

**NORTH SHORE MOSQUITO ABATEMENT DISTRICT
REPORT FOR COMPLIANCE WITH DECENNIAL COMMITTEES ON LOCAL
GOVERNMENT EFFICIENCY ACT**

Documents Reviewed:

District's Operational Summary & Reports

- Annual Report 2022
- Draft Audit Report 2022

Illinois Governing Statutes

- Mosquito Abatement Districts Act - 70ILCS 1005
- Illinois Pesticide Act - 415ILCS 60
- Environmental Protection Act - 415ILCS 5

Ordinances

- Summary of Ordinances

Rules

- Employee Personnel Handbooks – Full Time & Seasonal
- 2023 NSMAD Organizational Chart
- Employee Position Descriptions – Full Time & Seasonal

Procedures & Management Practices

- NSMAD Schedule of Compliance
- Best Practices of Integrated Mosquito Control
- NSMAD Integrated Pest Management Plan
- FY 2021 Annual Financial Report

District Powers

- Illinois Combined Statutes

Jurisdiction

- District Boundaries

Intergovernmental Agreements

- Illinois EPA – Used Tire Collections
- Evanston

Interrelationships

Other Issues

- Maintenance Contracts
- Professional Service Contracts

Meeting Agendas

- June 8, 2023
- January 11, 2024
- July 11, 2024

Meeting Minutes

- June 8, 2023
- January 11, 2024
- July 11, 2024

**NORTH SHORE MOSQUITO
ABATEMENT DISTRICT**

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2022



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Independent Auditor's Report

Board of Trustees
North Shore Mosquito Abatement District
Northfield, Illinois

Opinions

We have audited the accompanying financial statements of the governmental activities and each major fund of the North Shore Mosquito Abatement District, Northfield, Illinois as of and for the year ended December 31, 2022, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities and each major fund of the North Shore Mosquito Abatement District, Northfield, Illinois as of December 31, 2022, and the respective changes in financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of Financial Statements section of our report. We are required to be independent of North Shore Mosquito Abatement District, Northfield, Illinois, and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about North Shore Mosquito Abatement District's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing

Independent Auditor's Report

standards will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgement made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards, we:

- Exercise professional judgement and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of North Shore Mosquito Abatement District's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgement, there are conditions or events, considered in the aggregate, that raise substantial doubt about North Shore Mosquito Abatement District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other required supplementary information on pages 3 through 6 and 23 through 29 be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

ATA GROUP, LLP

June 8, 2023

Management's Discussion and Analysis

As management of North Shore Mosquito Abatement District, this narrative overview and analysis is provided of the District's financial activities for the year ending December 31, 2022. It is recommended that readers consider this information in conjunction with the financial statements as a whole.

Overview of the Financial Statements

Management's discussion and analysis serves as an introduction to the District's financial statements. The statements presented include a Governmental Fund Balance Sheet and Statement of Net Position, a Statement of Governmental Fund Revenues, Expenditures, and Changes in Fund Balances and Statement of Activities, and notes to the financial statements. The District qualifies as a special-purpose government engaged in only one governmental type activity allowing it to combine the fund and government-wide financial statements. This is done through the use of an adjustment column, on the face of the statements, which reconciles the fund based financial statements to the government-wide statements.

Financial Highlights

The District's total net position as of December 31, 2022 and 2021 was \$4,132,266 and \$4,175,302, respectively. For the years ended December 31, 2022 and 2021, net position decreased by \$43,036 and increased by \$385,676, respectively. The term "net position" represents the difference between total assets and deferred outflows of resources and total liabilities and deferred inflows of resources.

Financial Statements

The financial statements of the District are intended to provide the reader with an understanding of the financial position of the District as of the close of the fiscal year and the results of activities for the year then ended. The fund financial statements focus on current financial resources while government-wide financial statements are similar to a private-sector business.

The Governmental Fund Balance Sheet and Statement of Net Position provides information on the District's assets/deferred outflows of resources, liabilities/deferred inflows of resources. The difference between assets/deferred outflows of resources and liabilities/deferred inflows of resources represents the governmental fund balance for the current financial resources reporting and net position for the government-wide reporting.

The Statement of Governmental Fund Revenues, Expenditures, and Changes in Fund Balances and Statement of Activities reflects the results of the District's revenues, expenditures/expenses and activities during the year and the corresponding effect on fund and net position balances. This statement shows the source of District revenues and how those revenues were used to provide services.

Notes to the financial statements provide additional information that is essential for a full understanding of the information provided in the basic financial statements. Required Supplementary Information consists of a more detailed comparison of estimated revenues and appropriation to actual revenues and expenditures, more information on the pension and OPEB liabilities and on employer contributions to the pension and OPEB liabilities.

Financial Analysis

Net position may serve, over time, as a useful indicator of a government's financial position. The District's assets/deferred outflows exceeded liabilities/deferred inflows of resources by \$4,132,266 as of the close of the year. Of the net position balance, \$2,429,223 is unrestricted and \$1,653,043 represents net investment in capital assets. The District uses these capital assets to provide services and, consequently, these assets are not available to liquidate liabilities or for other spending.

