Desplaines Valley
Mosquito Abatement District

Pesticide Discharge Management Plan
&
The Best Management Practices
for the Integrated Pest Management of Mosquitoes

(PDMP/BMP)

Pesticide Discharge Management Plan (PDMP)
For The Desplaines Valley Mosquito Abatement District

I. Pesticide Discharge Management Team

The Pesticide Discharge Management Plan Team consists of five full-time employees. All full-time employees are required to obtain an Operator License by passing the *General Standards* exam and also an Applicator license by passing the Mosquito Control exam. Both tests are administered by the Illinois Department of Agriculture (IDA). Following is the contact information and job titles for all full time employees:

Desplaines Valley Mosquito Abatement District
8130 Ogden Ave.
P.O. Box 31
Lyons, IL
60534-0031

Phone: 708-447-1765
Fax: 708-447-1757
e-mail: dvmosquito.duffy@att.net

Full-Time Employees:
Robert Holub
Manager

Brian Duffy
Assistant Manager/Director of Field Operations

Mark Tomek
Biologist/Lab Manager

Nicholas Brown
Mechanic/Equipment Supervisor

Chris Solik
Field Supervisor

A. Employees Responsible for Managing Pests in Relation to the Pest Management Area

1. Full-time employees.

B. Employees Responsible for Developing and Revising the PDMP

1. Full-time employees.

C. Employees Responsible for Developing, Revising, and Implementing Corrective Actions and Effluent Limitation Requirements

1. Full-time employees.

II. Problem Identification

A. Pest Problem Description

1. Larval and adult mosquito control activities within The Desplaines Valley Mosquito Abatement District boundaries.

2. Sources of the mosquito pest problem include the following:

a. Off-road basins
b. Street catch basins
c. Open water sources
d. Adult mosquitoes

3. Data used to identify the pest problem include: *See Best Management Practices (BMP) Part II. Surveillance*

a. Weather data
b. Larvae density and identification
c. Mosquito trap data
d. Disease presence data

B. Action Thresholds

See BMP Part IV. Set Action Thresholds

C. General Location Map

See BMP attachments Desplaines Valley Mosquito Abatement District Map & Boundaries

D. Water Quality Standards

Waters are NOT impaired by any substance which is either an active ingredient in the pesticide to be discharged or a degradate of such an active ingredient.

III. Pest Management Options Evaluation

A. Pest Management Options

The District implements many control measures for Integrated Pest Management of Mosquitoes and include the following:

1. No action when thresholds are not met
2. Source reduction/Physical control
3. Biological control
4. Pesticide control
5. Adult Control

See also BMP Part IV. Set Action Thresholds, BMP Part VI. Mosquito Control and Criteria for initiating contingency adult mosquito control measures in BMP attachments

IV. Response Procedures

A. Spill Response Procedures

The District has several measures in place for spill prevention. *See BMP VI. C. 4.* In the event that a pesticide spill occurs the following procedures will be implemented:

1. If a pesticide spill is detected notification of full-time personnel responsible for cleaning up spills will be made immediately via two way radios. Full-time personnel will advise field crews on how to stop or contain the spill until clean-up personnel arrive with necessary spill response equipment.

2. All vehicles carry proper spill absorption materials. All crews that use or carry pesticides are trained in the use of absorption materials to contain a spill. Crews are also shown the locations of shut-off valves on the District vehicles to minimize leaks or spills.

3. Clean-up procedures and clean-up materials used are pesticide specific and follow procedures outlined in the pesticides Safety Data Sheets (SDS).

4. Notification Procedures – The following personnel and agencies will be notified in the event a spill does occur.

a. Desplaines Valley Mosquito Abatement District personnel will be notified via two-way radio when a spill is detected.

b. The appropriate local emergency response agencies, depending on the location of the spill, will be notified by District personnel when a spill is detected. *See Appendix for local emergency response agency contact information.*

c. If a leak, spill or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302 occurs the District will notify the National Response Center (NRC) at (800) 424-8802 and the Illinois Emergency Management Agency (IEMA) at (217) 782-7860.

d. If a non-hazardous spill occurs the District will contact the Illinois Emergency Management Agency (IEMA) at (217) 782-7860.

B. Adverse Incident Response Procedures – In the event an adverse incident occurs the following procedures will be implemented.

a. Once notified of the location of an adverse incident due to pesticide application, a member of the PDMP team will return to the site of that pesticide application.

b. The site of the pesticide application will be inspected for the presence of adverse effects. If present, adverse effects will be properly documented and steps will be taken to address the situation. If necessary, the appropriate emergency response personnel will be notified. *See Appendix for local emergency response agency contact information.*

c. Twenty-Four Hour adverse incident notification will be made by telephone to IEMA and USEPA, Region 5, Pesticide Program as outlined in the NPDES permit.

d. Within fifteen business days of the adverse incident notification a written report will be submitted to the IEPA Compliance Assurance Section as outlined in the NPDES permit.

Signature: _____ Date: _____

Printed Name: Brian Duffy

Title: Assistant Manager/Director of Field Operations

Appendix
Local Emergency Response Agency Contact Information

Fire and Police Agencies:

Oak Park Fire Department
100 North Euclid Ave.
Oak Park, IL 60301-1404
(708) 383-6400

Oak Park Police Department
123 Madison St.
Oak Park, IL 60304
(708) 386-3800

River Forest Fire Department
400 Park Avenue
River Forest, IL 60305
(708) 366-8500

River Forest Police Department
400 Park Avenue
River Forest, IL 60305
(708) 366-7125

Melrose Park Fire Department
3601 W. Lake St.
Melrose Park, IL 60160
(708) 344-1210

Melrose Park Police Department
1 N. Broadway
Melrose Park, IL 60160
(708) 344-8409

Northlake Fire Department
118 E. Parkview Drive
Northlake, IL 60164
(708) 562-3182

Northlake Police Department
55 East North Avenue
Northlake, IL 60164-2595
(708) 531-5755

Stone Park Fire Department
1745 North 35th Avenue
Stone Park, IL 60165
(708) 450-3217

Stone Park Police Department
1629 Mannheim Road
Stone Park, IL 60163
(708) 450-3215

Berkeley Fire Department
5819 Electric Avenue
Berkeley, IL 60163-1522
(708) 449-9444

Berkeley Police Department
5819 Electric Avenue
Berkeley, IL 60163-1522
(708) 449-8224

Hillside Fire Department
523 North Wolf Road
Hillside, IL 60162-1209
(708) 547-8684

Hillside Police Department
425 North Hillside Avenue
Hillside, IL 60162-1215
(708) 449-6133

Bellwood Fire Department
3200 Washington Boulevard
Bellwood, IL 60104-1950
(708) 547-3500

Bellwood Police Department
3200 Washington Boulevard
Bellwood, IL 60104-1950
(708) 547-3528

Maywood Fire Department #1
700 St. Charles Road
Maywood, IL 60153
(708) 450-7400

Maywood Fire Department #2
1220 S. 17th Avenue
Maywood, IL 60153
(708) 450-7405

Maywood Police Department
125 South 5th Avenue
Maywood, IL 60153-1376
(708) 450-4470

Forest Park Fire Department
7625 Wilcox
Forest Park, IL 60130
(708) 366-1234

Forest Park Police Department
517 Desplaines Avenue
Forest Park, IL 60130
(708) 366-2425

Broadview Fire Department
2400 South 25th Avenue
Broadview, IL 60155-3883
(708) 343-6124

Broadview Police Department
2350 South 25th Avenue
Broadview, IL 60155
(708) 345-6550

Westchester Fire Department
10300 W. Roosevelt Road
Westchester, IL 60154
(708) 345-0433

Mayfair Fire Department
10760 West Cermak Road
Westchester, IL 60154
(708) 562-6969

Westchester Police Department
10300 W. Roosevelt Rd.
Westchester, IL 60154
(708) 345-0060

LaGrange Park Fire Department #1
447 North Catherine Avenue
LaGrange Park, IL 60526
(708) 354-0225

