PEST CONTROL IN PUBLIC HOUSING, SCHOOLS AND PARKS: URBAN CHILDREN AT RISK

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FOREWORD

In 1999, commercial pesticide applicators applied 4.1 million pounds of dry pesticides and 820,000 gallons of liquid pesticide to homes, apartments, schools, parks, day care centers, senior centers, hospitals, offices and office buildings across New York State. Homeowners, landlords and apartment dwellers purchased many additional thousands of pounds of pesticides for private application.

The pesticides used in New York include carcinogens, endocrine disruptors, chemicals capable of causing birth defects, and chemicals that can cause brain damage.

Children are especially sensitive to pesticides. Pound for pound, children have greater exposure to pesticides than adults because they live and play close to the floor, breathe close to the ground and constantly put their fingers into their mouths. Children's developing organ systems are highly vulnerable to pesticides. Exposures of children to pesticides in the womb and during the first years after birth are linked to an increased risk of cancer and to increased risks of injury to the brain and nervous system.

Most of the pesticides that are used and sold within the State of New York are legal. These chemicals are registered with the U.S. Environmental Protection Agency (EPA) and the New York Department of Environmental Conservation (DEC). Their use is permitted under federal and state law despite their well-recognized toxicity. This dangerous situation has arisen because until very recently pesticide standards were set through a balancing process that weighed health benefits against claims – often poorly supported claims – for the economic benefits of pesticide use. The two lessons to be learned here are (1) that governmental sanction is <u>not</u> a guarantee of pesticide safety, and (2) that agencies and consumers need to learn about the hazards of the pesticides that they use and take intelligent steps to reduce pesticide use, whenever possible.

Illegal pesticides are also applied in New York. These are pesticides that have been imported illegally into the United States or that are used in an illegal manner. These unauthorized chemicals are often highly toxic, and they pose grave dangers to human health, especially to the health of children. The report signals a need for increased enforcement of state pesticide laws.

Now with publication of *Pest Control in Public Housing, Schools and Parks: Urban*

Children at Risk, the Office of the Attorney General has developed a balanced, sensible and evidence-based approach for addressing the problem of pesticide toxicity in New York State. The report is based on a detailed survey of pest control practices in the public housing, schools and parks of five major cities across the State coupled with door-to-door surveys of the pesticide use practices of residents in these same five cities, and surveys of stores to determine what pesticides are offered for sale.

This path-breaking report is one of the very first to focus on pest control policies and practices that affect the cumulative pesticide exposure of urban children in the places where they spend most of their time. This detailed investigation confirms that toxic pesticides are used extensively in apartments, schools, and parks across New York State by government agencies and commercial applicators, as well as by residents. Two very important findings are (1) that there are no statewide policy guidelines for pesticide use and (2) that practices for pesticide use differ from city to city and from agency to agency. There is also no statewide plan in place, except at the Department of Education, to reduce use of toxic pesticides. This report should be a wake-up call to state and local agencies to be more active in reducing the exposure of children to pesticides.

Most disturbing, the Attorney General's survey discovered that some very dangerous pesticides are used by governmental agencies in places where people live, work and play. For example, the New York City schools, the Syracuse schools and the Albany Housing Authority use hydramethylnon, a pesticide classified by U.S. EPA as a "possible carcinogen." The Syracuse Housing Authority uses baygon, a "probable carcinogen." Residents make wide use of organophosphate and carbamate pesticides, classes of pesticide chemicals that are deliberately designed to damage the nervous system. All of these chemicals are applied in areas frequented by infants and children.

On the basis of these findings, the Office of the Attorney General has developed a clearly conceived and feasible series of recommendations to reduce pesticide use in New York State.

The Attorney General states that the essential heart of any pesticide use reduction program is a "clear and unambiguous pest control strategy." Such strategies need to identify who is in charge of a program, they need to incorporate approaches that avoid or minimize reliance on chemical pesticides, and they must have clearly defined procedures for notification of the public when pesticides are to be used. As a positive example, the Attorney General praises the School Integrated Pest Management and Neighbor Notification Guidelines of the New York State Department of Education, noting that by "following these guidelines, schools can go a long way toward reducing pesticide use."

Pest Control in Public Housing, Schools and Parks: Urban Children at Risk, from the Office of the Attorney General is an important document that needs to be read widely. It is "must reading" for all officials in agencies across the State that use pesticides and for all landlords.

The wise and well-considered recommendations of this report will produce many benefits. They will reduce toxic pesticide exposures. They will reduce the frequency of disease, especially in our children, that is caused by chemical pesticides. And they will save New Yorkers money. The recommendations will save money because diseases in children that are caused by pesticides and other toxic chemicals cost the State of New York billions of dollars in health care costs each year, and because chemical pesticides are themselves very expensive. By reducing the use of chemical pesticides, the Attorney General's recommendations will save New Yorkers money in the short run by reducing purchases of these expensive chemicals, and they will save still more money in the long run by preventing unnecessary disease and disability.

I recommend this report highly to all who care about the environment of New York, to all who care for the health of New York's children, and to all who believe in the importance of good government.

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TABLE OF CONTENTS

FOREWORD i

CHAPTER 1 -- EXECUTIVE SUMMARY 1

CHAPTER 2 -- INTRODUCTION 8

CHAPTER 3 -- METHODS 11

CHAPTER 4 -- PESTICIDE USE BY INSTITUTIONS AND INDIVIDUALS 15

A. Pesticide Use By Institutions 15

1. Active Ingredients 15

2. Institutional Use of Restricted Use Pesticides 18

B. Pesticide Use by Residents 19

1. Frequency of Pesticide Applications 21

2. Illegal Pesticides Used by Residents 23

3. Availability of Pesticides in Local Stores 24

4. Non-Pesticidal Pest Control 26

CHAPTER 5 -- HEALTH IMPACTS OF FREQUENTLY USED PESTICIDES 27

A. Exposure to Pesticides - Unanticipated Mechanisms, Unintended Effects 27

B. Health Effects of Commonly Selected Pesticides 29

1. Toxicity of Specific Classes of Active Ingredients Used by Residents and Institutions 30

2. Carcinogenicity of Pesticides Used by Residents and Institutions 33

3. The Asthma Paradox 36

4. Other Health-Related Impacts of Pesticides Used by Residents and Institutions 37

5. Toxicity of Unidentified Inert Ingredients 38

CHAPTER 6 -- THE REGULATION AND MANAGEMENT OF PESTICIDES 40

A. Pesticide Registration 40

B. New York State Neighbor Notification Law 43

C. State Education Department Pest Management Guidelines 44
D. Municipal Pesticide Sunset Laws 44
E. Institutional Pest Management Policies 45
F. Record-keeping and Notification Requirements and Policies 47
G. A Special Concern: Use of Illegal Pesticides 50

CHAPTER 7 -- RECOMMENDATIONS 53
A. Institutional Pest Control Programs - Recommendations 53
1. Written Policies 53
2. Integrated Pest Management 55
3. Pest Control Options 58
4. Certified Pesticide Applicators 63
5. Public Notification 63
6. Maintenance of Records 64
B. Resident Responsibilities - Implementing IPM in the Home 65
C. Action Points to Protect Our Children 66
1. Housing Authorities 66
2. Schools 67
3. Parks 67
4. Residents 68
5. Retail Stores 68
6. New York State Legislature 68

ENDNOTES 69

APPENDIX I - FINDINGS IN THE FIVE CITIES A.1

APPENDIX II - NAME AND QUANTITY OF PESTICIDES APPLIED A.18

APPENDIX III - ALBANY COUNTY'S PESTICIDE PHASE-OUT ORDINANCE . . . A.22

APPENDIX IV - BROCHURE: *GOT RATS? GOT MICE?* A.27

APPENDIX V - BROCHURE: *BUG PROBLEMS?* A.29

CHAPTER 1 – EXECUTIVE SUMMARY

Infants and children are not simply little adults when it comes to poisons such as pesticides. Their ignorance of the dangers, and their tendency to crawl on floors, explore new objects, and put hands and other things in their mouths make them especially likely to be exposed to pesticides. Their developing bodies and changing metabolism increases their vulnerability. In short, children are at special risk.

Pesticides – poisons designed to kill or otherwise eliminate pests – can cause a wide range of health impacts. While some effects may be immediately apparent, such as vomiting or tremors, other impacts are more subtle and pernicious. Commonly used pesticides can cause long-term neurological damage, developmental or reproductive disorders, and cancer.

While the dietary exposure of children to pesticides has received some attention – most significantly, the 1996 Food Quality Protection Act directs the federal government to re-examine food pesticide residues with specific attention to the extra sensitivity of infants and children – environmental exposure, especially of urban children, has largely escaped notice. State records, however, show that commercial applicators apply large amounts of pesticides in urban areas. (New York City, for example, accounted for 27% of the total solid pesticides and 36% of the total liquid pesticides commercially applied or sold to farmers statewide.) This report seeks to fill that void by examining the non-dietary exposure to pesticides of children in five New York cities – Albany, Buffalo, New York City, Syracuse and Yonkers – in their homes, schools and nearby parks, areas where urban children spend 90% or more of their time.

Experience elsewhere conclusively demonstrates that people need not live with pests if they forgo pesticides. Indeed, many municipalities and housing developments have dramatically reduced pests with no pesticide use at all, largely through improved maintenance and sanitation. Other programs to reduce pesticide use yielded cost savings of 50% to 75%, and still achieved successful pest control. Much of the exposure of urban children to pesticides may be unnecessary.

The Attorney General's Environmental Protection Bureau obtained information about the identity and quantity of pesticides – insecticides, rodenticides, and herbicides – used and pesticide use policies from the administrators of public housing developments and nearby schools and parks in each of the cities. We also surveyed residents to determine their personal pest control practices. Finally, we visited local retail stores to determine the availability of particular pesticide products to local residents.

Our findings are a cause for concern. Housing authorities, school and park administrators, and the children's parents frequently use toxic pesticides in areas where children may be exposed. These pesticides include some that may cause cancer, interfere with the normal development of a child's nervous system, increase the incidence of asthmatic attacks, or irritate the skin, eyes, respiratory system and digestive system.

In particular, the survey identified pesticide application practices that do not adequately reflect these known health risks:

- Only two of the 15 institutions we surveyed – the Syracuse Housing Authority and the New York City Housing Authority – have adopted written pest management policies, even though clear policies are essential to an effective pest control program.

- Eight out of ten housing developments surveyed applied pesticides inside apartments and in common areas on a regular prophylactic basis, rather than limiting application to specific pest problems. This often leads to use of more pesticides than necessary.
- Statewide, 69% of responding residents applied pesticides in their own homes, and 33% did so at least once a week.

- Many respondents reported using illegal pesticides (products that are not registered by the U.S. Environmental Protection Agency or the New York State Department of Environmental Conservation) and 12 of the 73 stores surveyed were found selling illegal pesticides.

- Of 14 responding schools, 10 reported using pesticides, and schools in New York City and Yonkers reported using restricted use pesticides (which must be applied by, or under the supervision of, a certified applicator due to their high toxicity to people or other non-target species or due to their potential to persist and accumulate in the environment). The State Education Department recommends that schools not use these more toxic pesticides.

- All five housing authorities reported using restricted use pesticides.

- Three parks, one in New York City and two in Yonkers, reported using herbicides for aesthetic, as opposed to health-related, purposes.

- None of the surveyed schools that applied pesticides notified students or parents before pesticide applications during the 2000-01 academic year. (Effective July 1, 2001, State Education Law required such notification.)

Not surprisingly, pest problems and pesticide use were related to housing density. Most significantly, residential pesticide use, both by the housing authority and by residents, was highest in New York City and Yonkers, where residents live in high-rise apartment buildings, and was lowest in Syracuse, where the developments consist of garden apartments. In New York City and Yonkers, 93% and 79%, respectively, of residents surveyed applied pesticides in their homes, and more than half of the residents surveyed in both cities did so at least once per week. In contrast, 41% of the residents in Syracuse applied pesticides and more than half of them applied pesticides no more than once a year.

The report also summarizes the toxicity of the pesticides used and suggests that substantial improvement in pest management practices is possible. We found that the pesticide products used generally contain active ingredients belonging to one of six chemical classes. These active ingredients are mixed with a wide variety of so-called "inert" ingredients that assist in the application of the active ingredient. The active ingredients selected by residents and housing authorities, and their toxic effects, are summarized in the table below.

On the more positive side, the report found that local efforts to reduce pesticide use work. Albany and Buffalo, which passed "sunset" ordinances to phase out pesticide use on public property, reported virtually no pesticide use in their parks. In addition, we found that all five housing authorities provided advanced notice of pesticide applications (although the Yonkers Municipal Housing Authority distributes only an annual schedule and does not appear to provide notice of any unscheduled applications). Moreover, at parks where pesticides were applied, signs (though often inconspicuous) were posted. Such signs, when prominently displayed, can help avoid pesticide exposures.

Commonly Used Active Ingredients (By Chemical Class)	Summary of Toxic Effects	Frequency of Selection by Residents[a]	Housing Authorities that Used Active Ingredient
Pyrethroids (insecticides)	skin irritation and numbness, incoordination, tremors, vomiting, diarrhea	47.2%	Albany New York City Syracuse Yonkers
Pyrethrins (insecticides)	allergenic; some may be carcinogenic	16.6%	Albany Buffalo Yonkers
Organophosphates (insecticides)	impair nervous system development and function; skin irritation and numbness, incoordination, tremors, vomiting, diarrhea	16.1%	Albany
Hydramethylnon (insecticide)	irritation of eyes and respiratory system; may be carcinogenic	15.6%	Albany Buffalo
Carbamates (insecticides)	impairment of nervous system, skin irritation and numbness, incoordination, tremors, vomiting, diarrhea (to somewhat lesser degree than organophosphates)	14.1%	Albany Buffalo Syracuse
Coumarins & Inandiones (rodenticides)	impairment of normal blood clotting; internal bleeding	–	Albany Buffalo New York City Syracuse Yonkers

[a] As a percent of identified products containing an active ingredient in the chemical class.

Of particular concern is the cumulative effect of environmental pesticide exposure, as many studies have suggested that a very large percentage of our foods and drinking water supplies contain detectable levels of pesticides.[1] New Yorkers clearly have – and must avail themselves of – a tremendous opportunity to reduce the exposure of urban children (and others) to pesticides. We recommend the following measures:

1. All institutions should develop and fully implement written pest management policies to reduce reliance on chemical controls to the maximum extent possible.
2. Housing authorities should work with tenants' groups to educate residents about non-pesticidal ways to prevent and eliminate pest problems, and should supply non-toxic pest control tools, such as tightly sealing garbage cans.

3. Housing authorities must respond immediately to maintenance needs that could create pest problems (such as leaking pipes, holes in flooring, or backed up drains).

4. Schools should, at a minimum, follow the guidance provided by both the New York State Education Department and the Board of Regents. They should provide adequate notice to students, parents, faculty and staff prior to pesticide applications. The State Education Department, in turn, should issue its pest management guidance as binding regulations and assist districts in complying.

5. Housing authorities, schools and parks should use less toxic alternatives to restricted use pesticides or those that are neurotoxic or carcinogenic.

6. All institutions, including parks, should severely restrict the use of pesticides for aesthetic purposes.

7. Parents, caregivers, and teachers should receive education and information about how their pest management choices affect children's health and development. Pesticides, as well as pests, pose serious health risks; the dangers of pesticides may be less visible, but in the long term greater than, certain of the problems of the pests themselves. Chemical pesticides should be used only after improved sanitation and mechanical traps prove inadequate. Any pesticides used should be the least toxic available (*e.g.,* boric acid) and in the least dangerous form (*e.g.,* enclosed traps and baits or crevice treatments instead of sprays).

8. Retailers who stock pesticides must ensure that all products offered for sale are registered with both the United States Environmental Protection Agency (EPA) and New York State Department of Environmental Conservation (DEC), and that proper records are kept. Retailers can be prosecuted for violations of pesticide laws.

9. The New York State Legislature should create an urban pesticide board to make recommendations to reduce the amount of pesticides used in urban areas. It should also encourage the use of alternatives to pesticides by requiring certified pesticide applicators to demonstrate a knowledge of non-pesticidal pest control methods.

Pesticides are poisons. If non-pesticidal methods fail, pesticide applications may be appropriate. However, around infants and children, who already are exposed to a wide range of pesticides in their diet, absolutely every effort must be made to reduce their use, the toxicity of

products used, and the potential for exposure of children.

CHAPTER 2 – INTRODUCTION

In 1993, the National Research Council issued a landmark report on the impact of pesticides on infants and children.[2] The report emphasized that children are not simply little adults. Their developing body systems and different physiology and behavior render children significantly more susceptible to damage or disruption as a result of exposure to pesticides. The report concluded that the toxicity tests performed on pesticides prior to their registration are inadequate to assess properly their potential to harm children. The report further noted that children's pesticide exposures are not adequately characterized by existing data based on studies of adults.

Children are not simply little adults. Their developing body systems and different physiology and behavior render children significantly more susceptible to damage or disruption as a result of exposure to pesticides.

The Office of Children's Health Protection of the United States Environmental Protection Agency (EPA) explains the issue simply:

Children are at greater risk of pesticide exposure than most adults. Pound for pound of body weight, children not only breathe more, eat more, and have a more rapid metabolism than adults, but they also play on the floor and lawn where pesticides are commonly applied. Children have more frequent hand-to-mouth contact as well.

Children generally are more susceptible than adults to environmental toxics because they are growing and developing. Also their enzymatic, metabolic and immune systems are immature, allowing in some cases for less natural protection than that of adults.

A child's nervous system, reproductive organs and immune system grow and develop rapidly during the first months and years of life. As organ structures develop, vital connections between cells are established. These delicate developmental processes in children may easily and irreversibly be disrupted by toxic environmental substances...[3]

...to get a better understanding of children's full non-dietary pesticide exposure, there must be a more complete picture of the use of pesticides in children's homes and at other locations where they spend the majority of their time.

For years, federal and state governments focused attention

on pesticide exposure in the agricultural sector and on suburban lawns and golf courses. This study by the New York Attorney General's Office stems from the recognition that we must also address the exposures that are a part of everyday life for *urban* children. Earlier reports by the Attorney General's Office showed widespread use of pesticides in schools, hospitals and county government facilities in New York State.[4] However, according to EPA estimates, pre-teen children spend about 90% of their time at home, at the homes of friends, and at school.[5] Thus, to get a better understanding of children's full non-dietary pesticide exposure, there must be a more complete picture of the use of pesticides in children's homes and at other locations where they spend the majority of their time.

In their homes, children of urban families are likely to be at greater risk of pesticide exposure both because of the condition of the housing stock in which they reside, and the fact that individual families may not control, or even be fully aware of pesticide applications in and around their apartments. High density housing and housing with less maintenance staff may be particularly susceptible to infestation with roaches, ants, mice, rats and other pests. Schools, parks and playgrounds in these neighborhoods may suffer similar problems. In each case, efforts to manage pest problems may result in the use of pesticides, creating conditions for unusually high pesticide exposures for the children living in those neighborhoods.

Reports released by the New York State Department of Environmental Conservation (DEC) reveal patterns of heavy pesticide use in New York's urban centers, particularly in New York City. For example, in 1998 the applications of liquid and solid pesticide formulations in New York City represented 36% of the total liquid pesticides and 27% of the total solid pesticides applied by commercial applicators and sold to farmers in all of New York State.[6] Additional pesticides, purchased over the counter by ordinary individuals for use in and around their homes, are not included in this DEC tally.

To get a broad overview of how these pesticide applications contribute to the pesticide exposure of the children of New York's low-income urban families, we surveyed the pest control practices at specific public housing developments in five cities across the State, as well as the institutional practices at the schools and parks used by children in the target housing developments. But the pesticide exposure of the target population of children is not determined solely by institutional decisions, as residents often take pest control matters into their own hands. Accordingly, we conducted door-to-door surveys of residents in the target housing developments and also did shelf surveys for pesticide products in retail stores located around each housing development.

In this report, we present the results of our inquiry along with a discussion of the risks associated with pesticide[7] use and the availability of alternative pest control measures. This report

provides a basis for various improvements to the management of pests that will help reduce the exposure of children to toxic pesticides.

CHAPTER 3 – METHODS

This study documents pesticide use in public housing developments, schools and parks in cities across New York State. We chose five representative large cities – Albany, Buffalo, New York City, Syracuse and Yonkers. In each city, with the cooperation of housing authority administrators and residents, we examined specific subsidized municipal housing developments that were generally representative of the larger stock of subsidized housing in that city. The selection criteria gave a preference to housing developments with many children in residence served by nearby public schools and parks, and to those with an active residents' group. From the managers of the selected developments, we requested information on:

1. the policy and guidance documents that influence the pest management practices at each development;
2. the identity and quantity of pesticides applied by management in both public spaces and in residents' individual apartments;
3. the type and magnitude of pest problem(s);
4. the criteria for initiating pesticide applications (*e.g.* routine v. responsive, thresholds of tolerance);
5. management oversight of pest control activities;
6. personnel involved in pest control activities, including staff and contractors; and
7. posting and notification practices.

Housing authority personnel completed a survey for each housing development selected, and their responses reflected policies and practices during calendar year 2000. All were cooperative in responding to follow-up questions as needed to clarify their responses.

We also sent surveys to schools in the immediate vicinity of each housing development and to the appropriate agency for public parks near the selected developments. The surveys for schools and parks sought the same information requested from the housing authorities. We requested schools to report on their activities during the 2000-01 academic year, and parks to report for calendar year 2000. Like the municipal housing authorities, administrators of the schools and parks cooperated fully with our inquiry.

