
**Local Law 37 of 2005
Integrated Pest Management Plan**

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Bureau of Environmental Surveillance and Policy



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In May 2005, Local Law 37 (introduced by the New York City Council as Intro 329) was signed into law. Local Law 37 (LL37) set forth a number of requirements related to the use of pesticides on New York City property, with the overall goal of reducing the City's use of hazardous pesticides and promoting the use of safer and more effective pest control practices, known as Integrated Pest Management (IPM). One of LL37's requirements was that City Agencies submit the first IPM Plan in January 2007 to the Mayor and New York City Council. This report is being submitted in fulfillment of that requirement. In it, we describe the myriad activities undertaken thus far in implementing LL37, and describe the current pest control practices of many New York City agencies. In future years, updates to this report will highlight additional agencies' LL37-related activities, changes in agencies' pest control procedures and pesticide use, and additional plans that advance LL37's goals.

BACKGROUND

Few New Yorkers have escaped an encounter with urban pests. The density of New York City's population creates an ideal setting for pests that thrive in human environments, such as cockroaches and rodents. Pests degrade the quality of life for those whose homes or workplaces are infested, and some pests also carry the threat of serious infectious or chronic diseases. Effective pest control is therefore fundamental to safeguarding public health and improving living conditions.

Traditional pest control, which emphasizes the routine application of pesticides, often ignores the root causes of infestations, inadvertently allowing pest populations to persist and often flourish. In addition, many synthetic pesticides pose public health risks of their own -- some significant. IPM promotes the prevention of infestation by employing physical, mechanical, cultural, biological and educational tactics, thus reducing the need for chemical control.

New York City agencies, with their fundamental commitment to protecting the health and well being of New Yorkers, have therefore been seeking safer, more effective alternatives for pest management. This effort is part of a larger move on the City's part toward more sustainable practices. In recent years, a range of new City policies have sought to minimize

the impact of New York City's municipal government operations on the environment and health of New Yorkers and to integrate sustainability goals and practices into every aspect of agency activity.

One such policy change was the enactment, in May 2005, of Local Law 37 of 2005. Local Law 37 (LL37) launched city agencies on a critical review of pesticide use on city-owned and leased properties. Modeled on policies in other cities and municipalities across the country, LL37 also made a number of major reforms to citywide pest control practices and has thus far encouraged agencies to make pesticide use reduction an ongoing pursuit. This report outlines the progress that has been made to date on implementing LL37 as well as agency plans for future pesticide use reduction. This report fulfills LL37's requirement to issue a first Integrated Pest Management Plan under Local Law 37.

NEW YORK CITY'S APPROACH TO PEST CONTROL

New York City agencies address a wide variety of pest control issues in a large number of settings – residential units, institutional settings, parks, schools, offices, highway medians, hospitals, and vacant lots. On a daily basis, agencies are confronted with chronic and emergent infestations, including roaches, rodents, flies, fleas, bedbugs, midges and mosquitoes.

In recent years, the New York City Department of Health and Mental Hygiene (DOHMH) has engaged in a critical examination of pesticide use and infestation patterns in the City, in order to help agencies design effective management strategies and appropriately target outreach efforts to improve pest control and reduce unnecessary pesticide use.

The guiding principle behind Integrated Pest Management (IPM) is prevention. By improving sanitation and structural integrity, IPM denies pests the essential food, water, and means of entry they need to survive. At the same time, “pest-proofing” upgrades housing and workplaces in ways that better the overall conditions for occupants. When physical improvements alone are not enough to stem an infestation, IPM also encompasses the judicious use of least hazardous pesticides – such as newer gels and baits, and old standbys like boric acid, deployed in new ways.

