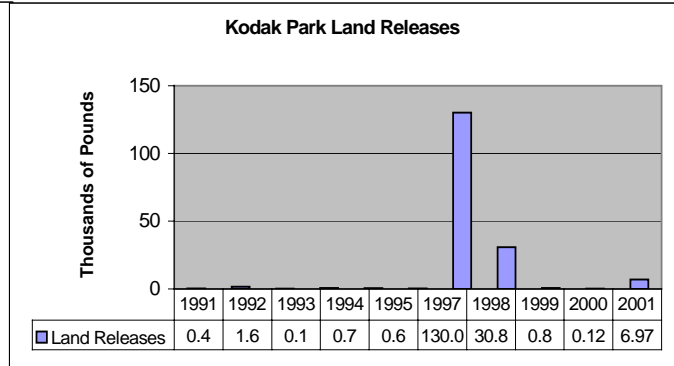
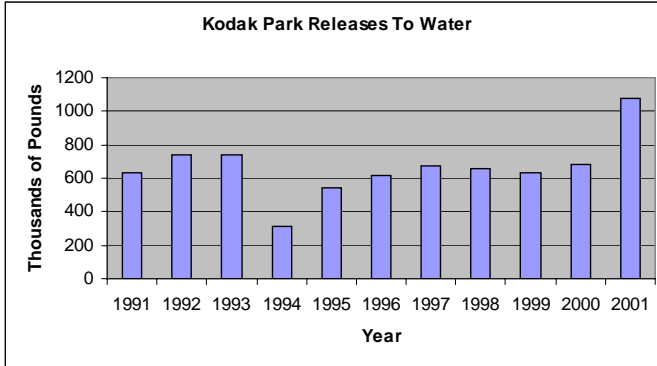
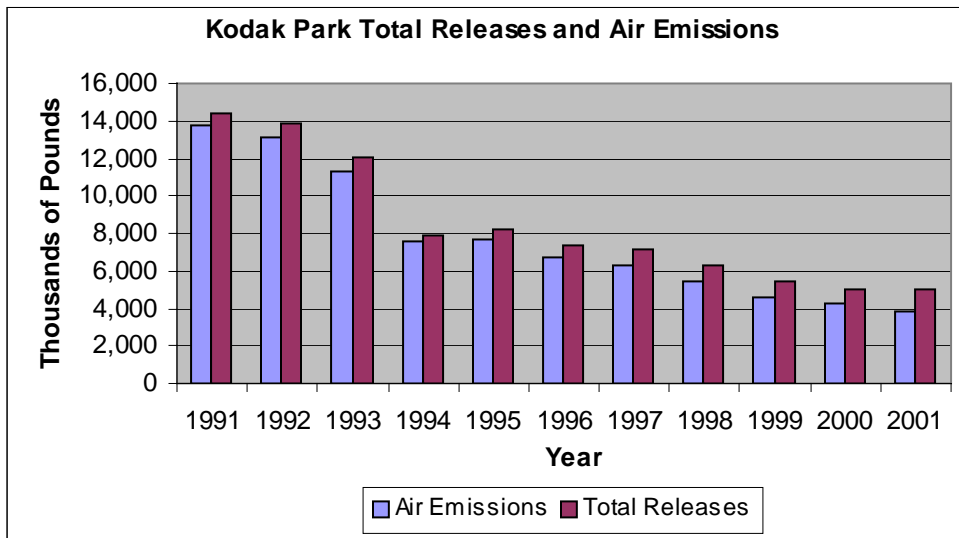
The treated category includes the amount of the toxic chemical actually treated (destroyed) by processes at the facility. Treated also includes the total amount of the toxic chemical intended to be treated (destroyed) and sent off-site for that purpose, not the amount of the toxic chemical actually treated (destroyed) by off-site processes.

Kodak Park Toxic Release Inventory

The definitions in the previous section also apply here.



Eastman Kodak Company's Kodak Park (KP) is the largest photographic product manufacturing facility in the world and is the largest industrial facility in the eastern United States. Kodak Park is located on more than 1,300 acres and linearly extends four miles through the City of Rochester and Town of Greece. Because of its size, Kodak Park is a significant contributor to Monroe County's chemical releases. Since 1987 Kodak Park has reduced its emissions to the air by 79%.²⁵



Power Generation Emissions

The Rochester Gas and Electric (RG&E) power plant at Russell Station in Greece generates electricity used in Monroe County for residential, commercial and industrial energy needs. Beebee Station in downtown Rochester closed in 1999. Russell Station is scheduled to close in 2007. The Eastman Kodak Company's Kodak Park facilities are used to produce both electricity and process steam used for Kodak's operations. Power generation and coal combustion facilities emit nitrogen oxides, sulfur dioxide, carbon monoxide and particulates.

²⁵ The sudden jump in land releases in 1997 was due to a new guidance from the EPA stating that metal contained in cinders and ash from coal combustion should be factored into the releases listing. The cinders and ash were disposed of in a Kodak Park landfill.

The facility's emissions at Kodak Park have been experiencing a significant reduction due to the installation of new pollution control technologies and an aggressive energy conservation program that was initiated in 1992. Peak energy demand has declined by more than 28 megawatts (power needs of 25,000 homes) with 139,000 fewer tons of coal consumed between 1994 and 1996.

Annual Emissions from Power Generation at Kodak Park²⁶

ANNUAL EMISSIONS IN MILLIONS OF POUNDS - NOT REPORTABLE UNDER SARA								
EMISSIONS	1992	1994	1996	1998	1999	2000	2001	2002
Sulfur Oxides (SO _x)	74.4	70.3	61.1	47.5	52.7	55.8	54.6	47.6
Nitrogen Oxides (NO _x)	24.3	24.0	17.7	12.6	10.9	10.8	10.3	9.9
Carbon Monoxide	3.0	2.8	3.5	2.6	1.5	1.6	1.6	1.5
Particulates	2.8	2.8	2.5	2.2	2.2	2.4	1.4	1.3
Volatile Organic Compounds (VOC)	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2

Annual Emissions from Power Generation at RG&E Russell Station

ANNUAL EMISSIONS IN TONS - NOT REPORTABLE UNDER SARA							
EMISSIONS	1995	1996	1997	1998	1999	2000	
Sulfur Oxides (SO _x)	22,401	18,111	20,633	23,759	24,307	25,511	
Nitrogen Oxides (NO _x)	3,379	2,364	2,266	3,339	2,859	2,853	
Particulates	509	503	101	309	316	389	
Volatile Organic Compounds (VOC)	17	14	15	16	17	17	

Pesticides

New York State Department of Environmental Conservation (NYSDEC) has a statewide pesticide reporting system. The first year of this system the data provided (at best) estimates of pesticide usage and sales. Reports indicate 31,737 gallons and an additional 888,557 pounds of pesticides were used in 1997 by licensed pesticide applicators in Monroe County.²⁷ The following information came from the Pesticide Sales and Applications Annual Reports at the NYSDEC web site. The links for these reports may be found at: <http://www.dec.state.ny.us/website/dshm/prl/index.htm>

²⁶ 2000 Kodak Park Environmental Annual Report
²⁷ Revised numbers from the first Report Card from NYS DEC website

Monroe County Reportable Pesticide Sales		
Year / Unit of Measure	Gallons	Pounds
1998	90,841	786,554
1999	139,320	1,033,954
2000	150,371	1,083,772
2001	68,724	1,382,923

Product quantities are given as weight-based or volume-based, depending on the unit of measurement initially reported. If a product was reported using both weight-based and volume-based units, then both quantity columns are given. Reports that stated a product but the quantity was illegible, missing, or irregular were given no value.

The Final Annual Report on 1999 New York State Pesticide Sales and Applications may be found at <http://www.dec.state.ny.us/website/dshm/prl/prl99.pdf> This document includes a section on Data Qualifications and describes some of the possible errors in the data. Below is an excerpt from this section:

The DEC data base may contain an overestimate of the volume of pesticides actually used or sold. Several factors contribute to this potential overestimate. Data are not available to indicate the quantity of pesticides that may be involved in the factors identified below.

- *It is fairly common for private applicators to return unused pesticides. They may even do so in a different year than the one in which they made the initial purchase. The current reporting system does not account for returns. Only the original sale is reported.*
- *Commercial permittees report sales of restricted pesticides to other distributors. These distributors sell the same pesticide a second time, possibly to another distributor, who may sell it yet a third time. Each sale is reported. There is no way of identifying reports of multiple sales of a single volume of pesticide.*
- *Many products are routinely diluted with an inert material prior to application. Some applicators report the diluted amount of material applied, not the undiluted amount as required by the Department. This error can inflate the estimates of total pesticides applied in a given year.*

Commercial Permit Holders (sellers of restricted pesticides), under the Pesticide Reporting Law, must record and report sales of general use agricultural pesticides to certified private applicators. However, certified private applicators can purchase general use agricultural pesticides from noncommercial permit holders. Those sales and the associated use information would not be captured by the Pesticide Reporting Law in those situations.

The above data does not include purchases and use by the general public. These totals should not include the diluting agents added for application. The totals do include pounds of fertilizer mixed together with pesticides for lawn application. Pesticides are applied to residential lawns and gardens, golf courses, roadside application, extermination and in cooling towers.

The way pesticides are applied is changing. A new trend in dealing with pests, Integrated Pest Management (IPM), requires the determination of the exact type of pest causing the nuisance. Removal of food sources, water sources, breeding grounds and access to buildings are crucial steps to alleviate the problem. Pesticides are used less in conjunction with these other methods. There are efforts by New York State Department of Transportation and Monroe County Department of Transportation to discontinue the use of herbicides along highways and rights-of-way using IPM. Pesticide use is usually associated with agriculture. However, according to Cornell Cooperative Extension the average homeowner uses pesticides at the rate of twenty times that of farmers. Many lawn applications include a pesticide and are on a set schedule. This type of distribution ensures overuse. Of the lawn acres in Monroe County, approximately 65% is residential, 19% is commercial, 10% is public and 6% agricultural. For homeowners, Cornell Cooperative Extension has created the Great Lawns/Great Lakes

Program. This program helps homeowners use IPM principals to reduce the use of fertilizers and pesticides.²⁸

The chemical composition of some pesticides has also changed. New chemicals are being used as pesticides. New methods of pest removal use organisms, growth hormones, or sterilization drugs. Some of these appear to have low toxicity toward humans but may damage non-target organisms. Research continues on pesticides that may disrupt endocrine functions. These pesticides may disrupt or mimic hormones when combined with certain environmental agents or when there is an exposure to another chemical. Efforts are being made to create pesticides that target specific organisms and exterminate pests without harming humans or other species. Monroe County now only uses larvicide when conditions require it. See the section on West Nile in this document.