To evaluate the residents' own pest management practices, as well as their impression of the policies and practices of the housing authorities, we conducted door-to-door surveys at each of the housing developments. We inquired about:

1. pesticide products that the tenants bought and used on their own;
2. tenant satisfaction with, and concerns about, management's pest control activities;
3. tenant understanding of the risks and benefits associated with pest control activities; and
4. tenant preferences in relation to pest management options.

If residents were willing to complete the survey, but unable to do so at the time of the visit, we gave them a copy of the survey and a post-paid return envelope. At each development, we left additional surveys for residents who were not home at the time of the survey, accompanied by a letter explaining our interest in the information and a post-paid return envelope. In general, we spent two days conducting tenant surveys in each city. We contacted at least one-third of the households at each development, depending upon the number of units in the development. In some cases we reached all households. Overall, about 22% of the households we contacted personally agreed to participate in the survey. Of the questionnaires left for return by mail, approximately 10% were returned to us with usable data. Response rates for individual housing developments ranged from 7.5% to 36% of households. Response rates for residents by development are summarized in Table 1.

Table 1. Resident Response Rates

City	Development	# Apts.	# Responses	Response Rate
Albany	Ida Yarbough	129	43	33.3
	Steamboat Springs	75	27	36.0
Buffalo	Ferry Grider	210	72	34.3
	Kenfield - Langfield[a]	968	107	11.1
New York City	General Grant	1940	146	7.5
	Throggs Neck	1185	106	9.0
Syracuse	James Geddes	250	66	26.4
	Pioneer	612	109	17.8
Yonkers	Calcagno	278	69	24.8
	Schlobohm	411	52	12.7

[a] Although built separately, the Kenfield and Langfield Houses are located adjacent to each other and are treated here as one development.

Finally, during the course of our inquiry, we recognized that some residents were reporting the use of some pesticides that were not registered for use in New York State. According to the residents, these products were purchased at local stores, and in some cases from street vendors. The use of illegal pesticides by some residents prompted us to supplement the information gathered from the residents with a shelf survey of pesticide products offered by retail stores in the vicinity of the developments included in this study. During the Fall of 2001, representatives of the Attorney General's Office visited dozens of stores in all five cities and recorded the brand name and EPA registration number of the insecticides and rodenticides found on the shelves.[8] This was not an undercover investigation, shopkeepers were generally aware of the activity, and no effort was made to determine if other products not offered on the shelves might be available.

After further investigation, the Attorney General's Office initiated its own enforcement actions by serving several stores with subpoenas, and demanding that they remove the unregistered products from their shelves and refrain from offering any unregistered pesticide products for sale in the future. DEC is also investigating certain illegal sales. The efforts of both offices are continuing as of the date of publication.

CHAPTER 4 – PESTICIDE USE BY INSTITUTIONS AND INDIVIDUALS

In each city we reviewed the pest management practices in two housing developments and the schools and parks that serve the majority of children living in those developments. We asked the housing authorities and parks to report on their pest management practices for the year 2000, and we asked the schools to report on their pest management practices for academic year 2000-01. All of the institutions did so with the exception of the Buffalo Municipal Housing Authority, which provided 2001 data.[9] Detailed findings for each development in each city are documented in Appendix I.

Pesticide products are usually sold as *formulations* with active pesticide ingredients to kill the target organism and other ingredients which serve other purposes such as assisting in the application of the pesticide. Most are sold under brand names that, by themselves, do not identify the pesticide. This report discusses pesticide use by *active* ingredient. These chemicals are discussed at page 30 below. Text Box 1 identifies brand name products with active ingredients.

A. Pesticide Use By Institutions

1. Active Ingredients

The institutions responding to our surveys used pesticide products containing a variety of active ingredients, which were also found in products selected by the residents. (See Table 2 for active ingredients used by class, and Appendix II for detailed reports of specific products and amounts used.) These included insecticides belonging to several different chemical classes (pyrethrins, pyrethroids, organophosphates, carbamates and hydramethylnon). Some of the housing authorities also reported using rodenticides in two chemical classes (coumarins and inandiones) in large quantities. Only the Albany Housing Authority reported using organophosphate insecticides. However, in earlier reports, the New York City Housing

Text Box 1: Active Ingredients in Some Pesticide Products Used by Institutions and Residents[a]

Pyrethrins:
Raid Max Roach & Ant Killer 6
Drione Insecticide
Raid Ant & Roach Killer (#6 & #16)
Raid Max Roach & Ant Killer
TAT Roach & Ant Killer w/ Residual Action III
Ficam Plus Synergized Pyrethrins[b]
Hotshot Roach & Ant Killer
Spectracide Pro Residual Insecticide Aerosol
CB-80 Extra Insecticide
Hot Shot Flying Insect Killer Plus
Pro Control II Total Release Fogger
PT 565 Plus Pyrethrum

Organophosphates:
Black Jack Roach & Ant Killer IV
Zoecon Catalyst Emulsified in Water Insecticide
Raid Ant Bait
Raid Ant Controller

Carbamates:
Black Flag Ant & Roach Killer
Ficam Plus Synergized Pyrethrins[b]
Raid Max Roach & Ant Killer 6
Black Flag Ant & Roach Killer
Raid Max Roach & Ant Killer
Ficam W[b]
Garden Tech Sevin - 5
Ready To Use 5% Dust Bug Killer
Raid Max Roach & Ant Killer
TAT Roach Killer VI

Boric Acid / Borates
Roach-Wrecker Boric Acid Roach Killer
Zap-A-Roach Boric Acid Roach Killer
Drax Ant Kill Gel
Niban F-G Bait
PIC Boric Acid Roach Killer III
Knock-A-Roach Boric Acid
Stapleton's MRF 2000 Paste Formula

Pyrethroids:
Black Jack Roach & Ant Killer IV
Raid Ant & Roach Killer 17
Raid Max Roach & Ant Killer 6
Hot Shot Roach & Ant Killer 2
Raid Ant & Roach Killer (# 6 and #16)
Raid Ant Killer 271
Raid Wasp & Hornet Killer 271
Raid Max Roach & Ant Killer
TAT Roach & Ant Killer w/ Residual Action III
Tempo 20 WP Insecticide[b]
Spectricide Pro Residual Insecticide Aerosol
CB Stinger Wasp & Hornet Jet Spray
Demand CS Insecticide[b]
Hot Shot Flying Insect Killer Plus
Pegasus Ant & Roach Killer
Powerhouse Ant & Roach Killer
Powerhouse House & Garden Bug Killer
PT 565 Plus Pyrethrum
Suspend SC Insecticide[b]
Tempo 2 Insecticide[b]

Hydramethylnon
Combat Plus Roach Killing Gel
Maxforce Professional Insect Control
Roach Killer
Siege Gel Bait[b]
Maxforce Professional Insect Control
Roach Killer Bait Gel

Coumarins / Inandiones
Contrac All-Weather Blox
Contrac Rodenticide Ready to Use Place Pac
Maki Rodenticide Bait Packs
Talon G
Rozol Ready to Use Rat & Mouse Bait
Eaton's Blocks
Final All-Weather Blox

[a] Products with multiple active ingredients are listed under each ingredient.
[b] Classified as a Restricted Use Product. See page 18 for additional discussion of this class of pesticides.

Authority (NYCHA) reported heavy use of chlorpyrifos, an organophosphate insecticide, during each year of the 1990's.[10] That was not the case at the New York City housing developments we surveyed in 2001. Nevertheless, several institutions did use carbamate insecticides, another group of pesticides which have similar toxic effects on the nervous system. As discussed below (see page 42), the organophosphates are the focus of an ongoing EPA review, a review which has already resulted in the cancellation of the registration of some products and changes in the permitted use of others. These actions were specifically motivated by concerns about the potential effects of these poisons on children, and were intended to reduce opportunities for children to be exposed to them.

Table 2. Pesticides Used At Institutions in Five Cities, By Class.[a]

Pesticide	Albany			Buffalo			NYC			Syracuse			Yonkers		
	Housing	Schools	Parks	Housing	Schools	Parks	Housing	Schools	Parks	Housing	Schools	Parks	Housing	Schools	Parks
Pyrethrins	+	-	-	-	-	-	+	-	-	+	+	-	+	-	-
Pyrethroids	+	-	-	+	-	-	-	-	-	-	+	-	+	-	-
Organophosphates	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydramethylnon	+	-	-	+	-	-	-	+	-	-	+	-	-	-	-
Carbamates	+	-	-	-	-	-	+	-	-	+	-	-	-	+	-
Rodenticides[b]	+	-	+	+	+	-	+	+	+	+	-	-	+	-	-

[a] + = reported to be used; - = not reported as used.

[b] Rodenticides used were generally coumarins and inandiones.

2. Institutional Use of Restricted Use Pesticides

Some of the institutions reported the use of restricted use pesticides (See Table 3.) EPA and/or DEC classifies pesticides as restricted use based upon their toxicity to people or other non-target species or due to their potential to persist and accumulate in the environment. Because of this increased toxicity, these products can only be applied by certified applicators, or those working under the direct supervision of a certified applicator. It appeared that the institutions did not always use certified applicators to apply restricted use pesticides.

Table 3. Restricted Use Pesticides Applied by Institutions

Brand Name	Active ingredient(s)	Institution(s)
Demand CS Insecticide	Cyhalothrin	Yonkers Housing Authority
Ditrac Tracking Powder	Diphacinone	Buffalo Housing Authority Yonkers Housing Authority
EcoPCO ACU Contact Insecticide	Phenethyl Propionate	NYC Schools
Ficam Plus Synergized Pyrethrins	Bendiocarb Pyrethrins Piperonyl Butoxide	NYC Housing Authority
Ficam W	Bendiocarb	Albany Housing Authority Syracuse Housing Authority Yonkers Schools
Prentox Prenbay 1.5 EC	Baygon	Syracuse Housing Authority
Siege Gel Insecticide	Hydramethylnon	NYC Schools
Suspend SC Insecticide	Deltamethrin	Yonkers Housing Authority
Tempo 2 Insecticide	Cyfluthrin	Buffalo Housing Authority
Tempo 20 WP Insecticide Packets	Cyfluthrin	Yonkers Housing Authority
ZP Tracking Powder	Zinc Phosphide	Albany Housing Authority

B. Pesticide Use by Residents

Many residents elected to apply pesticides in their homes. Statewide, 69% of responding

tenants took matters into their own hands, purchased and applied pesticides in their own apartments. When only those residents (68% statewide) who reported having a pest problem are considered, 80% chose to apply pesticides themselves.

Statewide, respondents reported 622 purchases, of which 199 could be adequately identified. (See Table 4 for city-by-city results.) Other products purchased and used were either no longer available, or inadequately described by respondents who were not personally interviewed. Among those products whose identity, ingredients and registration status could be confirmed by reference to EPA and DEC databases, the pyrethroids are the active ingredient in the most frequently selected products. The next most frequently used active ingredients were pyrethrins, organophosphates, hydramethylnon and carbamates (See Text Box 2 for the identity of specific active ingredients selected, Text Box 1 for brand names of products containing the various active ingredients, Table 5 for city-by-city data on frequency of selection by class of active ingredients and the discussion on pp. 27-40 for information on the toxicity of these ingredients.) In addition to these insecticides, a few residents reported use of rodenticide products, with coumarin and brodifacoum as the active ingredients.

69% of responding tenants... purchased and applied pesticides in their own homes.

Table 4. Pesticide Use By Residents

Location	% Respondents Using Pesticides[a]	# of Products Purchased by Respondents[b]	# of Products Identified
Statewide	69	622	199
Albany	61	46	5
Buffalo	57	97	25
New York City	93	308	113
Syracuse	41	59	21
Yonkers	79	112	35

[a] Residents reporting that they purchased pesticide products, regardless of whether the product could be specifically identified. Does not include resident use of products that were provided by housing authority.
[b] Includes products which could not be specifically identified

Text Box 2: Active Ingredients In Products Used by Residents

(In order of decreasing frequency within class)

Pyrethroids

Permethrin
Bioallethrin
Imiprothrin
Cyfluthrin
Tetramethrin
Allethrin
Phenothrin
Asana
Tralomethrin

Pyrethrins

Organophosphates

Diazinon
Chlorpyrifos
Propetamphos

Hydramethylnon
(= Trifluoromethyl Aminohydrazone)

Carbamates

Baygon
Carbaryl

Table 5. Active Ingredients Selected by Residents[a]

Location	Pyrethroids	Pyrethrins	Organophosphates	Hydramethylnon	Carbamates
Statewide	47.2	16.6	16.1	15.6	14.1
Albany	60.0	0	0	0	0
Buffalo	68.0	28.0	8.0	0	8.0
New York City	42.5	14.2	17.7	15.9	18.6
Syracuse	66.7	33.3	9.5	4.8	19.0
Yonkers	34.3	8.6	22.9	34.3	2.9

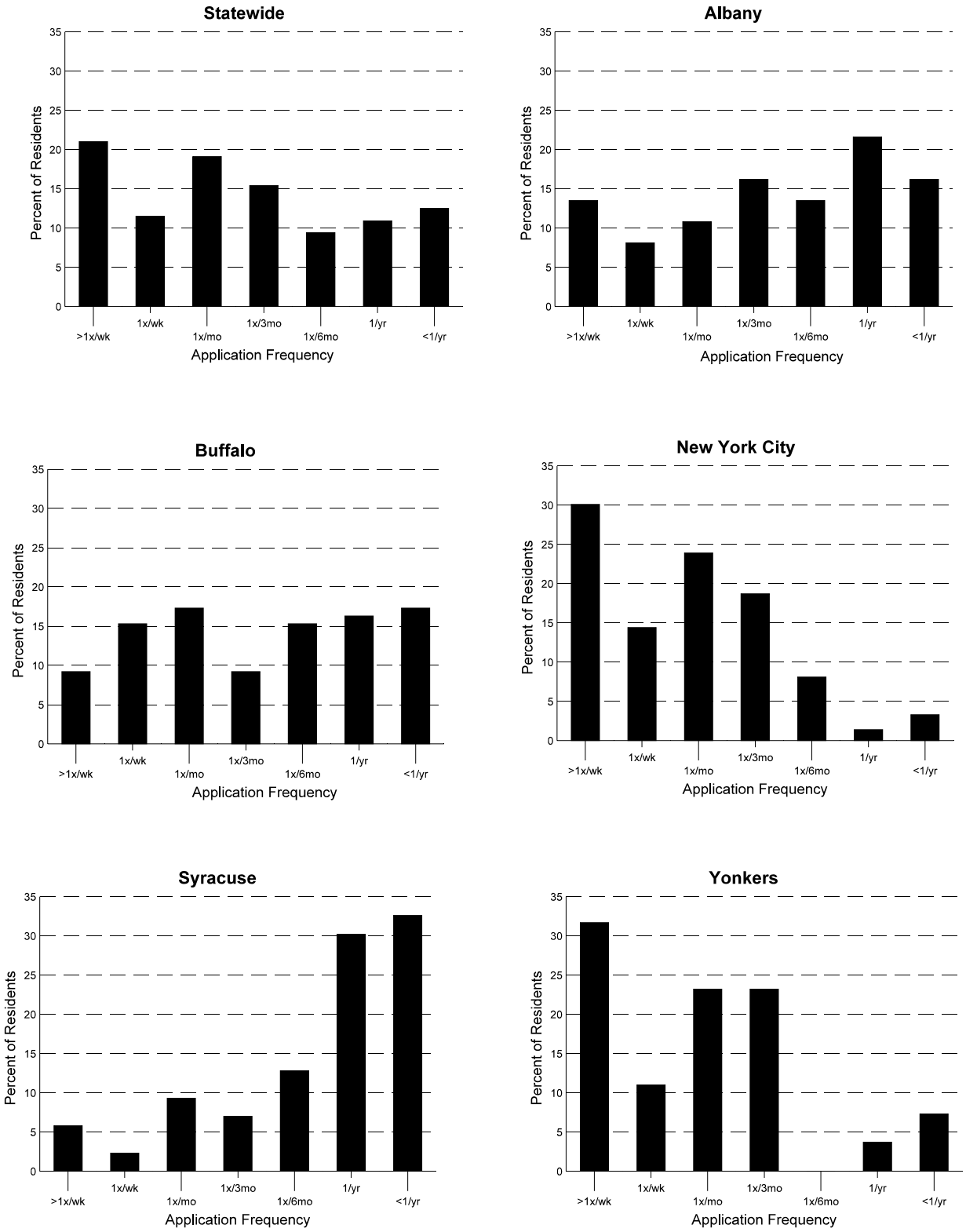
[a] As percent of identified products containing an active ingredient in the specified category. Other active ingredients were found in products used less frequently. Formulations with active ingredients in multiple categories count as multiple selections, while formulations with multiple ingredients in the same category scored as one selection of that category.

1. Frequency of Pesticide Applications

In many instances, residents sprayed aerosol insecticides daily, or constantly used roach or mouse baits. Figure 1 summarizes residents' responses to our inquiry into the frequency with which they applied pesticides in their own apartments. Statewide, one-third of the residents said that they apply pesticides at least once a week. In Syracuse, where the subject housing projects were garden apartments, pesticide application frequency was lowest, with more than half of the residents applying pesticides no more than once a year, while at the high-rise developments in New York City and Yonkers, almost half applied pesticides at least once a week.

Statewide, one-third of the residents said that they apply pesticides at least once a week.

Figure 1. Frequency of Pesticide Application by Residents



2. Illegal Pesticides Used by Residents

Residents also used illegal pesticides that are not registered with EPA or DEC, some which are registered as restricted use pesticides and can only be applied by certified pesticide applicators, and some which are registered with EPA for general use, but are not registered for use in New York State. The illegal products that were reported are identified in Text Box 3. Some of these products (*e.g.* "Chinese Chalk", "Tres Pasitos" and Tempo 20WP) may be particularly toxic. See the discussion on page 52 for further details. In any case, the unregistered products have not been subjected to scrutiny and evaluation by the appropriate regulatory agencies, as required by law. Residents reported buying most of these products in local retail stores, although a few reported purchasing pesticides from street vendors and other

Text Box 3: Illegal Pesticide Use By Residents

"Chinese Chalk" (Deltamethrin)[a]

"Tres Pasitos" (Aldicarb)[a]

Tempo 20 WP (Cyfluthrin)[b]

Prentox Diazinon 4E Insecticide (Diazinon)[b]

Black Flag Professional Power Ant & Roach Killer (Allethrin and Propoxur)[c]

Black Jack Fatal Attraction (Abamectin)[c]

Black Jack Fly & Mosquito Killer (Tetramethrin)[c]

Combat Ant & Roach Killer (Pyrethrins)[c]

Diaciclon F-7 (Pyrethrins)[c]

Knock A Roach (Boric Acid)[c]

[a] Illegally imported into US, not registered by EPA
[b] A restricted use product for use only by certified professionals.
[c] Products registered for consumer use by EPA but which cannot be sold or used in New York State.

sources.

3. Availability of Pesticides in Local Stores

We visited a total of 73 retail stores in the vicinity of the housing developments in the five cities. Collectively, those stores offered a total of 174 different insecticide and rodenticide products. We did not inventory the shelves to determine the number of units available by product, nor did we review sales records. Table 6 shows the prevalence of the most frequently found active ingredients in products offered in the five cities.

The retail shelf survey revealed that despite the fact that they are generally recognized as "less-toxic" insecticides, boric acid and borate-containing products were available at only 27 of the 73 stores we visited. (See Table 6.)

Table 6. Active ingredients in pesticide products offered at 73 selected retail stores

Active Ingredient	# Products Offered (of 174 products)	# Stores Offering (of 73 stores)
Pyrethroids	83	63
Pyrethrins	25	27
Organophosphates	19	26
Carbamates	14	21
Coumarins	10	16
Boric Acid / Borates	10	27
Hydramethylnon	4	12

We found 12 stores in 3 cities offering pesticide products that were not registered for sale or use in New York State. See Text Box 4. After further investigation, the stores were notified of the

Text Box 4: Unregistered Pesticides Illegally Offered for Sale at Some Retail Stores in New York State[a]

Albany:

No unregistered products observed.

Buffalo:

Bengal Roach Fogger
Bengal Roach and Flea Fogger
Blue Lustre Flea Killer for Carpets
Burgess Insect Fog
Enforcer Malathion 50 Insect Spray
Hot Shot Mice
Hot Shot Sudden Death Brand Mouse Killer
Jones Ant Killer
Yard Works! Home Insect Killer

New York City:

Black Flag Special City Formula II Roach Killer
Black Jack Fly & Mosquito Killer

Syracuse:

No unregistered products observed.

Yonkers:

AMP Wasp 'N Hornet Killer
Black Jack Fly & Insect Killer
Black Jack Fly & Mosquito Killer

[a] Stores located within convenient walking distance of housing developments surveyed.

violations and offered the opportunity to settle before a court action was filed. Each of the stores agreed to settle. Under the terms of the settlement they removed the illegal products from the shelves, made provision for their legal disposal, agreed not to offer unregistered pesticides for sale in the future and agreed to monetary penalties. Penalties are payable if the stores sell unregistered pesticides or otherwise violate New York's pesticide laws and regulations. The terms of the settlement are embodied in a court enforceable Assurance of Discontinuance, pursuant to New York State Executive Law §63(12).