LaGrange Park Fire Department #2
1010 East 31st Street
LaGrange Park, IL 60526

(708) 354-0225

LaGrange Park Police Department
447 North Catherine Avenue
LaGrange Park, IL 60525
(708) 352-2151

Brookfield Fire Department #1
9001 Shields
Brookfield, IL 60513
(708) 485-0076

Brookfield Fire Department #2
9248 Broadway
Brookfield, IL 60513
(708) 485-0076

Brookfield Police Department
8820 Brookfield Avenue
Brookfield, IL 60513
(708) 485-8131

North Riverside Fire Department
2331 S. DesPlaines Avenue
North Riverside, IL 60546
(708) 447-1981

North Riverside Police Department
2359 S. DesPlaines Avenue
North Riverside, IL 60546
(708) 447-9191

Riverside Fire Department
27 Riverside Rd.
Riverside, IL 60546
(708) 447-2123

Riverside Police Department
31 Riverside Road
Riverside, IL 60546
(708) 447-2127

Lyons Fire Department
4043 Joliet Avenue
Lyons, IL 60534
(708) 447-6655

Lyons Police Department
4200 Lawndale Avenue

Lyons, IL 60534
(708) 447-1225

McCook Fire Department
5000 S. Glencoe Avenue
McCook, IL 60525
(708) 447-9030

McCook Police Department
5000 S. Glencoe Avenue
McCook, IL 60525
(708) 447-1234

LaGrange Fire Department
300 W. Burlington Avenue
LaGrange, IL 60525
(708) 579-2338

LaGrange Police Department
304 W. Burlington Avenue
LaGrange, IL 60525
(708) 579-2333

Western Springs Fire Department
4353 Wolf Road
Western Springs, IL 60558
(708) 246-1182

Western Springs Police Department
740 Hillgrove Avenue
Western Springs, IL 60558
(708) 246-8540

Hinsdale Fire Department
121 Symonds Drive
Hinsdale, IL 60521
(630) 789-7060

Hinsdale Police Department
121 Symonds Drive
Hinsdale, IL 60521
(630) 789-7070

Pleasantview Fire Protection District
Serving – Indian Head Park, Burr Ridge, Countryside, Hodgkins

Station #1
1970 Plainfield Rd.
Lagrange Highlands, IL 60525

(708) 352-9229

Station #2
7675 Wolf Rd.
Burr Ridge, IL 60527
(708) 352-9229

Station #3
9096 Joliet Rd.
Hodgkins, IL 60525
(708) 352-9229

Indian Head Park Police Department
201 Acacia Drive
Indian Head Park, IL 60525
(708) 246-4534

Burr Ridge Police Department
7700 County Line Road
Burr Ridge, IL 60527
(630) 323-8181

Countryside Police Department
5550 East Avenue
Countryside, IL 60525
(708) 352-2171

Hodgkins Police Department
6015 Lenzi Avenue
Hodgkins, IL 60525
(708) 352-4476

Summit Fire Department
7339 West 59th Street
Summit Argo, IL 60501-1419
(708) 594-3894

Summit Police Department
5810 South Archer Road
Summit, IL 60501
(708) 563 4830

Bedford Park Fire Department
6820 S. Archer Rd.
P.O. Box 128
Bedford Park, IL 60501
(708) 563-4510

Bedford Park Police Department

6701 South Archer Avenue
Bedford Park, IL 60501
(708) 458-3388

Bridgeview Fire Department #1
7500 South Oketo Avenue
Bridgeview, IL 60455
(708) 924-8250

Bridgeview Fire Department #2
7350 W. 100th PL.
Bridgeview, IL 60455
(708) 924-8250

Bridgeview Police Department
7500 South Oketo Avenue #1
Bridgeview, IL 60455
(708) 458-2131

Roberts Park Fire Protection District
Serving – Justice and Hickory Hills

Station #1
8611 South Roberts Road
Justice, IL 60458
(708) 598-6752

Station #2
7800 Archer Road
Justice, IL 60458
(708) 598-6752

Justice Police Department
7800 S. Archer Rd.
Justice, IL 60458
(708) 458-2191

Hickory Hills Police Department
8800 W. 87th Street
Hickory Hills, IL 60457
(708) 598-4900

Willow Springs Fire Department
8259 Willow Springs Road
Willow Springs, IL 60480
(708) 839-5665

Willow Springs Police Department
8255 Willow Springs Road

Willow Springs, IL 60480
(708) 839-3023

Cook County Forest Preserve Police
(708) 771-1001

Hospitals:

Advent Health LaGrange Memorial Hospital
5101 Willow Springs Road
LaGrange, IL 60525-2600
(708) 245-9000

Loyola University Health Center
2160 S. First Ave.
Maywood, IL 60153
(708) 216-9000

Rush Oak Park Hospital
520 S. Maple Ave.
Oak Park, IL 60304
(708) 383-9300

Office Of Emergency Response:

Illinois Emergency Management Agency (IEMA)
2200 South Dirksen Parkway
Springfield, IL 62703
(217) 782-7860

Illinois Environmental Protection Agency (IEPA)
Division of Water Pollution Control, Mail Code #15
Attention: Permit Section
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-0610

United States Environmental Protection Agency
Region 5
Attention: Pesticide Program
77 W. Jackson Blvd.
Chicago, IL 60604
(312) 353-2000

The National Response Center (NRC)
1-800-424-8802

Desplaines Valley
Mosquito Abatement District

Best Management Practices for the Integrated Pest Management of Mosquitoes

01/2026

Desplaines Valley Mosquito Abatement District

Best Management Practices for the Integrated Pest Management of Mosquitoes

I. Introduction

Illinois has been associated with mosquitoes and mosquito-borne diseases since before it was a state. In fact, Illinois was known to those in the East as the "Graveyard of the Nation" because of significant levels of malaria well into the 1920s particularly in central and southern regions. In the early 1920s mosquito control was initiated primarily through the use of drainage to reduce the number of mosquitoes carrying malaria in central and southern areas, as well as to abate nuisance mosquitoes in the Chicago area. These mosquito abatement efforts were so successful that the Illinois legislature created procedures for the establishment of mosquito abatement districts (MADs) in 1927. The Desplaines Valley Mosquito Abatement District (DVMAD) is one of the two original districts established in 1927.

Over the years as knowledge of mosquito biology has increased, new and varied methods of mosquito control have emerged. In particular, the concept of integrated pest management (IPM) which uses a variety of control methods integrated together into an overall strategy has been developed. IPM in mosquito abatement is knowledge based and surveillance driven. The goal is to maximize the abatement of mosquitoes to protect humans from mosquito-borne diseases as well as reduce mosquito annoyance while minimizing the impact on the environment.

Following are the District's Best Management Practices (BMP) for the implementation of our IPM strategies.

II. Surveillance

Surveillance is the essential first step in the integrated pest management of mosquitoes. Surveillance of a variety of factors help identify what kinds of mosquito problems are developing, their location, what species are involved, and what potential exists for the transmission of disease. Surveillance also helps determine what control methods are most appropriate for those conditions at that time. Following are the types of surveillance that the District currently uses.

A. Weather

The weather is the most important factor affecting mosquito production. Both rainfall and temperature determine the mosquito production rate and the predominant species at any given time. Temperatures will also affect the rate at which mosquito-borne disease will develop and amplify in the mosquito population. The District monitors rainfall, temperature, and other weather data at six locations throughout the district. Weather data is also obtained from the National Weather Service based at O'Hare Airport directly north of the District.

B. Larvae Density and Identification

Larval mosquito surveys are conducted on a regular basis to determine the extent, type, and concentration of mosquito populations within the District. The density of mosquito larvae (average number per dip) is recorded for each open water source at the time of inspection. A sample of the mosquito larvae are collected by the General Larval crews from the source and are brought back to the laboratory for identification down to species. The instar levels are also noted to track the progress of mosquito development over time. 4th instar larvae are also collected from gravid traps and identified down to species. In addition, larvae from a sample of street catch basins and off-road basins are periodically collected and identified down to species.