Monroe County launched a campaign using the IPM principals when West Nile Virus was introduced to the area. Residents received a brochure on sources of standing water in and around the home that could be potential breeding grounds for mosquitoes that transmit the virus. The test results of crows and mosquitoes were used to determine whether a significant public health threat existed. When the county decided to use pesticides to control the mosquito larvae, it chose a pesticide whose active ingredient is *Bacillus sphaericus*, a compound that has no known toxic effects on humans.

Pesticide misuse and improper disposal can cause unnecessary discharges to waterways. Even practical application will cause some amount of product to enter surface waters. The United States Geological Survey did several reports on pesticides in water supplies and surface water. Pesticide concentrations from all the tests done on bodies of water in and around Monroe County were well below Federal and State standards for drinking water with the exception of the LeRoy Reservoir.²⁹ However, trace amounts of pesticides and/or their metabolites³⁰ were found at every sampling point. Sampling points included Hemlock and Canadice lakes and their tributaries; surface waters at Black Creek in Churchville, Oatka Creek in Garbutt and Honeoye Creek in Honeoye Falls; Lake Ontario at the water supply intake; the LeRoy Reservoir; and a spring in Victor. All the sampling points for the creeks are near the county borders and are representative of the pesticide concentrations upstream from that point.

Hemlock Lake is a drinking water source for the county. For Hemlock and Canadice lakes USGS reported, "Pesticide concentrations observed in these two lakes (Canadice and Hemlock) are among the lowest in any surface waters of New York State."³¹

Persistent Bioaccumulative Toxic Chemicals (PBT)

The EPA has launched an initiative to identify and reduce sources of Persistent Bioaccumulative Toxic Chemicals (PBT). "PBT pollutants are chemicals that are toxic, persist in the environment and bio-

28 More information on Cornell Cooperative Extension can be found at <http://www.cce.cornell.edu/~Monroe/>.

29 Pesticide concentrations of samples taken at the water intake for drinking water at the LeRoy Reservoir were below Federal and State standards for drinking water. Two samples from the tributary or the outlet exceeded Federal and State Maximum Contaminant Levels for the pesticide Atrazine.

The information was taken from the following reports:

Pesticides and Their Metabolites in Community Water-Supply Wells of Central and Western New York, August 1999: Eckhardt, David A.V., Hetcher, Kari K., Phillips, Patrick J., and Miller, Todd S., March 2001, U.S. Geological Survey Water-Resources Investigations Report 00-4128,

Pesticides and their Metabolites in Three Small Public Water-Supply Reservoir Systems, Western New York, 1998-99: Phillips, Patrick J., Eckhardt, David A., and Rosenmann, Larry, July 2000, U.S. Geological Survey Water-Resources Investigations Report 99-4278,

Pesticides and their Metabolites in Selected Surface-water Public Supplies in New York State, Patrick J. Phillips, David A. Eckhardt, Melissa A. Smith, and Larry Rosenmann, December 2000, U.S. Geological Survey Water-Resources Investigations Report 00-4119,

Pesticide Concentrations in Surface Waters of New York State in Relation to Land Use- 1997: Patrick J. Phillips, Gary R. Wall, David A. Eckhardt, Douglas A. Freehafer, and Larry Rosenmann, June 1998, U.S. Geological Survey Water-Resources Investigations Report 98-4104.

Most of these reports can be found at <http://ny.usgs.gov/htmls/pub/nypesticides/index.html>

30 Certain pesticides degrade into other compounds referred to as metabolites. There are few drinking water standards associated with these compounds.

31 Pesticide Residues in Hemlock and Canadice Lakes and their Tributaries in Western New York, 1997-98: David Eckhardt and Sarah Burke, May 2000, U.S. Geological Survey.

accumulate in food chains and, thus, pose risks to human health and ecosystems. The biggest concerns about PBTs are that they transfer rather easily among air, water, and land, and span boundaries of programs, geography, and generations.”³²

They can travel long distances through water ways and through atmospheric deposition.³³ These chemicals can persist in the environment through travel or re-suspension from lake sediments. Some of these chemicals have found their way into the food chain. No data could be found regarding the background levels of some of these chemicals in the local environment. For many chemicals, no test exists that can be done to check for environmental background levels. Most of the chemicals that are being tracked are either showing a reduction or remaining stable.

The EPA’s Toxic Release Inventory (TRI) added criteria that data be reported for seven new persistent bioaccumulative toxic (PBT) chemicals for the 2000 reporting year. A few PBTs were required to be reported at lower thresholds. Some of the chemicals reported are actually families of chemicals (there are hundreds of types of dioxin) while other chemicals are related (benzo (g,h,i)perylene is a polycyclic aromatic compound that is reported separately). Thirteen chemicals have TRI reports for releases in other parts of the country, but none for Monroe County. These chemicals include: Aldrin, Chlordane, Heptachlor, Hexachlorobenzene, Isodrin, Methoxychlor, Octachlorostyrene, Pendimethalin, Pentachlorobenzene, PCBs, Tetrabromobisphenol A, Toxaphene, and Trifluralin. DDT and Mirex are also PBTs but have no release reports. Both were banned due to toxic effects.

Some data has been collected for this area. The Great Lakes Binational Toxics Strategy was signed in 1997 and is a Canada-United States Strategy for the Virtual Elimination of Persistent Toxic Substances. In the 2002 Annual Progress Report challenge goals were met for Alkyl-Lead,³⁴ Octachlorostyrene, and the Level I pesticides (aldrin, Chlordane, mirex, DDT and toxaphene). The report calls for “governments to address Level II³⁵ substances through pollution prevention activities.” The 2002 report focuses on accomplishments in reductions and reporting current levels of Mercury, PCBs, dioxins/furans and hexachlorobenzene (HCB)/benzo(a)pyrene (B(a)P). Benzo(a)pyrene is also included in the TRI reports under, “Polycyclic aromatic compounds (PACs), also known as polycyclic aromatic hydrocarbons (PAHs), (they) are a group of over 100 different chemicals that are characterized by hydrogen and carbon arranged in two or more fused benzene rings.”³⁶

32 www.epa.gov/opptintr/pbt/aboutpbt.htm

33 The term “acid rain” was inclusive for SO_x and NO_x compounds. Atmospheric deposition refers to distribution of chemicals through similar processes as acid rain but is inclusive for all chemicals. Most fallout happens in dry conditions.

34 Alkyl-lead compounds are man-made compounds in which a carbon atom of one or more organic molecules is bound to a lead atom.

35 Level II substances include cadmium and cadmium compounds, 1,4 dichlorobenzene, 3,3’ dichlorobenzidine, dinitropyrene, endrin, heptachlor (and heptachlor epoxide), hexachlorobutadiene and hexachloro 1,3 butadiene, hexachlorocyclohexane, 4,4’ methylenebis(2 chloroaniline), pentachlorobenzene, pentachlorophenol, tetrachlorobenzene (1,2,3,4 and 1,2,4,5), tributyl tin and PAHs as a group, including anthracene, benzo(a)anthracene, benzo(ghi)perylene, perylene, and phenanthrene.

36 Economic Analysis Of The Final Rule To Modify Reporting Of Persistent Bioaccumulative Toxic Chemicals Under EPCRA Section 313, Economic and Policy Analysis Branch Economics, Exposure and Technology Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency October, 1999, p. H-1.

The following two tables are a list of PBT chemicals and their TRI reports compiled through information found on the EPA website. All are reported in pounds except dioxin which is in grams. The threshold for lead changed to 100 pounds in 2001. There is no year 2000 TRI lead data for Monroe County. Lead and Mercury releases in Monroe County are primarily from burning coal for energy production.

Facility and Chemical	2000			2001		
	Recycled	Treated	Released	Recycled	Treated	Released
PAC	US 2001 Total for Released PACs 2,816,577					
Amerada Hess Corp.	0	0	4.6	0	0	1.1
Exxonmobil Oil Corp.	0	0	0.11	0	0	0.12
Russell Station	0	0	0.57	0	0	0.62
Western Bituminous Prods.	0	0	0.15	0	0	0
Eastman Kodak Co.	0	28	85	0	24	11.0
Total	0	28	90	0	24	12.9
Benzo(g,h,i)Perylene	US 2001 Total for Released Benzo(g,h,I)Perylene 123,348					
Eastman Kodak Co.	0	0	0.0292	0	0	0.02
Mercury and Mercury Compounds	US 2001 Total for Released Mercury and Compounds 5,123,836					
Fisher Scientific - Mercury	68	0	1	69	0	1.5
Russell Station - Mercury Compounds	0	0	66	1	0	85
Eastman Kodak Co. - Mercury Compounds	11	0	30	1.8	0	94
Total	79	0	97	72	0	181
Dioxin and Dioxin-Like Compound	US 2001 Total for Released Dioxin and Compounds 148,788 grams					
Eastman Kodak Co. (In Grams)	0	34.001	5.6	0.00015	35	8.5
Russell Station (In Grams)	0	0	0.19	0	0	0.2
Total (In Grams)	0	34.001	5.79	0.00015	35	8.7

Lead 2001 (in pounds)	Recycled	Treated	Releases
Eastman Kodak Co.	60	0	1200
Gleason Works	1022	0	265
Harris Corp. RF Communications	1227	0	157
PJC Techs. Inc. Metro Circuits	918	0	1145
Total for companies reporting >1000lbs	2085	198	1022
Total	5312	198	3789
Lead Compounds 2001			
Eastman Kodak Co.	2900	0	7700
Total for companies reporting >1000lbs	0	0	198
Total	2900	0	7898
<i>US 2001 Total for Released Lead and Lead Compounds 440,487,772 lbs.</i>			

The TRI only reports industrial sources of these chemicals. Many of them can be found, produced or released at home. Many programs have been initiated to decrease source emissions. The following information was compiled from the EPA website, the 2002 Great Lakes Binational Toxics Strategy Annual Progress Report, the World Health Organization and other reports. The following is information on the few PBTs that are still being produced in Monroe County. All have some kind of reduction program in place.

Polycyclic Aromatic Hydrocarbons - PAHs are primarily by-products of incomplete combustion. These combustion sources are numerous and include natural sources such as wildfires, industrial processes, transportation, energy production and use, food preparation, smoking tobacco, and disposal activities such as open trash burning.

The possible health effects of PAHs include:

- Cancer in humans
- Skin disorders in humans and animals
- Harmful developmental and reproductive effects

Benzo(a)pyrene (B(a)P) is one type of PAH. Fifty percent of the B(a)P emitted to the Great lakes Basin is produced by residential wood combustion. Environment Canada and USEPA have both had change out programs for wood burning stoves that will reduce B(a)P emissions. Many of the refineries and chemical companies have either made or are making changes to reduce these emissions. “Although B(a)P inventories indicate significant reductions, ambient levels of B(a)P in the Great Lakes have been fairly consistent since the early 1990’s, indicating a need to better identify B(a)P emitting sources.”³⁷

Mercury - Mercury, a toxic metal and natural element, is typically seen as a shiny, silver-white, odorless liquid. It is a persistent, bioaccumulative, and toxic pollutant that affects the nervous system. Methyl mercury is a chemical species that bio-accumulates in fish. Fish consumption advisories are in effect for mercury in thousands of lakes and rivers, including much of the Great Lakes ecosystem.