4. Non-Pesticidal Pest Control

Statewide, two-thirds of the respondents took special care in cleaning in and around their apartments to prevent or control pest infestations. Anecdotally, we heard many stories about the extent to which some residents worked to keep the premises clean. We also heard numerous complaints about neighbors who were less fastidious in their habits and were viewed as a part of the problem. Residents frequently reported use of traps and physical barriers (*e.g.* screens and caulking), although in those developments where window screens were not provided, residents did not often install them individually. (See Table 7 for summary of residents' use of non-pesticidal controls.)

Table 7. Percent of Resident Respondents Using Various Non-Pesticidal Controls

Location (Number of Respondents)	Physical Removal	Traps	Improved Sanitation	Physical Barriers	Other[a]
Statewide (460)	26.7	42.2	71.7	33.3	5.2
Albany (48)	39.6	45.8	83.3	45.8	10.4
Buffalo (70)	31.4	25.7	71.4	25.7	7.1
NYC (194)	18.6	56.7	75.3	42.8	2.6
Syracuse (78)	44.9	19.2	64.1	15.4	5.1
Yonkers (70)	15.7	41.4	62.9	25.7	7.1

[a] "Other" controls included a wide variety of strategies ranging from the use of electric repellent devices to cats.

CHAPTER 5 – HEALTH IMPACTS OF FREQUENTLY USED PESTICIDES

The results of our survey demonstrate that children living in urban public housing developments can be exposed to pesticides at home, at school and at play. These exposures are all in addition to their exposure to pesticide residues on food from agricultural use of pesticides. The

health impacts of pesticides are determined by the route, magnitude and frequency of exposure as wellas the toxicity of the chemical.

A. Exposure to Pesticides - Unanticipated Mechanisms, Unintended Effects

Children may be exposed to pesticides used in their homes and at their schools and playgrounds in many ways, some obvious and some harder to recognize. During normal activities, children touch treated surfaces and may absorb pesticide residues through their skin. They may also ingest the pesticides when they put their fingers or other contaminated things in their mouths. Pesticides can be inhaled, either at or after the time of application. In the worst case, children might swallow pesticides applied or stored in their environment, whether liquids, solids or powders. Some pesticides may be formulated with pleasant odors, which may attract children, and perhaps lead them to confuse the products with room fresheners or other products.

Children may be exposed to pesticides used in their homes and at their schools and playgrounds in many ways, some obvious and some harder to recognize.

Recently, researchers examined residential pesticide use in the homes of pregnant urban women residing in minority communities in New York City (Harlem, Washington Heights and South Bronx).[11] All of the 316 women studied were found to be breathing air with detectable levels of chlorpyrifos, diazinon, the carbamate insecticide propoxur and the fungicide *o*-phenylphenol. Other pesticides were detected less frequently, occurring in 47 - 83% of the air samples.

Inhalation from indoor air accounted for an average of 84.7% of the chlorpyrifos

Research has shown that chlorpyrifos and diazinon, organophosphate insecticides widely used by residents and by some institutions we surveyed, can vaporize into the air after they have been applied to floors, baseboards and elsewhere. Once airborne, they are once again available to be inhaled, and can redeposit elsewhere, including on surfaces that were not exposed to the spray. These can include kitchen counters, table tops, foods, dinnerware and glassware, fabrics used for furnishings, such as carpets and furniture, and children's plush toys. All may serve as unanticipated reservoirs for exposure to pesticides applied elsewhere.[12]

In Maryland, another recent study that was part of the EPA-sponsored National Human Exposure Assessment Survey, studied the behavior patterns of 80 people and measured pesticide levels to determine the sources and magnitude of their total exposure to chlorpyrifos.[13] Inhalation from indoor air accounted for an average of 84.7% of the chlorpyrifos exposures (this is a conservative estimate in that the authors note that after indoor application of chlorpyrifos the levels of the pesticide in the indoor air and dust may be 10 times higher than the levels they measured).

Exposure may occur by other less direct pathways. During application, pesticide sprays, fogs, powders, and dusts may drift to other locations. Even after application, pesticides do not necessarily stay where they were put. In fact, pesticides applied outside the home may be tracked in by people and pets, contaminating even the apartments of people who choose not to have pesticides applied in their home. After application, pesticides may continue to move by vaporizing and then adsorbing on (sticking to) materials that children might handle or put in their mouths.

B. Health Effects of Commonly Selected Pesticides

The pesticides used by housing authorities, schools, parks and residents can cause a variety of adverse effects on the health of the children who live, study and play at those facilities. Also at risk are their family members, guests and visitors as well as those who apply the pesticides or work at the pesticide-treated facilities. As discussed in the Introduction, children are especially susceptible to adverse health effects resulting from exposure to pesticides because of their physiology and behavior and the fact that their body systems are still developing. Of course, the actual effects that might arise from exposure to particular pesticides depend on a number of factors, including actual dose, interactions with other chemical exposures, and individual susceptibilities.

Pesticide label warnings generally focus on the short-term effects of the poisons... However, pesticides are also known to cause a wide variety of long-term adverse health effects.

Pesticide label warnings generally focus on the short-term effects of the poisons, such as skin, respiratory or gastrointestinal irritation, tremors, and visual problems. However, pesticides are also known to cause a wide variety of long-term adverse health effects. Some of the ingredients in pesticides, for example, cause permanent damage to the nervous and reproductive systems. Some interfere with the proper development of the fetus, infants and children. Some may cause allergic reactions or precipitate asthmatic attacks, while others may interfere with the proper function of endocrine glands which regulate basic body functions. These effects, even when well-known to EPA, are not included on the label warnings found on pesticide products.

To better understand the risks of pesticide use, brief toxicological profiles[14] for the various classes of pesticides frequently chosen for use follow. See Text Box 1 for a list of some pesticide products containing each of the pesticides discussed.

1. Toxicity of Specific Classes of Active Ingredients Used by Residents and Institutions

a) Pyrethroids

Pyrethroids are synthetic insecticides that are chemically similar to the naturally occurring pyrethrins, but are modified to be more stable in the environment. They do not decompose as rapidly as the pyrethrins when exposed to light and heat. While the pyrethroids are generally considered to be "less toxic" choices for insect control, they are nonetheless capable of causing adverse reactions. Large doses of pyrethroids may cause nervous system effects such as incoordination, tremors, vomiting, diarrhea, and irritability to sound and touch. More common than these extreme effects are sensations of stinging, burning, itching, and tingling, which may progress to numbness. Although the pyrethroid-containing products commonly used for insect control in residential and institutional settings are general use products, some pyrethroid-containing products are classified as "restricted use pesticides" because of their potential to cause tumors or because of their extreme acute toxicity.[15]

b) Pyrethrins

The pyrethrins are naturally occurring substances, extracted from chrysanthemums, that are commonly used as insecticides. Although some people mistakenly equate "natural" with "non-toxic," the pyrethrins are not devoid of toxic effects. The pyrethrins are allergenic, and may be a particular problem for asthmatics. In addition, they have been classified by EPA as "Likely Carcinogens."[16]

Often, products containing pyrethrins also contain organophosphates or n-methyl carbamates to provide for quick "knockdown" of the pest populations (the toxic effects of these ingredients are discussed below). Furthermore, pyrethrin-containing pesticides may have piperonyl butoxide added as a “synergist” – an ingredient added to enhance the activity of the active ingredient. Like the pyrethrins, piperonyl butoxide is a naturally occurring substance. Piperonyl butoxide enhances the action of some insecticides, including pyrethrins, organophosphates and carbamates by interfering with the target insect’s natural ability to breakdown the active pesticidal ingredient. In humans, piperonyl butoxide also interferes with the ability to breakdown certain toxic substances. It is also classified by the EPA as a Possible Human Carcinogen.[17]

c) Organophosphates

Organophosphates include such insecticides as chlorpyrifos, diazinon, and propetamphos. They affect the nervous system of both insects (their target) and mammals (including humans) by

disturbing the chemical steps involved in transmitting a nerve impulse. When normal function is disrupted by organophosphates, the nervous system is overstimulated, producing a variety of adverse effects. Because all poisons in this chemical group act in the same manner, exposures to multiple pesticides would be cumulative in their effects.

Organophosphate poisoning in humans can result in a wide variety of effects on the body. Early symptoms include headache, nausea and dizziness and may progress to muscular twitching, weakness and tremors, incoordination, vomiting, diarrhea and visual disturbances. Mental confusion and psychosis may occur, and ultimately convulsions, coma, respiratory failure and death may ensue. Repeated exposure to levels of organophosphates too low to cause the acute poisoning described above may still cause persistent anorexia (loss of appetite), weakness and malaise. In a recent report, patients exposed to professionally-applied chlorpyrifos in their environment suffered a variety of nervous system effects. Several of them experienced memory loss and other mental deficits which persisted for months after exposure.[18] Recent studies have demonstrated that newborn animals suffer long-term effects on their nervous and immune systems as a result of exposure to chlorpyrifos. These effects may persist for life.[19]

Newborn animals suffer long-term effects on their nervous and immune systems as a result of exposure to chlorpyrifos. These effects may persist for life.

According to EPA:

> *...organophosphates as a group pose a greater hazard, especially to young children under six years of age, than other pesticides.... Children under six were three times more likely to be hospitalized, five times more likely to be admitted for critical care (ICU), and three times more likely to have experienced a life-threatening outcome of death when exposed to an organophosphate than when exposed to non-organophosphate pesticides. Adults and older children were 50% more likely to be hospitalized and 72% more likely to be admitted to an ICU if exposed to an organophosphate.*[20]

d) Hydramethylnon

Based on the occurrence of lung tumors in laboratory animals exposed to hydramethylnon, EPA has classified hydramethylnon as a possible human carcinogen.[21] Short-term exposure to hydramethylnon can cause irritation of the eyes and respiratory system.[22]

e) Carbamates

Carbamate insecticides (often called n-methyl carbamates) also interfere with the transmission of nerve impulses. In fact, they act by disturbing the same chemical step in normal nerve transmission that is affected by organophosphates, although the carbamate interference is generally of shorter duration. The carbamates include such chemicals as baygon and carbaryl.

The effects of carbamate poisoning are, as might be expected, very similar to those of organophosphate poisoning. General malaise, muscle weakness, dizziness and sweating are common, as are headaches, nausea, vomiting and diarrhea. In more serious cases, there may be incoordination, blurred vision, slurred speech, labored breathing and tightness of the chest. Death can result from the respiratory effects. There is also concern about effects of some carbamates (*e.g.* carbaryl) on the fetus.[23]

f) Coumarin and Inandione Rodenticides

The rodenticides applied by institutions were primarily products which contained coumarins (bromadialone and brodifacoum) or inandiones (chlorphacinone and diphacinone) as active ingredients. The coumarins and inandiones are chemically related to each other, and have similar toxic effects. Both groups of chemicals are known as anticoagulants. They interfere with the blood's ability to clot while simultaneously disrupting the ability of capillaries, the body's smallest blood vessels, to contain the blood. This combination of toxic effects predisposes the rodent, or human, to widespread internal bleeding. Simply put, a child who swallowed a sufficient amount of these rodent poisons could bleed to death internally.

2. Carcinogenicity of Pesticides Used by Residents and Institutions

Among the pesticides chosen for use by both residents and institutional pest control managers, several are classified as either probable or possible human carcinogens by EPA. Because the criteria for registration of pesticides are based upon a balancing of known risks and potential benefits, a finding that a particular ingredient may cause cancer is not necessarily a sufficient basis for EPA to reject its registration. In fact, even when EPA has determined that a pesticide ingredient may cause cancer, EPA does not require that the product label carry that message to the public. Consumers simply have no warning. Table 8 lists the potentially

Even when EPA has determined that a pesticide ingredient may cause cancer, EPA does not require that the product label carry that message to the public.

carcinogenic ingredients identified on the labels of products used by those we surveyed. Products containing these potentially carcinogenic ingredients are listed in Text Box 5.

Table 8. Carcinogenic Classification of Pesticides Used by Institutions and Residents[24]

Ingredient	EPA Carcinogenicity Classification	Used By Institutions	Used By Residents
Baygon	Probable	Syracuse Housing Authority	Buffalo, NYC, Syracuse, Yonkers
Carbaryl	Possible		Syracuse
Fipronil	Possible	Syracuse Housing Authority Yonkers Municipal Housing Authority Buffalo Municipal Housing Authority Buffalo Schools	Albany, Buffalo, NYC, Yonkers
Hydramethylnon	Possible	Buffalo Municipal Housing Authority NYC Schools Syracuse Schools Albany Housing Authority	NYC, Syracuse, Yonkers
Permethrin	Possible		Buffalo, NYC, Syracuse, Yonkers
Piperonyl Butoxide	Possible	Syracuse Schools Syracuse Housing Authority NYC Housing Authority Yonkers Housing Authority	Buffalo, NYC, Syracuse, Yonkers
Surflan	Possible	Yonkers Parks Department	
MGK 264 (Synergist)	Possible	Syracuse Schools Syracuse Housing Authority Yonkers Housing Authority	Buffalo, NYC, Syracuse, Yonkers
Tetramethrin	Possible	Buffalo Municipal Housing Authority	Buffalo, NYC, Syracuse, Yonkers

Text Box 5: Some Products Used By Institutions and Residents That Contain Possible and Probable Carcinogens

Baygon

Raid Max Roach & Ant Killer
Raid Ant & Roach Killer 6 / Raid Max Roach & Ant Killer 6
TAT Roach Killer VI
Black Flag Ant & Roach Killer
Combat Ant & Roach Killer 9
Prentox Prenbay 1.5 EC

Carbaryl

Garden Tech Sevin-5 Ready to Use 5% Dust Bug Killer

Fipronil

Maxforce FC Proffessional Insect Control Roach Killer Bait Gel
Combat 12 Month 1
Combat Quick Kill Formula 3 / Pro Solution 1
Maxforce FC Professional Insect Control Roach Bait Stations
Combat Quick Kill Formula 1 Roach Baits
Maxforce FC Professional Insect Control Ant Bait Stations
Maxforce FC Professional Insect Control Roach Bait Stations

Hydramethylnon

Maxforce Professional Insect Control Roach Killer
Combat Plus Roach Killing Gel
Combat Roach Baits (Superbait/Roach Control/Source Kill/Prevention/System)
Siege Gel Insecticide
Maxforce FC Roach Bait Gel
Maxforce Professional Insect Control Ant Killer/Granular Bait

Permethrin

Black Leaf Roach, Ant & Spider Killer Formula II
Black Jack Fly and Mosquito Killer
Hot Shot Flying Insect Killer Plus
Raid Ant & Roach Killer 16
Raid Ant & Roach Killer 6
Raid Ant Killer 271/Raid Wasp & Hornet Killer 271
TAT Roach & Ant Killer with Residual Action III
Raid Ant & Roach Killer 14
Black Jack Jet Action Crawling Insect Spray
707 Automatic Indoor Fogger Roach Bomb
Black Jack Total Release Indoor Fogger
Walgreens Roach & Flea Fogger

Piperonyl Butoxide

Deep 6 Roach & Ant Killer
Raid Max Roach & Ant Killer
Raid Ant & Roach Killer 6 / Raid Max Roach & Ant Killer 6
Raid Ant & Roach Killer 16
TAT Liquid Power-Jet Stream with Residual Action
Diaciclon F-7
Raid Ant & Roach Killer 14
Raid Ant & Roach Killer 6
Hot Shot Kitchen Bug Killer
Hot Shot Flying Insect Killer Plus
Black Jack Fly and Mosquito Killer
Raid Flying Insect Killer Formula 5
Black Jack Jet Action Crawling Insect Spray
Black Jack Total Release Indoor Fogger
PT 565 Plus Pyrethrum
PT 565 Plus X LO
CB PCO Foggers
Ficam Plus
Drione Insecticide
CB-80
Pro Control Foggers

Surflan

Surflan A.S.

Synergist 264

Deep 6 Roach & Ant Killer
TAT Roach & Ant Killer with Residual Action III
Black Jack Roach & Ant Killer IV
707 Automatic Indoor Fogger Roach Bomb
Black Flag Gold Roach Barrier & Killer
Walgreens Roach & Flea Fogger
TAT Liquid Power-Jet Stream with Residual Action
Black Leaf Roach, Ant & Spider Killer Formula II
PT 565 Plus Pyrethrum
PT 565 Plus X LO
CB PCO Foggers
Pro Control Foggers

Tetramethrin

CB Stinger Wasp & Hornet Jet Spray
Black Jack Total Release Indoor Fogger
Black Jack Fly & Mosquito Killer
Raid Ant Killer 271 / Raid Wasp & Hornet Killer 271
F-6 Flying Insect Killer
Powerhouse House & Garden Bug Killer
Powerhouse Flying Insect Killer
Black Jack Jet Action Crawling Insect Spray

In addition to these ingredients, pesticide products also contain so-called "inert" ingredients (see discussion of inert ingredients, page 38). Some of the "inert" ingredients may also be carcinogenic, but because their identity is kept confidential by EPA and the pesticide manufacturers, and because pesticide labels contain no warnings about carcinogenicity, we cannot determine which products may contain carcinogenic "inert" ingredients.

3. The Asthma Paradox

Asthma rates among urban children from lower socioeconomic areas have reached epidemic proportions. In New York City the pediatric asthma rate is twice the national average. Asthma may be exacerbated by many irritants, including the wastes and remains of insect and rodent pests.[25]

The key to mitigating the asthma problem is in reducing exposure to the asthma triggers – both pests and pesticides.

The prevalence of allergens, which contribute to the development and exacerbation of asthma, correlates to socioeconomic factors and population density. A recent study showed elevated levels of cockroach allergens to be associated with low income, living in a multifamily home in a high population density area with a higher occupancy rate per room, and being a Hispanic or Black household. As compared to other populations, these households had lower levels of allergens arising from dust mites, cats and dogs.[26]

Some may argue that pesticides are necessary to control these pests and eliminate them as triggers of asthmatic attacks. In fact, some of the pesticides used to control these same pests also contribute to the asthma problem. Chlorpyrifos and other pesticides widely used for control of roaches and other indoor insect infestations may trigger asthmatic attacks.[27] As discussed above, the pyrethrins are allergenic and may be particularly troublesome for asthmatics. Fortunately, one need not substitute one asthma trigger for another.

Some of the pesticides used to control these same pests also contribute to the asthma problem.

Killing the pests with poisons is not the answer. Dead rodents or roaches, when located in wall voids and other unaccessible locations will not only cause odor problems, but will contribute to insect infestations. The key to mitigating the asthma problem is in reducing exposure to the asthma triggers – both pests and pesticides. Good sanitation is central to both efforts. As discussed later in this report, Integrated Pest Management utilizing various strategies and beginning with good sanitation, can control pests without the use of pesticides. Children can have a healthful

environment, where exposure to both pests and pesticides is minimized or eliminated.

4. Other Health-Related Impacts of Pesticides Used by Residents and Institutions

The adverse health impacts of pesticides may not be limited to those attributable directly to the toxic effects of the ingredients as they impact otherwise healthy individuals. When sick children or sick adults are exposed to pesticides, other problems may arise. Patients of all ages may be more susceptible to the toxic effects of pesticides due to their pre-existing conditions, and the toxicity of the pesticides may complicate illnesses. Pesticide exposure may cause symptoms that are not unique, such as headache, nausea, diarrhea, tingling sensations, numbness and respiratory distress. These symptoms may make diagnosis of the patient's primary illness more difficult.

Because many of the immediate symptoms of pesticide poisoning are not unique, but rather are symptoms associated with common ailments, accurate and timely diagnosis of pesticide poisoning can be difficult. A study conducted by University of Texas pediatricians dramatically demonstrated this fact. Looking at 20 children referred to them by other hospitals, and who they properly diagnosed as victims of pesticide poisoning, they found that 16 of the 20 had been misdiagnosed before the referral. Initial diagnoses included pneumonia, bronchitis, diabetes, brain aneurysm and head trauma. In each of those cases, the symptoms were actually caused by exposure to organophosphate or carbamate pesticides.[28] Both of these types of pesticides are among those frequently selected for use by our survey respondents.

Because many of the immediate symptoms of pesticide poisoning are not unique, but rather are symptoms associated with common ailments, accurate and timely diagnosis of pesticide poisoning can be difficult.

5. Toxicity of Unidentified Inert Ingredients

Look at the label on almost any pesticide product and you will most likely see that it contains both "active" and "inert" (sometimes called "other") ingredients. The active ingredients will be identified, and in most cases, the inert ingredients will not be identified. It is important to understand the difference between the two types of ingredients and the possible consequences of the different ways in which they are managed by EPA. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the federal law that governs the registration and labeling of pesticides, defines active ingredients, in general terms, as the chemicals used to control the target pest.[29] An "inert" ingredient is, according to FIFRA, "an ingredient which is not active."[30] Thus, the "inert" ingredients are substances formulated into the pesticide product for some reason other than their direct effect on the target pest. "Inert" ingredients may serve as carriers for the active ingredients, help dissolve them, preserve them or make them easier to apply.

The inert ingredients generally comprise a substantial portion of a pesticide product ...

The inert ingredients generally comprise a substantial portion of a pesticide product, especially those sold over the counter to ordinary consumers. For example, in a 1999 retail shelf survey of pesticide products offered at a large home and garden center, this office found that inert ingredients accounted for 99% or more of the contents of almost half the pesticide products offered. Almost three quarters of the pesticides contained 95% or more inert ingredients. Only 10% of the product labels identified any of the inert ingredients, and none of the labels identified all of the inert ingredients.[31]

"Inert" ingredients can be toxic. In fact, a chemical may be an active ingredient in one pesticide product, and an "inert" ingredient in another product, depending only on the manufacturer's designation of the pests to be controlled by each product. According to an evaluation of a 1995 list of "inert" ingredients, 394 of those chemicals (16% of all "inerts" at that time) were, or had been, registered as "active" ingredients in pesticide products.[32] So the real difference between "active" and "inert" ingredients is the purpose they serve in the particular pesticide product, as determined by the pesticide manufacturer.