Over the past several years, DOHMH has been in the forefront of promoting IPM and in alerting and educating the public on the hazards of pesticides. This work has been guided by the recognition that the presence of mice and cockroaches in homes is strongly associated with the likelihood of having asthma and with more severe asthma symptoms. The presence of pesticides in homes – legal and illegal products – to control these pests leads to many exposures, emergency department visits and even hospitalizations, and may be associated with other health problems such as lower birth weight, respiratory illness and cancer. Examples of some of DOHMH's widely recognized work include:

- a pioneering IPM demonstration project in the New York City Housing Authority's (NYCHA) Lehman Village Houses, begun in 1999, which directly engaged tenants in demonstrating the greater efficacy of preventative IPM techniques versus sprayed pesticides and complaint-driven control measures. It proved so successful that the New York City Council provided two years of funding to DOHMH to create an IPM Unit within NYCHA, expand the project to five other housing developments, and adopt new agency-wide pest control strategies rooted in IPM. These efforts resulted in the delivery of IPM services to more than 2,000 apartments and the finding that IPM is highly effective at reducing the presence of pests and allergens in homes;
- the 2003 launch of the DOHMH's *Comprehensive Rodent Control Initiative*, which continues to shift the program from a reactive, complaint-driven model, to one that utilizes surveillance and mapping, data analysis, and targeted response. Building on this program, and with funding from the U.S. Centers for Disease Control and Prevention, DOHMH began in 2005 the DOHMH Rodent Academy. The Rodent Academy has since trained 410 municipal employees in 23 agencies and authorities;
- the creation of DOHMH's Bureau of Environmental Surveillance and Policy, with funding from the federal Centers for Disease Control's Environmental Public Health Tracking Program, to coalesce and analyze a host of data relevant to pests and pesticides in the city. Last year, DOHMH published and widely distributed *Vital Signs: Pests Can be Controlled ... Safely*, a report on the presence of pests and use of pesticides in New York City (attached to this report);
- the publication of a guide to safer pest control in homes. In September 2006 DOHMH published a detailed visual guide to safer pest control in housing, *How to Control Pests Safely in the Home: Getting Rid of Roaches and Mice*, and a fact sheet on how to safely recognize and respond to bed bug infestations, *Stop Bed Bugs Safely*, available via 311 and on our website (attached to this report); and
- the direct funding and delivery of IPM services in homes where children with asthma live. The interventions seek greater reductions of pests than are possible under conventional pest management, while simultaneously reducing or eliminating the use of sprayed pesticides.

LOCAL LAW 37 IMPLEMENTATION

LL37 addresses pesticide use and pest management on city-owned and leased property. The law focuses specifically on municipal property because New York State, like a majority of states across the nation, vests all regulatory power regarding pesticides in the state. Local governments may not establish rules regarding pesticide use except when those rules affect only the localities' own, proprietary use of pesticides. Numerous municipalities in New York and other states have adopted policies similar in intent and structure to LL37, in order to make progress regarding pest management without running afoul of the state's

mandate, and in order to serve as an example to the private sector. As a result, there are numerous other municipal governments for New York City agencies to confer with on this subject as it moves through the implementation process.

LL37 made changes to pest management policy and practice in New York City in a number of ways. It established new requirements regarding pesticide use on property owned or leased by the City, including:

- prohibition of certain pesticide products that pose known health risks, including poisoning, cancer, or reproductive or developmental damage. The prohibitions have occurred on a phase-out schedule over the first eighteen months since enactment;
- exemption of certain pesticides from prohibition due to their low potential for exposure or harm, or their public health necessity. The law also established a waiver procedure that allows the Commissioner of DOHMH to grant further individual exemptions from the prohibitions under certain conditions;
- posting notices to building occupants twenty-four hours prior to pesticide applications; and
- new, more detailed record keeping and reporting provisions.

The law also established the Inter-Agency Pest Management Committee (PMC), for the regular exchange of ideas and questions about practice and implementation.

The first year after enactment has been largely devoted to implementation of these provisions. DOHMH has taken the lead in producing implementation materials and meeting with agencies to assist them with specific issues they confront. Agencies have inventoried their pesticide stocks and evaluated their use patterns to determine which products were affected by phase-outs, and then proceeded to identify alternative products or practices to replace them. For agencies that use contractors for their pest control, DOHMH prepared materials that helped agencies communicate the new restrictions to their contractors.