C. Adult Mosquitoes

Adult mosquito populations are monitored using 8 New Jersey Light Traps and 18 Gravid Traps distributed throughout the District. Both trap types are operated nightly, 7 days per week from early May through mid-October. Samples are collected Monday - Friday, counted, and identified down to species. In addition, the District utilizes one CO2 baited BG-Sentinel Trap and multiple gravid aedes traps to help monitor the mosquito populations.

D. Disease Presence

Culex species of mosquitoes are the primary vectors of mosquito-borne diseases such as West Nile Virus (WNV) and Saint Louis Encephalitis (SLE) within the District. Gravid traps are specialized traps that collect live, gravid adult female mosquitoes, primarily *Culex* species. Because they have taken a blood meal, it is more likely that they have been exposed to disease organisms if present. The District tests for the presence and abundance of infected mosquitoes using RT- PCR (Real Time Polymerase Chain Reaction) system to perform West Nile Virus testing of mosquito samples. These tests are conducted in a Class II Biological Safety Cabinet to ensure the safety of the laboratory staff. The results from these tests are used to determine if, when, and where adult mosquito control is warranted.

E. Search for new/changed open water sources, catch basins, or off-road basins

Field personnel are always on the lookout for new or changed open-water sources, as well as additions to or changes in street catch basins and off-road basins. New construction is tracked to determine whether new sources develop. Sources that no longer exist are removed from maps and inspection and treatment routes.

III. Maps

The District has determined that the use of computerized maps allows for proper pesticide application and helps limit mistakes by seasonal crews. The entire District is divided into smaller sections, with each section assigned a specific map. This approach makes mosquito sources throughout the District more manageable. A variety of maps are used to effectively manage and treat the different types of sources across the District. District maps are updated frequently during both the mosquito and non-mosquito seasons. The type of map used depends on the type of source. *See full-district map in attachments.*

A. General Larval Maps

General larval maps are used to properly locate and treat open-water sources. Each open-water source is individually represented on District maps, allowing seasonal crews to move from source to source, inspect conditions, and, if necessary, apply pesticide treatments for mosquitoes. The District urilizes handheld Global Positioning System (GPS) devices to plot and locate mosquito breeding sources. The use of handheld GPS devices, in conjunction with paper maps, has greatly increased efficiency, especially for newly hired seasonal employees. *See sample map in attachments.*

1. Open water sources (>2,200 throughout the District) are individually numbered on maps for ease of identification.

2. The estimated size and shape of each source is represented on the maps.

3. Specific details are added to the maps to show how and where to access the difficult to find open water sources, e.g., walking trails, driving trails, fences, tree lines, etc.

4. Each crew follows the numbered open water sources on the map using a pre-determined route. Some sources have specific instructions for location or pesticide treatment. These details are included on the route form. *See sample route form in attachments.*

B. Off-Road Basin Maps

Off-road basin maps are utilized to properly find and treat basins that must be accessed by foot. *See sample map in attachments.*

1. Geographic Information System (GIS) is used by the District to locate Off-Road Basins. Basins are plotted on tablet computers which allows for efficient and thorough treatments.

2. Computerized paper maps are used to supplement GIS. These maps contain individual notes and street addresses to assist in locating basins.

C. Catch Basin Maps

Catch basin maps are utilized to properly find and treat street basins throughout the District. *See sample map in attachments.*

1. Individual streets and alleys that have catch basins (>45,000 throughout the District) are marked on the map.

2. District and section boundaries are clearly marked on the map to show drivers what side of the street to treat. This helps to avoid double treatment on streets that separate sections.

3. Handheld GPS units are used to mark each individual basin that has been treated. This assists drivers in keeping track of their location and the number of basins treated. Marking treated basins also allows supervisors to generate reports to identify whether any areas have been missed.

D. Adult Control Maps

Adult control maps are utilized to properly spray residential areas for the control of adult mosquitoes. *See sample map in attachments.*

1. When adult control is conducted, each residential area has a specific map and route to follow. This ensures drivers remain in their assigned area and double spraying is eliminated.

2. Details on the adult route maps show drivers exactly where spraying should be conducted. Those details are:

a. Individual start and end points in which spraying is to be conducted.

b. Arrows on the maps guide drivers through their assigned routes. The arrows are color coded to indicate which streets are to be sprayed, ensuring proper coverage and eliminating double spraying.

E. Drainage and Rock Filter Maps

Drainage and rock filter maps are utilized to find and keep track of open water sources that contain drainage and rock filter systems.

1. The maps indicate where sump basins are buried, and where rock filters and outlets are located. This allows for easy cleaning and maintenance of these systems.

IV. Set Action Thresholds

The decision to begin or continue any mosquito control measure must be based on surveillance data. The District has a large quantity of historical data that is used to determine what procedures are most appropriate and when necessary, which pesticides should be used. Following are the action thresholds used by the District to initiate various mosquito control methodologies.

A. Larval Control Thresholds

1. Open Water Sources

Open-water mosquito sources are inspected at 10–14 day intervals, or at 30-day intervals for pre-hatch treatments. For sources on a 10–14 day inspection schedule, if an inspection finds an average of fewer than one larva or fewer than five pupae per dip, the source is not treated. If one or more larvae or five or more pupae per dip are detected, treatment with one of the approved pesticides is initiated.

These density criteria are applied in the majority of circumstances; however, professional judgment may be required in unique situations that necessitate deviation from the larval thresholds described above. For sources best addressed through pre-hatch treatment, the threshold for treatment is based on the site's historical data when climatic conditions allow mosquito development to begin. These sites are treated with an extended-release pesticide and re-treated after the product's labeled effective period if the site has contained water during the previous effective period.

Open-water sources within the Forest Preserve District and floodplains throughout the District are treated for larvae only.

2. Street and Off-Road Catch Basins

Catch basins generally begin to show signs of egg laying and larval development from mid- to late May. From that point on, they can produce Culex mosquitoes continuously if left untreated. For both categories of catch basins, the action threshold is the appearance of egg rafts or larvae in a sampling of basins. This triggers the initiation of treatment with slow-release pesticide formulations, followed by periodic re-treatment of all basins for the duration of the mosquito season. Treatment frequency is determined by the formulation of the pesticide used.

B. Adult Control Thresholds

The District does not use adult mosquito control for the control of nuisance mosquitoes. It is initiated only in response to an increased risk of disease transmission, particularly WNV. Please see the attached document entitled: *"Criteria for initiating contingency adult mosquito control measures"* for treatment thresholds. There are circumstances where someone with a medical condition should not be exposed to pesticides. Please see the attached document entitled: *"Criteria for requesting adult mosquito 'No-Spray' area"* for residents who need to avoid pesticide exposure.

V. Licensing and Training

A. Licensing

Employees that are responsible for handling or applying pesticides may be required to obtain an Operator License from the Illinois Department of Agriculture (IDA) by passing the *General Standards* exam. Once the test is passed, the employee is licensed to apply pesticides for mosquito control. Catch basin and off-road basin employees only apply a specific type of pesticide that is in a solid, single use formulation. The certification required for these employees by the IDA is to complete the Solid, Single-use Larvicide Training Course. In addition to obtaining an Operator License, full-time employees responsible for the training of seasonal crews must obtain an Applicator License in the category of Mosquito Control.

B. Training

Employees, once they are licensed by the Illinois Department of Agriculture, are then trained in the responsibilities of their division. Training of all new personnel continues until they demonstrate full competence in performance of required job responsibilities.

1. All field crews are trained in the safe handling and use of the pesticides used in mosquito control.

2. All field crews are trained to correctly operate the various types of pesticide application equipment used by the District.

3. Proper pesticide application rates are emphasized throughout the training of all field crews.

4. General Larval crews are trained to identify larvae and pupae found in open-water sources. They are also trained to accurately calculate dip counts to determine whether larval control thresholds for pesticide treatment are met.

5. All field crews are trained to properly complete daily paperwork, ensuring accurate record-keeping of pesticide usage, application locations, and other critical information.

VI. Mosquito Control

The District uses a variety of different methods in order to maximize control.

A. Source Reduction/Physical Control

This is the most effective method in controlling mosquitoes but is not practical with all mosquito sources. The following are the methods the District implements.