The possible health effects of Mercury include:

- Cancer
- Stomach and large intestine damage
- Brain and kidney damage
- Permanent harm to the unborn
- Possible lung damage, increased blood pressure and heart rate

Mercury is sometimes a by-product of combustion and is used in the production of some batteries.

Mercury can also be found in these commonly used products:

- Thermostats and cameras
- Cathode tubes
- Calculators and small appliances
- Medical laboratory chemicals
- Mercury vapor lamps
- Thermometers and Barometers
- Electrical Switches
- Hearing aides
- Household cleaners
- Computers

Mercury is also used as a catalyst in production of urethane polymers for plastics or a cathode in electronic production of chlorine. Mercury reduction programs have been in effect for quite some time. In 1999, Monroe County, in a joint effort with the EPA, produced a booklet for dentists, “Use Best Management Practices of Amalgam³⁸ Handling and Recycling” in an effort to reduce mercury entering the waste stream. A thermometer exchange program was also instituted in Monroe County. Proper waste disposal and recycling programs for computers, switches and other electronics containing mercury

³⁷ 2002 Great Lakes Binational Toxics Strategy Annual Progress Report, United States Environmental Protection Agency and Canada, p. 25.

³⁸ Amalgam is a mercury alloy used by dentists.

have reduced amounts of mercury being released into the environment in Monroe County. Many mercury reduction programs are in effect or being developed throughout the country.

Dioxins and Furans - Dioxins are not to be confused with the chemical dioxane. The two are not related. The term dioxin is commonly used to refer to a family of toxic chemicals that all share a similar chemical structure and a common mechanism of toxic action. PCBs exhibit dioxin-like toxicity but are classified separately. Dioxins vary in toxicity. In an effort to decrease confusion, the World Health Organization set a total dioxin-like toxic equivalency standard (TEQ) based on the toxic effects of the dioxin 2,3,7,8-TCDD (a well studied dioxin). TEQs are used for dioxins and dioxin-like PCBs.

Dioxin levels in the environment have been declining since the early seventies and have been the subject of a number of federal and state regulations and clean-up actions; however, current exposure levels still remain a concern. PCBs were produced commercially in large quantities until production was stopped in 1977.

The Toxic Release Inventory reports total mass of dioxins not Toxic Equivalents (TEQ). Toxic Releases are usually determined through mass balance losses and not through actual monitoring. Kodak decided to monitor for dioxin in the year 2000. Their findings showed that they had released 6.5 grams of dioxin with a TEQ of 0.2 grams. In 1998 the USEPA established the National Dioxin Air Monitoring Network (NDAMN). The nearest station to Monroe County is located approximately 80 miles south in Jasper, NY and this station reports the atmospheric Concentration of Dioxin and PCB TEQ to be 5-10 fentograms/cubic meter.³⁹

The possible health effects of dioxin are more complex. Characterized by EPA as likely human carcinogens, dioxins are anticipated to increase the risk of cancer at background levels of exposure. In 1997, the International Agency for Research on Cancer classified 2,3,7,8, TCDD as a known human carcinogen. 2,3,7,8 TCDD accounts for about 10% of background dioxin risk.

At body burden levels 10 times or less above those attributed to average background exposure, adverse non-cancer health effects have been observed both in animals and, to a more limited extent, in humans. In animals these effects include hormone system changes, altered fetal development, reduced reproductive capacity, and immunosuppression. Effects specifically observed in humans include changes in markers of early development and hormone levels. At much higher doses, dioxins can cause chloracne, a serious skin disease in humans.

Dioxins can be commonly detected in air, soil, sediments and food. Most dioxins are introduced to the environment through the air as trace products of combustion. Dioxin is created with any type of incineration including forest fires, backyard trash burning and secondary copper smelting. Other sources include chlorine bleaching of wood pulp and land application of sewage sludge.

Dioxins are widely distributed throughout the environment in low concentrations. Most people receive their dioxin exposure from the food supply and have detectable levels of dioxins in their tissues. A similar exposure for all people results from uptake through the same national food supply. Individuals, who over an extended period of time eat primarily locally grown meat, fish or dairy products may have significantly greater dioxin levels than those found in the commercial food supply. Individuals in this situation may receive greater exposure and may be at greater risk than the general population. Another example of elevated exposure is breast feeding infants; however, health experts generally agree the overall benefits of breastfeeding far outweigh potential risks.

³⁹ 2002 Great Lakes Binational Toxics Strategy Annual Progress Report, United States Environmental Protection Agency and Canada, p. 55 A fentogram is 10⁻¹⁵ grams or 0.000000000000001 grams.

The World Health Organization (WHO) recommends a tolerable daily intake of no more than 1 to 4 picogrammes/kilogram body weight. The current levels of exposure in industrialized countries are in the range of 1 to 3 picogrammes/kilogram body weight.⁴⁰ The EPA's "risk-specific" dose was 0.006pg/kg/d but may be changed to 0.01pg/kg/d. American consumption TEQs (including PCBs) in picogrammes/kilogram body weight/day was estimated to be 42 pg/kgbw/d for infants, 2.7-6.3 pg/kgbw/d for children aged 1-19 and 1.8-2.4 pg/kgbw/d for the rest of the population.⁴¹ WHO estimates dioxin half -life in the human body to be 7 years. Animal fats have the highest dioxin concentrations and plants have the lowest levels of dioxin. A diet of mostly vegetables would decrease a person's dioxin intake. Unfortunately, such a diet would increase their DDE intake (a chemical whose origin comes from the breakdown of DDT). Despite the ban on DDT in 1972, its chemical metabolites still persist in the environment.⁴²

Historically incinerators have been a significant emission source of dioxin. Improvements to incinerators have been going on for years resulting in significant reductions of pollutants. Trash or barrel burning may be the leading source in years to come.⁴³ This type of burning was outlawed in Monroe County in 1970. Permitted burning still occasionally takes place. Programs are being developed elsewhere to reduce these emissions.

Lead: Lead is discussed in a separate section in this Report Card.

40 www.who.int/mediacentre/factsheets/fs225/en/print.html

41 Schecter et al. "Intake of Dioxins and Related Compounds from Food in the US Population," *Journal of Toxicology and Environmental Health Part A*, 63:1-18, p.14, Taylor and Francis, 2001. This study can be found at www.ejnet.org/dioxin/dioxininfood.pdf

42 Schecter et al. "Intake of Dioxins and Related Compounds from Food in the US Population," *Journal of Toxicology and Environmental Health Part A*, 63:1-18, p.13-14, Taylor and Francis, 2001. This study can be found at www.ejnet.org/dioxin/dioxininfood.pdf

43 2002 Great Lakes Binational Toxics Strategy Annual Progress Report, United States Environmental Protection Agency and Canada, p. 17

PREVENTING ACCIDENTAL RELEASES

GOAL: To Prevent or Minimize the Detrimental Effects on Public Health, Personal Property, and the Environment from Accidental Release of Petroleum Products and Hazardous Substances

TREND: Mixed Results

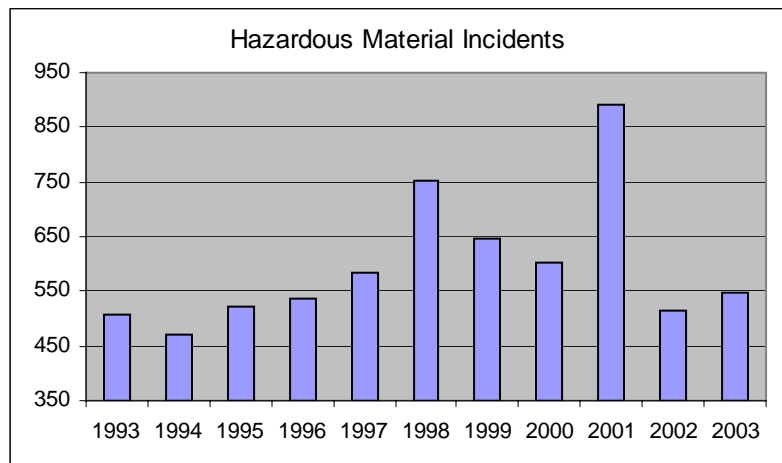
MEASURES:

- The annual number of reported hazardous material incidents has increased over the past seven years. Better reporting is suspected as the reason for this increase.
- Monroe County Department of Public Health handled 387 calls from October 9, 2001 through February 4, 2002 concerning anthrax.

PREVENTING ACCIDENTAL RELEASES

GOAL: To Prevent or Minimize the Detrimental Effects on Public Health, Personal Property, and the Environment from Accidental Release of Petroleum Products and Hazardous Substances

Monroe County recognizes the potential consequences that emergency incidents involving hazardous materials can have on life, property, and the environment. It has instituted a proactive approach to emergency incident management by developing an Emergency Management System that utilizes proven management practices and comprehensive use of the community's resources to effectively respond to disasters and emergency situations. This team approach is utilized to respond to hazardous materials incidents and includes city, town and village fire departments, the Rochester Fire Department Hazardous Materials Team, the Monroe County Hazardous Materials Team, industrial hazardous materials teams, police agencies, private and volunteer ambulance agencies, the Office of Emergency Preparedness, the Emergency Communications Department (911), and other resources.



In 2001, over 300 of the total 892 incidents were anthrax related

Monroe County has a well-established reporting system, which may account for the high number of reported emergency events. It is unclear whether the fluctuation in these numbers is due to changes in the number of actual events or if it is a change in the number of incidents being reported. Regardless of why these numbers fluctuate, efforts in training, risk management, maintenance, chemical awareness and the promotion of safety must be continued.

Additionally, the events of September 11, 2001 and subsequent incidents involving anthrax in Florida, New Jersey, Washington, New York City and Connecticut had significant impacts on Rochester and Monroe County. The threat of bioterrorism was very real. Thousands of concerned residents and business owners contacted the Emergency Communications Department (911) for evaluation of suspicious mail and packages. This influx of calls prompted the emergency response community to create a specialized assessment team comprised of representatives from the Federal Bureau of Investigation, Rochester Fire Department Hazardous Materials Team, Monroe County Hazardous Materials Team and the Monroe County Department of Public Health. Each call received by ECD was evaluated, then forwarded to the assessment team for additional action. Those calls expressing a high level of concern, actual threat or significant targets received a response. MCDPH received 387 calls from October 9, 2001 through February 4, 2002. Responses were required to 40 incidents, where samples were collected for laboratory analysis. All samples submitted for analysis tested negative for bacillus anthracis.