THE ROLES AND ACTIVITIES OF THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE

DOHMH has served in an advisory capacity to other city agencies regarding LL37 and pest management challenges in general. Over the past year and half, DOHMH has:

- dedicated personnel to respond to LL37 queries from City agencies, contractors and the public;
- created and maintained a public website with detailed information on LL37 (<http://www.nyc.gov/health/ll37>);
- organized and facilitated PMC meetings;

- met with individual agencies and contractors to discuss LL37 compliance issues and pest management options;
- shared information about alternative pest management strategies, training opportunities, and equipment;
- provided agencies with contact information for their counterparts in other regulatory agencies across the region and the country who are also charged with implementing alternatives to pesticides;
- conducted on-site assessments to assist with particular pest problems; and
- established a committee to review waiver applications from other agencies.

Here, we highlight the coordinating roles played by DOHMH since LL37's adoption.

Convening the Inter-Agency Pest Management Committee

Local Law 37 established the PMC as a forum for agencies to share pest management information and strategies and to plan future reductions in pesticide use. As called for in LL37, semi-annual meetings have been held – three to date on July 28, 2005, February 1, 2006, and October 13, 2006. The first two meetings focused on orienting agencies to the statutory requirements of LL37, outlining the various available resources and educational materials, and airing agency questions. The most recent meeting dealt with planning for the reporting requirements that become operative in early 2007 and introducing an electronic pesticide use reporting system (see discussion below). Agencies also spent time presenting the respective changes in products and practices they have adopted, and the challenges they have faced implementing LL37.

Facilitating Local Law 37 Implementation

Website Development: To ease implementation, DOHMH developed resources and created a public website (www.nyc.gov/health/ll37). This website includes:

- fact sheets describing the law in general and each of the following specific provisions separately: record keeping and reporting, prior notification, product prohibitions, waiver procedures, and requirements for contractors;
- record keeping and reporting forms;
- waiver applications and waiver decisions;
- posting signage templates;
- a product lookup function enabling agencies, contractors, pesticide manufacturers and distributors and the general public to determine whether and why a given product is prohibited under LL37. The website reports the prohibition status, date of prohibition, reason for prohibition and, where applicable, the offending active ingredient for every pesticide registered in the United States;
- links to other sources of state and federal pesticide regulatory information; and
- information on waivers from prohibition granted by DOHMH to City agencies.

Electronic Pesticide Use Reporting: LL37 requires agencies to report annual pesticide use to the New York City Council and to DOHMH. The PMC recognized early on that piles of paper records would be of little utility for evaluating pesticide use patterns and

trends. Therefore, DOHMH utilized grant funds from the Centers for Disease Control and Prevention to create an electronic pesticide application reporting system for pesticide applications, called the New York City Pesticide Use Reporting System (NYCPURS). NYCPURS will be launched in early 2007 and will be accessible from any computer with an internet connection, making it readily available to public employees and the City's contractors. NYCPURS is designed to streamline regulatory compliance. By entering data into the system, agencies and their contractors will automatically satisfy LL37's reporting requirements. NYCPURS will allow users to generate pesticide application reports that satisfy the New York State DEC's reporting requirements and enable agencies to satisfy their reporting requirements to the City Council and DOHMH.

HIGHLIGHTED ACHIEVEMENTS IN IMPLEMENTING IPM

LL37 has prompted pest management changes across all agencies, including product and process substitutions and greater scrutiny of contractors' activities. The establishment of the PMC has opened doors to a new level of communication, cooperation, and mutual education among agencies. A few of the notable examples of recent progress and activity are highlighted below.

Safer and More Effective Mosquito Control at Department of Transportation

The Department of Transportation's (DOT) Harper Street Center maintenance facility, located in Queens, had long been plagued by mosquito infestations that made working conditions difficult. Prior to LL37, DOT used weekly insecticide fogging during mosquito season, an approach that provided only marginal and fleeting relief. DOT worked with DOHMH to evaluate and select alternative approaches to fogging. A detailed investigation by staff of DOHMH's Bureau of Vector Control identified the mosquito species in question, located its breeding sites, and designed a new strategy that combined source reduction (elimination of standing water) with larviciding (using a LL37 exempt non-chemical pesticide). The new approach, implemented mid-season, proved far more effective at mosquito control than had the previous fogging.