The chemicals used as "inerts" include some that are quite hazardous.

Unfortunately, many people conclude that the term "inert" refers in some way to the toxicity of those ingredients, and are under the impression that "inert" ingredients have no adverse effects on human health or the environment. This is not the case. The chemicals used as

“inerts” include some that are quite hazardous. However, under current labeling requirements, a consumer would never know this. Thus, in this report we discuss the active ingredients in the pesticide products applied and the toxic effects of those ingredients. Unfortunately, because most pesticide manufacturers keep information about inert ingredients confidential, we cannot include an informed discussion of the specific inert ingredients.

CHAPTER 6 – THE REGULATION AND MANAGEMENT OF PESTICIDES

In recognition of the harmful effects of pesticides, both federal and state laws establish a fairly comprehensive regulatory scheme governing their manufacture, sale and use. Some state agencies and local governments have also enacted guidelines and laws to help protect the public from the dangers of pesticides. In addition, institutions using pesticides can develop protective policies. All these have good value, but that value in large part depends on the degree to which they are followed.

A. Pesticide Registration

With few exceptions, such as emergency and experimental uses specifically permitted by DEC, all pesticides sold and used in New York State must be registered with both EPA and DEC.[33] The registration process is the means by which those regulatory agencies evaluate and control the risks of pesticide products in the marketplace. As part of the registration process, pesticide companies may be required to submit information about the properties of their products and data on toxicity testing they have been required to do. The government agencies review this information before they permit the product to be sold. In some cases, they may decide that the product is too dangerous in the hands of untrained individuals and require that it be used only by pest control professionals. These products are known as "restricted use pesticides."

Even if the federal government has registered a product, it still must pass muster with DEC before it can be sold or used in New York. Pesticides registered by EPA have in the past been rejected by DEC for registration in New York. In addition, New York may classify a pesticide as a restricted use pesticide even if the same product is deemed to be a general use pesticide by EPA. New York has exercised its authority independently to classify pesticides as "restricted use" for hundreds of pesticide products.

The registration of a pesticide by EPA is not a finding of safety

The registration of a pesticide by EPA is not a finding of safety, but rather a decision that the risks it causes to human health and the environment are balanced by the benefits associated with its use. As new information becomes available about the toxicity of the pesticide ingredients, that balance may change. Similarly, as we gain a better understanding of the routes of exposure and the magnitude of exposure to the pesticide ingredients, or as EPA modifies its toxicity and exposure assessment methods, that balance may change. A brief look at some EPA decisions over the last few years can help to understand what EPA registration signifies.

Under the provisions of the Food Quality Protection Act, passed by Congress in 1996,[34] EPA is required to reassess the risks of many pesticides, and to consider the cumulative risk of all possible exposures to the pesticide and other substances that have the same toxic effects. EPA chose to look first at the organophosphate insecticides because of their widespread use, growing concern about their toxicity to the fetus, infants and children and the increasing weight of evidence indicating that the group shared common toxic mechanisms. The Attorney General's Office submitted substantial comments to EPA as part of the preliminary risk assessment for the reregistration of chlorpyrifos. Among the issues raised in those comments was the inadequacy of the margin of safety EPA proposed to apply to protect children and EPA's failure to consider relevant data on the exposure pathways and health effects of chlorpyrifos.[35] As a result of that reevaluation, EPA found that the risks associated with the existing uses were unacceptably high, and they considered various options to reduce the risk.[36]

On June 8, 2000, EPA announced an agreement with the manufacturers of chlorpyrifos that stopped the sale of almost all over-the-counter home use products and many other indoor and outdoor non-residential uses that resulted in exposure of children to the pesticide. The agreement did not eliminate agricultural uses, so children may still be exposed to residues on food. These restrictions did not take effect until December 31, 2001. Although now in effect,experience indicates that not all chlorpyrifos-containing products will be removed from store shelves and institutional stockrooms. Until they are all removed from the shelves, residents and institutional pest control managers should be vigilant. They should read the labels of all pesticide products and avoid those that contain chlorpyrifos.

Similarly, on December 5, 2000, EPA announced the elimination of all indoor uses of diazinon, and the gradual phase-out of lawn and garden use insecticides containing diazinon. Under this agreement with diazinon manufacturers, the registrations of all diazinon-containing products for indoor use were cancelled in March, 2001, but retail sales were allowed to continue until December, 2002. Under this agreement, manufacturers may continue to produce and sell diazinon products for lawn, garden and turf uses until June, 2003, and wholesale distribution of those products to retail stores can continue until August, 2003. These products may remain available on the shelves of retailers long after that. Again, residents and institutional pest control managers should take precautions to avoid these products.

When the inadequacies of its risk assessment practices became apparent, it still took time for EPA to act, and then the scope of action was negotiated with the pesticide manufacturers.

While the partial elimination of these poisons from the marketplace is clearly justified and overdue, there is an important lesson to be learned. For years, EPA registered these products for the very uses for which the registration has now been cancelled. When the inadequacies of its risk assessment practices became apparent, it still took time for EPA to act, and then the scope of action was negotiated with the pesticide manufacturers. Consumers, whether individuals or institutions, need not wait for governmental action. Concerted efforts to avoid pesticide use will reduce both exposure and the resultant risks to the health of infants, children, and indeed, people of all ages.

The registration process for another pesticide, hydramethylnon, demonstrates another weakness in the balancing of risks and benefits underlying registration decisions. EPA assumed that children were less likely than adults to be exposed to certain forms of the pesticide because it was applied in "inaccessible and untraveled areas."[37] EPA also concluded that children's exposure to the substance when it is used in bait stations would be reduced by "the current voluntary use of child-resistant packaging" (emphasis in original).[38] However, the hydramethylnon products used by the institutional and resident respondents were either in the form of bait stations (labeled child resistant) or a gel intended to be injected into cracks and crevices. Since crack and crevice treatments are not necessarily inaccessible to children, and easily accessible surfaces around the cracks and crevices may be contaminated during application, the potential for exposure remains real. Finally, as indicated by EPA, the use of child resistant bait stations remains voluntary, and could be discontinued at the manufacturer's discretion. Were that to happen, children might be at greater risk, and consumers would be unaware of the limits on EPA's risk assessment.[39]

Since crack and crevice treatments are not necessarily inaccessible to children, and easily accessible surfaces around the cracks and crevices may be contaminated during application, the potential for exposure remains real.

B. New York State Neighbor Notification Law

The new State Neighbor Notification law adopted in 2001 authorizes counties and New York City to adopt local laws that establish significant new notification requirements for commercial and residential lawn applications (agricultural, golf course and turf farm applications are excluded). To date, county neighbor notification laws have been adopted in Suffolk, Nassau, Westchester, Rockland and Albany Counties.

The law also requires schools to provide written notice to staff and parents or guardians,

at the beginning of each school year (or within one week of a student's enrollment), informing them that pesticides may be used at school facilities or on school grounds throughout the school year. The schools are required to provide 48 hours' advance written notice of pesticide applications to any school personnel or parents who wish to receive such notice.

For more detailed discussion of the Neighbor Notification Law, see the New York State Attorney General's *Citizen Guide toPesticide Notification Laws in New York State*.[40] The brochure includes both a model local neighbor notification ordinance and a sample letter parents can send to a school to request notification of pesticide applications.

C. State Education Department Pest Management Guidelines

In March, 2001, the State Education Department published the School Integrated Pest Management (IPM) and Neighbor Notification Guidelines. By following the State guidelines, schools can go a long way toward reducing pesticide use.

The guidelines consist of seven basic elements of IPM, many of which are discussed in detail in this report: pest identification; preventative actions (*i.e.* structural repairs, maintenance and sanitation); tolerance and action threshold; monitoring; response actions that include a preference for non-chemical controls, and least toxic pesticides as a last resort; public notification; and record keeping.

Unfortunately, schools are not now required to implement the guidelines.[41] Thus, although the guidelines recommend that schools not use "any products which are known, probable, or possible carcinogens, neurotoxic organophosphates, or pesticides classified by the EPA as having high acute toxicity," Syracuse schools reported using two products containing ingredients that are possible carcinogens. And New York City schools, which are the only ones of those surveyed that reported following the State's guidelines, nonetheless reported using hydramethylnon, a possible carcinogen. Even without a mandate, schools should immediately implement these common sense guidelines.

D. Municipal Pesticide Sunset Laws

With numerous examples of fully effective pest control using little or no pesticides, eight municipalities (the Cities of Albany and Buffalo, the Counties of Albany, Suffolk, and Westchester, and the Towns of Bethlehem, Greenburgh and West Seneca) have adopted local ordinances (often referred to as Pesticide Sunset Laws) that will phase out the use of pesticides at

facilities under their jurisdiction. Modeled after a 1996 San Francisco ordinance, these ordinances provide a schedule and decision-making framework for the progressive reduction in their pesticide use. While each ordinance is unique, it typically requires a Pest Management Plan that phases out the use of the most toxic pesticides first and ultimately requires non-chemical pest control. Pest management committees are often created, consisting largely of government employees, members of the public and environmental groups.

The results appear promising. The Parks Departments in Albany and Buffalo reported that because of the phase-out ordinances in their cities, they reduced both pesticide use and pest control costs. They used virtually no pesticides in 2000 in the parks we surveyed. In Buffalo the budget for pesticides and fertilizers has been cut more than 12% since 1999.

Even where a municipality has not yet adopted an ordinance requiring the phase out of pesticide use, or where the ordinance may not apply to specific institutions, those institutions can adopt policies that incorporate the phase-out requirements as a central element of their IPM program. (See Appendix III for a model phase-out ordinance.)

E. Institutional Pest Management Policies

Even absent legal mandates, institutions can, and do, promulgate policies to govern pesticide use. Clear and unambiguous institutional pest control policies are essential to an effective pest control program. Written policies can enhance the protection of human health by formalizing priorities and specifying criteria for critical decision-making. (See Text Box 6, for case studies demonstrating the cost-effectiveness of pesticide reduction efforts.)

Text Box 6: IPM Programs Have Proven Cost Effective

While the housing authorities, schools and parks surveyed ranked cost last in order of their importance in their selection of pest control products, (residents ranked cost third, behind efficacy and health effects), fears of more carefully tailored pesticide programs costing more are commonplace. It is easy for administrators to envision costs associated with requisite staff training, monitoring, and education of those who reside in the homes or use the schools and parks. Nevertheless, experience has demonstrated that IPM can be cost effective and that savings can be achieved as early as the first year of implementation. For example:

☞ The Montgomery County, Maryland, public schools reduced pesticide use by 90% and substituted less toxic products when pesticide use was deemed necessary, but still enjoyed a savings of 15% to 18% per year on labor, equipment and material costs over a six year period, with a total savings of $111,000.[a]

☞ The Anne Arundel (Maryland) school district cut its pest control budget from $46,000 to $14,000 in the first year it implemented an IPM program.[a]

☞ The University of Rochester achieved a 50% reduction in material costs and a substantial reduction in personnel costs when it implemented an IPM program on a campus which includes academic buildings, residences, and a teaching hospital.[b]

☞ The City of Santa Monica, California, reduced the cost of pest control services by 30% while achieving excellent control of pests, including rats, mice, cockroaches and ants in and around city owned structures.[c]

☞ An IPM program implemented by Cape May County (NJ) resulted in a 24% cost reduction in the first year, and a 53% reduction in the second year. Pesticide applications were reduced from 50 pounds per year to less than one pound per year.[d]

These cost analyses all focus on labor, equipment and material. When other "hidden costs" associated with pesticide use, such as regulatory compliance, waste disposal, insurance, and liability for health and environmental effects and compliance violations, are included, the savings will be much greater. The Washington State Department of Ecology has analyzed these costs and prepared work tables to estimate and compare the costs of a conventional pest management program with the costs of an IPM program.[a] Of course, protection of the health and welfare of our children, and not monetary cost, should be the "bottom line."

[a] "Calculating the True Costs of Pest Control." Washington State Department of Ecology, 16 pp., June 1999.
[b] Personal communication, Peter Castronovo, Director of Environmental Health and Safety, University of Rochester, 4/9/99.
[c] EPA Office of Pollution Prevention and Toxics, 1998. "The City of Santa Monica's Environmental Purchasing- A Case Study." EPA 742-R-98-001
[d] "Case Study: Pest Control- Cape May County, New Jersey" in "Local Government Environmental Purchasing Starter Kit- A Guide to Greening Government Through Powerful Purchasing Decisions." National Associations of Counties, July 1999

A good policy should define centralized authority over pest management with sufficiently broad powers to insure cooperative interaction between pest managers, maintenance and custodial personnel and those who live or work at the premises. Pest management decisions should be based on a complete understanding of the pests and management options available for their control, including the toxicity of pesticides that may be considered for use. Policies should assure adequate communication among all concerned, whether based on the need for improved sanitation, for structural repairs and maintenance or on the application of pesticides. Finally, the policy should establish record-keeping practices sufficient to serve as the basis for the evaluation of the efficacy of control strategies and as a resource to those who may be concerned about exposure to pesticides.

Pest management decisions should be based on a complete understanding of the pests and management options available for their control

F. Record-Keeping and Notification Requirements and Policies

Given the potential effect of pesticide use on the health and well-being of exposed individuals, it is important for institutions to maintain accurate records of pesticide applications as well as information about the products used, including the product label and Material Safety Data Sheet (MSDS). While State law requires certified applicators annually to report pesticide applications to the DEC, that information is not publicly available. Nor can it provide sufficient individual information to people concerned about pesticide exposures or to institutional managers wanting to assess the efficacy of pesticide applications. Institutions, therefore, should implement record-keeping policies that go beyond legal mandates. The practices of individual institutions regarding the maintenance and public availability of these records are summarized in Table 9.

In addition to keeping records, advanced written notification and posting at the time of pesticide applications are important means of informing those who may be exposed to pesticides. The posting and notification practices of the institutions surveyed are summarized

Table 9: **Institutional Maintenance of Pesticide Application Records, Pesticide Labels and Material Safety Data Sheets (MSDS)**

	Housing Authority	Schools	Parks
Albany	Contractor maintains records of applications, labels and MSDS. Records are available to public.	Contractor maintains records of applications, labels and MSDS. Records are available to public through school district (not directly from contractor).	Contractor maintains records of applications, but not labels and MSDS. Records are available to public through Parks Dept. (not directly from contractor).
Buffalo	BMHA maintains records of BMHA applications, labels and MSDS. Contractor maintains records of contractor applications, labels and MSDS. Records are available to public.	Contractor maintains records of applications, labels and MSDS. Records are available to public.	Parks Dept. maintains records of applications, labels and MSDS. Records are available to public.
NYC	NYCHA maintains records of applications, labels and MSDS. Records are <u>not</u> available to public.	OSFNS maintains records of applications, labels and MSDS. Records are available to public.	Morningside Park maintains records of applications and MSDS, but not labels. Ferry Point Park maintains records of applications, MSDS and labels. Records for both parks are available to public.
Syracuse	SHA maintains records of applications and labels, but not MSDS. Records are available to public.	Contractor maintains records of applications, labels and MSDS. Records are available to public through schools (not directly from contractor).	Contractor maintains records of applications, labels and MSDS. Records are available to public through Parks Dept. (not directly from contractor).

Yonkers	YMHA maintains records of applications, but not labels or MSDS. Records are not available to public.	Martin Luther King, Jr. School maintains records of applications, but not labels and MSDS. PS 18 maintains records of applications, labels and MSDS. Records for both schools are available to public.	Parks Dept. maintains records of applications, labels and MSDS. Records are available to public.

Table 10. Institutional Notification and Posting Practices

	Housing	Schools	Parks
Albany	Written notification to residents in affected unit 48 hours prior to application. No posting.	No notification. (Products used are exempt from the Neighbor Notification requirements.) No posting.	No notification. No posting.
Buffalo	Written notification to all residents in affected building 48-72 hours prior to application. Signs posted in treated common area.	No notification. (Products used are exempt from the Neighbor Notification requirements.) No posting.	N/A. No pesticides used in parks surveyed.
New York City	Written notification to all residents in affected building 48-72 hours prior to application. Signs posted in treated common area.	No notification. (Products used are exempt from the Neighbor Notification requirements.) No posting.	No notification. Signs posted in treated area.
Syracuse	Written notification to residents in and adjacent to affected unit 72 hours prior to application. Signs posted in treated common area.	No written notification - but reported use of pesticides subject to Neighbor Notification requirements. No posting.	N/A. No pesticides used in parks surveyed.

Yonkers	Extermination schedule for the entire year given to all residents at beginning of year. No posting.	No notification - but reported use of pesticides subject to Neighbor Notification requirements. No posting.	No notification. Signs posted in treated area.

in Table 10. Generally speaking, the housing authorities appear to be consistent in providing advance notice of pesticide applications, although the Yonkers Municipal Housing Authority distributes only an annual schedule, and does not appear to provide notice of any unscheduled applications. The availability of written notices in other languages as needed is also recommended. Effective July 1, 2001, State Education Law required that schools provide written notification of pesticide applications unless the applications satisfy specific criteria.[42] Schools in Yonkers and Syracuse reported the use of non-exempt pesticide products in a fashion which would require notification. All schools should carefully review their practices to assure compliance with the notification requirements. At parks where pesticides were applied, it appears to be general practice to post the treated areas.

G. A Special Concern: Use of Illegal Pesticides

A law, guideline, or policy, however well developed, will only be effective in reducing the risk of pesticides if there is compliance. Despite rigorous enforcement efforts, not all laws are followed, posing special risks to residents.

Some of the residents responding to our surveys reported using pesticides that cannot be legally sold or used in New York State.

Some of the residents responding to our surveys reported using pesticides that cannot be legally sold or used in New York State. (See Text Box 3 for the identity of specific products.) These products fall into three general categories:

- some have been illegally imported into the United States and are not legal for use by anyone, anywhere in the US;
- some can only be used legally by trained, certified and properly equipped pesticide applicators;
- some have been registered for consumer use by the federal government, but not by DEC, and therefore cannot be used legally in New York State.

While EPA and DEC registration is not a perfect or fully protective process, it does protect against many of the most dangerous poisons and the most obvious effects. For example, "Tres Pasitos" is illegally imported from Mexico and other Latin American countries and is not registered with EPA or DEC. Its name, which means "three little steps" is based on the belief that mice will only be able to take three little steps after eating it before they die. EPA considers aldicarb, the active ingredient in Tres Pasitos, to be a very dangerous chemical that should never be used in a home setting. When it is sprinkled around the home to control roaches, mice and rats, children are at special risk. Aldicarb may cause weakness, blurred vision, headache, nausea, tearing, sweating and tremors. If enough is swallowed, it can paralyze the respiratory system and cause death.

Similarly, "Chinese Chalk" (also known as "Miraculous Chalk" and "Insecticide Chalk") is illegally imported from China, and has both English and Chinese on the label. Although the packaging describes the chalk as "safe to use" and "harmless to human beings and animals," it is not. Some tests have shown that the chalk contains deltamethrin, which is considered by EPA to be one of the most toxic pyrethroid insecticides. (See discussion above for the toxic effects of pyrethroids.) Chinese chalk is a special problem because it closely resembles children's play chalk in appearance. Once out of the package, it will be attractive to kids, and they may handle it as they do their other toys, rather than as the dangerous poison it is.

Tempo 20 WP is manufactured in the United States and registered as a "Restricted Use" pesticide, which means that it can only be used by properly trained and equipped pest control professionals. It contains cyfluthrin, another pyrethroid insecticide, and is too dangerous to be used by untrained residents. It is illegal for anyone to sell Tempo 20 WP to unlicensed individuals, and illegal for anyone to apply it unless they have the proper certification.

When a product is not properly registered with both the federal and state authorities, the public cannot be assured that the product and the dangers associated with its use have been reviewed in light of the most current standards.

Various other pesticides that residents reported using, or that we found for sale in the vicinity of the housing developments, are not registered for use in New York State. (See Text Boxes 3 & 4 for listings.) The fact that these products have not been properly registered by both the federal and state agencies responsible for the regulation of pesticides is not simply a minor infraction or administrative oversight. When a product is not properly registered with both the federal and state authorities, the public cannot be assured that the product and the dangers associated with its use have been reviewed in light of the most current standards. For some of the products listed above, it may be easy for ordinary individuals to know that they are not registered. Every product registered with the EPA has a registration number on the label. It will appear as "EPA Reg." followed by a number. This lets one know that it was registered by the federal government. Unfortunately, federal law prohibits states from changing the federally accepted label, so there is no way for the ordinary consumer to know, from the label, whether a pesticide product is properly registered in New York State.[43] If a product is registered by EPA for use only by certified pesticide applicators, it will say so on the label. Again, because DEC cannot mandate changes in a pesticide label, that will not be the case if the product is classified as "restricted use" by DEC and not EPA.[44]

Given that highly dangerous pesticides may be offered for sale, buyers must always be on their guard. Retail merchants also must be vigilant. They risk enforcement action and penalties under New York State pesticide laws if they sell unregistered pesticides or sell restricted use pesticides unless both the seller and buyer possess the necessary permits.[45]

CHAPTER 7 – RECOMMENDATIONS

Although many institutions recognize the need to reduce their reliance on pesticides to control pests, children living in low-income urban housing developments are exposed to pesticides in and around their homes, in their school and at their neighborhood park. In some cities, children are potentially exposed to pesticides in all of these places – places where these children spend virtually all of their time.