Hazardous Material Incident Levels

Each hazardous material incident requires a specific dispatch and follows specific notification and dispatch of specific types of personnel that operate under standard protocols.

Level 0: Incident not likely to adversely impact or threaten life, health, property or the environment. Control of the incident is within the capabilities of the resources locally available to responders in the City of Rochester and County of Monroe.

Level 1: Incident that may adversely impact or threaten life, health, property, or the environment within an area immediately surrounding the point of release or potential release & **Level 0**.

Level 2: Incident that may adversely impact or threaten life, health, property, or the environment beyond the point of release or potential release & **Level 1**.

Level 3: Incident that adversely impacts or threatens life, health, property, or the environment beyond the point of release. Additional resources are required to supplement those locally available.

CITY OF ROCHESTER HAZ-MAT TEAM RESPONSES									
Incident	1995	1996	1997	1998	1999	2000	2001	2002	2003
0	20	34	43	31	40	34	287*	75	51
1	22	2	5	3	5	1	4	1	1
2	1	0	0	0	0	0	0	0	16
3	0	0	0	0	0	0	0	0	0
Total	43	36	48	34	45	35	297*	87	68

*Includes responses to anthrax.

MONROE COUNTY HAZ-MAT TEAM RESPONSES									
Incident	1995	1996	1997	1998	1999	2000	2001	2002	2003
0	22	29	25	35	29	32	40	56	50
1	4	8	8	3	5	4	2	5	4
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
Total	26	37	33	38	34	36	42	61	54

Hazardous Substances Emergency Events Surveillance

The Hazardous Substances Emergency Events Surveillance Cumulative Report, 1992-1995 (HSEES) was prepared by the New York State Department of Health. The study collects data about emergency spills or releases involving non-petroleum hazardous substances. Forty nine percent of the spills in upstate New York State occurred in the eight counties with more heavily populated and industrialized areas. During this time period, a total of 1,462 emergency events were reported in the whole of New York State. Monroe County reported 149 emergency events, the highest number for a single county in the state. Twenty-three of the 149 emergency events reported in Monroe County resulted in the injury of 56 people.

Injuries may include respiratory irritation, trauma, nausea or vomiting, eye irritation, skin irritation, dizziness or other central nervous system symptoms, burns (chemical or thermal) and/or headache. Employees refers to anyone employed by a business or facility involved in a reported accident.

Injured Persons	
Responders	7
Employees	18
General Public	31
Total	56

SAFE WASTE MANAGEMENT

GOAL: Reduce, Reuse, Recycle and Safely Dispose of Solid Wastes Generated within Monroe County

TREND: Improving

MEASURES:

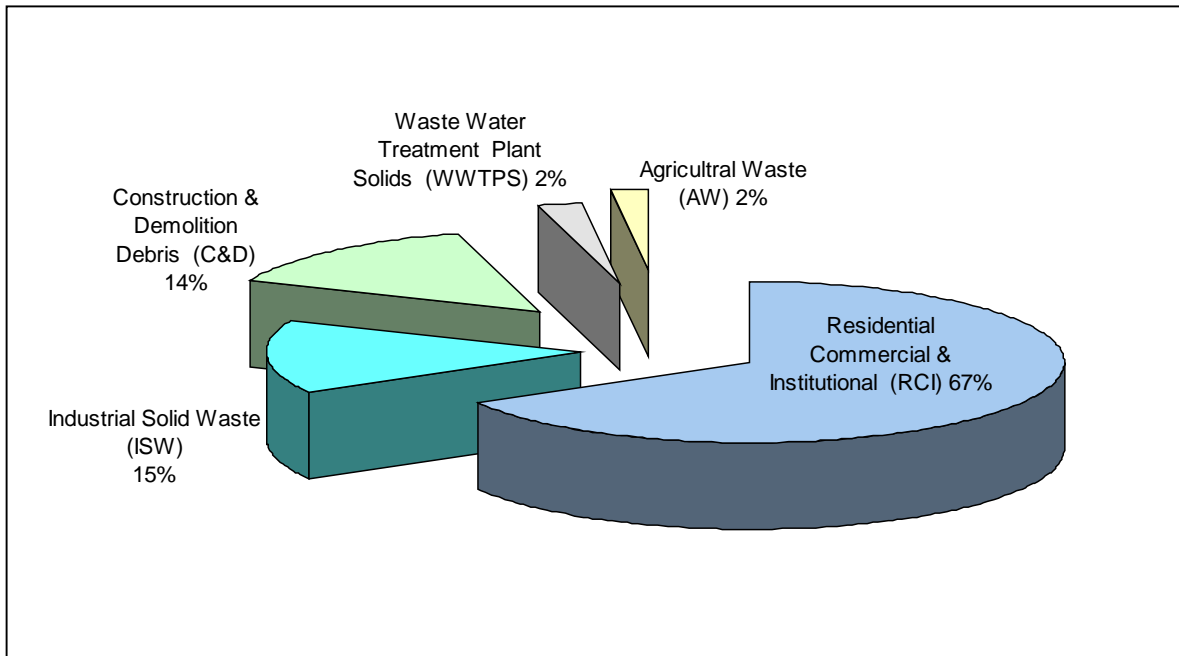
- Monroe County generated 1.5 million tons of solid waste in 2000.
- Businesses and residents recycle approximately 786,000 tons of assorted materials annually. The amount of waste recycled from 1996 through 2003 increased by 12%.
- The Household Hazardous Waste Facility has accepted over 1,400 tons of waste since 1991. In 1997, Monroe County collected eight tons of unusable pesticides through the "1997 clean Sweep" program. Two more "Clean Sweep" days have been held bringing the total amount of unusable pesticide collected to 12.7 tons.

SAFE WASTE MANAGEMENT

GOAL: Reduce, Reuse, Recycle and Safely Dispose of Solid Wastes Generated within Monroe County

Monroe County residents, businesses, institutions and municipalities generated approximately 1.5 million tons of solid waste in 1998. This waste is generated by many sources as can be seen in the chart below.

1992/93 Study – Solid Waste Generation in Monroe County



Monroe County's Mill Seat Landfill

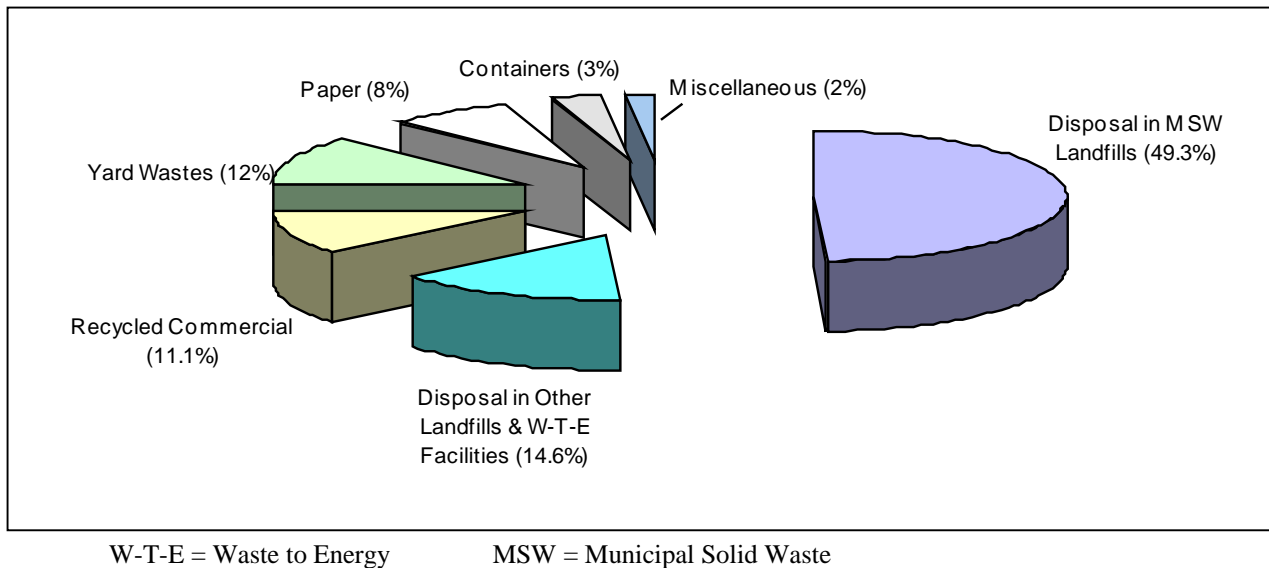
Monroe County developed the ninety-five acre Mill Seat Landfill located in the Town of Riga. The facility opened in 1993 and is used for the disposal of waste which is not recycled, composted, or incinerated. It provides an environmentally secure reuse for some contaminated soils and prevents illegal and uncontrolled dumping activities. For example, petroleum contaminated soils being accepted at the Mill Seat Landfill are non-hazardous and are reused as alternative daily cover. Private area landfills continue to accept municipal solid waste and non-hazardous industrial waste. Debris from construction and demolition is managed by private facilities.

There are many waste haulers and other landfills. For example, in 1997, Waste Management's High Acres landfill in Perinton received 37% of their waste from Monroe County totaling 166,000 tons.

Monroe County Waste Site Inventory

Over the past 20 years Monroe County has inventoried and reviewed waste sites that contain both hazardous and non-hazardous materials. The sites containing hazardous materials are referred to the New York State Department of Environmental Conservation for review and investigation. The **non-hazardous sites** are monitored for proper cover, settling and any proposed construction on or near the site. As part of the development review process, proposed developments are reviewed for proximity to waste sites to ensure that incompatible land use does not occur (i.e. a residential development on a former waste site or the use of a private water well near a waste site). Over 400 waste disposal sites have been identified. These sites contain various materials including municipal waste, construction and demolition debris, agricultural and nursery debris, tree and brush debris, junked vehicles or junkyards and non-hazardous industrial material.