New Technologies for Parks Maintenance

The Department of Parks and Recreation (DPR) has been exploring new technologies to replace chemical weed control. For example, DPR is actively assessing innovative machinery, known by the trade name Waipuna and used throughout Europe, that kills weeds using a hot foam, based on biodegradable detergents derived from food sources. DPR is also exploring other technologies, such as radiant heat control machinery, and local organic turf management training opportunities.

Educating Staff at the Department of Homeless Services

Homeless shelters are vulnerable to pest infestations, chiefly by roaches, rodents and bedbugs. To address the specific management needs of shelters, DOHMH and the Department of Homeless Services (DHS) collaborated on a tailored one-day IPM training for DHS personnel in July 2006. The training focused on those infestation risk factors most prevalent in shelters, and provided DHS staff with information about the most effective sanitation, structural and operational changes to reduce pest problems while minimizing pesticide use.

Implementing IPM in Health and Hospitals Corporation Facilities

In the past years, several Health and Hospitals Corporation facilities have been challenged by rodent problems resulting from local construction, but changes in sanitation procedures and adoption of other best management practices learned from DOHMH's Rodent Academy and through the Mayor's Comprehensive Rodent Control Initiative have had a significant effect. Many facilities also report plans to continue pesticide use reduction through greater IPM implementation. As an agency, HHC is promoting these efforts through its participation in H2E (Hospitals for a Healthy Environment), a national partnership of health care providers, jointly founded by the American Hospital Association, the U.S. Environmental Protection Agency, Health Care Without Harm and the American Nurses Association.

IPM School Demonstration Projects

The Department of Education (DOE), in collaboration with DOHMH's Childhood Asthma Initiative, launched a project to demonstrate and evaluate IPM in two public schools – one in the Bronx and one in Manhattan. DOE hired a pest management firm specializing in IPM to undertake an intensive program of assessment, monitoring and pest-proofing, the goal of which was to locate and ameliorate infestation sources in the two schools. Lessons learned from this demonstration project will be particularly useful as new IPM protocols are implemented in schools across the five boroughs in 2007. These protocols are, in turn, part of DOE's larger goal of working towards the goal of obtaining an IPM Star Certification from the IPM Institute of North America.

Rodent-Proof Trash Compactors in NYC Public Housing

Because improved trash handling can dramatically reduce rodent populations, the New York City Housing Authority (NYCHA) has begun installing rodent-proof, exterior compactors with odor control systems. These compactors reduce or eliminate curbside food sources for rats by securely storing compacted trash outside of buildings in a sealed oxygen-voiding container. The entire container is carted away, eliminating the odors and spills that typically occur with the transfer of waste. NYCHA reports a significant reduction in exterior and interior rodents since their installation. A total of 278 compactors have already been installed at 166 of the agency's 344 developments.

ONGOING PEST CONTROL ACTIVITIES OF NEW YORK CITY AGENCIES

Since May 2005, agencies have undertaken a wholesale evaluation of their pest management practices based on LL37's new requirements. This work has occurred through internal agency product inventories, at PMC meetings, at individual meetings with DOHMH staff, in discussions with contractors, and with contacts established with counterparts in other municipalities and various training and practitioner groups. Below, we summarize pest control activities for many New York City agencies, and where relevant, how they have changed with the implementation of LL37.

Department for the Aging

The Department for the Aging (DFTA) contracts with non-profit senior service providers to administer 76 different city-owned and city-leased sites, 33 of which engage in food preparation or storage. DFTA contracts with private vendors for its pest control. Its contracts address typical structural urban pest issues, including roaches, rodents, and flies, through monthly extermination visits. DFTA monitors those facilities with food preparation areas to determine if more frequent extermination visits are necessary. Contracts have been updated to reflect LL37 requirements.

Department of Citywide Administrative Services

Department of Citywide Administrative Services (DCAS) manages 55 office buildings and courthouses and nearly 2,500 City-owned vacant lots. All pest control services are provided by a single contractor, at an annual cost of \$3,300,478. Contractors visit buildings at least once a month, provide general pest control services, meet with custodians, review pest complaint logs, and address problem areas. LL37 has prompted some operational changes. For example, a number of products, including several containing pyrethrin- and pyrethroid-based insecticides, have been eliminated as a result of the law's prohibitions. DCAS has also sent some contractor staff to DOHMH's Rodent Academy to learn effective IPM techniques for rodent control.