1. “Fly-dumped” tires (tires that are illegally discarded—often along roads, in ditches, or in forest preserves) are collected on a dedicated basis twice a year, in the spring and fall, and throughout the mosquito season as they are discovered. Collected tires are picked up and taken for recycling, with proper disposal funded by the Illinois Environmental Protection Agency (IEPA). Removing old tires is an effective way to eliminate developmental sites for Culex mosquitoes, which can carry and transmit disease.

2. There are many ditches and rock filters throughout the District that provide drainage of open water sources that range in size from large floodplains to small woodland pools. Ditches and rock filters are cleaned of debris on a regular basis and as necessary throughout the mosquito

season. This allows open water sources to drain more quickly, significantly reducing the amount of water for mosquitoes to develop. Reducing the amount of water also reduces the amount of pesticide needed to control mosquitoes in the remaining water.

3. The District cooperates with villages, public works, and businesses to identify and remove or treat mosquito sources.

a. Communication about the location of unmaintained swimming pools, tires, artificial containers, abandoned properties, etc. allows for the proper disposal or removal of the problematic source. Treatment of the problematic source will be carried out by the District if it cannot be eliminated.

b. Informing villages, public works and businesses about keeping retention areas and ditches clean of debris and maintained in order to provide proper drainage. This also reduces the need for pesticide treatment.

B. Biological Control

1. The use of mosquito eating fish can be an effective way of controlling mosquitoes in ornamental ponds that continuously hold water. The use of non-native fish, such as *Gambusia*, is frowned upon by the Forest Preserve District, and in any body of water where it is possible for the fish to enter natural waters. The District has attempted to utilize fish native to the region with no success. Residents with ornamental ponds on their property are advised to purchase mosquito eating fish if possible, or to call the District for pesticide treatment.

2. Current available research has found that the use of bats, birds, dragonflies and other predators of mosquitoes is ineffective and are not used or recommended by the District.

C. Pesticide Control

Pesticides used by the District are registered by the United States Environmental Protection Agency (USEPA) and the Illinois Department of Agriculture (IDA) and are used in accordance with product label specifications. In addition, all employees that are responsible for handling or applying pesticides must be licensed by the IDA.

1. Emphasis on proper application rate of pesticide is stressed during the training of seasonal employees rather than attempting to estimate source size and calculating amount of pesticide to use. It has been determined that estimating the size of an open water source varies greatly between employees and will often result in the incorrect amount of pesticide being applied. Field crews take a measurement of pesticide before and after a treatment to determine how much pesticide was used on each individual open water source. Open water sources sizes and shapes change constantly depending on rainfall amounts and evaporation rate. The District maintains a database of the approximate maximum size (AMS) of each open water source within the District since it is not feasible to measure each source at the time of treatment.

2. Immature mosquitoes develop in water; therefore, the most effective control method is larval control. Larval control is the primary focus of the District, as it targets mosquitoes developing in water before they emerge into the adult stage.
The District contains many different types of mosquito sources. Because of this diversity, the District is divided into divisions. Each division is responsible for a specific source type. The following are the divisions and their responsibilities:

a. Street Catch Basin Division
Catch Basin crews are responsible for applying pesticide treatments to all street catch basins throughout the District. With more than 45,000 street catch basins, their goal is to treat each basin three times with application intervals adhering to the pesticide label requirements. To avoid mosquito resistance, the District applies pesticides with different modes of action throughout the mosquito season. The pesticides applied to catch basins are listed in the table below.

b. Off-Road Basin Division (ORB)
Off-road basin crews are responsible for the pesticide treatment of all ORBs throughout the District. An ORB is any basin that cannot be accessed by vehicle and must be reached on foot. The District has more than 6,200 ORBs. The goal of the off-road basin division is to treat each basin twice with application intervals adhering to the pesticide label requirements. As with the catch basins division, the ORB division applies pesticides with different modes of action throughout the mosquito season to avoid mosquito resistance. The pesticides applied to off-road basins are listed in the table below.

c. General Larval Division
General larval crews are responsible for inspecting, and when necessary, applying pesticide treatments to all open water sources throughout the District. Commonly treated sources include artificial containers, ditches, ponds, swamps, and floodplains. Open water sources are treated by motorized backpacks, hand can sprayers and by hand for small sources.

The District has more than 2,200 open water sources. The goal of the General Larval Division is to inspect these sites and, when mosquitoes are present and treatment thresholds are met, treat the highest-priority sources. Treatments occur every 10–14 days using BTI granules, liquid BTI or BVA2 oil, or every 30 days using Altosid pellets. The pesticides applied to open water sources are listed in the table below.

Open water sources are evaluated based on difficulty, ease of access to treat, and percentage of time the source is found to be developing mosquitoes. Each source is then placed on a specific route that each summer crew follows. Source prioritization is as follows:

- High Priority Route – develops mosquitoes more than 10% of the time, these are the most crucial open water sources.
- Marginal Priority Route – develops mosquitoes less than 10% of the time.
- High Water Route – this route is utilized after a large rain event, and focuses on floodwater sources that can produce large amounts of floodwater mosquitoes.
- Special Priority Routes – harder to find or more difficult to treat open water sources. These sources are often treated for extended control.

d. Pesticides are chosen by the District based on safety, efficacy and their ability to avoid mosquito resistance. The District utilizes the following pesticides:

Pesticides Applied by the Desplaines Valley Mosquito Abatement District

Brand name	Common name	Scientific name	Type of pesticide	Reason for use	Range of application concentrations	Special instructions for individuals	Application locations
Vectobac G	Bti	*Bacillus thuringiensis israelensis*	microbial larvacide	larval mosquito control	2.5 - 10 lbs. / acre	none	open water sources
Vectobac 12AS	Bti	*Bacillus thuringiensis israelensis*	microbial larvacide	larval mosquito control	0.25 - 2 pts/acres	none	open water sources
VectoLex WSP	Bsph	*Bacillus sphaericus*	microbial larvacide	larval mosquito control	1 pouch/catch basin	none	stormwater catch basins
VectoMax WSP	Bti and Bsph	*Bacillus thuringiensis israelensis and Bacillus sphaericus*	microbial larvacide	larval mosquito control	1 pouch/catch basin	none	stormwater catch basins
Sumilarv 0.5G	pyriproxyfen	2-(1-Methyl-2-(4-phenoxyphenoxy) ethoxy)pyridine	insect growth regulator	larval mosquito control	1-3 sachets/catch basin	none	stormwater catch basins
Altosid Pellets	methoprene	(S)-Methoprene	insect growth regulator	larval mosquito control	2.5 - 10 lbs. / acre	none	open water sources
Altosid XR Briquets	methoprene	(S)-Methoprene	insect growth regulator	larval mosquito control	1 briquet/catch basin	none	stormwater catch basins, abandoned swimming pools
Natular G30 WSP	spinosyn A and spinosyn D	Spinosad	microbial larvacide	larval mosquito control	1 sachet/catch basin	none	stormwater catch basins
BVA 2 Larvicide Oil	mineral oil	mineral oil	suffocant	pupal mosquito control	1-5 gallons/acre	none	open water sources, excluding floodplains and forest preserves
Duet Dual-Action	prallethrin, sumithrin, PBO	Prallethrin, Sumithrin and Piperonyl Butoxide	adulticide	adult mosquito control	0.43 - 1.28 Fl.oz/Acre	none	outdoor residential, urban, industrial, and recreational areas
ReMoa Tri	n/a	Fenproprathrin, Abamectin, C-8910	adulticide	adult mosquito control	0.34 - 1.018 Fl.oz/Acre	none	outdoor residential, urban, industrial, and recreational areas

3. Equipment maintenance and calibration is an important part of mosquito control. Keeping equipment maintained and calibrated correctly, helps ensure that the proper amount of pesticide is being applied. All equipment is cleaned, maintained, and stored in the non-mosquito season. Equipment is calibrated when the mosquito season begins, and is calibrated and maintained as the need arises during the mosquito season.