The potential for pesticide exposure is greatest in children's homes. Eight out of ten housing developments regularly applied pesticides inside apartments and in common areas. Additionally, and perhaps most troubling, the majority of residents we surveyed reported applying their own pesticides including dangerous and illegal products, often with alarming frequency.

Housing authorities clearly must do more to reduce their own use of pesticides, but they must also view residents as partners in pest control and give them the tools and education they need to address pest problems with non-toxic methods.

A. Institutional Pest Control Programs - Recommendations

Consistent with the requirements of the laws and guidelines above, the New York State Attorney General's Office encourages housing authorities, schools and parks to develop written pest management policies to establish an Integrated Pest Management program, use only certified pesticide applicators when and if any pesticide applications are deemed necessary, provide adequate written notice of pesticide applications and maintain publicly available records of pesticides used on site.

1. Written Policies

Clear and unambiguous pest control policies are essential to an effective program designed to control pests and protect public health and the environment. Lacking a strong written policy, institutions may be more likely to resort to short-term chemical controls. All but two of the institutions we surveyed have not adopted written pest management policies, and the two policies that do exist (Syracuse Housing Authority and New York City Housing Authority) are substantially lacking in certain key areas.

Strong pest management policies should contain several key provisions:

• Authority over the pest management program should be clearly defined and centralized. Decisions should be based on a full understanding of the pests and the management options available for their control.

• Pest management policies and contracts should focus first on non-pesticidal means of preventing and eliminating pest problems because the routine use of pesticides to prevent problems may result in excessive and unnecessary pesticide use. Pesticides should be used to control pests when other means prove inadequate. Specific protocols for approval of any chemical application should be established. Decisions should first be based on the need for control, next on the failure of non-pesticidal control methods, and last on an evaluation of the various chemical options available, their toxicity, their potential for unwanted exposure and adverse impacts, and their demonstrated efficacy for the proposed application.

• Adequate public notification practices should be instituted and record-keeping procedures, with public access assured, should be established.

2. Integrated Pest Management

Each of the institutions can, and should, adopt Integrated Pest Management (IPM) policies designed to reduce, to the maximum extent possible, reliance on chemical pesticides. While chemical pesticides offer short-term suppression of pest populations, IPM can provide long-term pest control and elimination. Based on an understanding of the biology of pests, and their needs and habits, IPM programs employ a variety of pest control methods, and in doing so, control the pest while minimizing the potential for adverse effects on human health and the environment. Such adverse effects might be associated with both pests and the methods used to control them. As an additional benefit, as IPM programs are implemented and the reliance on chemical pesticides reduced or eliminated, some of the other burdens on the institutions (the cost of the chemicals, posting, notification, access restrictions, and some record-keeping) may also be reduced and eliminated. With reduced reliance on chemical applications, the potential liability for adverse impacts is also reduced.

An IPM program has several components (see Text Box 7). First, IPM begins with regular inspections designed to identify conditions that may allow pest infestations, any pests present, and delineation of the specific area(s) actually infested. Pest problems are more likely if pests can get into the area of concern (*e.g.,* apartment, classroom, public gathering areas), have hiding places within the area, and have easy access to food and water. Inspections for these pest-friendly conditions, not pesticide applications, should be conducted on a regular schedule as the heart of the pest control program. Inspectors should be trained to recognize physical conditions and practices that might invite pest infestations and to prescribe corrective measures.

Second, IPM focuses on pest prevention efforts to deny necessities to the pest. Corrective measures might include installation of screens, door sweeps, repair of structural damage or improved

Text Box 7: Five Steps To Establishing An Integrated Pest Management Program.

Written IPM policy should establish a commitment to IPM and guide pest managers to develop specific action plans. It should designate pest management roles for key decision makers, pest managers and occupants and provide for education and training and assure good communications.

1. Regularly inspect the premise to determine if pests are present and, if so, how they are getting in and where they are getting food and water.

2. Take corrective measures to keep pests out and deny them hiding places, food and water.

3. Correctly identify the pests and, in light of the locations in which they are found, establish levels of control.

4. To eliminate pests, start with traps and other physical methods, or biological controls.

5. If chemical pesticides must be used, check the toxicity and exposure potential and choose the least toxic and those to which people are least likely to be exposed.

sanitation. Important areas to seal are the spaces around pipes passing through the floor and spaces around kitchen cabinets. Also make sure hard-to-reach areas are clean and dry. (See the brochures in Appendices IV and V prepared by the Attorney General's Office for specific tips on pest prevention.) While others, such as maintenance crews, outside contractors or even residents, might be responsible for carrying out the prevention measures, the institution's pest control inspector or the resident (in his or her home), should follow up to confirm that the necessary work is completed.

Third, an IPM program emphasizes the correct identification of the pest and an accurate assessment of the problem. Many people incorrectly assume that one roach or mouse, for example, is indicative of many, or do not distinguish between roaches, which are more likely to carry disease, and ants. Threshold levels should be established for each pest in each location or situation. Zero tolerance, while certainly appropriate in some situations, may not be necessary in all instances. While ants should not be tolerated in areas where food is prepared, some might be tolerable in non-public areas like boiler rooms and trash handling areas.

Fourth, when pests exceed the tolerance level, IPM relies on a response with physical and mechanical controls before chemical controls are used.

Fifth and finally, if chemical control measures become necessary, IPM programs weigh the toxicity and exposure potential associated with the available chemicals, and select those which minimize the potential for adverse impacts while still controlling pests.

The Syracuse Housing Authority's program comes close to this model. At least once a year, sticky traps are placed in each apartment for a week to check for insect infestations, and the apartment is inspected. Inspectors write work orders if repairs are needed. Residents are advised how to improve conditions for which they have responsibility, and given time to remedy problems that were identified. Inspectors continue to monitor problems until the apartment is being appropriately maintained. The Syracuse Housing Authority has established a threshold for individual apartments for action by the Authority of 5 roaches trapped within one week. If more than five roaches have been trapped, the Authority implements additional control measures. (Of course, individuals may take measures at lower levels, which should be non-pesticidal.) Typically, the Authority reports, insecticides are sprayed in the apartment and followed by bait traps to control infestations. While establishing clear thresholds and relying first on sanitation comports with general IPM policies, the Authority's use of sprays before bait traps is more questionable. The use of insecticide sprays should be reserved for a last resort if other, less risky, remedies prove inadequate.

Similarly, the New York City Board of Education's Office of School Food and Nutritional Services (OSFNS - the office responsible for pest control inside the City's public school buildings) uses glue board monitors at schools throughout the City. They are placed and inspected monthly. If pesticide applications prove necessary, the OSFNS uses only materials that are specifically exempt from notification requirements imposed by New York State law. These include crack and crevice treatments, boric acid based products, and bait traps. OSFNS does not use insecticide sprays or fogs.

3. Pest Control Options

a) *Don't let them in*: The best way to prevent pests from taking up residence in our homes, schools and public places is to deny them access to these spaces. While we cannot seal every possible entry, we can do much to limit access. Properly installed and maintained door-sweeps and screen windows are an excellent start. Repair of structural damage, such as cracks and holes in walls and floors, and the closure of spaces around pipes and other utilities where they pass through walls

and floors is also important. On a smaller scale, caulking can be used to restrict access to small spaces, behind kitchen cabinets, bathroom vanities, sink backsplashes, and molding around doors and windows, where insects and even small rodents may hide.

Based on our observations in all five cities, exclusion and habitat elimination appears to be an aspect of pest prevention and control that is often overlooked.

On a larger scale, building managers and pest control professionals have to keep a careful eye on other conditions that may be conducive to pest infestations. In Yonkers, for instance, ventilation systems in high-rise apartment buildings were non-functional. Under normal circumstances, air movement in the system would keep the system free of roaches, as they naturally avoid open spaces with active air movement. In the absence of air movement in the ducts, the system can become a vast hiding place and distribution pathway for roaches. As a result of the poor ventilation, doors to stairways may be left open, providing for easy movement of rodents
from place to place within the building. While the maintenance of building ventilation systems is usually viewed largely as a matter of comfort, it can also be a major factor in pest control. In the housing developments in general, screen windows and doors (where apartments opened to the outside) were often in poor repair or not present. Based on our observations in all five cities, exclusion and habitat elimination appears to be an aspect of pest prevention and control that is often overlooked.

b) *Don't feed them*: Even if insect and rodent pests gain access to interior spaces, they will not establish residence without access to food and water. Proper sanitation is of prime importance. During our visits to housing developments in the five cities, we observed wide variations in the level of sanitation in public spaces (see figures 2 to 9). In some instances, garbage was encountered in hallways, stairwells, elevators, in open bags, cans and dumpsters on the street, as well as on lawns and walkways. In other instances, notably Syracuse and Buffalo garden apartment developments, tenants were provided with individual trash cans with tight fitting covers. While not every resident necessarily used them to their greatest advantage, they were generally effective in managing trash. Residents who could remember earlier conditions, when dumpsters or outbuildings were used for trash were quick to comment on the effectiveness of the improved trash handling in reducing pest problems. In a pilot program conducted in a New York City public housing development (see further discussion below), tenants were provided with tightly covered trash

Residents ... were quick to comment on the effectiveness of the improved trash handling in reducing pest problems.

receptacles for use in their apartments. This, along with other measures, contributed to effective pest control without resort to chemical poisons.

c) *Use pesticides as a last resort*: A good pest management program with a clear emphasis on prevention should minimize, if not eliminate, pesticide use while still controlling pests. (See Text Box 8 for examples of successful IPM programs in urban housing developments.) Among the institutions we contacted, there was considerable variation in pesticide use, ranging from routine periodic

Figures 2 to 9. Sanitation Conditions in Some Public Areas of Housing Developments

Fig. 2 - Garbage on Street (Yonkers)

Fig. 3 - Overfull Trash Can (Albany)

Fig. 4 - Trash in Halls (NYC)

Fig. 5 - Trash in Elevator (NYC)

Fig. 6 - Trash from move-out (Syracuse)

Fig. 7 - Food on apartment threshold - an invitation to insects (Syracuse)

Fig. 8 - Well handled trash (Buffalo)

Fig. 9 - Residents effort to promote good pest control (NYC)

Text Box 8: IPM Successes in Urban Housing Developments

New York City Housing Authority Pilot Project

In 1999, in response to rising asthma rates in East Harlem and other parts of New York City, the Hunter College Center for Occupational and Environmental Health, NYCHA, and the New York City Department of Health began an EPA-funded IPM pilot project in one of the Lehman Village Houses in East Harlem.

The project included the implementation of an IPM program and the suspension of institutional pesticide applications. Project directors hired and trained local residents to carry out the program. Residents were also provided, for free, trash cans with tight fitting covers and cleaning supplies.

The project team surveyed residents and tallied cockroaches before, and at three and six months after, the initial program. In another Lehman building used as a control, the usual NYCHA practices at that site continued (*i.e.,* quarterly spraying with Ficam Plus, placement of cockroach baits and glue traps, and response to infestation complaints), residents were surveyed and cockroaches were counted. Forty-six percent of all apartments that reported mice problems before the IPM program reported no mice problems at all following the program. Based on the number of cockroaches trapped, cockroach populations went down in 73% of apartments and up in only 12%. In the control building, there was no change in mouse sightings or cockroach populations.

Chicago Safer Pest Control Project

In 1996, the Residents' Committee of the Henry Horner Homes Public Housing Development in Chicago and the Safer Pest Control Project developed an IPM plan to control roaches and rodents. The plan called for a clean-out of all vacant units, cleaning by residents in occupied units, replacement of aerosol pesticides with less toxic gels, pastes and non-toxic baits, and preventive measures such as caulking, screening and better trash disposal. In addition, Horner residents received educational material, including a comic book explaining non-toxic pest control. Like the New York City project, local residents were hired to carry out the project. A private pest control company was hired to inspect and treat apartments with gel bait where needed. During the course of the project, the company reduced its use of the gel bait by 83% due to the dramatic reduction in the roach population.

Toronto's Roach Coach Project

In 1997, the Toronto Public Health Department embarked on a pilot project with eighty tenants in a high-density multi-unit housing complex. On-site workshops informed the tenants about the health risks associated with pesticide sprays, prevention and sanitation. Tenants were taught how to monitor their apartments for signs of cockroaches and were asked to request an IPM treatment from building management if they observed cockroaches. Data was collected on the residents' level of understanding of IPM before and after the educational intervention, the number of cockroaches in participants' units, and pesticide treatments.

By the end of the pilot, there was a significant shift away from spraying and to the use of paste and gel alternatives. Before the pilot, 60% of participating tenants reported buying and applying pesticide sprays. During the pilot, none of the tenants used spray pesticides. One year after the pilot, the building management reported that tenants continued to request IPM practices, and that the use of pesticide sprays in apartment units throughout the housing complex was reduced. As important, infestation levels were reduced in 79% of the participating units.

applications to use only after monitoring demonstrated a pest problem, to use only when other non-pesticidal options failed. As shown in Table 2, some institutions (*i.e.,* some Albany schools and parks, Buffalo schools and Syracuse parks) reported using no pesticides at all during the survey period. If pesticide use is unavoidable, products that minimize the potential for human exposure should be selected. Baits, traps and crack and crevice products that are non-volatile and out of the reach of children will help to minimize potentially dangerous exposures. But note that they do *not* guarantee no exposure. Sprays and fogs should be avoided, as they are likely to contaminate areas where children could be exposed to the chemicals.

4. Certified Pesticide Applicators

Whenever pesticides are applied, regardless of the form in which they are applied, it is important for the applicator to follow all label directions. When the pesticide is not contained within a trap or bait station, there is increased risk of spills and misapplication that may require immediate remedial action. State regulations governing the qualification of individuals who may perform specific pesticide applications are complex. Under some circumstances a "certified commercial technician" may apply restricted use pesticides even when the supervising "certified applicator" is not at the location at the time of application. On the other hand, the supervising "certified applicator" is required to be on-site when a "commercial pesticide apprentice" applies any pesticides within or on the premises of licensed day care facilities, elementary and secondary schools and hospitals.[46] Where possible, housing authorities, schools and parks should opt for the added security of allowing only fully trained and certified applicators to apply any pesticides that are not enclosed in traps or bait stations, even if that is not required by law.

...housing authorities, schools and parks should opt for the added security of allowing only fully trained and certified applicators to apply any pesticides that are not enclosed in traps or bait stations, even if that is not required by law.

5. Public Notification

Given the potential for adverse impacts on human health it is important for families to be fully informed about pesticide use by the housing authorities, schools and parks that serve their children. If pesticides are used, all individuals who might be exposed should receive adequate written warning, and all citizens should have access to appropriate information about the chemicals in use. Housing authorities should work to identify non-English speaking residents and provide written notice to them in their native language.

One obvious way to minimize the potential adverse effects of exposure to pesticides is to limit the opportunities for exposure. This may be accomplished by pre-application written notification to those who regularly frequent the site to be treated, by posting notices around areas which have been treated, or by actually restricting access to treated areas for some period of time after pesticide application. Pre-application written notification provides the opportunity for individuals to take whatever precautions they consider appropriate, such as avoiding the area during and after pesticide application, removing or protecting personal property kept in the location, or taking other voluntary steps to minimize exposures. Notices posted at the time of application serve as a reminder to those who may have received pre-application notification and as notice to people who may have not received the pre-application notification either because they were absent from the site or because they are only periodic visitors to the treated location.

6. Maintenance of Records

Finally, the public should have access to information about the pesticides applied in their homes, schools and parks. Material Safety Data Sheets (MSDS) and product labels, both prepared by product manufacturers, contain some useful information on pesticides including, in varying amount and quality, the identity of the product, its composition, its potential to cause adverse health and environmental effects, and the appropriate precautionary steps to be taken during the use, storage and disposal of the product.

New York State Environmental Conservation Law requires that copies of pesticide label information, including all warnings, must be available to the occupants or residents of buildings in which a certified pesticide applicator applies pesticides.[47] Specifically, the applicator must provide the information to the building owner or his agent prior to application. The owner/agent, in turn, must make the information available upon request to the building occupants or residents. We recommend that all institutional managers maintain and make available information on the pesticides used to all residents and other occupants whenever they are applied.

We found significant variation among the institutions surveyed in regard to the maintenance of publicly available information on pesticides applied. (See Table 9.) While some maintain files with records of applications, labels and MSDSs, others have less complete records, or do not permit access to their files. In many instances, institutions rely on an independent contractor to maintain these files. This practice is deficient because the contractor may have no continuing obligation to the institution or its residents once the contract has expired. The value of these records, including their utility in assessing the efficacy of treatments or resolving questions about possible exposure

and adverse effects, extends well beyond the scope of annual pest control contracts.

B. Resident Responsibilities - Implementing IPM in the Home

Raising children in a healthful environment, protected from the risks of both pests and pesticides, requires the cooperation of the entire community. The institutions, neighbors and, most important, the individual families must commit to pest management practices that can provide long-term pest control while minimizing exposure to toxic pesticides.

This survey found widely divergent opinions and practices among resident families. Statewide, 29% of responding residents thought that their housing development management should use more pesticides, while only 2.7% thought they should use less. More than two-thirds of the respondents (69% statewide) applied pesticides within and around their apartments. Some, however, expressed concerns about the use of pesticides and declined to have any applied in their apartments.

Within their own apartments, resident families can and should adopt the basic principles of Integrated Pest Management. Eliminate pests' access to the home, and their hiding places within the home. Eliminate sources of food and water. First, use non-chemical controls to get rid of any pests already in the home. If non-chemical control fail, use pesticides with the lowest toxicity and with the least potential for exposure to children and adults (for example, those in enclosed bait stations or applied as gels or pastes in cracks and crevices). For specific "how-to" suggestions, see *"Bug Problems? How to Control Roaches and Ants and Reduce the Use of Poisons"* and *"Got Rats? Got Mice? How to Control Rats and Mice and Reduce the Use of Poisons,"* which are both included as Appendices IV and V of this report. (These can be copied and distributed freely.)

Advice on non-chemical pest prevention and control measures for resident families should be provided to all residents in public housing developments as part of the lease agreement.

C. Action Points to Protect Our Children

1. Housing Authorities

a) Housing authorities that currently use pesticides should implement IPM programs designed to reduce their reliance on chemical controls. Housing Authorities should adopt written policies comparable to local pesticide use sunset laws and reduce pesticide use, targeting both the quantity applied and the toxicity of products selected.

b) Housing authorities should work with tenants' groups to educate residents about non-pesticidal ways to prevent and eliminate pest problems. Provision of supplies such as tightly sealing garbage are very helpful. This can be accomplished by incorporating appropriate pest management information in the materials given new residents when they move into the development, and during routine contacts between residents and housing staff (for instance, during inspections and maintenance calls.)

c) Maintenance requests related to pest problems should be given a high priority.

d) Staff should be trained to recognize conditions conducive to pest infestations and to advise residents on appropriate steps to resolve the problems.

2. Schools

a) School administrators should abide by guidance provided by both the New York State Education Department and the Board of Regents. They should establish Integrated Pest Management programs designed to reduce the use of pesticides and to provide adequate notice to all concerned parties (students, parents, faculty and staff) prior to pesticide applications.

b) Schools should not use restricted use pesticides, pesticides containing known, probable or possible carcinogens, or neurotoxic pesticides. All these pose particular risks to children.

c) The New York State Education Department should incorporate the New York State IPM Guidelines into enforceable regulations.

3. Parks

a) Park managers should not use restricted use pesticides, those containing known, probable or possible carcinogens, or neurotoxic pesticides. All these pose particular risks to children.

b) Parks and other institutions should minimize use of pesticides for solely aesthetic, as opposed to health related, purposes.

c) Parks should post notices at the time of each pesticide application, as pre-notification may be impractical.

4. Residents

a) Parents should become aware that pesticides, as well as pests, can pose health risks and recognize that they subject their children and themselves to potentially serious risks when they apply pesticides, especially sprays and fogs, in their homes. They should minimize pesticide use by using other pest control practices first and never use illegal pesticides.

b) Resident families should recognize the crucial role they play in the pest management program for their homes and for their building as a whole. Sanitation is a responsibility of all, inside apartments and in public areas.

5. Retail Stores

Retailers who stock pesticides must realize that they assume specific legal responsibilities unique to these products. Products offered for sale must be registered with both the EPA and DEC, and must be classified as general use products by both agencies. Retailers need to either get assurances that products comply from their suppliers, or get that information themselves. They can be prosecuted for violations of pesticide laws.

6. New York State Legislature

The high frequency of pesticide applications in urban areas merits a closer examination by the New York State Legislature. The Legislature should create an urban pesticide board to make recommendations to reduce the amount of pesticides used in urban areas. It should also encourage the use of alternatives to pesticides by requiring certified pesticide applicators to demonstrate a knowledge of non-pesticidal pest control methods.

Endnotes

1. *See* Baker, BP, et al., 2002. "Pesticide Residues in Conventional, Integrated Pest Management (IPM)-Grown and Organic Foods: Insights from Three U.S. Data Sets." Food Additives and Contaminants, Vol. 19, No. 5: 427-446, (reported pesticide residues detected in 73% of fruits and vegetables tested for which no "marketing claim" was made about pesticide treatment.)