DCAS administers the city-wide contract for pest control which city agencies have the option of buying into for their own pest control. DCAS is currently working on a new request for bids for a new contract that will reflect the requirements of LL37 and, to the extent possible and practical, will reference IPM techniques. The current contract expires on June 14, 2007.

Department of Corrections

The Department of Corrections (DOC) manages ten correctional facilities that have food preparation areas, laundries, residential areas for inmates, and office space. DOC does not employ contractors for pest management purposes, but relies on ten in-house pest control professionals. Although pesticide use occurs in DOC facilities, it is constrained by the fact that these facilities are continuously inhabited and cannot be vacated for pesticide applications. Because the exposure potential for residents is high, DOC has sought to improve sanitation practices and institute other IPM measures as a way to control pest problems. To this end, DOC pest management staff has recently received training from DOHMH in IPM

techniques. DOC has also replaced many of the pesticides it had been using with other products to respond to LL37 prohibitions.

Department of Education

Pest management at all New York City public schools is overseen by DOE. DOE employs fourteen in-house staff to conduct monthly monitoring inspections at 850 schools. In addition, DOE contracts with three different pest control companies to provide services for an additional 200 schools. The contracts, which specify IPM practices, cost \$431,674 over the two-year term of the contract.

The nature of the products used in school facilities has changed over the years. The dominant products currently used by DOE and its contractors are insect and rodent gels and baits, various formulations of boric acid, and certain other products that are deemed of such low toxicity that they are exempt from regulation by the United States Environmental Protection Agency and from Local Law 37.

To reinforce its IPM approach, DOE has sought to educate the broader school community about best practices. DOE has conducted IPM workshops throughout all its divisions, including food preparation and facilities departments, and with the United Federation of Teachers. In the coming year, DOE plans a greater emphasis on pest-proofing and mechanical exclusion strategies to further reduce pest incursion and expects to add five additional pest control professionals to its staff.

The Department of Environmental Protection

The Department of Environmental Protection (DEP) operates water pollution control plants, well stations, pumping stations, shafts, chambers, reservoirs, aqueducts, tunnels, gate houses, office space, garages, repair shops, maintenance shops, police precincts and within New York City and in upstate counties. A range of pest problems are encountered in these properties including ants, mosquitoes, gnats, flies, midges, wasps, raccoons, weeds, mice and roaches. DEP contracts for some pest control services, utilizes the services under the DCAS pest control contract, and employs approximately 20 licensed applicators for upstate reservoir pest control. DEP's policies regarding pest control are distributed throughout the agency and LL37 related changes have been introduced via the agency's Environmental Coordination Committee (ECC). As part of its continued adoption of IPM principles, DEP plans to continue training its pesticide applicators on LL37 and safer pest control techniques and to increase the use of LL37-exempt larvicides and electronic insect zappers for pest control at wastewater treatment sites.

Department of Health and Mental Hygiene

The Bureau of Veterinary and Pest Control Services at DOHMH protects the public from animal- and vector-borne diseases and other hazards, including those that result from uncontrolled or unregulated rodents and other animals, and from mosquito-borne pathogens. Two programs -- Pest Control Services (PCS) and Vector Surveillance and Control (VSC) have pest management responsibilities.

PCS focuses on rodent control – performing inspections, cleanups and treatments of both private and public property. Currently, PCS employs twenty-one exterminators to bait properties that have signs of active rodents with rodenticide placed either directly in rat burrows or in child-safe and pest-safe containers. PCS is developing a new model of surveillance that is characterized by proactive inspection and cataloguing of neighborhood conditions in order to identify and mitigate problem areas before complaints arise. PCS also sponsors the Rodent Academy.

VSC is charged with mosquito management. Prevention – eliminating standing water where mosquitoes breed – is the preferred management method, but in areas where standing water cannot be eliminated (such as wetlands and other water bodies), or where field assessments have determined that larval proliferation is a problem, VSC applies biological (non-chemical) larvicides to prevent mosquitoes from hatching. VSC also conducts surveillance for West Nile virus, monitoring larvae, animal hosts, and adult mosquitoes for evidence of escalating viral activity. If these indicate that there is a substantial risk of a West Nile virus outbreak in humans, targeted insecticide spraying is used to suppress adult mosquitoes in threatened areas.