1992/93 Study – Solid Waste Management



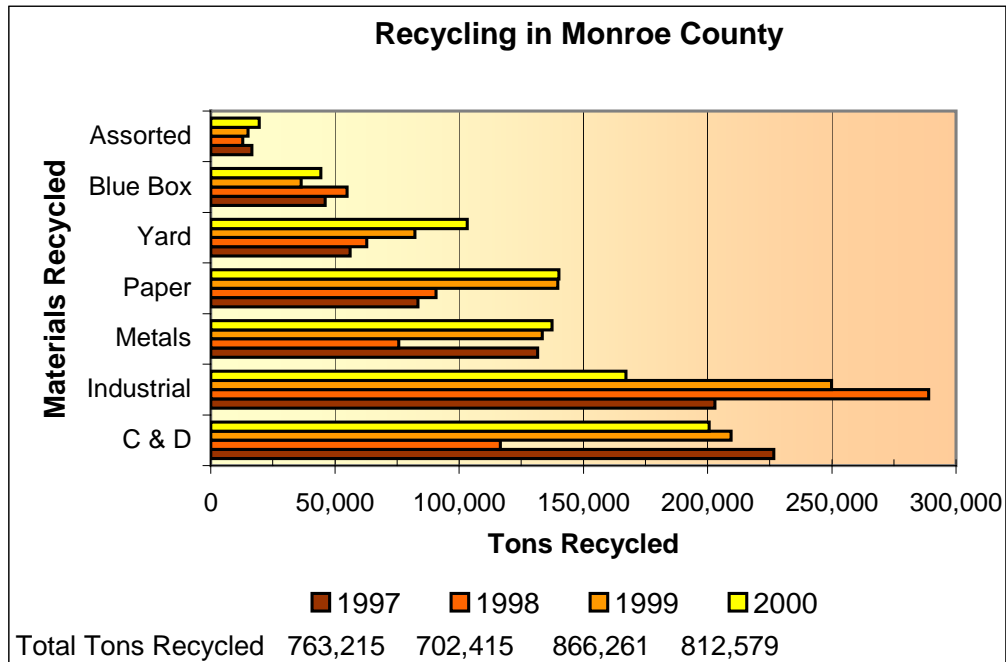
The chart above is a breakdown of the types of solid wastes. Containers, paper, yard wastes and miscellaneous together make up 25% of total solid waste and are considered non-commercial recyclables. The percent of total recyclables has increased over the past six years, decreasing the **percent** disposed in landfills and W-T-E facilities.

Waste Minimization, Recycling & Reuse

Monroe County continues to assist local businesses, industry and institutions to reduce waste by implementing waste minimization and recycling plans and increasing recycling participation through compliance and enforcement of local recycling and reuse laws. Public education programs are conducted to increase residential and business participation in waste reduction and recycling along with reduction of yard wastes through grass recycling and composting activities.

Recycling Rates in Monroe County

Monroe County businesses and residents have recycled an average of 786,000 tons of assorted materials every year between 1997 and 2000. Based on information reported by waste haulers and recycling



facilities, Monroe County residents, businesses, institutions, industries and municipalities recycled components of the waste stream at the record rate of 58% in 1999.

Waste Generated and Recycled in Monroe County (In Million Tons)

Year	1995	1996	1997	1998	1999	2000
Total Waste	1.4	1.4	1.4	1.5	1.5	1.5
Total Recycled	0.60	0.63	0.76	0.70	0.87	0.81
Percent Recycled	43%	45%	54%	47%	58%	55%

The slow increase in the amount of waste generated over the past several years reflects national trends. The large increase in recycled materials in 1997 was due to 45,000 tons of metal being recycled by local businesses replacing equipment.

Household Hazardous Wastes

Monroe County's Household Hazardous Waste (HHW) Collection Facility, which opened in 1991, provides community residents with a safe disposal alternative for household hazardous wastes. The facility is opened on a regular basis and when the situation warrants it, the HHW facility will open either immediately or by appointment. In 1995, Monroe County obtained permission from New York State Department of Environmental Conservation (NYSDEC) to accept wastes at the HHW facility from conditionally exempt industrial and institutional generators (CESQG's) of hazardous wastes defined by

NYS Codes Rules and Regulations Part 372. This is waste from businesses that generate small quantities of waste. HHW also obtained permission to sponsor mobile household hazardous waste collections.

Due to significant increases in utilization, Monroe County completed an expansion of the HHW Collection Facility in 1998. It has formed partnerships with local communities to co-sponsor mobile collection for their residents. This makes dropping off materials more convenient for county residents. HHW has also formed a partnership with Eastman Kodak Company. Since 1991 Eastman Kodak has taken 34% of the material and disposed of it at no cost to the taxpayer.

YEAR	Perm. Facility	Mobile Collect.	Total Collections	# Residents	CESQG's	Kodak Tons	Safety-Kleen Tons	International Waste Remove. Tons	Total Tons
1991	7	0	7	595	0	5.42	15.05	0	20.47
1992	18	0	18	1426	0	41.29	27.96	0	69.25
1993	18	0	18	1268	0	26.85	20.31	0	47.16
1994	18	0	18	1745	0	25.52	37.06	0	62.58
1995	17	1	18	2414	23	25.68	57.68	0	83.36
1996	14	9	23	3259	45	42.68	77.3	0	119.98
1997	11	13	24	4294	49	78.64	133.38	8.25	220.27
1998	13	11	24	5381	83	36.6	57.3	114.3	208.2
1999	24	12	36	5474	113	51.3	71.7	43.7	166.7
2000	78	1	79	4638	131	44.4	135.5	0	179.9
2001	85	9	94	7158	103	66.3	204.25	0	270.55
2002	76	5	81	5244	114	46	131.35	0	177.35
Total=	303	56	359	37652	547	444.7	837.5	166.3	1428.0

Starting in 1998 drums were weighed for accuracy.
Weights fluctuate due to disposal and packaging methods.
CESQG's - Conditionally Exempt Small Quantity Generators

Removal of Pesticides from the Environment

In 1997 Monroe County initiated an Amnesty Day for the farming community called "Clean Sweep," which collected and disposed of more than **eight tons** of unusable pesticides. The County sets up Amnesty Days at periodic intervals. Two more "Clean Sweep" days have been held since the one in 1997. The Clean Sweep in 2002 collected 3.3 tons of unused pesticides. The most recent, held in March of 2004, collected 1.42 tons of unused pesticides.

RESTORATION OF CONTAMINATED SITES

GOAL: To Remediate Sites in Monroe County Contaminated with Hazardous or Radioactive Materials so that There Will Be No Danger to Public Health and/or the Environment and the Sites are Restored to Desired Use

TREND: Improving

MEASURES:

- Through July 1, 1997, a total of \$14.15 million in New York State funds have been expended on investigation and remediation at 47 sites in Monroe County.
- In 2002, one site was remediated or found to be non-hazardous. In the same year, three more sites were added to the Inactive Hazardous Waste Site Program.
- The Voluntary Cleanup Program includes 25 projects in progress. Seven have been completed.

RESTORATION OF CONTAMINATED SITES

GOAL: To Remediate Sites in Monroe County Contaminated with Hazardous or Radioactive Materials so that There Will Be No Danger to Public Health and/or the Environment and the Sites are Restored to Desired Use

Definitions of Waste Sites

An **inactive hazardous waste disposal site** is any area used for the long-term storage or final placement of hazardous waste including dumps, landfills, lagoons and artificial treatment ponds. No permits were issued for this type of site.

A **hazardous substance disposal waste site** is a site that may be a threat to the environment or human health but does not meet the criteria necessary to be considered an inactive hazardous waste disposal site.

According to the NYSDEC **brownfields** are any real property where redevelopment or re-use may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant or contaminant.

Health Effects of Hazardous Waste⁴⁴

Different chemicals cause different effects. A chemical exposure can produce a health effect directly at the site of contact or elsewhere in the body, and that effect can be either immediate or delayed.

Chemicals can affect any system in the body, including respiratory (nose, air passages and lungs), digestive (mouth, throat, stomach, etc.), circulatory (heart, blood), nervous (brain, nerve cells) and reproductive (sperm, egg, etc.). Some chemicals, like acids, are nonspecific and cause damage on direct contact. Other chemicals, like gasoline, can be absorbed into the blood and carried throughout the body. Some chemicals affect only certain target systems or target organs. For example, Chemical A may cause vomiting, but not cancer. Chemical B may have no noticeable effects during exposure, but may cause cancer years later.

NYS Inactive Hazardous Waste Disposal Site Program

In 1979 New York State created a listing of inactive hazardous waste disposal sites. This developed into a law that required each county to report every suspected inactive hazardous waste site within its borders and to update information about the sites annually. In 1982 New York State established the process for cleanup of sites for which no responsible party could be identified or for which the responsible party is unable to fund remedial action.

New York State established the following system for classifying registry sites:

Classification 1 – Causing or presenting an imminent danger of causing irreversible damage to the public health or the environment -- immediate action is required;

Classification 2 – Significant threat to the public health or environment -- action required;

Classification 3 – Does not present a significant threat to the environment or public health – action may be deferred;

Classification 4 – Site properly closed – requires continued management;

⁴⁴ [An Introduction to Toxic Substances](#). New York State Department of Health, 5/91.

Classification 5 – Site properly closed, no evidence of present or potential adverse impact – no further action required.

Classification 2a – In addition to the preceding five statutory classifications, the New York State Department of Environmental Conservation has developed a temporary administrative classification, Class 2a. This temporary classification has been assigned to **sites where there is inadequate data to assign them to the five classifications specified by law.**

The New York State Environmental Quality Bond Act of 1986 provided an additional \$1.2 billion to be used to finance the State’s share of investigation and remediation of hazardous waste disposal sites throughout New York State. In October 2003 legislation was passed which authorizes expenditures of up to \$120 million/year.

Status of Monroe County Inactive Hazardous Waste Sites

	<u>1992</u>	<u>1994</u>	<u>1996</u>	<u>1998</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
# of sites	58	52	50	48	48	51	53
# of 2a sites	21	11	7	4	3	5	4
# of 2 sites	30	32	32	30	30	30	33
# sites delisted*	0	4	0	5	1	2	1
# sites added	3	3	1	2	1	3	3
# Preliminary Site Assessments completed using State Superfund	3	2	0	2	1	1	2

*Delisted sites are sites that have been remediated or found to be non-hazardous.

There are **no Classification 1** waste sites in Monroe County.

Through July 1, 1997, a total of \$14.15 million in New York State funds have been expended on investigation and remediation at 47 Monroe County sites.

NYS Hazardous Substance Waste Disposal Site Inventory

In 1994, New York State Law was amended to require the New York State Department of Environmental Conservation in consultation with the New York State Department of Health to conduct a study and inventory hazardous substance waste sites in New York State. The study was completed in 1995 and listed 24 sites in Monroe County; 12 of which were sites that were removed from the inactive hazardous waste sites list.

1996 Clean Water/Clean Air Bond Act

In the fall of 1996, New York State voters approved the Clean Water/Clean Air Bond Act. This action established a \$200 million Environmental Restoration Project fund, known as the Brownfields program. Thus far the following sites in Monroe County have been approved for funding under this program.