See also Food and Drug Administration Pesticide Program. "Residue Monitoring 1999," (pesticide residues found in 40% of domestic foods and in 35% of imported foods.)

See also United States Geological Survey, 1998. "Pesticides and Their Metabolites in Wells of Suffolk County, New York," (detectable levels of at least one pesticide found in 44 of 50 tested wells.)

See also United States Geological Survey, 1998. "Pesticides and Their Metabolites in Community Water-Supply Wells of Central and Western New York," (detectable levels of at least one pesticide found in 24 of 32 groundwater samples collected from community water supply systems.)

2. National Research Council, 1993. "Pesticides in the Diets of Infants and Children," National Academy of Sciences Press.

3. EPA Office of Children's Health Protection at *www.epa.gov/children/food.htm*. Page as updated on 10/7/99.

4. "Toxic Fairways: Risking Groundwater Contamination Form Pesticides on Long Island Golf Courses," (1995); "PesticideUse at New York Schools: Reducing the Risk." (2000); "Pest Management in New York State Hospitals: Risk Reduction and Health Promotion," (1995); and "Pest Management By County Governments: Reducing the Risk" (2000). All of these reports, and others on related topics are available at the Attorney General's website: *http://www.ag.ny.gov/environment/environment.html.*

5. USEPA, 1997. "EPA Exposure Factors Handbook, Volume III Activity Factors," EPA/600/P-95/002Fc, p. 15-32.

6. Environmental Advocates and New York Public Interest Research Group, 2000. "The Toxic Treadmill: Pesticide Use and Sales in New York State 1997-1998."

7. Pesticide products generally contain one or more active ingredients that are intended to control the target pest. Pesticide products also generally contain one or more other ingredients, sometimes called inert ingredients, which are included for purposes other than direct action on the target pest. In this report, as in common usage, the word pesticide may be used to refer to the active (pesticidal) ingredient, or to the pesticide product (including all ingredients). The specific reference should be clear from the context.

8. Although a few residents in some developments maintained gardens, we did not record products intended to be used outdoors for weed control.

9. Buffalo Municipal Housing Authority maintained that the pest management practices in 2001 are representative of its pest management practices in 2000.

10. Landrigan, P.J. et al., 1999. "Pesticides and Inner-City Children: Exposures, Risks, and Prevention." Envir. Hlth. Perspect. 107, Suppl. 3:431-437.

11. Whyatt, R.M. et al., 2002. "Residential Pesticide Use during Pregnancy among a Cohort of Urban Minority Women." Envir. Hlth. Perspect. 110(5):507-514.

12. Fenske, R.A. et al., 1990. "Potential Exposure and Health Risks of Infants Following Indoor Residential Pesticide Applications." Am. J. Publ. Hlth. 80(6):689 - 693. Gurunathan, S. et al., 1998. "Accumulation of Chlorpyrifos on Residential Surfaces and Toys Accessible to Children." Envir. Hlth. Persp. 106(1):9 - 16. Lewis,

R.G. et al., 2001. "Movement and Deposition of Two Organophosphorus Pesticides Within A Residence After Exterior and Interior Applications." J. Air & Waste Mgt. Assoc. 51:339 - 351. See also Davis, D and K. Ahmed, 1998. "Exposures from indoor spraying of chlorpyrifos pose greater health risks to children than currently estimated." Envir. Hlth. Perspect. 106(6): 299 - 301.

13. Pang, Y. et al., 2002. "Analysis of Aggregate Exposure to Chlorpyrifos in the NHEXAS-Maryland Investigation." Envir. Hlth. Perspect. 110(3):235-240.

14. Unless otherwise specified, the information on the toxicity of pesticides is based upon information reported by EPA in Recognition and Management of Pesticide Poisonings, Fifth Edition EPA-735-R-98-003, March 1999.

15. For example, some cyfluthrin formulations, such as Tempo 2 and Tempo 20WP, are restricted because of their acute toxicity to applicators. EPA Pesticide Information Network: Report of the Restricted Use Product File with Revision Date Before 4/2/97.

16. EPA Office of Pesticide Programs List of Chemicals Evaluated for Carcinogenic Potential, August 31, 2000. Memo from William L. Burnham, Chief - Science Analysis Branch, Health Effects Division to numerous recipients. The terms "likely carcinogen," "probable human carcinogen" and "possible human carcinogen" are scientific terms of art used by EPA and others to reflect the weight of evidence of carcinogenicity.

17. *Ibid.*

18. Kaplan, J.G. et al, 1993. "Sensory neuropathy associated with Dursban (chlorpyrifos) exposure." Neurology 43:2193 - 2196.

19. See: Jett, D., Navoa, R., Beckles, R., et al., 2001. "Cognitive function and cholinergic neurochemistry in weanling rats exposed to chlorpyrifos." Toxical Applied Pharmacol. 174: 89-98. Navarro, H., Basta, P., Seidler, F., Slotkin, T., 2001. "Neonatal chlorpyrifos administration elicits deficits in immune function in adulthood: a neural effect?" Developmental Brain Research 130: 249-252. Rice, D., Barone, S. 2000. "Critical periods of vulnerability for the developing nervous system: Evidence from human and animal models." Environmental Health Perspect. 108(Suppl 3): 511-533. Sanchez-Amate, M., Flores, P., Sanchez-Santed, F., 2001. "Effects of chlorpyrifos in the plus-maze model of anxiety." Behavioral Pharmacology 12: 285-292. Slotkin, T., Cousins, M., Tate, C., Seidler, F., 2001. "Persistent cholinergic presynaptic deficits after neonatal chlorpyrifos exposure." Brain Research 902: 229-243.

20. EPA Office of Pesticide Programs and Toxic Substances, "Chlorpyrifos incident review update," September 27, 1999. Memo from Jerome Blondell, Ph.D., M.P.H., Health Effects Division, to Deborah Smegal, Health Effects Division.

21. EPA Office of Pesticide Programs, List of Chemicals Evaluated for Carcinogenic Potential, August 31, 2000. Memo from William L. Burnham, Chief - Science Analysis Branch, Health Effects Division to numerous recipients.

22. USEPA, 1998. "Reregistration Eligibility Decision (RED) - Hydramethylnon," EPA 738-R-98-023.

23. NJ Department of Health, Environmental Health Service, 1992. New Jersey Pesticide Resource Manual For Health Professionals.

24. EPA Office of Pesticide Programs, List of Chemicals Evaluated for Carcinogenic Potential, August 31, 2000. Memo from William L. Burnham, Chief - Science Analysis Branch, Health Effects Division to numerous recipients.

25. Claudio, L., et al., 1999. "Socioeconomic Factors and Asthma Hospitalization Rates in New York City." J. Asthma 36: 343

26. Leaderer, B.P., 2002. "Dust Mite, Cockroach, Cat, and Dog Allergens Concentrations in Homes of Asthmatic Children in the Northeastern United States: Impact of Socioeconomic Factors and Population Density." Envir. Hlth. Perpect. 110(4): 419 - 425.

27. Togias, A.G. et al., 1997. "Evaluating the factors that relate to asthma severity in adolescents." Int. Arch. Allergy Immunol. 113:67 - 95. See also Davis, D and K. Ahmed, 1998. "Exposures from indoor spraying of chlorpyrifos pose greater health risks to children than currently estimated." Envir. Hlth. Perspect. 106(6): 299 - 301.

28. Zwiener, R.J. & C.M. Ginsburg, 1988. "Organophosphate and Carbamate Poisoning in Infants and Children." Pediatrics 81(1): 121 - 126.

29. 7 U.S.C. §136(a).

30. 7 U.S.C. §136(m).

31. "The Secret Ingredients in Pesticides: Reducing the Risk" (2000). This report from the Attorney General's Environmental Protection Bureau is available at: *http://www.ag.ny.gov/environment/environment.html*.

32. Northwest Coalition for Alternatives to Pesticides, 1998. "Worst Kept Secrets: Toxic Inert Ingredients in Pesticides," p. 3.

33. Those exceptions, for example to allow experimental or emergency use of a product, do not apply to the products reported to us as used by either the institutions or residents.

34. Pub. L. 104-170 §§405 et seq., 21 U.S.C. §§346a et seq.

35. "Comments of New York State Attorney General Eliot Spitzer, In re: United States Environmental Protection Agency's Preliminary Risk Assessment For the Chlorpyrifos Reregistration Eligibility Decision, Docket Control Number OPP-34202, December 27, 1999 as Amended January 3, 2000.

36. The Attorney General has submitted formal comments to EPA on the risk assessment and risk management proposals for chlorpyrifos and diazinon. They are available by request from the Attorney General's Environmental Protection Bureau.

37. USEPA, 1998. "Reregistration Eligibility Decision (RED) - Hydramethylnon," EPA 738-R-98-023, p. 39.

38. USEPA, 1998. "Reregistration Eligibility Decision (RED) - Hydramethylnon," EPA 738-R-98-023, p. 23.

39. Many other examples of inadequately protective assumptions made during the process of assessing and registering pesticides exist. In a recent letter to EPA concerning the ongoing cumulative risk assessment for organophosphate insecticides, this office has pointed out EPA's failure to include, among other factors, exposures to known and illegal organophosphate pesticides in food and water and to consider adequately the special susceptibility of the fetus to the neurotoxic effects of this class of pesticides.

40. This brochure is available at *http://www.ag.ny.gov/environment/pesticide_guide.html.*

41. The New York State Board of Regents and the Commissioner of Education have promulgated regulations requiring only that schools plan "for a least toxic approach to integrated pest management."

42. Education Law §409-h.

43. A searchable list of pesticides currently registered in New York State is available at a DEC website: *http://www.dec.state.ny.us/website/dshm/pesticid/webinst.htm*.

44. The DEC on-line database (*http://www.dec.state.ny.us/website/dshm/pesticid/webinst.htm)* identifies pesticides classified as restricted use products in New York State. All products classified by EPA as restricted use pesticides are so classifed in New York and would be identified in the DEC database.

45. New York State Environmental Conservation Law §33-1301.

46. NYCRR §325.7.

47. New York State Environmental Conservation Law §33-0905(5).

APPENDIX I – FINDINGS IN THE FIVE CITIES

A. Albany, NY

Fig. A1 - Ida Yarbrough Homes

The Ida Yarbrough Homes and Steamboat Square are family developments under the jurisdiction of the Albany Housing Authority (AHA). There are 129 family apartment units in attached row houses in Ida Yarbrough Homes (see figure A1), and 93 apartment units in attached row houses in the Steamboat Square development. The Steamboat Square development includes both renovated older row houses and newer garden apartment units (see figures A2 & A3). The Albany Housing Authority also manages high-rise buildings in both developments, but it does not permit families with children to live in those buildings. Accordingly, we limited our survey in Albany to the low-rise apartment units, where families with children reside.

Fig. A2 - Steamboat Square (Renovated Homes)

Approximately 50% of the residents living in the Ida Yarbrough Homes are thirteen years old or younger.[1] The majority of these children attend Arbor Hill Elementary School. Many of them play in Field of Dreams Park, which is only a few blocks from the housing development. The AHA relies on a contractor for pest management, including pesticide applications. Sixty-three percent of the responding residents applied their own pesticides. Arbor Hill Elementary also applied pesticides. The Parks Department did not apply any pesticides at the Field of Dreams Park.

Fig. A3 - Steamboat Square (New Homes)

In Steamboat Square, 45% of all residents are under thirteen. Most of these children attend Giffen Memorial Elementary School. Lincoln Park is within a few blocks of the apartment units. The AHA's contractor applied pesticides at Steamboat Square, Giffen Memorial applied boric acid in the school, and the Parks Department applied pesticides in Lincoln Park. Fifty-eight percent of the

[1] Ida Yarbrough provides age distribution numbers for "13 and under." All other developments provided age distribution numbers for "under 13."

responding residents applied pesticides in their homes.

1. Pest Management Policies

The Albany Housing Authority identified its contract with its contractor as the Authority's pest management policy. However, as explained below, the Albany Housing Authority does not appear to enforce key provisions of the contract.

None of the Albany schools or parks surveyed possess a written pest control policy.

2. Pest Problems and Control Responses

According to the Albany Housing Authority, the top three pest problems in the Ida Yarbrough development are roaches, ants and mice inside apartments and in common areas. Steamboat Square staff reported problems with roaches, mice and stinging insects inside apartments and mice, rats and roaches in common areas. The pest management contract requires the contractor to apply pesticides to all apartment units and areas around buildings on a quarterly basis. In practice, however, the contractor inspects all apartment units once a year. If the contractor noticed evidence of pests during inspection (*i.e.* droppings or observed pests), it applied pesticides. The contractor sprayed apartment units when vacated (between tenants), and when ordered to do so by the Albany Housing Authority (usually in response to pest complaints by residents). When an insect infestation existed in a vacant apartment unit, the contractor reported using a fogger. The housing authority reported that basement areas, compactor rooms, and laundry rooms were treated monthly and that community rooms, tenant association rooms, and management offices were treated quarterly. The Albany Housing Authority and its contractor also used non-pesticidal control methods of pest control, including physical removal, sticky traps, improved sanitation, and physical barriers. In addition, more than half of the responding residents in both housing developments applied pesticides in their homes.

If residents in either development did not want their apartments treated with pesticides, they were required to provide the Albany Housing Authority with a doctor's statement that they would be adversely affected by pesticides.

Both the Giffen Memorial Elementary School and Arbor Hill Elementary School reported only minor problems with ants, roaches and flies and used a private contractor who performed weekly inspections. The contractor did not apply any pesticides at either school during the reporting period. However, school personnel applied boric acid (generally considered to be less toxic than most other chemical insecticides) in Giffen Memorial. Giffen Memorial reported that it also used sticky traps, improved sanitation and physical barriers to control pests, and Arbor Hill Elementary reported using sticky traps. Neither school applied pesticides outdoors during the academic year.

The Parks Department reported that mice and roaches were the most common pest problems in Lincoln Park's indoor facilities, which include a bathhouse, locker rooms, and rest rooms. The Parks Department's contractor inspects these interior areas monthly, and applied pesticides only when there was evidence of pests and only after non-pesticidal methods were exhausted. The Parks Department's non-pesticidal methods of pest control include physical removal, mechanical and sticky traps, biological controls, improved sanitation and physical barriers. No pest problem or pesticide use was reported for Field of Dreams Park. The Albany City Forester, who is responsible for pest control in city trees within parks, reported that his staff dramatically reduced its use of pesticides after the City of Albany adopted a pesticide phase-out ordinance (see discussion of pesticide phase-out ordinances on page 45).

3. Posting and Notification

Albany Housing Authority's extermination contract requires the contractor to notify all residents in affected units in writing no less than 48 hours prior to regular treatments. However, in general practice the contractor reported that notification is provided by the Albany Housing Authority. Both developments reported that they notified residents in writing 48 hours prior to pesticide applications.

The schools reported using only boric acid containing products and did not notify students, teachers, or other school personnel prior to their application.

No notification was provided prior to pesticide applications in Lincoln Park, but limited reentry restrictions were imposed in certain instances after the pesticides were applied. The

Parks Department did not apply any pesticides in Field of Dreams Park.

4. Resident Perspectives

Many residents reported that they would like the housing authority to do more to control pests, but there was no clear consensus among residents as to what should be done. Thirty-seven percent of the responding Ida Yarbrough residents and 26% of the responding Steamboat Square residents said they would like the housing authority to use more pesticides, while none of the responding residents in either development said they would like the housing authority to use less pesticides. Twenty-two percent of the responding Ida Yarbrough residents and 15% of responding Steamboat residents said that the housing authority did not use enough non-pesticidal controls.

B. Buffalo, NY

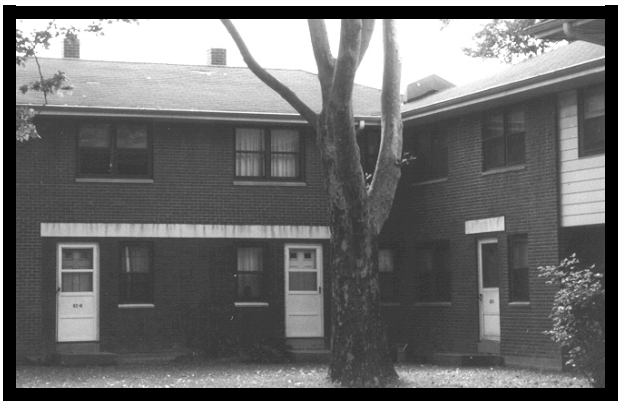


Fig. A4 - Ferry-Grider Homes

In Buffalo, we focused on the Ferry Grider Homes and the Kenfield/Langfield development, both of which are family developments under the jurisdiction of the Buffalo Municipal Housing Authority (BMHA). There are a total of 210 apartment units in attached row houses in Ferry Grider Homes (see figure A4), and 968 apartment units in attached row houses in the Kenfield/Langfield Homes (see figure A5). Kenfield and Langfield are separate housing developments across the street from each other. For this survey, we treated them as one development.

The BMHA estimated that approximately 32% of the residents living in the Ferry Grider Homes are below the age of thirteen, and reported that the majority of these children attend P.S. 66 (North Park Middle School). The only park within walking distance of the development is a city-maintained basketball court. BMHA and its pest management contractor applied pesticides in the Ferry Grider Homes. Forty-six percent of the responding residents reported applying their own pesticides. The Buffalo School District did not apply pesticides in North Park Middle School, nor did its pest management contractor. The Parks Department did not apply any pesticides at the basketball court.

Fig. A5 - Kenfield/Langfield

The BMHA estimated that in Kenfield/Langfield Homes approximately 40% of all residents are under thirteen. Most of these children likely attend P.S. 69 (Houghton Academy) or P.S. 44 (Lincoln Academy) and play in Roosevelt Park. BMHA and its pest management contractor applied pesticides in the Kenfield/Langfield Homes. Sixty-five percent of the responding residents applied their own pesticides in their homes. The Buffalo School District's pest management contractor applied pesticides at Lincoln Academy, but did not apply pesticides at Houghton Academy. The Parks Department did not apply any pesticides in Roosevelt Park.

1. Pest Management Policies

Neither the Buffalo Municipal Housing Authority, nor any of the schools or parks surveyed, have a written pest management policy. However, the Parks Department referred to Buffalo's pesticide phase-out ordinance as a guidance document for its use of pesticides.

2. Pest Problems and Control Responses

Both developments reported that the top three pest problems both inside apartments and in common areas are roaches, fleas and ants. The BMHA exterminator also reported problems with rats and mice. Pest management at both developments is overseen by an exterminator employed by the BMHA. However, some pest control services are performed by a private contractor. The BMHA reported that it applied pesticides routinely four times per year and in response to pest problems inside apartments, in playgrounds and pocket parks, tenant association rooms, lobbies, basements, laundry areas, stairways and management offices. In addition to the pesticides, the BMHA reported using mechanical traps, sticky traps, improved sanitation, and biological control. In addition, approximately 46% of the responding residents in Ferry Grider Homes, and 65% of the responding residents in Kenfield/Langfield, applied pesticides in their homes.

According to the BMHA exterminator, residents cannot refuse pesticide applications inside their apartments.

North Park Academy and Houghton Academy reported minor problems with indoor ant infestations. Outside, North Park Academy reported minor problems with flies, and Houghton reported problems with mice, stinging insects and ants. Lincoln Academy reported problems with roaches, ants and mice. The school district's contractor applied pesticides at Lincoln Academy, but did not apply pesticides at North Park Academy or Houghton Academy.

The Parks Department did not apply any pesticides at the basketball courts or in Roosevelt Park and explained that because of Buffalo's pesticide phase-out ordinance, they have reduced the amount of pesticides used in parks.

3. Posting and Notification

The Buffalo Municipal Housing Authority reported that 48 to 72 hours prior to pesticide applications in common areas, it notified residents and employees living or working near affected areas in writing, and by posting signs in and around the treated area. When pesticides

were applied inside apartments, it notified all residents in the affected building in writing 48-72 hours in advance posted signs in and around the treated area.

The schools reported that contractors verbally notify administrators and other staff more than 72 hours prior to pesticide applications, but no signs are posted. The contractor noted that before it applies pesticides, it must get approval to do so from the school. Students, parents, and teachers were not informed prior to the application of the pesticides.

4. Resident Perspectives

Seventy percent of the responding residents in Ferry Grider Homes, and 68% of the responding residents in the Kenfield/Langfield Homes, reported that they are satisfied with BMHA's pest management practices. Sixteen percent of the responding Ferry Grider Homes residents and 18% of the responding Kenfield/Langfield Homes residents reported that in their view the housing authority did not apply enough pesticides. Very few residents (none of the Ferry Grider residents and 5% of the Kenfield/Langfield residents) felt that the housing authority used pesticides excessively. Only slightly more (9% of the Ferry Grider residents and 19% of the Kenfield/Langfield residents) said that the housing authority did not make adequate use of non-pesticidal methods.

C. New York, NY

In New York City, we focused on the General Grant Houses in Manhattan and the Throggs Neck Houses in The Bronx, typical family developments under the jurisdiction of the New York City Housing Authority (NYCHA). General Grant Houses is a high-density development with 1,940 apartment units in nine buildings that are 13-21 stories (see figure A6). Throggs Neck Houses is also high density, with 1,185 apartment units in thirty-three buildings that are 3-11 stories (see figure A7).