Department of Homeless Services

The Department of Homeless Services (DHS) manages homeless shelters and dormitory facilities across the City. Pest management services, which primarily address rodent and cockroach problems, are provided by a single contractor, at a cost of \$140,000 annually. Although DHS has no in-house pest control personnel, DHS staff members have attended DOHMH's Rodent Academy. DHS has made product changes as a result of LL37 prohibitions – eliminating from its inventory an insecticide spray, for example – and has adopted a broader goal of ongoing pesticide use reduction through continued IPM training and through forging cooperative relationships with other agencies.

Department of Parks and Recreation

New York City's has 28,000 acres of parks, playgrounds, athletic fields, natural areas, recreational facilities, comfort stations, beaches, historic buildings, and parkways maintained by the Department of Parks and Recreation (DPR). The major routine pest issues facing DPR are weeds (including weed shrubs and trees) and rodents. Rarer infestations of exotic insect pests and diseases, often targeting trees, also occur. To address all of these, DPR employs 104 certified pesticide applicators. Contractors are only employed for pest management when peripheral rodent problems arise on capital projects.

Herbicides account for the largest share of the Department's total pesticide use. Weed control is thus the management arena that has seen the largest change as the result of LL37. Several of the products DPR has relied on in the past are now prohibited and need to be replaced with different management strategies and products. DPR is exploring the use of wild land patches as a strategy to eliminate herbicide treatments but with little labor needed for maintenance, and, as mentioned earlier in this report, is examining opportunities for greater dependence upon mechanical, rather than chemical, control of weeds.

Department of Sanitation

DOS manages a wide range of sites, including garages, office buildings, transfer stations, Fresh Kills landfill, and various publicly-owned lots throughout the city. DOS employs two certified pesticide applicators that make routine visits to all facilities and respond to emergency calls. Contractors are used on occasion to deal with less typical pests, such as raccoons and squirrels. Because of the nature of the agency's work – managing garbage – pest problems are unavoidable. Nonetheless, as a result of LL37, DOS has been taking steps to prevent infestation by focusing on sanitation and structural upgrades (to allow for more effective exclusion), in order to control the roaches, flies and rodents that are the dominant pest problems at its facilities. To augment these changes, the Department has implemented a new "Dump on Shift" program to reduce the amount of garbage brought into facilities. Loaded trucks must now be stored outside of garages to minimize interior infestations. The agency also uses insecticide and rodenticide baits, and insecticidal sprays. Some product substitutions were made as a result of the recent LL37 prohibitions.

Department of Transportation

DOT is responsible for pest management at maintenance yards, lots, and agency offices throughout the city, as well as on rights-of-way along city highways. DOT also contracts with New York State to provide right-of-way maintenance on state highways within city borders. Right-of-way management, which consists chiefly of controlling roadside vegetation, is carried out by in-house certified applicators, employed by DOT's Roadways Arterial Maintenance Group. Several of the herbicides used by DOT have been subject to LL37 prohibitions. New product substitutions and new practices have been or will soon be initiated to address these. Most notably, several of the herbicides DOT has used to control weeds before the growing season begins – known as pre-emergent herbicides – are now prohibited. In response, DOT has relied more on post-emergent herbicides (which are used later in the season), hand weeding, and scaled back control measures.

All other pest management under DOT's purview is performed by contractors. In 2006, DOT employed one contractor for pest management on DOT's 28 parking fields (a one-time expense of \$4,920), and another for all other ongoing pest control at offices, yards, and other facilities. The latter contract, which cost \$25,000 for 2006, contains IPM specifications for monitoring and treatment.

Health and Hospitals Corporation

The New York City Health and Hospitals Corporation (HHC) oversees eleven hospitals, six diagnostic and treatment centers, 82 community health and school-based clinics, and five long-term care/specialty hospital and nursing home facilities. Because each facility is managed separately, protocols and managerial structures differ among facilities. A few facilities have pesticide applicators on-staff, but the majority relies on one of two outside contractors. Many specifically report the use of IPM protocols, which combine preventative measures with monitoring, and pesticide applications as a last resort. Some contracts, however, call for more routine treatments and complaint-driven responses. Together, the contracts at HHC facilities account for approximately \$1.1 million in pest control expenses annually.