<u>Site</u>	<u>Applicant</u>	<u>Type</u>
APCO	Rochester (C)	Investigation/Remediation/Completed
Phototech	Rochester (C)	Investigation/Remediation
Gonsenhauser Farm	Brighton (T)	Investigation/ Remediation/Completed
Thurston/Ravenwood	Rochester (C)	Investigation /Remediation/Completed
1200 East Main Street	Rochester (C)	Investigation

New York State Voluntary Cleanup Program (VCP)

The New York State Department of Environmental Conservation (NYSDEC) has developed a program designed to promote voluntary cleanup and/or investigation of contaminated sites including inactive hazardous waste sites (other than Class 1 or Class 2 sites), petroleum-contaminated sites and solid waste disposal sites. A volunteer (a developer, municipality or a responsible party) enters into an agreement with the NYSDEC, which provides clear guidelines regarding the identification of site contamination. The agreement also contains a specific remediation plan and schedule. The volunteer can obtain a release from further liability for past contamination at the site once agreed upon cleanup levels are reached. On October 7, 2003, Governor Pataki signed into law comprehensive legislation creating a new Brownfield Cleanup Program (“BCP”), modeled after the Department’s administrative Voluntary Cleanup Program. The new law establishes in statute a new Title 14 of Article 27 of the ECL that sets forth the requirements for participation, agreements and work plans in the BCP. The VCP will be phased out and replaced by the BCP. \$15 million has been authorized for implementation of the BCP. Following is a listing of Monroe County sites where voluntary agreements have either been finalized or are pending:

<u>Monroe County Project</u>	<u>Volunteer Organization</u>	<u>Municipality</u>	<u>Project Status</u>
Beebee Station	Rochester Gas & Electric	Rochester	Completed
737 Atlantic Avenue	Billitier Electric	Rochester	Completed
RG&E Front Street	Rochester Gas & Electric	Rochester	Interim Remedial Measure Completed
Erie Canal Indust. Park	City of Rochester	Rochester	Completed
Sharps Motors	Rush Associates	Rush	Completed
Dewey Avenue	General Warehouse	Greece	Completed
Dinaburg Distributing	S. Dinaburg Estate	Rochester	Agreement Terminated by DEC
214 Lake Avenue	Volunteers of America	Rochester	Under Negotiation
Court St. Garage	City of Rochester	Rochester	Completed
Doan Dodge	Doan Dodge	Greece	Completed
Taylor Instruments	Combustion Engineering	Rochester	Remediation completed-Monitoring Phase
RG&E East Station	Rochester Gas & Electric	Rochester	Application under review
CooperVision	CooperVision, Inc.	Scottsville	Remediation completed-Monitoring Phase
Ward Street Site	Germanow-Simon Corp.	Rochester	Investigation Underway
CSX-Charlotte	CSXT	Rochester	Interim Remedial Measure Underway
755 Jefferson Road	Celltech	Henrietta	Remedial Action Plan Approved
99 Ridgeland	GMC Management Corp.	Henrietta	Proposed Remedy under review
Former American National Can	American National Can	Fairport	Remedial Action Work Plan Under Negotiation
Artco Industrial Laundries	Artco	Rochester	IRM & Investig. Work Plan under review
Jostens Photog. Facility	Jostens, Inc.	Webster	Soil Man. Plan/Deed Restrictions under rev.
Air Force Plant - 51	4800 Dewey Ave. Enterpr.	Greece	Investigation Work Plan under review
Olindo Foods	John Sexton & Co.	Rochester	Site Investig. Work Plan under review
RG&E Brewer Street	RG&E/Monroe County	Rochester	Investigation Report under review
RG&E Brockport MGP	RG&E	Brockport	Investigation Underway
Buell Automatics	Buell Automatics	Gates	Investigation Underway
Fischbach & Moore	235 Metro Park Assoc.	Henrietta	Investigation Underway
Brainerd Manufacturing	Despatch Industries	East Rochester	Investigation Work Plan under review
Carlson Park	Carlson Park Assoc.	Rochester	Investigation Work Plan under review
Barthelmes Manufacturing	Barthelmes Man. Co., Inc	Rochester	Application approved
Rochester Technology Park	Rochester Technology Park	Gates	Investigation Work Plan under review
Former Churchville Ford	A. Babinelle/J. Ognibene	Churchville	Investigation Work Plan under review
Carriage Cleantown	Carriage Town Cleaners Inc.	Penfield	Investigation Underway

Cleanup Highlights

CSXT River Street Derailment - In December of 2001 a CSX freight train carrying coal and two hazardous chemicals (acetone and methylene chloride) sped out of control and ultimately crashed along River Street, north of the Stutson Street Bridge. Approximately 16,000 gallons of acetone and 16,000 gallons of methylene chloride were released to the environment. NYSDEC is overseeing the cleanup of the site by CSX and their contractors. An Interim Remedial Measure was completed under a Voluntary Cleanup Agreement that was signed in 2002. Contaminated soil was excavated from both sides of the railroad tracks and along the Genesee River bank and disposed off site. Contaminated groundwater was also disposed offsite. Residual contamination remains at a depth greater than four feet. Sediment in the Genesee River was also impacted. CSXT's consultant is developing plans for dealing with the residual contamination on land and sediment contamination in the river. Contaminated sediment will be removed in 2004.

GE and 3M Brockport Sites – The companies completed remediation of segments 1 and 2 of Tributary 3 of Brockport Creek. Segment 3 is scheduled for completion in 2003. The storm sewer was also cleaned; additional testing indicates the bituminous coating in the storm sewer is contaminated with PCB's; DEC has asked that GE address this newly found contamination. The onsite storm sewer at the former GE plant was sampled and remediated (cleaned or replaced); additional sampling is scheduled. Former residential property on the East Side of Oxford St. was remediated and was graded, sodded and planted with deciduous and evergreen trees. The NYSDOH completed a cancer study of the affected area. The study found that the cancer patterns found in this community are similar to those observed in other areas of the state and do not indicate a need for further study.

Luster-Coate - Luster-Coate Metallizing Corp. is located in a largely residential area of the Village of Churchville. Residences are adjacent to the site to the south and east. Black Creek borders the site to the north and west. Luster-Coate was an industrial facility that applied metal film and paint coatings to plastic materials manufactured off-site. In 2001, a Phase II investigation was conducted at the site. Groundwater samples collected from a cooling water supply well contained elevated levels of chlorinated compounds including 1,1,1-trichloroethane (255 ppb), trichloroethene (161 ppb) and vinyl chloride (108 ppb). The source of the chlorinated compounds was not identified, but records indicate that a vapor degreaser which used both TCA and TCE was present at the site. The facility is currently an abandoned site and the site has been referred to EPA for an emergency removal action. The Facility is fenced and the gates and building doors are chained and locked. USEPA sampling determined that limited ignitable and corrosive wastes remain on site.

Carriage Cleaners/Newcomb Oil – This site is predominantly a large gasoline spill that has impacted several residential properties in the Town of Brighton. During the spill investigation, PCE was discovered in some of the monitoring wells. NYSDEC staff sampled select wells in December 2003 and confirmed these results. The PCE contamination does not appear to be originating from the Newcomb Oil property. NYSDEC and MCDPH staff took indoor air and sub-slab soil vapor samples at three homes and one apartment building on January 20, 2004. Results indicated that mitigation systems were required. Sub-slab venting systems were installed at Hampshire Apartments and 2111 Monroe Avenue. Also, a venting system was installed in the crawlspace of 2113 Monroe Avenue.

Buckeye Terminal site - On March 12, 2003 Buckeye Terminal's Rochester facility identified a release of gasoline from one of its underground 6-inch pipelines that carries gasoline from its tanks to its truck loading rack. In cooperation with the NYSDEC, Buckeye immediately installed several recovery wells around the loading rack and initiated gasoline recovery from the subsurface through the use of an

industrial vacuum truck. MTBE and other gasoline related compounds were detected in the groundwater wells located on the property of several of the homes on Westfield Street. Indoor air sampling was conducted in the homes that have shown MTBE in the water in their sumps. Results of this testing were reviewed by the NYSDOH and MCDPH. Based upon this review, levels it was determined that levels found in the home did not appear to pose a significant health risk.” Sump covers and vent systems have been installed in those residences where access has been granted. Remediation is on-going and several rounds of indoor air testing have been completed.

RABIES

GOAL: To Reduce the Incidence Human Exposure to Potentially Rabid Domestic and Wild Animals

TREND: Stable

MEASURES:

- There were 176 persons treated for possible exposure to rabies in 2003.
- Eleven animals tested positive for rabies in 2003.
- There have been no significant changes in data from previous years.

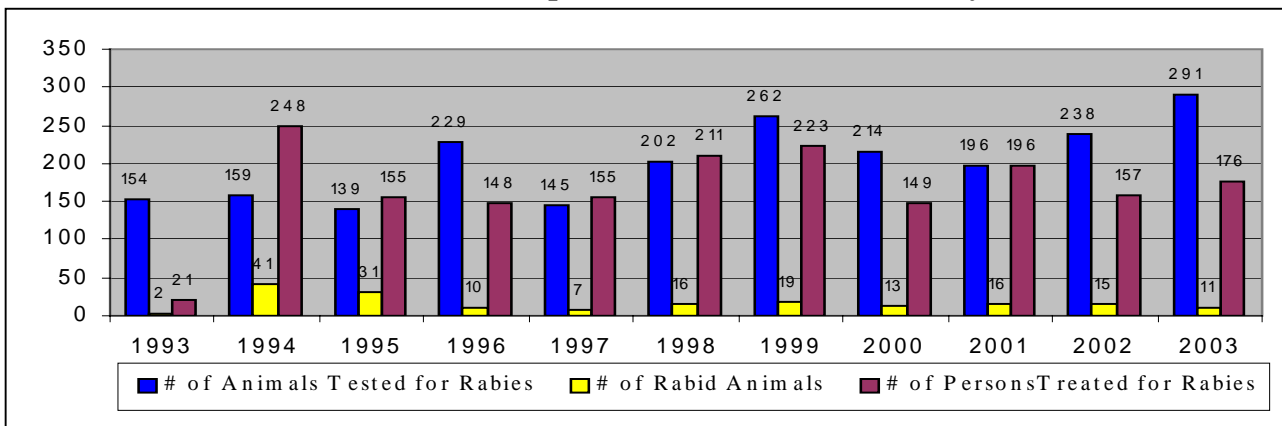
RABIES

GOAL: To Reduce the Human Exposure to Potentially Rabid Domestic and Wild Animals

In 1993 raccoon rabies migrated into Monroe County after entering Steuben County in southern New York State in 1990. This was an expansion of the mid-Atlantic raccoon rabies epizootic that affected the District of Columbia, West Virginia, Virginia, Maryland, Delaware, Pennsylvania and New Jersey. In 1994 Monroe County experienced a rapid increase in the incidence of rabies in terrestrial mammals. The number of animals found positive for rabies in Monroe County has been on the decline since the initial incidence of raccoon rabies in 1993 and 1994.

Although bats, skunks, raccoons and foxes are the animals most commonly infected with rabies virus, they are not the only species affected by this disease. Since 1994, the Monroe County Department of Public Health (MCDPH) has aggressively promoted municipal rabies immunization clinics. The MCDPH provides materials and some staff to complement the supplies and personnel provided by towns and villages in the establishment and operation of free rabies pet vaccination clinics. The first major vaccination effort occurred in 1994. That year 6,986 animals were vaccinated at clinics sponsored by the Monroe County Department of Public Health. In 2001, 2002 and 2003, there were 3,082, 3,257 and 3,465 animals vaccinated respectively.