4. The District takes pesticide safety very seriously and has several measures in place for spill prevention.

a. The mixing of pesticides is only conducted by a properly trained and licensed full-time employee.

b. A specially designed hopper is used to transfer 40lb bags of BTI granules into individual, more manageable, 10lb jugs. This minimizes spillage and eliminates the use of 40lb bags by field crews.

c. In the event a spill may occur, all District vehicles are equipped with absorption materials.

d. Mounted pesticide tanks on District vehicles are corrosion resistant and have multiple shut-off valves to avoid leaks and spills.

e. Safety Data Sheets (SDS) and pesticide labels are carried in all District vehicles that utilize pesticides.

5. The District periodically evaluates pesticides with a different mode of action in an effort to avoid mosquito resistance. Evaluating the safety and efficacy of new pesticides will determine if there will be an expanded use of new pesticides in the future.

D. Adult Control

Residential adult control is the least-effective approach to mosquito control and is only implemented as a contingency measure for vector related mosquitoes when disease thresholds are reached.

1. An ultra-low volume pesticide aerosol application process is utilized in all adult control operations.

2. All truck-mounted equipment utilized by the District is equipped with automatic flow control which directly regulates pesticide application to vehicle speed, thus ensuring accurate application rates.

3. Adult control operations are only conducted when environmental constraints are satisfied to optimize effectiveness.

a. Ambient air temperature between 65-85 deg F

b. Wind speed is in the 2-8 mph range

c. Adult control is conducted from dusk to midnight or 3AM to 6AM, in the hours that adult mosquitoes are most active.

4. Duet Dual-Action Adulticide and ReMoa Tri Triple Action Insecticide, listed on the chart above, are what the District applies when conducting adult control operations.

VII. Monitoring for Efficacy/Resistance

The District utilizes a variety of methods to monitor efficacy and to avoid resistance.

A. Post Inspection

Checking back on previously treated sources is important in achieving the following:

1. Ensuring the proper amount of pesticide is being used.

2. Inspecting the source to see if desired effect was achieved.

3. Inspecting the source to determine if mosquito resistance is occurring.

4. Inspecting for any adverse effects that could possibly occur.

B. Pesticide Rotation

In an effort to avoid mosquito resistance to pesticides, the District uses different classes of pesticides throughout the mosquito season.

VIII. Education and Community Outreach

The District tries to inform and educate the public in many different ways.

A. Pamphlets and Handouts

Pamphlets and handouts have been created as an educational tool and to inform the public about District practices, goals, and methods, used to control mosquitoes. In addition, the pamphlets and handouts help educate residents on what they can do to protect themselves from disease, and eliminate mosquito sources on their property. The pamphlets and handouts the District uses are as follows:

1. “Mosquitoes and Disease in Northern Illinois”
2. “Desplaines Valley Mosquito Abatement District”
3. “West Nile Virus and Mosquitoes”
4. “Mosquito Control in Your Village & How You Can Help Us Help You!”
5. Rain barrel handouts
6. Mosquito informational posters

Pamphlets and handouts are mailed to residents and homeowners on request and are handed out by field crews when encountered by residents. They are also distributed to village halls and local libraries for use in pamphlet racks.

B. DVMAD Website
The DVMAD Website, dvmad.org was created as an informational and educational tool for residents, and is updated frequently throughout the mosquito season. Following are examples of the type of information offered on the website:

1. District news, updated as necessary, is used to inform residents of what currently is occurring in the District. Updates can include:

   a. Large rainfall events and increasing numbers of nuisance mosquitoes.

   b. Virus activity throughout the District.

   c. Tentatively scheduled adult mosquito control activities, dependent on weather conditions.

2. Homeowner tips to educate residents on what they can do to protect themselves from disease and eliminate mosquito sources on their property.

3. Detailed information on West Nile Virus and the *Culex* mosquitoes which can transfer the disease.

4. Links to other mosquito control agencies and public health departments.

5. Photo galleries showing examples of different types of mosquito sources, surveillance, and treatment practices of the District.

6. Contact e-mail for residents to inform the District about standing water, un-maintained swimming pools, and mosquito annoyance.

C. Community Events
The District frequently participates in community events. During these events, residents have the opportunity to ask questions and see examples of the many different control methods the District utilizes. Public education about personal protection and eliminating standing water is a top priority. These events provide an excellent opportunity to engage the public in a proactive and positive manner.

D. Cooperative Efforts with Villages
The District works with villages in providing the information they request. Maps of mosquito breeding sources, data on treatment dates, and frequency of pesticide treatments are all made available to villages. Also, the District helps in providing information for village newsletters.

E. News Media Press Releases
The use of news media press releases allows the District to reach many residents at once to inform them about virus activity, heavy rainfall events that can result in large numbers of nuisance mosquitoes, personal protection, and what they can do to help eliminate standing water on their property.

F. News Media Requests for Information
Periodically throughout the mosquito season, news media outlets request information/interviews for a news story about mosquitoes. The District provides information on District practices, how residents can protect themselves from mosquitoes, and eliminating standing water where possible

G. Social Media

The DVMAD Facebook page was created as an informational tool for residents and a recruiting tool for future employees. The Facebook page is updated throughout the mosquito season informing residents of mosquito control activities. The page is also utilized in late winter and early spring to help recruit seasonal employees.

IX. Record Keeping

The District generates a great quantity of data which is stored in a computer database system capable of retrieving data as needed and the generation of reports. The reports generated from the collected data are used to assess the results and efficacy of mosquito reduction efforts as well as provide information to improve future mosquito control operations. Following are the types of records kept.

A. Surveillance Records

1. Weather Data
   a. daily temperature
   b. daily rainfall
   c. barometric pressure
   d. relative humidity
   e. wind speed and direction

2. Larval Data
   a. larval density and identification to species from each open water source inspected/treated
   b. gravid trap larval identification
   c. gravid trap egg raft counts
   d. approximate maximum size of each source

3. Adult Mosquito Data
   a. daily light trap counts and identification to species
   b. daily gravid trap counts and identification of *Culex* to genus and others to species

4. Disease Presence Data
   a. results of mosquito pools by location of up to 50 mosquitoes tested for disease virus
   b. tallied on per week basis

5. New/Changed sources
   a. database of new, gone, or changed open water sources
   b. new or changed off-road catch basins and street catch basins

B. Source Reduction Records

   a. number of fly-dump tires collected
   b. dates ditches and rock filters cleaned

C. Larval Source Treatment Records

1. Daily inspection/treatment records for open water sources
   a. date
   b. section and source numbers
   c. vehicle number and crew assigned

d. inspection data per source (condition - positive, negative, or dry;
density of larvae/pupae if found; number of tires if found)
e. treatment data per source (pesticide used, application method, amount of pesticide)
f. total pesticides used and amounts for the day
g. post-treatment inspections
- source condition (positive, negative, or dry); re-treatment pesticide, application method, and amount of pesticide if needed