Fig. A6 -General Grant Houses

Fourteen percent of the residents living in the General Grant Houses are below the age of thirteen. The majority of these children attend P.S. 125 or P.S. 36. Many of them play in Morningside Park, which is only a few blocks from the housing development. NYCHA applied pesticides at General Grant Houses. The New York City Office of School Food & Nutritional Services (OSFNS) – the entity responsible for pest control in New York City schools – applied pesticides at P.S. 125 and at P.S. 36. The Parks Department applied pesticides in Morningside Park. In addition, 92% of the responding residents applied their own pesticides.

Fig. A7 - Throggs Neck Houses

In the Throggs Neck Houses, 30% of all residents are under thirteen. Most of these children attend P.S. 72, P.S. 101, or P.S. 192 and most likely play in Ferry Point Park, which is adjacent to the housing development. NYCHA, OSFNS, and the Parks Department applied pesticides in the Throggs Neck Houses, the three schools, and Ferry Point Park, respectively. Ninety-five percent of all responding residents applied their own pesticides.

1. Pest Management Policies

The New York City Housing Authority has a written pest management policy. OSFNS reported that while it has not adopted its own written pest management policy, it follows the State Education Department IPM Guidelines. The Parks Department does not have a written pest management policy.

2. Pest Problems and Control Responses

NYCHA reported that the most common pest problems in both the General Grant Houses and the Throggs Neck Houses were roaches, mice, and flies (in common areas and inside apartments), in that order. NYCHA applied pesticides on a regularly scheduled basis four times per year in apartments and in day care centers, community centers, lobbies, tenant association rooms, basements, laundry rooms, stairways, management offices, trash compactor areas, and hallways. Additional applications were made in response to all pest complaints, if the applicator observed evidence of pests, or if the applicator observed a single pest. NYCHA also employed non-pesticidal control methods, including physical removal (in common areas only), mechanical traps, sticky traps, improved sanitation, and physical barriers. More than 90% of the responding residents in both housing developments applied pesticides in their homes.

OSFNS reported that the most common pest problems at all of the schools were roaches and mice. OSFNS inspected glue monitor boards monthly at all schools. It applied pesticides in all of the schools when the applicator observed evidence of pests. Most applications occurred in the kitchen and cafeteria areas. OSFNS reported that it also used non-pesticidal methods of pest control, including physical removal, mechanical traps, sticky traps, improved sanitation, physical barriers, cultural control, and tree trimming.

Morningside Park reported problems with rats, mice and roaches in that order. It reported using pesticides responsively when the applicator observes evidence of pests, and that it applied rodenticide on lawn areas to control rats. It reported that it also used mechanical and sticky traps and improved sanitation. In Ferry Point Park, the Parks Department applied herbicides to control weeds (it applies herbicides in Ferry Point Park at least once annually), and it applied insecticide to control mosquitoes (the Parks Department did not report the type and quantity of the insecticide used to control mosquitoes).

Fig. A8 - Sign Posted by NYCHA around pesticide treated areas.

3. Posting and Notification

Between 48 and 72 hours prior to the application of pesticides in common areas, NYCHA provided written notice to residents and employees living or working near affected areas. NYCHA posted notification signs in and around areas treated with

pesticides between 12 and 48 hours before applications, and removed the signs more than 72 hours after applications (see figure A8). For applications inside apartments, NYCHA provided written notice to residents in affected units 48-72 hours prior to applications, and posted notification signs in and around treated areas.

OSFNS did not notify students, parents or school personnel prior to the application of pesticides. OSFNS noted that all of the materials they used, both now and prior to the enactment of neighbor notification requirements, are exempt from notification requirements under the State Education Department IPM Guideline.

The Parks Department reported that it verbally notified employees near affected areas prior to applications, and posted signs at the time of the application to notify park users. After the weed control applications in Ferry Point Park, the Parks Department imposed reentry restrictions to the treated areas for 24 hours.

4. Resident Perspectives

Many residents reported that they would like NYCHA to do more to control pests. Fifty-three percent of the responding General Grant residents and 48% of the responding Throggs Neck residents said that NYCHA is not doing enough to prevent pest problems. Thirty-five percent of the responding General Grant residents and 46% of the responding Throggs Neck residents said that pesticides were not used enough, compared to only 3% in both developments in Throggs Neck who said that pesticides were used too much. Twenty-eight percent of the responding General Grant residents, and 42% of the responding Throggs Neck residents, said that non-pesticidal methods were not used enough.

D. Syracuse, NY

In Syracuse, we focused on the Pioneer Homes and James Geddes Homes, both of which are family developments under the jurisdiction of the Syracuse Housing Authority (SHA). There are a total of 612 apartment units in attached row houses in Pioneer Homes (see figure A9), and 223 apartment units in attached row houses in the James Geddes Homes (see figure A10). There are also four high-rise buildings in the James Geddes Homes development, but SHA does not permit families with children to live in those buildings. Accordingly, our survey in Syracuse was limited to the low-rise apartment units, where families with children live.

Fig. A9 - Pioneer Homes

The SHA estimated that approximately 36% of the residents living in the Pioneer Homes are below the age of thirteen, and reported that the majority of these children attend Beard Elementary School.[2] Many of them likely play in Wilson Park, which is only a few blocks from the housing development. SHA applied pesticides in Pioneer Homes. In addition, 42% of the responding residents applied their own pesticides. No pesticides were applied at the Beard School or in Wilson Park.

The SHA estimated that in James Geddes Homes approximately 33% of all residents are under thirteen. Most of these children likely attend Blodgett Elementary School and play in West End Park, which is within a few blocks of the development. The housing authority and Blodgett School applied pesticides. In addition, 39% of the responding residents applied pesticides in their homes. No pesticides were applied in West End Park.

Fig. A10 - James Geddes Homes

[2] Most of the children who live in the Pioneer Homes normally attend the Dr. Martin Luther King, Jr. Elementary School. At the time of the survey, however, many of the these students were relocated to the Beard School while the Dr. Martin Luther King, Jr. School underwent renovations. For this survey, the school's staff reported on pest management in the Beard School.

1. Pest Management Policies

The Syracuse Housing Authority has a written pest management policy that describes the process exterminators must follow to identify and respond to pest problems (see summary of SHA control response below). The schools and parks do not have a written pest management policy.

2. Pest Problems and Control Responses

Both developments reported that the top three pest problems in common areas are roaches, mice and rats. Inside apartments, both developments reported problems with roaches, mice and flies. The Syracuse Housing Authority annually inspects and places sticky traps in all apartment units. After one week, the units are inspected again and the traps are checked. If the traps had more than five roaches in them, a six-week treatment program was initiated that typically consisted of three treatments – two spray treatments followed by placement of baits – in two week intervals. The SHA applied pesticides in common areas, including day care facilities, community rooms, lobbies, basements and laundry areas, in response to complaints or evidence of pests. SHA also utilized non-pesticidal control methods, including physical removal, mechanical traps, sticky traps, improved sanitation, biological control, and physical barriers. Approximately 42% of the responding residents in Pioneer Homes, and 39% of the responding residents in James Geddes, applied pesticides in their homes.

If residents in either development did not want their apartments treated with pesticides, they were required to provide the Syracuse Housing Authority with a medical statement that they would be adversely affected by pesticides.

Indoors, Blodgett reported problems with roaches, ants and stinging insects, while Beard reported problems with mice, roaches and ants. Outdoors, Blodgett reported problems with ants, roaches and mice, and Beard reported problems with mice, roaches and ants.

All of these problems were described as minor. The schools reported that the contractor's IPM program includes routine inspections, monitoring, sealing off food and water sources, traps, and baits. The contractor applied ant bait traps in the Blodgett School, and did not apply pesticides in the Beard School.

The Parks Department and its contractor reported no pest problems or pesticide use in Wilson Park or in West End Park. The Parks Department reported using sticky traps in both parks.

3. Posting and Notification

Syracuse Housing Authority reported that it notified residents and employees in affected developments of pending pesticide applications in common areas by posting signs 48 to 72 hours in advance. It reported that when pesticides were applied inside apartments, that it notified residents in affected units and in adjacent units in writing at least 72 hours in advance.

The schools reported that while there were no pesticide spray treatments in either school during the survey period, it is common practice in the event pesticides are applied for the contractor to consult with the school about the best treatment. Once a treatment is selected, the school management verbally notifies school personnel.

The Parks Department reported that it does not notify parks users prior to applications when pesticides are deemed necessary.

4. Resident Perspectives

Ninety-three percent of the responding residents in Pioneer Homes, and 88% of the responding residents in the James Geddes Homes, reported that they are satisfied with SHA's pest management practices. Twelve percent of the responding Pioneer Homes residents and 16% of the responding James Geddes Homes residents, felt that the housing authority did not apply enough pesticides. Only one responding resident in each development said that the housing authority used excessive pesticides. Eleven percent of the responding Pioneer residents and 13% of the responding James Geddes residents said that the housing authority did not use enough non-pesticidal controls.

E. Yonkers, NY

In Yonkers, we focused on the Calcagno Homes and Schlobohm Houses, typical family developments under the jurisdiction of Yonkers Municipal Housing Authority (Yonkers MHA). Calcagno Homes is a high-density development with 278 apartment units in three, thirteen-story high-rise buildings (see figure A11). Schlobohm Houses is also high density, with 411 apartment units in eight, eight-story high-rise buildings (see figure A12).

Fig. A11 - Calcagno Homes

Forty-two percent of the residents living in the Calcagno Homes are below the age of thirteen. The majority of these children attend P.S. 18. Many of them play in Columbus Park, which is only a few blocks from the housing development. The Yonkers MHA reported that it applied pesticides in the Calcagno development in addition to the 77% of the responding residents who applied their own pesticides. P.S. 18 and the Parks Department also applied pesticides in the school and in Columbus Park, respectively.

Fig. A12 - Schlobohm Houses

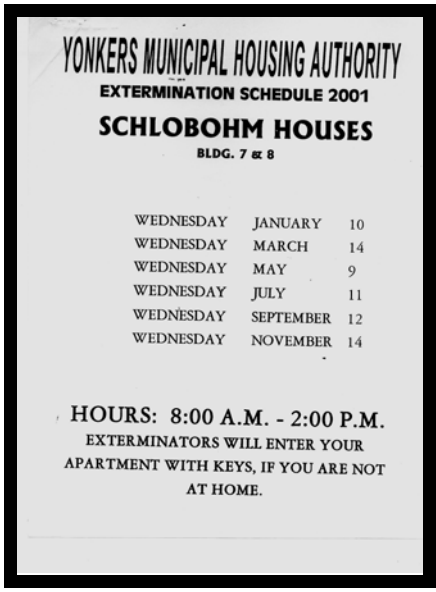
In the Schlobohm Houses, as in the Calcagno Homes, 42% of all residents are under thirteen. Most of these children attend the Martin Luther King, Jr. School and play in War Memorial Park, which is adjacent to the housing development. The Yonkers MHA applied pesticides in the Schlobohm development, and 82% of all responding residents also applied their own pesticides. Martin Luther King, Jr. School and War Memorial Park also applied pesticides.

1. Pest Management Policies

No written pest management policies exist for any of the institutions surveyed.

2. Pest Problems and Control Responses

The most common pest problems in the Calcagno and Schlobohm developments were roaches, mice, ants (inside apartments) and rats (in common areas), in that order. The housing authority applied pesticides monthly in apartments and in basement, compactor and storage room areas. (As of January 1, 2001, the Yonkers MHA applies pesticides in apartments bi-monthly.) It also reported additional, unscheduled pesticide applications if the applicator observes a single pest, but noted that pesticides are applied only after non-pesticidal methods are exhausted. The housing authority reported employing a variety of non-pesticidal control methods including physical removal, mechanical traps, sticky traps, biological controls, improved sanitation, physical barriers, pheromone traps, and public education. Approximately 80% of the responding residents in both housing developments applied pesticides in their homes.



YONKERS MUNICIPAL HOUSING AUTHORITY

EXTERMINATION SCHEDULE 2001

SCHLOBOHM HOUSES

BLDG. 7 & 8

WEDNESDAY	JANUARY	10
WEDNESDAY	MARCH	14
WEDNESDAY	MAY	9
WEDNESDAY	JULY	11
WEDNESDAY	SEPTEMBER	12
WEDNESDAY	NOVEMBER	14

HOURS: 8:00 A.M. - 2:00 P.M.

EXTERMINATORS WILL ENTER YOUR APARTMENT WITH KEYS, IF YOU ARE NOT AT HOME.

Fig. A13 - Yonkers Annual Extermination Schedule

Roaches and mice were the most common pest problems at P.S. 18 and the Martin Luther King, Jr. School during the survey period. P.S. 18 applied pesticides in the kitchen, cafeteria, facility room (boiler room) and main offices routinely during holiday recesses, and made additional unscheduled applications if the applicator observed evidence of pests. Martin Luther King, Jr. School reported that it applied pesticides monthly in the cafeteria, quarterly in classrooms, closets, univents and storage areas. It also made additional, responsive, pesticide applications in the intervening periods when there was evidence of pests. Both schools noted that they also used non-pesticidal methods of pest control such as sticky traps and physical barriers. Neither school applied pesticides outdoors during the academic year.

As a general practice, pesticides are applied in Columbus Park and War Memorial Park to control rodents and weeds. In 2000, however, both parks reported using herbicides on lawns, athletic fields, and along fence lines; no rodenticides were applied. The Parks Department reported that it applied pesticides only in response to evidence of pests. The Parks Department did not report using any non-pesticidal methods of pest control.

3. Posting and Notification

At the beginning of each year, the Yonkers MHA provides residents with an extermination schedule for the entire year (see figure A13). The notice includes the dates on which the exterminator is expected to be in the building and states that exterminators will enter apartments if residents are not home.

P.S. 18 and Martin Luther King, Jr. School provided verbal notification of pesticide applications to school personnel 12 to 48 hours before the application, but did not notify students and parents. Neither school posted signs near treated areas.[3]

In Columbus Park and War Memorial Park, the Parks Department posted signs (approximately 4 inches by 6 inches in size) 12 to 48 hours prior to pesticide applications to notify the public, and removed the signs 12 to 48 hours after application (see figure A14). The Parks Department did not impose reentry restrictions after the pesticides were applied.

4. Resident Perspectives

Many residents reported that they would like the housing authority to do more to control pests. Forty-seven percent of theresponding Calcagno residents and 41% of the responding Schlobohm residents said they would like the housing authority to use more pesticides, while only 8% and 6%, respectively, said they would like the housing authority to use less pesticides. Forty-five percent of the responding Calcagno residents and 55% of responding Schlobohm residents said that the housing authority did not use enough non-pesticidal controls.

Fig. A 14 - Sign Posted by Yonkers Parks Dept.

[3] Both schools reported that after applications there are reentry restrictions in the treated area for 48 hours.

Appendix II – NAME AND QUANTITY OF PESTICIDES APPLIED, AS REPORTED BY INSTITUTIONS

City	Institution	Pesticide Product Name	EPA #	Quantity
Albany	Ida Yarbough Homes	Ficam W (RUP)	45639-1	75 ounces
		Maxforce Professional Insect Control Roach Killer Bait Gel	64248-5	62 ounces
		ZP Tracking Powder (RUP)	12455-16	4 pounds
		Zoecon Catalyst Emulsified in Water Insecticide	2724-450	30 fluid oz
		Tempo 20 WP Insecticide (RUP)	3125-380	95 grams
		Drione Insecticide	4816-353	10 pounds
	Steamboat Square	Ficam W (RUP)	45639-1	60 ounces
		Maxforce Professional Insect Control Roach Killer Bait Gel	64248-5	92 ounces
		Zoecon Catalyst Emulsified in Water Insecticide	2724-450	15 fluid oz
		Tempo 20 WP (RUP)	3125-380	140 grams
		Drione Insecticide	4816-353	3 pounds
		Contrac Blox	28772-56-7*	160 ounces
	Giffen Memorial Elementary School	Boric Acid		
	Arbor Hill Elementary School	None used		
	Field of Dreams Park	None used		
	Lincoln Park	Talon G	10182-336	4 ounces
Buffalo	Ferry-Grider Homes	Maxforce FC Professional Insect Control Roach Bait Stations	64248-11	230 stations
		Maxforce FC Professional Insect Control Roach Killer Bait Gel	64248-14	1522 grams
		Maxforce Professional Insect Control Roach Killer Bait Gel	64248-5	800 grams
		CB Stinger Wasp & Hornet Jet Spray	9444-181	7 fluid oz
		Maxforce FC Professional Insect Control Ant Bait Stations	64248-10	80 stations
		Contrac Rodenticide Ready-to-Use Place Pac	12455-76	6 ounces
		Maxforce Professional Insect Control Roach Killer	64248-1	480 stations
		PT Brand Avert Dry Flowable Cockroach Bait	499-294	60 grams
		Contrac All-Weather Blox	12455-79	1 pounds
		Tempo 2 Insecticide (RUP)	3125-372	37 milliliters
		Conquer Residual Insecticide (RUP)	1021-1641-57076	0.1 fluid ounces

City	Institution	Pesticide Product Name	EPA #	Quantity
	Kenfield/Langfield Homes	Maxforce Professional Insect Control Roach Killer	64248-1	470 stations
		PT Brand Avert Dry Flowable Cockroach Bait	499-294	10 grams
		Maxforce FC Professional Insect Control Roach Bait Stations	64248-11	151 stations
		Ditrac Tracking Powder (RUP)	12455-56	6 ounces
		CB Stinger Wasp & Hornet Jet Spray	9444-181	8 fluid oz
		Contrac All-Weather Blox	12455-79	31 pounds
		Tempo 2 Insecticide (RUP)	3125-372	54 milliliters
		Maxforce FC Professional Insect Control Ant Bait Stations	64248-10	475 stations
		Maxforce FC Professional Insect Control Roach Killer Bait Gel	64248-14	1720 grams
		Contrac Rodenticide Ready-to-Use Place Pac	12455-76	9 ounces
		Generation Mini-Block	7173-218	86 blocks
		Contrac Rat & Mouse Bait Ready-To-Use Place Packs	12455-75	84 packs
		Maki Rat & Mouse Bait Packs (Pellets)	7173-188	180 packs
		Maxforce FC Roach Bait Gel	64248-5	15224 grams
		Maxforce FC Professional Insect Control Roach Bait Stations	64248-11	10929 stations
		Avert PT 310 Abamectin Dust	499-294	1875 grams
		Gentrol Aerosol	2724-484	252 fluid ounces
		Contrac Super-Size Blox	12455-82	68 blocks
		Talon Weather Blok	10182-339	50 blocks
	North Park Middle Academy	None used		
	Houghton Academy	None used		
	Lincoln Academy	Drax Ant Kil Gel (5%)	9444-131	8 cc
		Maxforce FC Professional Insect Control Roach Killer Bait Gel	64248-14	15 grams
		PT Brand Avert Dry Flowable Cockroach Bait	499-294	10 grams
		Maxforce FC Professional Insect Control Roach Bait Stations	64248-11	3 stations
		Contrac Rodenticide Kills Rats & Mice	12455-69	16 bait packs
		Quintox Mouse Seed	12455-57	10 bait packs
	Parks (all)	None used		
NYC	General Grant Houses	Ficam Plus Synergized Pyrethrins (RUP)	45639-66	363 ounces
		Drione Insecticide	4816-353	10 pounds
		Eaton's Blocks Rodenticide	56-41	400 pounds
		Maki Rodenticide Bait Packs	7173-208	6495.28 ounces
	Throggs Neck Houses	Ficam Plus Synergized Pyrethrins (RUP)	45639-66	198 ounces

City	Institution	Pesticide Product Name	EPA #	Quantity
		Drione Insecticide	4816-353	10 pounds
	Throggs Neck Houses	Eaton's Blocks Rodenticide	56-41	215 pounds
		Maki Rodenticide Bait Packs	7173-208	1768.8 ounces
	P.S. 101	Siege Gel Insecticide (RUP)	241-313	40 grams
		PT Brand Avert Cockroach Gel Bait Formula 2	499-406	205 grams
		Drax Ant Kil Gel (5%)	9444-131	4 grams
		Contrac All-Weather Blox	12455-79	15 ounces
	P.S. 125	Siege Gel Insecticide (RUP)	241-313	35 grams
		PT Brand Avert Cockroach Gel Bait Formula 2	499-406	68 grams
		Stapletons Magnetic Roach Food 2000	54452-2	6 ounces
		Niban F-G Fine Granular Bait	64405-2	18 ounces
		EcoPco ACU Contact Insecticide (RUP)	67425-14	10 ounces
		Contrac All-Weather Blox	12455-79	57 ounces
	P.S. 192	Contrac All-Weather Blox	12455-79	45 ounces
		Siege Gel Insecticide (RUP)	241-313	28 grams
		Avert Cockroach Gel Bait Formula 2	499-406	209 grams
		EcoPco ACU Contact Insecticide (RUP)	67425-14	17 ounces
	P.S. 36	Contrac All-Weather Blox	12455-79	56 ounces
		Avert Cockroach Gel Bait Formula 2 Gel Bait	499-406	63 grams
		Niban F-G Fine Granular Bait	64405-2	16 ounces
		Drax Ant Kil Gel (5%)	9444-131	2 grams
		CB Borid Turbo with Boric Acid	9444-150	30 ounces
		Siege Gel Insecticide (RUP)	241-313	38 grams
	P.S. 72	Contrac All-Weather Blox	12455-79	36 ounces
		Siege Gel Insecticide (RUP)	241-313	25 grams
		Avert Cockroach Gel Bait Formula 2	499-406	195 grams
		EcoPco ACU Contact Insecticide (RUP)	67425-14	4 ounces
		Drax Ant Kill Gel (5%)	9444-131	9 grams
		Mop Up	9444-132	32 ounces
	Ferry Point Park	Pre-m 33ec	241-341-10404	114 gallons
		Roundup Herbicide	524-475	52.5 gallons
	Morningside Park	Maki Rat & Mouse Meal Bait	7173-171	240 ounces
Syracuse	James Geddes Homes	CB-80 Extra Insecticide	9444-175	256 pounds
		Maxforce FC Professional Insect Control Roach Killer Bait Gel	64248-14	11.2 pounds
		Pro-Control II Total Release Fogger	11540-27	17pounds
		Talon G	10182-339	14 pounds
		Weather Blok	10182-339	7 pounds
		Ficam W (RUP)	45639-1	36 pounds
		Prentox Prenbay 1.5EC	655-796	

City	Institution	Pesticide Product Name	EPA #	Quantity
	Pioneer Homes	Ficam W (RUP)	45639-1	53 pounds
		Prentox Prenbay 1.5EC	655-796	
	Pioneer Homes	CB-80 Extra Insecticide	9444-175	240 pounds
		Maxforce FC Professional Insect Control Roach Killer Bait Gel	64248-14	14 pounds
		Talon G	10182-339	9 pounds
		Weather Blok	10182-339	7 pounds
	Blodgett School	PT 565 Plus Pyrethrum	499-285	4 ounces
	Beard (Dr King) School	None used.		
	West End Park	None used		
	Wilson Park	None used		
Yonkers	Calcagno Houses	Demand CS Insecticide (RUP)	10182-361	4.8 fluid oz
		Maxforce FC Professional Insect Control Roach Bait Stations	64248-11	1440 grams
		Rozol Ready-to-Use Rat & Mouse bait	7173-80	28 pounds
		Suspend SC Insecticide (RUP)	432-763	19.5 fluid oz
		Tempo 20 WP Insecticide in Packets (RUP)	3125-377	266 grams
	Schlobohm Houses	CB Total Release PCO Fogger with Esfenvalerate	9444-166	4.5 ounces
		Contrac Super-Size Blox	12455-82	60 pounds
		Demand CS Insecticide (RUP)	10182-361	6.43 fluid oz
		Final All-Weather Blox	12455-89	144 pounds
		Maxforce FC Professional Insect Control Roach Bait Stations	64248-11	5040 grams
		PT Brand 565 Plus XLO Press. Contact Insecticide	499-310	240 ounces
		Roundup Pro Herbicide	524-475	234 fluid oz
		Suspend SC Insecticide (RUP)	432-763	30 fluid oz
		Tempo 20 WP Insecticide in Packets (RUP)	3125-377	345 grams
	Martin Luther King, Jr School	Ficam W (RUP)	45639-1	12 ounces
	P.S. 18	Ficam W (RUP)	45639-1	18 ounces
	Columbus Park	Roundup Herbicide	524-475	27 ounces
		Surflan A.S. Ornamentals	62719-113	27 ounces
	War Memorial Park	Roundup Herbicide	524-475	77 ounces

* Number as reported.