Number of Animals Submitted for Rabies Testing, Number of Animals Testing Positive for Rabies and Number of Persons Treated Post Exposure to a Rabid or Potentially Rabid Animal, 1993-2003



The New York State Department of Health’s Wadsworth Laboratory tested 196 Monroe County animals for rabies in 2001, 238 in 2002 and 291 in 2003. The animals tested included dogs, cats, raccoons, bats, skunks and foxes. In 2001, sixteen animals 9 raccoons, 3 cats, 2 skunks, 1 fox and a bat tested positive for the rabies virus. In 2002, fifteen animals, 13 raccoons, 1 cat and a fox tested positive and in 2003, eleven animals, 5 raccoons, 3 bats, 2 skunks and a fox tested positive.

In 2001, 2002 and 2003 the number of post exposure treatments for Monroe County residences was 196, 157 and 176 respectively. Exposure to bats resulted in over half of the post exposure treatments in the last three years; 108 in 2001, 82 in 2002 and 106 in 2003. In 1999, the New York State Department of Health adopted a new recommendation regarding the need for post exposure treatment for people potentially exposed to bats when there was no known direct contact (bite or scratch) and the bat could not be caught and submitted for testing. This new protocol has resulted in an increase in post exposure treatments due to bat exposures.

The Monroe County Department of Public Health through yearly educational outreach programs at several school and community events disseminates information to the public on ways to reduce their exposure to potentially rabid domestic and wild animals.

WEST NILE VIRUS

GOAL: To Limit the Number of Human Cases of West Nile Virus

TREND: Stable

MEASURES:

- Monroe County has had no deaths from West Nile Virus and only one human case of West Nile Virus in 2003.
- Monroe County instituted an information campaign for people to reduce standing water at or around their properties to reduce the mosquito population.
- Bird, mosquito and human surveillance programs are in place to warn of potential outbreaks.

WEST NILE

GOAL: To Limit the Number of Human Cases of West Nile Virus

Background

West Nile Virus (WNV), an arbovirus transferred by mosquitoes and other arthropods, was originally isolated in the headwaters of the Nile River in Uganda, Africa in 1937. The disease first appeared in the Western Hemisphere in the Borough of Queens, New York City (NYC) in the summer of 1999. In 2000, WNV activity was reported in 12 states and the District of Columbia. Monroe County began submitting dead birds and mosquito samples (pools) in mid August of 2000 (see chart). Monroe County was notified of its first positive WNV bird on August 29, 2000. The bird was collected on August 16, 2000 in the town of Greece. In 2001, WNV activity spread to a total of 27 states and the District of Columbia, as well as to Ontario, Canada and some Caribbean islands, infecting 44 individuals and causing 5 fatalities in the United States. In 2002, WNV continued to spread across Canada and the lower United States encompassing 17 additional states and infecting 4,156 individuals with 284 deaths. In 2002, New York State had 82 human cases of WNV resulting in 5 deaths. Monroe County had its first two human WNV cases in 2002 with no deaths. In 2003, WNV human cases spread to the west coast of the United States but were mainly concentrated in Colorado, Montana, Nebraska, North Dakota, South Dakota, Texas and Wyoming. Human WNV cases in these seven states resulted in over 79% (7,862) of the 9,862 reported cases in the continental United States and the District of Columbia. These seven states also reported over 61% (161) of the 264 U.S. deaths. In Canada in 2003, WNV migrated to Alberta and was concentrated in Saskatchewan that borders North Dakota and Montana. Saskatchewan had over 61% (848) of the reported (1,388) clinical WNV cases and 60% of the 10 reported deaths. In 2003, New York State had 71 human cases with 10 deaths. Monroe County had 1 WNV human case and no deaths.

West Nile Statistics	Catch Basins Treated	Mosquito Pools Submitted	Positive Mosquito Pools	Dead Birds Reported	Birds Submitted	Birds Tested	Birds Positive	Human Cases
2000	7,896	39	0	3381	77	50	11	0
2001	15,019	29	0	277*	112	90	1	0
2002	NA	57	0	2957*	171	127	49**	2
2003	NA	118	1	731*	49	45	14	1

In 2000, 2001, 2002 and 2003 some birds submitted were unable to be tested due to sample condition. * Dead crow reports. **1 live captive bird was confirmed positive. Also in 2002, 6 horses were confirmed positive for WNV.

Larval Mosquito Surveillance for West Nile Virus

Preliminary monitoring of mosquito larvae was undertaken in 2000. A plan for mosquito larval surveillance was developed in the winter of 2000-2001 for the 2001 WNV season. In 2001, a total of 592 habitat visits were conducted at 25 sites, yielding a total of 251 samples of mosquito larvae. Larval sampling indicated that stagnant roadside ditches and stormwater catchbasins are preferred breeding habitats for the *Culex* mosquitoes. The larval surveillance also indicated that *Culex* species did not breed in swamp and wetland areas. The New York State Department of Health had identified *Culex pipiens* and *Culex restuans* as the primary vector species (the transmitter of the virus from bird to human or other animal) of concern. This type of information is valuable in making appropriate larviciding decisions and supports Monroe County's focus on these habitats.

In 2002, collection sites for sampling were identified by habitat type and past sampling results. Sites were selected that would provide both a variety of habitats and would also be likely to breed *Culex* species. A total of 178 habitat visits were conducted in 2002 yielding a total of 36 samples of 1 or more species of mosquito larvae. The data indicates that a low diversity, high percentage of *Culex pipiens/restuans* species are found in container habitats such as old tires, drums, barrels, and catch basins etc. Also, a relatively high diversity of other mosquito species with low percentages of *Culex* are found in the natural wetlands, flowing streams, lakes and ponds habitats. In 2003, larval sampling was discontinued. This decision was based upon resource allocation and the determination that further larval sampling would produce little additional knowledge.

Adult Mosquito Surveillance for West Nile Virus

In 2000, adult mosquito surveillance was conducted at 3 locations in Monroe County. Thirty-nine pools of mosquitoes were submitted to the New York State Department of Health (NYSDOH) laboratory for WNV testing. All mosquito pools submitted for viral testing were negative.

Ten sites were selected for adult mosquito surveillance during 2001. Two of these sites had been used in 2000. During the 2001 mosquito season over 10,000 mosquitoes from eighteen separate species were collected and identified. Twenty-nine mosquito pools were submitted to the NYSDOH laboratory for WNV testing. All pools tested negative.

Seven adult mosquito surveillance sites were selected in 2002. Three of the sites had been used in 2001. During the 2002 mosquito season, 19,343 mosquitoes from twenty-two separate species were collected and identified. Fifty-seven mosquito pools were submitted to the NYSDOH laboratory for WNV testing. All pools tested negative.

In 2003, six adult mosquito surveillance sites were sampled and 12,435 mosquitoes were identified. Five of the sites were used in 2002. One hundred and eighteen mosquito pools were submitted to the NYSDOH Wadsworth Laboratory for WNV testing. One of the 118 pools, species *Culex pipiens-restuans*, tested positive for WNV.

Bird Surveillance for West Nile Virus

In New York State bird surveillance consisting of monitoring and testing dead birds began in early 2000. By the end of the year, WNV had been confirmed in every county of New York except one. Detection of WNV prompted varying response levels throughout the state.

In 2000, 3381 dead bird (384 crows) reports were received by the MCDPH. During 2000, 77 birds were submitted to the NYSDOH laboratory. The lab tested 50 of these birds (19 crows and 31 other types of birds). There were 11 birds confirmed positive for WNV.

Dead bird surveillance criteria were changed in 2001, as a result of patterns noted during the 2000 surveillance period. During the 2000 WNV season, Monroe County tracked reports on all dead birds. Statistical analysis from the 2000 season indicated that while collecting data on all types of dead birds had resulted in some interesting scientific data, the most useful information regarding WNV and its threat to humans came from dead crow densities per square mile. In 2000, the New York State Department of Health noted that there was an association between the weekly dead crow density and human cases of WNV. Dead crow density may provide, along with other surveillance indicators, a forecast of human WNV risk. No human cases occurred in counties with low weekly dead crow densities (less than 0.1 per sq. mile). Occasional human cases occurred within a few weeks after counties reported moderate dead crow densities. In the only county with a high dead crow density

(greater than 1.5 per sq. mile), an outbreak of human cases began approximately two weeks later. As a result, in 2001 and 2002, NYSDOH requested that only dead crow sightings be reported to them.

In 2001, 277 dead crow sightings were reported to the MCDPH. Ninety birds were tested for WNV at the NYSDOH laboratory with one American Crow testing positive. In 2002, 2,957 dead crow sightings were reported to the MCDPH. One hundred and twenty-seven birds were tested at the NYSDOH laboratory for WNV. Forty-nine birds tested positive for WNV. In 2003, 731 dead crow sightings were reported to the MCDPH. Forty-five birds were tested at the NYSDOH laboratory for WNV. Fourteen birds tested positive. The positive birds were all American Crows except for one American Kestrel (sparrow hawk).

At the local level, dead crow surveillance may alert MCDPH to “hot spots” of viral activity. This would allow steps to be taken to protect public health in that area. This information could also be critical in determining if WNV activity is correlated to environmental factors such as mosquito or bird habitats. Future intervention efforts may be influenced by this information.

Human Surveillance for West Nile Virus

New York State Department of Health has identified aseptic meningitis and encephalitis as reportable diseases, requiring health practitioners to report these diseases to Monroe County Health Department (Passive Surveillance.)

In order to determine more accurately the incidence of aseptic meningitis and encephalitis in the community, a method of active surveillance was implemented in August 2000. Cerebral Spinal Fluid results from Monroe County laboratories are screened for specific criteria seen in aseptic meningitis and encephalitis, and clinical investigations are initiated.

Because West Nile Virus may present as either aseptic meningitis or encephalitis, combining these two surveillance methods helps to ensure early detection of West Nile Virus in the human population of Monroe County. This program is ongoing.

Other Activities

The MCDPH fosters communication between local laboratories and infection control nurses to ensure capture of aseptic meningitis and encephalitis cases in Monroe County. Additionally, education efforts are aimed at area physicians regarding the importance of obtaining a convalescent serum draw from patients diagnosed with encephalitis.