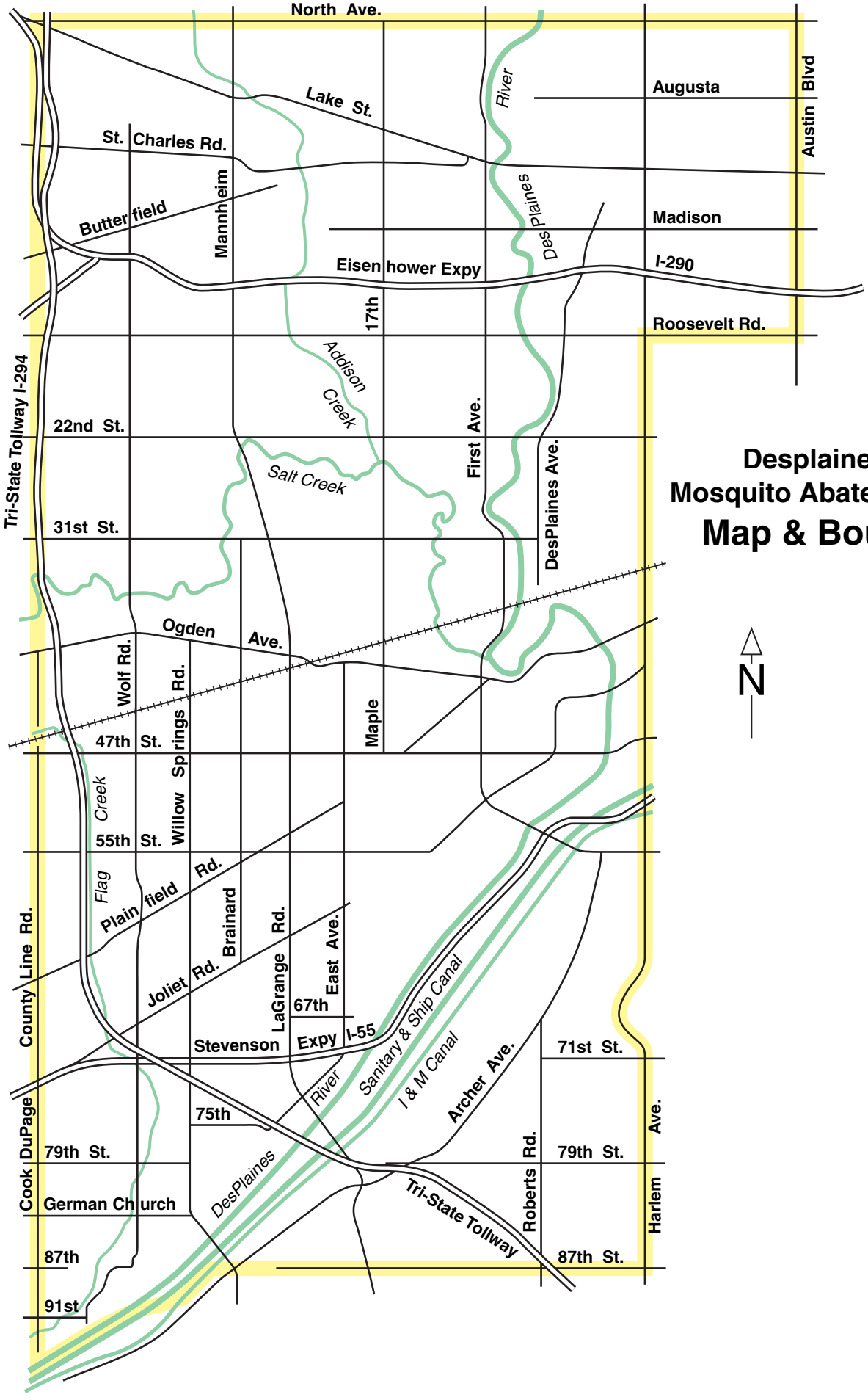
2. Daily treatment records for street catch basins
a. date
b. section(s) treated
c. vehicle and driver
d. total number of basins treated
e. pesticide used and total amount used per section
f. round number

3. Daily treatment records for off-road catch basins
a. date
b. section(s) treated
c. vehicle and driver
d. total number of basins treated
e. pesticide used and total amount used per section
f. round number

D. Adulticiding Records
a. date of treatment
b. vehicle and driver
c. section(s) treated
d. linear miles treated
e. pesticide used, amount used, and application rate

E. Information Distribution Records
a. number of pamphlets
b. library or village name
c. resident calls - complaints, requests, reports of potential new sources
d. press releases

Attachments

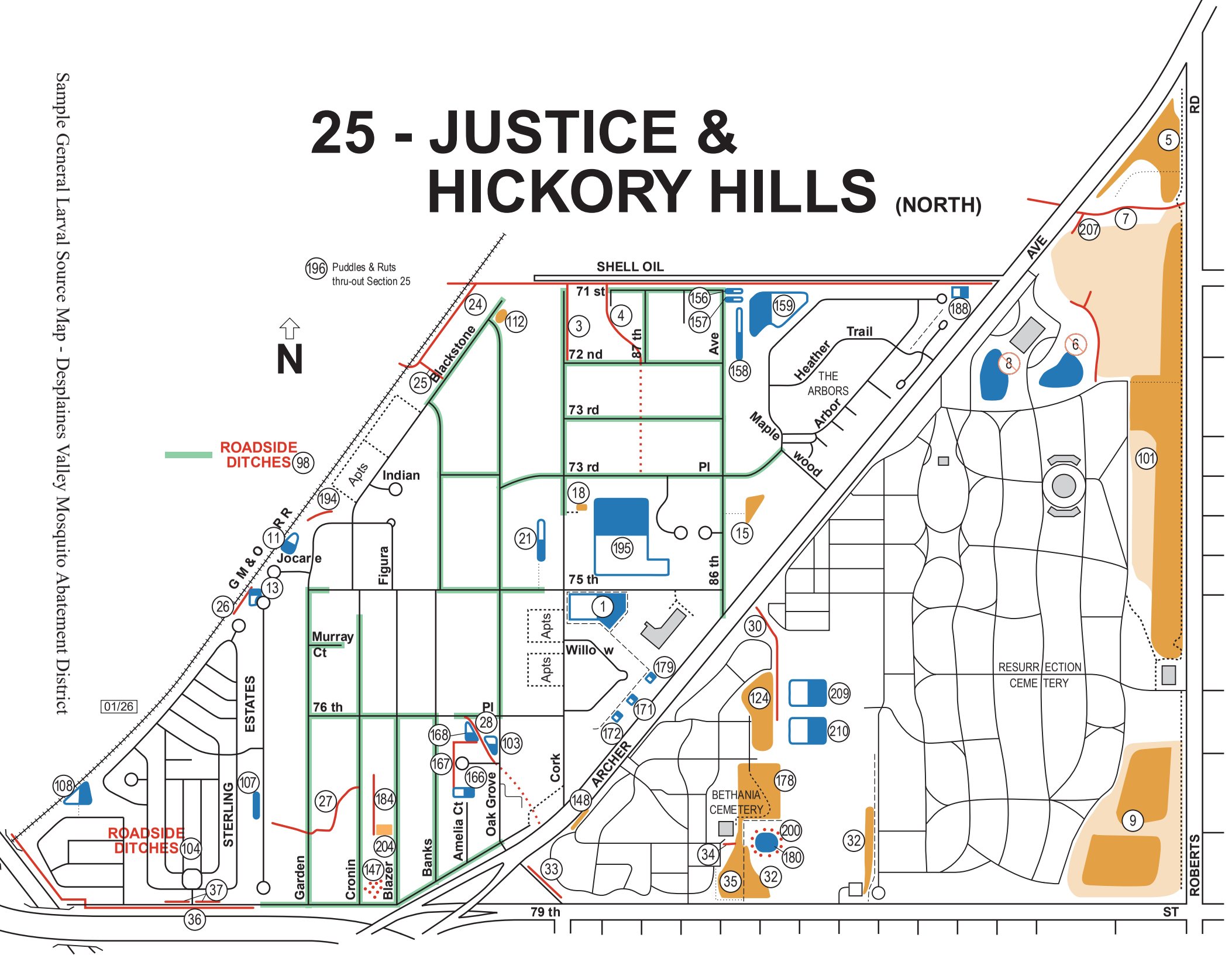


Desplaines Valley Mosquito Abatement District

Map & Boundaries

Sample General Larval Source Map - Desplaines Valley Mosquito Abatement District

25 - JUSTICE & HICKORY HILLS (NORTH)