APPENDIX III – ALBANY COUNTY'S PESTICIDE PHASE-OUT ORDINANCE

Adopted unanimously by Albany County Legislature
May 11, 1998
RESOLUTION NO. 46-a
PROVIDING FOR INCREASED PROTECTION FOR PUBLIC HEALTH AND THE ENVIRONMENT FROM EXPOSURE TO DANGEROUS PESTICIDES

Introduced: 5/11/98
By Messrs. Richardson, Darbyshire, Ms. Springer, Public Works and Conservation and Improvement Committees:

WHEREAS, In consideration of the potential hazards associated in the use of pesticides, the Albany County Legislature deems it necessary to employ pest control strategies that are the least hazardous to human health and the environment and adopt an integrated pest management program that places first priority on utilization of best management practices and the use of pesticides as a last resort, and

WHEREAS, There is a national effort to reduce and eventually eliminate the use by local governments of pesticides hazardous to human health and the environment, and

WHEREAS, The City of Albany is currently considering legislation similar to this resolution, and

WHEREAS, It is the responsibility of Albany County to ensure the health and safety of all its citizens, now, therefore be it

RESOLVED, That for the purpose of this resolution the term "pest" shall mean and refer to any insect, rodent, fungus, weed, virus, bacteria, or other micro-organism (except viruses, bacteria or other micro-organisms on or in living persons or other living animals), that the Commissioner of the New York State Department of Environmental Conservation declares to be a pest, and, be it further

RESOLVED, That for the purpose of this resolution the term "pesticide" shall mean and refer to any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest and any substance or mixture of substances intended for use as a plant regulator, defoliator or desiccant registered as such by the United States Environmental Protection Agency and/or the New York State Department of Environmental Conservation and all such products for which experimental use permits and provisional registrations have been granted by the United States Environmental Protection Agency and/or the New York State Department of Environmental Conservation, and, be it further

RESOLVED, That for the purpose of this resolution the term "anti-microbial pesticide" shall mean and refer to a pesticide as defined by 7 U.S.C. 136(mm), and, be it further

RESOLVED, That notwithstanding any other provisions, this resolution shall not apply to the following:

> Pesticides used for the purpose of maintaining a safe drinking water supply at drinking water treatment plants, wastewater treatment plants, reservoirs, and related collection, distribution, and treatment facilities;
>
> Anti-microbial pesticides;
>
> Pesticides in contained baits for the purposes of rodent control; and
>
> Pesticides classified by the United States Environmental Protection Agency as exempt materials under 40 CFR 152.25;

and, be it further

RESOLVED, That effective September 1, 1998, no County department or any pesticide applicator employed by Albany County as a contractor or subcontractor for pest control purposes shall apply on property owned or operated by Albany County any pesticide classified as Toxicity Category I by the United States Environmental Protection Agency, or any pesticide classified as a known, likely, or probable human carcinogen by the United States Environmental Protection Agency, except as otherwise provided for in the eighth and ninth resolved clauses of this resolution, and, be it further

RESOLVED, That the Albany County Legislature hereby establishes a Pest Management Committee with the power to develop an Integrated Pest Management Plan to be adopted by the Albany County Legislature and to monitor pest management procedures for property owned or operated by Albany County. Said Committee shall be made up of one person from each of the following County departments and organizations: Department of General Services; Department of Health; Department of Public Works; Department of Residential Health Care Facilities; Sheriff's Department; Albany County Soil and Water Conservation District; and Cornell Cooperative extension; and, in addition, one person designated by the Albany County Executive representing a cancer prevention advocacy organization, one person designated by the Albany County Executive representing an alternatives to pesticides advocacy organization, and one person designated by the Albany County Executive representing a general public interest advocacy organization, and, be it further

RESOLVED, That on or before January 1, 1999, the Albany County Pest Management

Committee shall develop an Integrated Pest Management Plan for review and approval by the Albany County Legislature. The plan shall be consistent with the provisions of this resolution. The plan shall have specific provisions for effectively managing pest problems in a comprehensive manner, including, but not limited to:

Identification of all pest management methods or strategies used by County departments and pesticide applicators employed by Albany County as a contractor or subcontractor for pest control purposes on property owned or operated by Albany County;

Procedures for least toxic pest control for the period prior to September 1, 2000;

Procedures for non-pesticide pest control for the period after September 1, 2000 except as otherwise provided for in the eighth and ninth resolved clauses of this resolution;

Procedures for monitoring the implementation of the Integrated Pest Management Plan;

Procedures for monitoring pest populations on property owned or operated by Albany County;

Education and training of County personnel on non-pesticide pest control methods and strategies;

Procedures for record keeping; and

Procedures and guidelines for decision making,

and, be it further

RESOLVED, That should the Albany County Commissioner of Health determine that a human health emergency warrants the use of a pesticide that would otherwise not be allowed under this resolution, the Commissioner of Health shall have the authority to issue an exception based on the following criteria;

The pest situation poses an immediate threat to human health;

Viable alternatives consistent with this resolution do not exist;

Any pesticide used must have the least acute and chronic toxic effect on human health of all available choices; and

Underlying causes of the pest outbreak are addressed in order to prevent future outbreaks,

and, be it further

RESOLVED, That should the Albany County Pest Management Committee determine that an emergency other than a human health emergency warrants the use of a pesticide that would otherwise not be allowed under this resolution, the Albany County Pest Management Committee shall have the authority to issue an exemption based on the following criteria:

Viable alternatives consistent with this resolution do not exist;

Any pesticide used must have the least acute and chronic toxic effect on human health of all available choices; and

Underlying causes of the pest outbreak are addressed in order to prevent future outbreaks,

and, be it further

RESOLVED, That should pesticides be used pursuant to the eighth or ninth resolved clause of this resolution, the entity engaged in such application shall conspicuously post as soon as practicable in advance of the actual application, at the site of application the following information: 1) date of posting; 2) organism targeted; 3) specific location, date, and approximate time of application; 4) method of application; 5) trade name and the active ingredient of the pesticide used; 6) copy of the label; 7) name and telephone number of the person responsible for the application; and 8) poison control telephone number, and, be it further

RESOLVED, That any plan for new construction or remodeling of buildings owned or operated by Albany County, plans for designing or redesigning public parks and recreation areas owned or operated by Albany County, and plans for landscaping of buildings owned or operated by Albany County contain provisions for the prevention of pest problems by means such as appropriate structural design, pest resistant vegetation, and pest control maintenance and planting practices, and, be it further

RESOLVED, That the Clerk of the County Legislature is directed to forward certified copies of this resolution to the appropriate County Officials.

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Sources of Additional Information

The NY Coalition for Alternatives to Pesticides offers information on controlling rats and mice. http://www.crisny.org/not-for-profit/nycap/nycap.htm or 518 - 6-8246.

Beyond Pesticides provides "Alternative Fact Sheets"with suggestions for the prevention and control of mice and other pests. http://www.beyondpesticides.org, or call (202) 543-5450.

Northwest Coalition for Alternative Pesticides offers "Alternative Factsheets", which describe control methods for rats and mice. http://www.pesticide.org/default.htm, or call (541) 344-5044**.**

New York State Department of Environmental Conservation offers "IPM In And Around Your House" which contains information on why pests need to be controlled, and less toxic pest control methods. This free pamphlet can be downloaded at http://www.dec.state.ny.us/website/dshm/pesticid/brochure.htm, or call (518) 402-8781

The New York State IPM Program is associated with Cornell Cooperation Extension, and offers "Evict and exile mice from your home", "Beasts Begone" and "Is there a Mouse in Your House? IPM for House Mice" which include suggestions on rodent control. http://www.nysipm.cornell.edu, or call (800)635-8356.

Common Sense Pest Control by Wm. Olkowski, Sheila Daar, and Helga Olkowski. 1991. Newton: The Tauton Press. This noteworthy reference describes less toxic methods to control a variety of pests, including rats & mice. Check your library for a copy.

New York State Attorney General's Office provides "Integrated Pest Management - An Introduction" and various reports on pesticides and pest management at http://www.ag.ny.gov/environment/environment.html, or call 212-416-8446 / 518-486-4550.

Dear New Yorker:

For too many New Yorkers, pests like rats and mice are a part of daily life. They are unsightly and unhealthy. They can ruin our food. For many of these same families, the health risks associated with the use of pesticides have also become a part of daily life. It doesn't have to be this way. Mice, rats and other pests can be eliminated from our homes without resorting to the use of poisons.

The methods we can use to accomplish this are simple and based on common sense - treat rats and mice as pests, not pets! Don't provide them with food, water and shelter.

In this brochure we suggest actions that you can use in your home. By keeping rats and mice out and ensuring that they don't get food, water or hiding places, you can protect your family's health and well-being from both the health risks associated with those pests and the risks of using poisons. There are many other sources of information on pest control methods, which are available to you for free.

My office has been active in a wide range of activities designed to protect the public from the dangers of pesticides. I am happy to provide you with this information on pest control methods that help minimize the use of dangerous chemicals.

Sincerely,

Got Rats? Got Mice?

How to Control Rats and Mice And Reduce the Use of Poisons

Eliot Spitzer
Attorney General

Environmental Protection Bureau

March 2002

What can I do to avoid problems with rats and mice?

Like all living things, rats and mice need food, water and shelter to survive. Without these, they will either go elsewhere or die. This simple common sense idea can be the key to long-term control of the pests. By eliminating access to these necessities you can get long-term control and avoid the need to repeatedly apply poisons, which generally provide only short-term results.

Here are a few specific suggestions:

1. Keep rats and mice out of your home, and don't give them hiding places inside your home.

Use physical barriers to stop them. Rats and mice can crawl through very small spaces, so be sure to seal openings well.

- ☞ As appropriate, install and maintain screen windows and doors.
- ☞ Keep a tight fitting door sweep on all exterior doors.
- ☞ Inside, use caulking to fill cracks and crevices in floors and walls, especially in the kitchen.
- ☞ Look under sinks and around radiators for places where pipes pass through walls and floors and make sure spaces around the pipes are sealed.
- ☞ You may use a variety of materials, including screening, steel wool, fiberglass insulation and plaster to close off these passageways.

Within your home, rats and mice will seek sheltered places to hide.

- ☞ Eliminate these by cleaning up clutter that provides hiding places for rodents. Old newspapers and magazines may make a perfect home for rats or mice.

2. Get rid of sources food and water.

A clean house is the key.

- ☞ Keep all food in tightly sealed packages or containers, and keep all surfaces in the kitchen free of food and water.
- ☞ Pay special attention to the hard to reach places in the kitchen, under the refrigerator, stove and sink.
- ☞ Don't forget that pet food or late night snacks left out overnight can be a feast for rodents.
- ☞ Repair all water leaks from faucets, pipes, radiators or any other sources.
- ☞ As you rid your house of pests, be sure to clean up any of their remains; their droppings may serve to attract others if not removed.
- ☞ Check the back of your pantry periodically. Rodents may be feeding on food that is out of your sight.

3. Use traps to remove rats and mice from your home.

Traps are an effective way to catch rodents. Traps will not only catch the rodents, they also can give you clues as to where the pests are coming from and where they are going. Snap traps can be dangerous to children and pets, but generally kill the rodent. Live traps are less likely to harm children and pets, but require that you dispatch any rodents trapped.

- ☞ Be sure to place traps in places that are out of reach of children and pets.
- ☞ Place traps in the evening, when rodents are most active.
- ☞ Live traps such as box traps and glue boards should be checked in the morning and evening.
- ☞ Snap traps should be checked at least once a day as well.
- ☞ Place traps along walls and near potential sources of food and water. A small amount of crunchy peanut butter on the trap acts as a good lure to attract the rodents to the traps.
- ☞ Traps should be placed about 5-10 feet apart along the suspected routes of the rodents.

4. If all else fails, use pesticides *very* carefully.

If you do decide to use a pesticide: ***Read all label warnings before you buy any pesticide. Follow all label directions about use, storage and disposal!***

- ☞ Many commonly used rodent poisons interfere with blood clotting and cause the animal to bleed to death. They can have the same effect on humans and pets.
- ☞ Choose products that have the least chance of coming in contact with your family and pets.
- ☞ Choose products that are enclosed in bait stations or traps. Do not use products that allow children and pets easy access to the poison.
- ☞ Finally, choose a product specifically designed for the pest you are trying to control.

Remember that some important information is not found on the label. The long-term health effects of active ingredients are not included, nor is the identity of so-called "inert" ingredients that may also be toxic chemicals.

Sources of Additional Information

The NY Coalition for Alternatives to Pesticides offers the pamphlet "Combating Cockroaches" ($4). http://www.crisny.org/not-for-profit/nycap/nycap.htm or 518 -426-8246.

Beyond Pesticides provides free Alternative Fact Sheets with suggestions for the prevention and control of ants, roaches and other pests. http://www.beyondpesticides.org or 202-543-5450.

Northwest Coalition for Alternative Pesticides also offers free Alternative Fact Sheets, which describe control methods for ants and roaches. http://www.pesticide.org/default.htm or 541-344-5044.

New York State Department of Environmental Conservation offers "IPM In And Around Your House" which contains information on why pests need to be controlled, and less toxic pest control methods. This and other free pamphlets can be ordered at (518) 402-8781 or downloaded at http://www.dec.state.ny.us/website/dshm/pesticid/brochure.htm.

The New York State IPM (Integrated Pest Management) Program is associated with Cornell Cooperation Extension, and offers "Found a cockroach? Don't Panic." which includes suggestions on roach control. http://www.nysipm.cornell.edu or (800)635-8356.

Common Sense Pest Control ,by Wm. Olkowski, Sheila Daar, and Helga Olkowski. 1991. Newton: The Taunton Press. This valuable reference book describes less toxic methods to control a variety of pests, including ants and roaches. Check your library for a copy.

New York State Attorney General's Office provides "Integrated Pest Management – An Introduction" and various reports on pesticides and pest management at http://www.ag.ny.gov/ environment/environment.html, or call 212-416-8446 / 518- 486-4550.

Dear New Yorker:

For too many New Yorkers, insect pests like ants and roaches are a part of daily life. They are unsightly and unhealthy. They can ruin our food. For many of these same families, the health risks associated with the use of pesticides have also become a part of daily life. It doesn't have to be this way. Ants, roaches and other insects can be eliminated from our homes without resorting to the use of poisons.

The methods we can use to accomplish this are simple and based on common sense – treat the insects as pests, not pets! Don't provide food, water and shelter to bugs that invade your home.

In this brochure we suggest actions that you can use in your home. By keeping insects out and ensuring that they don't get food, water and hiding places, you can protect your family's health and well-being from both the health risks associated with such pests and the risks of using poisons. There are many other sources of information on pest control methods, which are available to you for free.

As part of my office's efforts to protect the public from the dangers of pesticides, I am happy to provide you with this information on pest control methods that help to minimize the use of dangerous chemicals.

Sincerely,

Bug Problems?

How to Control Roaches and Ants And Reduce the Use of Poisons

Eliot Spitzer
Attorney General

Environmental Protection Bureau

March 2002

What can I do to avoid problems with ants and roaches?

Like all living things, ants and roaches need access to food, water and shelter to survive. By eliminating these necessities you can get *long- term* control and avoid the need to repeatedly apply pesticides, which generally provide only short-term results. Here are a few specific suggestions:

1. Don't let ants and roaches into to your home, and don't give them hiding places within your home.

Use physical barriers to stop them:

- ☞ Install and maintain screen windows and doors.
- ☞ Install a tight fitting door-sweep on exterior doors.
- ☞ Use caulking to fill cracks and crevices in floors and walls.
- ☞ Be especially careful to seal spaces around kitchen counters and cabinets.
- ☞ Look under sinks and around radiators for places where pipes pass through walls and floors and make sure spaces around the pipes are sealed.
- ☞ Close off these passageways using screening, steel wool, fiberglass insulation, plaster and caulking, and similar materials.

Within your home, insects will seek sheltered places to hide. Caulking cracks and crevices will eliminate many hiding places. Get rid of others by cleaning up clutter – old newspapers and magazines, bags and boxes, even clothes left on the floor. All provide good hiding places for insect pests.

2. Eliminate sources of food and water.

Good sanitation is the key.

- ☞ Keep all food in tightly sealed packages or containers.
- ☞ Clean up all spills and crumbs. Keep work surfaces and floors clean and dry.
- ☞ Pay special attention to places in the kitchen that may not get cleaned regularly – a thorough cleaning in and around the stove, sink and refrigerator may eliminate many bug problems.
- ☞ Make sure all food storage shelves and cabinets are kept clean.
- ☞ Don't forget that pet food or late night snacks left out overnight can provide a feast for insects; these foods should be properly covered and stored.
- ☞ Repair all water leaks from faucets, pipes, radiators, or any other sources.
- ☞ As you rid your house of pests, be sure to clean up any of their remains – dead insects and their droppings – these may serve to attract others if not removed.

3. Use non-chemical methods to get rid of ants and roaches that may already be in your home.

Sticky traps are available to trap insects. Place them along walls and near potential sources of food and water. Not only will they trap insects, they also can give you clues as to how the pests are entering your home and where they are going.

A fly swatter works well on individual insects that you can see. Even a vacuum cleaner can be an effective tool to catch insects in cracks, crevices and other hard to reach places. If you do get them, be sure to discard or empty the dust bag or compartment to prevent the pests from escaping later.

4. If all else fails, use pesticides *very* carefully.

Pesticides should be used only as a last resort after other control methods have been tried. If you decide that you must use chemical controls, choose products that present the least health risk to your family and pets.

- ☞ Products that enclose the poison in bait stations or traps and products that are applied into inaccessible cracks and crevices will help reduce the chances of exposing curious children and pets to poisons.
- ☞ Avoid the use of foggers, "bug bombs" and sprays – you can't control where the chemicals go.
- ☞ Try to choose products with the lowest toxicity; some of the sources of information listed in this pamphlet may be helpful in choosing specific active ingredients to use. Pesticides with "boric acid," "pyrethrins" and "pyrethroids" – look on the label to see if they are listed – are generally less toxic if used according to label instructions, but even those products may cause problems.
- ☞ Be sure to select a product specifically designed for the pest you are trying to control - using the wrong product may result in risks to your health without any benefit.

If you do decide to use a pesticide: ***Read all label warnings before you buy any pesticide. Follow all label directions about use, storage and disposal!***

Remember that some important information is not found on the labels. The long-term health effects of active ingredients are not included, nor is the identity of so-called "inert" ingredients which may also be toxic chemicals. Many of the chemicals in pesticides may cause cancer, nervous system disorders and other health problems.