Findings

The following chart illustrates some of the findings to date:

Surveillance Activities August 1, 2000 – December 31, 2003

YEAR	SURVEILLANCE	ENCEPHALITIS	%	MENINGITIS	%
2000	Active	1	20%	23	57.5%
	Passive	4	80%	17	42.5%
2001	Active	7	87.5%	55	83.3%
	Passive	1	12.5%	11	16.7%
2002	Active	7	70%	37	77%
	Passive	3	30%	11	23%
2003	Active	10	66.7%	96	94.1%
	Passive	5	33.3%	6	5.9%
Active Total		25	65.8%	211	82.4%
Passive Total		13	34.2%	45	17.6%

Active- Those cases that were identified through the CSF screening previously described

Passive-Those cases that have been reported to the local health unit by physicians or infection control practitioners

West Nile Virus Activity

In 2002, two confirmed human cases of West Nile viral meningitis were reported in Monroe County. One was a 35 year-old male from Greece, and the other was a 43 year-old female from Chili. These were the first confirmed cases of WNV in Monroe County. In 2003, there was one confirmed case of West Nile Virus meningitis in a 45 year-old male who resided in the City of Rochester.

Control Measures/ Intervention

In 2000 the MCDPH responded to approximately 265 complaints of drainage problems, stagnant pools and mosquito habitat concerns. Control efforts began by assessing areas of concern to determine if simple actions could resolve the problem. Homeowners were encouraged to reduce standing water on their properties. Property owners were cited if swimming pools were not properly maintained. Drainage issues on public property were discussed with local officials and efforts were made to correct these issues. If the drainage problem could not be easily corrected, larval treatment of the stagnant water was done when appropriate. During the 2000 WNV season, the MCDPH response to birds positive for WNV consisted of the following:

- An environmental survey of the area within a two mile radius of the dead bird collection site;
- Habitat modification where applicable;
- Application of a biological larvicide Bti (*Bacillus thuringiensis israelensis*-mosquito dunks) or Bs (*Bacillus sphaericus*) to suspected breeding habitats such as catchbasins and roadside ditches in the two mile radius around where the bird was discovered;
- In 2000, 7,896 catchbasins were treated with *Bacillus sphaericus*; and
- The distribution of Bti larvicide, mosquito dunks, to homeowners to treat areas of standing water on their properties such as birdbaths and swimming pools.

In 2001, response and investigations of complaints regarding drainage, stagnant swimming pools, or large mosquito populations continued. More than 100 complaints were investigated during the 2001

WNV season. The NYSDOH had determined that response should not be based on the finding of a WNV positive bird, so the policy of assessing and treating a two-mile radius around a positive bird was discontinued. In 2001, the MCDPH utilized a Geographic Information System (GIS) approach to determine the areas in the county where the greatest WNV risk to the public existed based on five demographic factors. Federal and State research indicated that although exposure to WNV was not age related, the elderly were at the greatest risk for developing serious illness or death from the virus. Five factors were entered into GIS as overlays on the Monroe County map to identify potential areas for larval control. The 5 factors were:

1. Total population greater than 600 individuals per tract
2. Total population density greater than 2,500 per square mile
3. Elderly population greater than 40 individuals over 50 years of age per tract
4. Elderly population greater than 1,000 individuals over 50 years of age per square mile
5. Locations of nursing homes and elderly housing facilities (buffered by 1320 foot radius around the facility)

Based on these five factors, maps were created outlining areas of elderly populations at risk. Upon being notified of the county's first positive WNV bird, county staff and local public works personnel targeted the high-risk areas for larvicide treatment of catchbasins. A total of 15,091 catchbasins were treated in the City and County. The larvicides used were *Bacillus thuringiensis israelensis* (Bti) and *Bacillus sphaericus* (Bs) outside the City and methoprene insect growth regulator within the City. As in 2000, mosquito dunks (Bti larvicide) were given to homeowners for their use to reduce mosquito breeding on their properties.

In 2002, the MCDPH altered the control measure plan. A determination was made that the MCDPH would rely on the distribution and dissemination of educational materials recommending mosquito habitat reduction and personal protection in lieu of large-scale larviciding. Letters and pamphlets were sent to all senior housing complexes, nursing homes and senior citizen centers requesting management to reduce standing water on their property and asking them to remind their residents about the need for personal protection. Letters and pamphlets were also sent to all county municipalities asking that the municipalities share the information with their seniors and the general public. Pamphlets were placed in all municipal halls and libraries. The distribution of mosquito dunks to homeowners to treat mosquito-breeding areas continued in 2002.

In 2003, the MCDPH continued its educational program and distribution of mosquito dunks to homeowners. The Department advised the public on the need to reduce mosquito-breeding habitats around their homes and to use personal mosquito protection methods when outdoors. The MCDPH believes that this approach offers the public the best protection from contracting WNV.

SAFE FOOD

GOAL: To Reduce the Exposure of Monroe County Residents to Foodborne Disease

TREND: Stable

MEASURES:

- There was only one foodborne disease outbreak in Monroe County in 2003.
- The Monroe County Department of Public Health certified 1,090 food workers in 2003.
- A 2-tier food training and certification program in was initiated in 2004.

SAFE FOOD

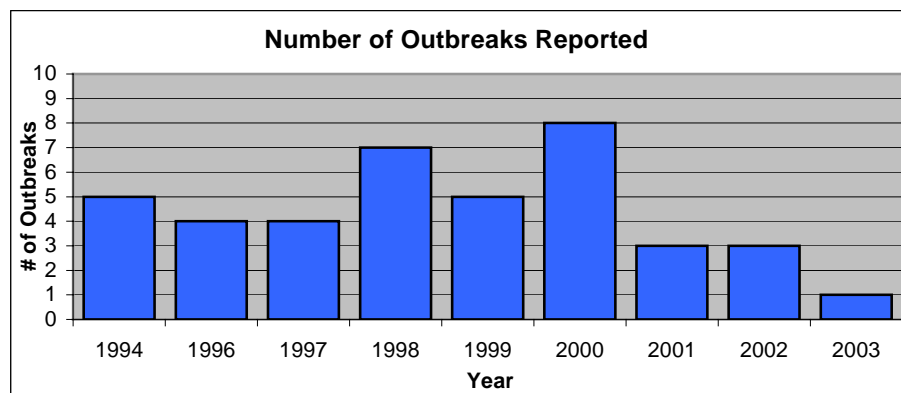
GOAL: To Reduce the Occurrence of Foodborne Disease Outbreaks within Monroe County

Foodborne disease is caused by contamination of food, which has been improperly processed, prepared, handled or stored. The ingestion of pathogens or chemical agents in food can cause illness and even death.

The United States Food and Drug Administration, the United States Department of Agriculture (USDA) and the New York State Department of Agriculture and Markets work together to reduce the incidence of contaminated products being produced and distributed. The Centers for Disease Control and Prevention (CDC) work with state and local departments of health to track, compile and analyze data regarding foodborne outbreaks. In 1995, the CDC implemented its Emerging Infections Program (EIP) Foodborne Diseases Active Surveillance Network (FoodNet) to collect data on 9 foodborne diseases from five U.S. sites. Today, Foodnet has ten sites in the U.S. with New York State being added in 1998. CDC's program of active surveillance for foodborne diseases and related epidemiologic studies is designed to help public health officials better understand the epidemiology of foodborne diseases. Information obtained from this program will be used to develop foodborne disease prevention and control measures and to strengthen the national public health infrastructure. The Monroe County Department of Public Health (MCDPH) participates in this national program through the State Department of Health.

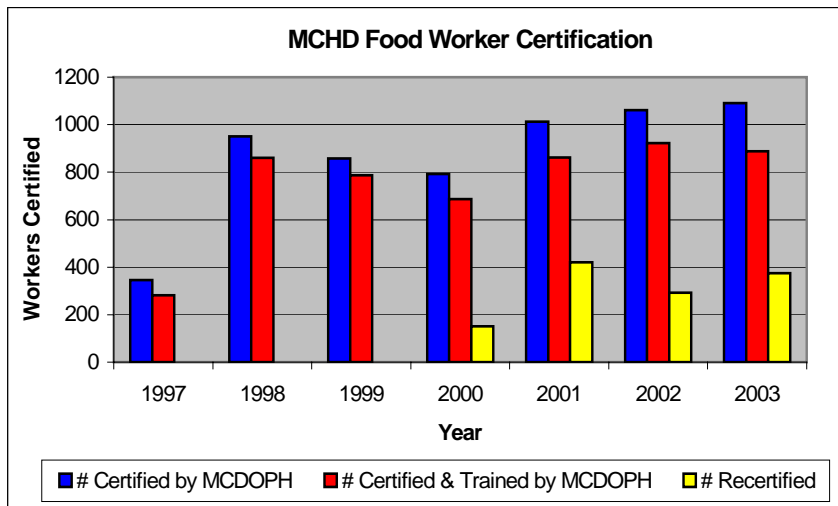
The Food Protection Unit of the MCDPH performs annual and event/festival inspections of the County's Food Service Establishments (FSE) and Temporary Food Service Establishments (TFSE). A Temporary Food Service Establishment is a place where food is prepared or handled and served to the public, with or without charge, and which operates at a fixed location in conjunction with a single event or celebration of not more than 14 consecutive days duration. The primary objective of the inspection program is to observe and enforce the safe preparation, handling and storage of food at all establishments. The inspections focus on those practices that impact the potential for disease. In 2003 the MCDPH performed over 2,500 annual inspections of FSE and over 850 inspections of TFSE.

The graph indicates the number of **foodborne outbreaks** reported to and confirmed by the MCDPH Food Protection Unit. A foodborne disease outbreak is an incident in which two or more persons experience a similar illness after ingestion of a common food, and epidemiological analysis implicates the food as the source of the illness. The



exceptions to this definition are single cases of botulism or chemical poisoning. Cases of foodborne illness resulting from outbreaks may fluctuate considerably. A few outbreaks affecting large groups of people may result in a large number of illnesses. In 1997, four outbreaks caused illness in 220 people. In contrast, seven outbreaks in 1998 resulted in 68 illnesses. There are many cases of foodborne illness that are not part of an outbreak.

The Monroe County Department of Public Health initiated a mandatory food worker training and certification in 1997. The MCDPH, Monroe Community College (MCC), Rochester Institute of Technology and other educational institutions within Monroe County offer food worker training. The MCDPH certifies food workers who have been trained by either MCDPH or in another setting. In 2003, the MCDPH trained and certified 888 food workers and certified 202



additional workers trained by others. The ultimate goal of the MCDOPH food worker certification program is to reduce the incidence of foodborne disease outbreaks by requiring that a certified food worker be present in all food service establishments during all operating times. Between 1997 and 2003 facilities that had been involved in an administrative enforcement procedure for serious infractions of the State Sanitary Code as well as new, temporary and mobile facilities required certified food workers. Starting in 2004 the MCDPH will expand the program to include all food service establishments. There will be two levels of training; Level 1- Food Handler in Charge and Level 2 -Food Worker. This new mandate will be phased-in over four years. Level-2 workers must be recertified every three years and Level -1 handlers must be recertified every five years.

The frequency of foodborne disease outbreaks is unpredictable. Outbreak prevention is dependent upon safe food handling and processing. The continued emphasis on the application of sound food preparation principles and the consistent pursuit of thorough training of food preparation staff should ultimately reduce the incidence of foodborne disease.