DVMAD SOURCE INSPECTION-TREATMENT RECORD-h DATE _____ TRUCK _____

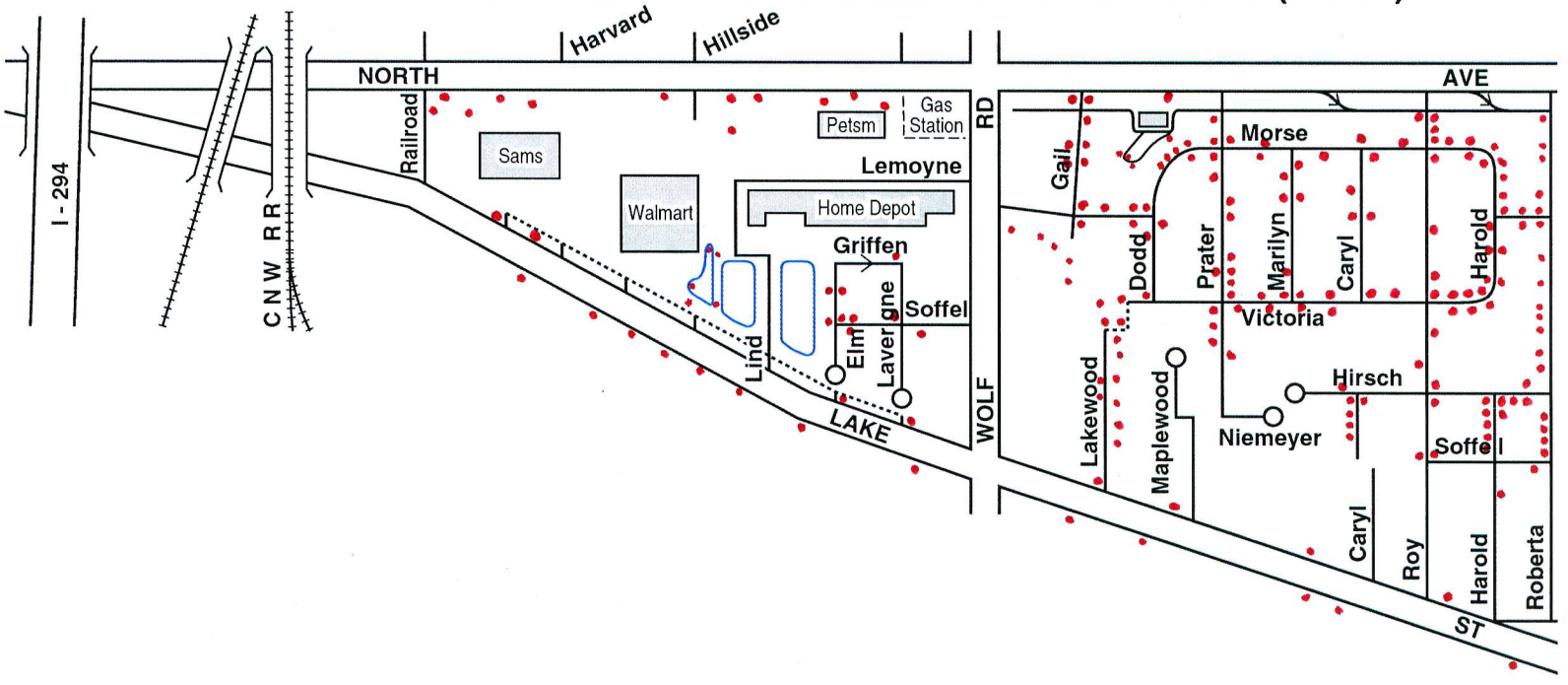
SECTION 4 1 SHEET____ of____ INSECTICIDE 1 _____ TOTAL USED _____

INSPECTOR 1 _____ INSECTICIDE 2 _____ TOTAL USED _____

INSPECTOR 2 _____ INSECTICIDE 3 _____ TOTAL USED _____

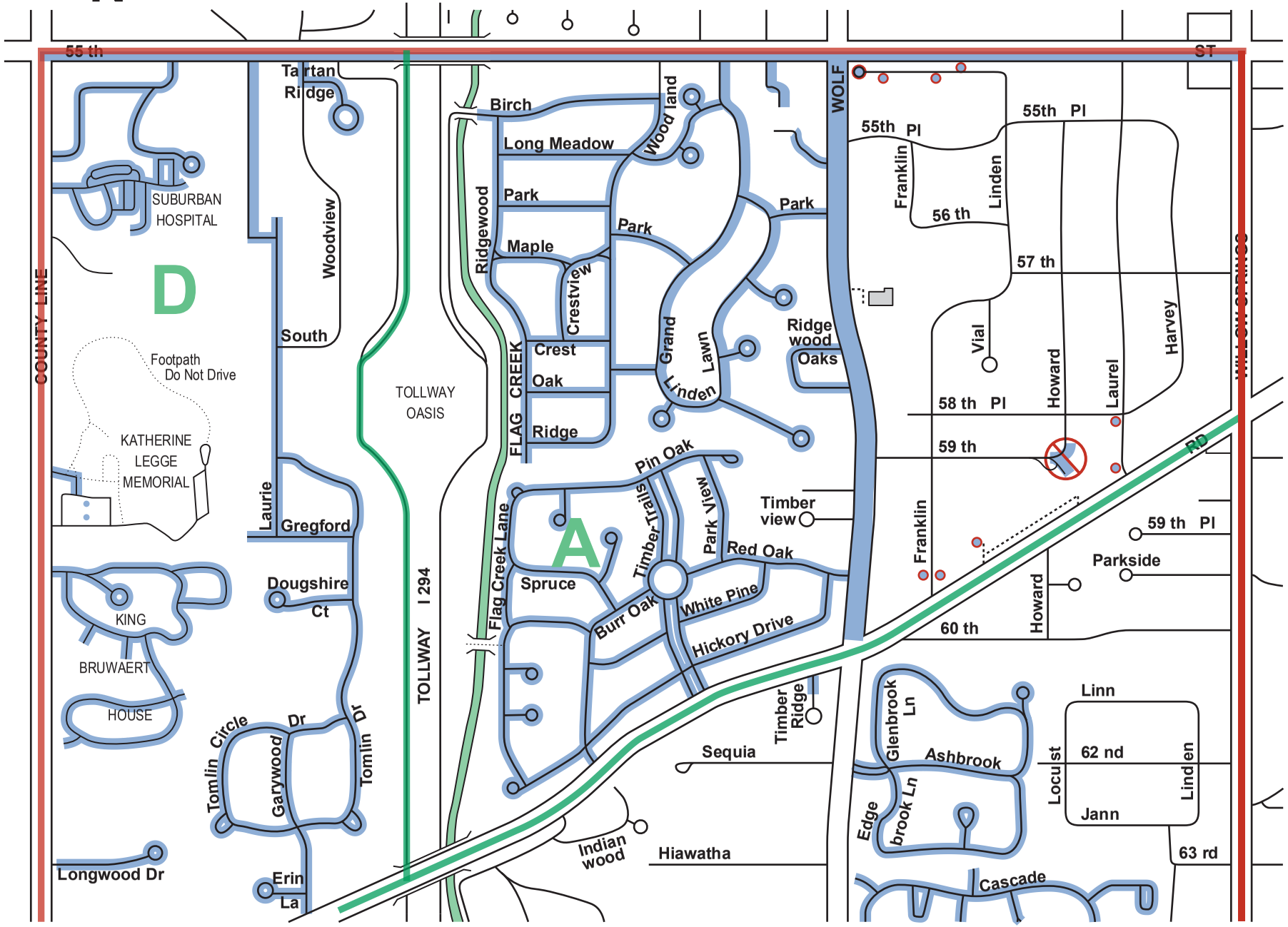
SOURCE LOCATION SEC.	NUM.	TYPE	NUM. TIRES	INSPECTION CONDITION CIRCLE 1	DENSITY (AVE/DIP) Sm Lar	Lg Lar	Pupae	SAMPLE NUMBER IDENT.	TREATMENT PESTICIDE USED	APPL. METHOD	AMOUNT USED	AI y/n	NOTES
4	108	m		P N D									
puddles and ruts thoughout section													
4	84	rp		P N D									
retention pond E. side of Lind													
4	83	rp		P N D									
retention pond on W. side of Lind													
4	82	rp		P N D									
retention pond SE side of Walmart													
4	5	rp		P N D									
retention pond - access thru AT&T - check in at office first													
4	86	d		P N D									
ditch behind building *1 lb. Bti.g Max.													
4	4	rp		P N D									
retention pond - access behind building near source #86													
4	88	rp		P N D									
retention pond													
4	48	ac		P N D									
dumpsters at BFI/ONYX													
4	94	ac		P N D									
dumpsters W. side of BFI/ONYX entrance													
4	95	ac		P N D									
dumpsters E. side of BFI/ONYX entrance - also check behind building													
4	105	ac		P N D									
dumpsters and artificial containers - access via BFI/ONYX													
4	97	ac		P N D									
tires and artificial containers - access thru 30th and Lake St. entrance													
4	89	m		P N D									
artificial containers, pockets, and flooded truck dock in village yard *1 lb. Bti.g Max.													
4	71	rp		P N D									
retention area behind 2975 Soffel													
4	112	s		P N D									
swampy low area between houses *1 lb. Bti.g Max.													
4	113	gls		P N D									
grassy low spot between houses *1 lb. Bti.g Max.													
4	114	poc		P N D									
pockets in empty lot													
4	92	fp		P N D									
flood plain at end of 46th St.													