Reflecting the variety of services provided in their facilities, HHC reports that its operations also encounter a range of urban pests problems – rodents, roaches, flies, ants, bed bugs, pigeons, and squirrels. To address these problems, virtually all facilities report using insect gels and baits (boric acid and hydramethlynon-based), rodent baits and tracking powders, and a range of other insecticides. As a result of LL37, some facilities have had to eliminate certain insecticide products and replace them with boric acid products.

Housing Preservation and Development

The Department of Housing Preservation and Development (HPD) oversees both occupied and vacant residential and commercial buildings, and lots across the city. In addition, its Emergency Repair Program occasionally encounters and responds to rats and fleas in occupied private buildings. HPD contracts all pest management services at a cost of approximately \$150,000 per year. In 2006, HPD and DOHMH issued and widely disseminated a fact sheet in English and Spanish on safe and effective control of bed bugs.

New York City Housing Authority

NYCHA manages 344 housing developments and 179,025 apartments, as well as office space and grounds. NYCHA currently maintains approximately 80 certified pesticide applicators on staff that perform routine inspections and treatments, carry out specialized intensive IPM interventions, and respond to complaints and requests from other agencies. NYCHA staff members regularly address a range of insect and rodent problems, including interior mice, cockroaches and bedbugs and exterior rats, weeds, and mosquito control. On occasion, contractors are used for unusual problems, such as termite infestations.

Since the implementation of LL37, NYCHA has trained its staff in IPM techniques for cockroach, mouse and bed bug control, participated in DOHMH's Rodent Academy, and deployed a variety of new equipment and techniques for safer and more effective pest control. These include greater emphasis on the use of HEPA vacuums for allergen, pest and harborage removal, steam machines for removing cockroach waste and eggs handheld ultraviolet lights for inspections, and exterior oxygen-voiding trash compactors.

In the coming year, NYCHA plans to update its pest management protocol to reflect new practices, continue training staff on IPM techniques, and expand its resident education efforts. NYCHA will be launching and evaluating an IPM program as part of a comprehensive kitchen upgrade at Harlem River Houses. NYCHA has asked DOHMH's Harlem-based District Public Health Office team to help educate residents about asthma triggers in the home, pests and pest control, and its Bureau of Environmental Surveillance and Policy to help evaluate the program's impact.

INTEGRATED PEST MANAGEMENT IN NYC: FUTURE ACTIVITIES

In all of the ways described above, LL37 has accelerated and broadened changes in New York City's pest management practices. And, as each new adaptation spurs another, the City will continue to build on this foundation. Overall, the City's goal for the coming years will be to extend the use of preventative IPM techniques – reducing reliance on chemical approaches, even many of those permitted by LL37 – in favor of structural improvements, improved sanitation, monitoring, surveillance, and the use of least toxic pesticide products only when other methods are not successful. To continue this work in the coming year, New York City agencies will pursue a number of approaches:

- DOHMH will continue its role as a central resource – conducting or assisting with site-specific assessments where needed, collaborating with other agencies to facilitate training, and disseminating information on other IPM educational opportunities, tools, products, and strategies. DOHMH is hiring an IPM specialist/urban entomologist who will be made available to agencies for technical assistance;
- inter-agency PMC meetings will continue to provide fertile ground for information exchange and to create a community of practitioners to share experiences and expertise;
- adoption of NYCPURS will be promoted across New York City agencies and private contractors; and
- pursuit of additional resources to support the testing and adoption of IPM practices, including grant and foundation support.

Because IPM, with its reliance on inspections, monitoring, and structural improvement, is more labor-intensive than routine pesticide applications, New York will need to address these expanded resource needs in order for IPM to be used successfully across the city. Investing in the City's IPM success will have tangible benefits for the users and occupants of city-owned property – reducing infestation and chemical exposure in a way that addresses infestation on a more fundamental and ultimately sustainable level, in keeping with the City's overall goal of increasing the sustainability of all of its practices.