4 - NORTH LAKE & STONE PARK (WEST)



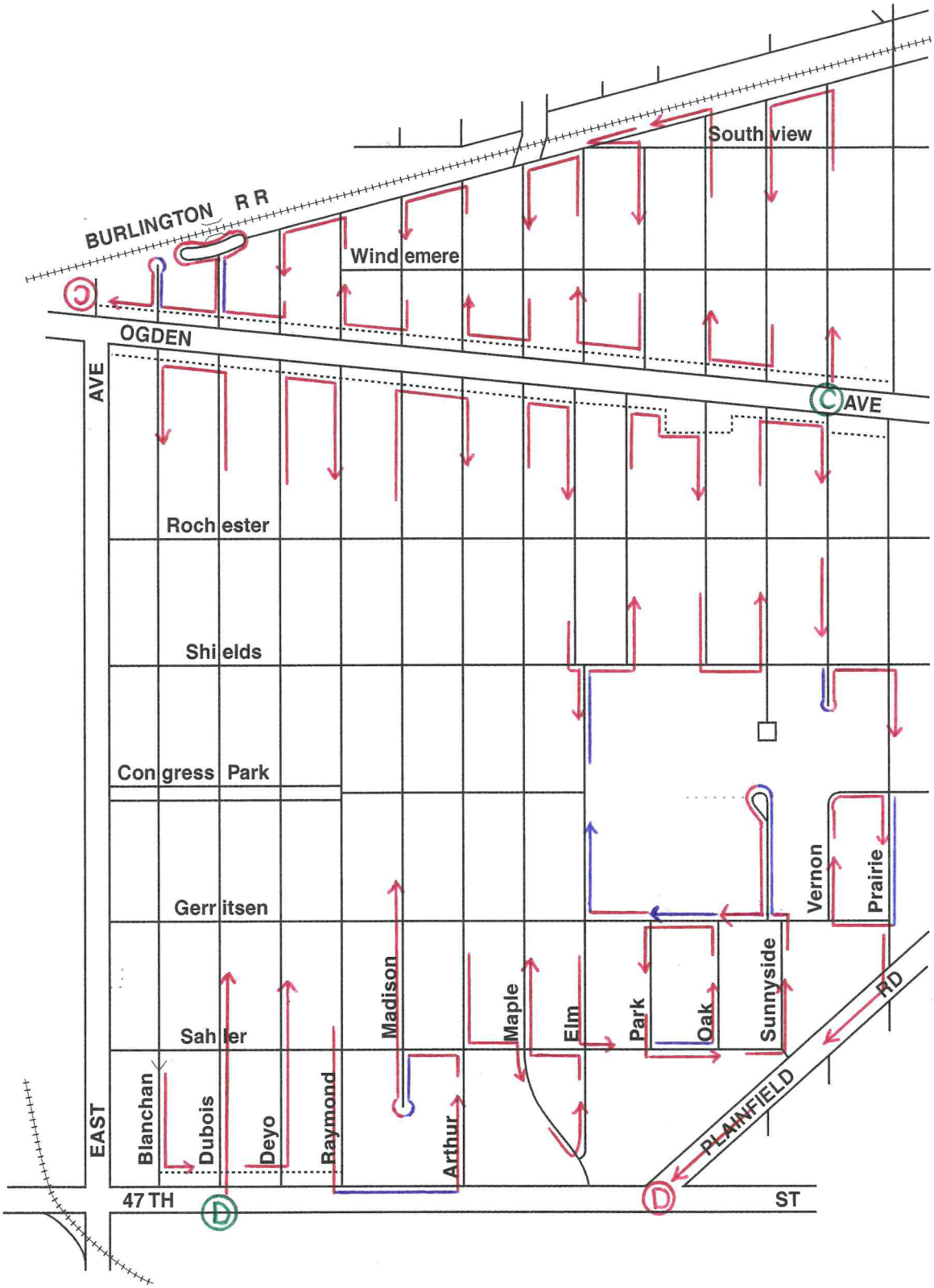
N

20 - INDIAN HEAD PARK & BURR RIDGE (NORTH)



Sample Catch Basin Map - Desplaines Valley Mosquito Abatement District

01/26



13B - BROOKFIELD (WEST)

Sample Adult Control Map - Desplaines Valley Mosquito Abatement District

Desplaines Valley Mosquito Abatement District

Criteria for initiating contingency adult mosquito control measures

The District does not conduct routine adult control operations. Adult control is the least effective approach to mosquito control with only localized, temporary benefits. However, adult control is the only *tool* available to use against an adult mosquito population which is involved in a disease transmission cycle. Hence, the District will only implement residential adult control operations as a contingency measure for vector related mosquitoes.

The District considers guidelines established by the Illinois Department of Public Health (IDPH) in their publication entitled AIDPH Surveillance and Response Procedures for Mosquito-borne Arbovirus Emergencies and Center for Disease Control in consideration of residential adult mosquito control operations. Operations will be focused against specific vector populations of *Culex pipiens* and related species in an effort to minimize or break a viral transmission cycle.

The ultra-low volume insecticide aerosol application process as initiated in 1971 is utilized in any adult control operations. All truck mounted equipment utilized by the District is equipped with automatic flow control which directly regulate insecticide application to vehicle speed, thus ensuring accurate application rates. Adult control operations are conducted only when environmental constraints of ambient air temperature between 65-85 degF and average wind speeds in the 2-8 mph range are satisfied to optimize effectiveness.

Specific criteria considered are the following:

Primary Triggers

a) ***POSITIVE MOSQUITO POOLS*** - Confirmation of viral activity within the adult mosquito population. Our District operates a network of 18 gravid traps to collect adult mosquito samples for subsequent testing of WNV & SLE. These traps are highly selective in collecting *Culex species* mosquitoes having had a blood meal and potential exposure to WNV or SLE. In-house testing using RT-PCR (Real Time-polymerase chain reaction) process gives immediate and accurate results.

b) ***Surrounding Area Data*** - Viral activity in areas surrounding the district, including data from other Mosquito Abatement Districts, Cook County Department of Public Health, and DuPage County Health Department.

c) ***Dead Birds*** - Numbers of dead birds and the time of year they are found. Subsequent confirmation by the IDPH of WNV within the dead birds.

d) ***Time of Season*** - The point in any given mosquito season when *initial* positive bird and mosquito pool samples are confirmed. Positive samples early in the season set the stage for a developed viral amplification/transmission cycle, whereas initial positive samples late in the season would minimize this cycle.

e) ***Equine Cases*** - Confirmed equine cases are an indicator that a spillover from the bird population has occurred. Viral activity has amplified and escalated to a level where this occurs.

f) ***Human Cases*** - Confirmed human cases or fatalities are the ultimate indicator that a spillover from the bird population has occurred, and likely to continue.

Secondary Triggers

a) ***Vector Population Level*** - A larger than normal vector population level poses a greater risk for spillover disease transmission to humans. But a low vector population does not imply that disease transmission will be minimal or disappear. Under the circumstances of a high infection rate, spillover transmission *will* occur even with a low vector population.

b) ***Weather: Rain & Temperature*** - Rainfall can directly affect vector population levels. Water is required for all mosquito development, with rainfall influencing the number of potential breeding sources. Temperature on the other hand can affect *both* vector population levels and the viral amplification/transmission cycle. Above normal temperatures also can increase the viral transmission rate.