Condensed Statement of Net Position

	December 31,	
	2022	2021
Current Assets	\$ 3,654,430	\$ 3,572,011
Net Pension Asset	-	735,277
Capital Assets, net	1,653,043	1,804,393
Total Assets	5,307,473	6,111,681
Deferred Outflows Related to Pension (IMRF)	583,611	393,932
Total Assets and Deferred Outflows of Resources	5,891,084	6,505,613
Current Liabilities	5,123	35,381
Non-Current Liabilities	64,628	28,519
Total Liabilities	69,751	63,900
Deferred Inflows of Resources	1,689,067	2,266,411
Net Position		
Net Investment in Capital Assets	1,653,043	1,775,080
Unrestricted	2,479,223	2,400,222
Total Net Position	\$ 4,132,266	\$ 4,175,302

Condensed Statement of Changes in Net Position

	For Years Ended December 31,	
	2022	2021
Revenues		
Taxes	\$ 1,791,406	\$ 1,724,853
Interest	10,159	639
Total Revenues	1,801,565	1,725,492
Expenses		
Administration	70,705	42,465
Purchase of Equipment	-	10,122
Purchase of Supplies	380,282	248,175
Building Maintenance	20,339	12,026
Utilities	34,159	32,165
Legal and Audit	30,981	30,270
Salaries and Wages	852,653	714,543
IMRF and Social Security	128,355	(128,449)
Insurance, including OPEB	132,663	144,690
Capital Fund	18,605	44,003
Contingency	10,971	5,326
Depreciation	164,888	184,480
Total Expenses	1,844,601	1,339,816
Change in Net Position	(43,036)	385,676
Net Position,		
Beginning of Year	4,175,302	3,789,626
End of Year	\$ 4,132,266	\$ 4,175,302

Management's Discussion and Analysis

The District's Funds

The Capital Improvement Fund (CIF) of the District was authorized in 2011 and funded for the first time in 2012. The purpose of the CIF is to fund specific capital improvements, repairs or replacements of the District's real or personal property. The general fund changed by a net decrease of \$297,722 and the capital improvement fund changed by a net increase of \$143,903. The net changes included a transfer of \$170,000 from the general fund to the capital improvement fund for future projects.

Significant Events

2022, our 95th year of mosquito control, was a year of numerous accomplishments. The final year of our five-year strategic plan saw the implementation of our new website, enhancements to our control operations, and some unexpected challenges that we successfully overcame. All of these accomplishments further enhance the service we provide residents and visitors of the 14 communities that comprise the District.

The launch of our new website occurred in January of 2022. Our new site (www.nsmad.org) is designed to engage visitors with an improved user-interface, mobile device compatibility, language translation options, and is ADA compliant. Improvements go beyond just the look and feel of the site, NSMAD staff developed a new app that provides visitors to our site with an easy-to-navigate dashboard that provides real-time information about our treatment activities. Any person can now view much of the same data our staff uses to make treatment decisions. Our treatment records are now accessible by the public via our website, anytime, day or night. These improvements in transparency and accessibility demonstrate the massive amount of control activities performed by NSMAD staff daily to control mosquitoes and protect public health. Residents will find that our improved Service Request form allows them to choose from a variety of NSMAD services such as larval treatment control requests, property inspections to help locate the source of mosquito issues or arrange for a tire pick-up.

The District conducted a variety of research projects aimed at improving the effectiveness of our larval control program. With populations of mosquitoes that are resistant to currently available mosquito adulticides present in the area, our focus on improved larval mosquito control operations is key to protecting public health from current and potential future vector-borne diseases.

The physical and virtual renovations undertaken in 2022 will ensure that the NSMAD headquarters can function as the "nerve center" for district operations well into the future. It is important to note that through careful planning, NSMAD staff were able to increase the services we provide, without increasing our tax levy. In fact, the NSMAD has maintained the same flat levy for the past six years - a level which equates to approximately \$5.00 per resident or less than a can of mosquito repellent.

Budgetary Highlights

The District's General Fund expended \$1,923,241, and transferred \$170,000 which was \$257,945 more than the appropriation of \$1,835,296. The appropriation sets the legal spending limit for the fiscal year. See Note 9 for additional information about the excess of expenditures over appropriations.

Management's Discussion and Analysis

Capital Assets

The District's net capital assets are \$1,653,043, which is net of accumulated depreciation, as of December 31, 2022. During the fiscal year the District purchased a new truck to replace one that had been totaled in an accident.

	December 31,	
	2022	2021
Land	\$ 60,000	\$ 60,000
Land Improvements	586,269	586,269
Building and Improvements	1,780,886	1,780,886
Field Equipment	563,577	563,105
Lab Equipment	106,744	106,744
Office Equipment	5,670	5,670
Shop Equipment	30,358	30,358
Software	37,375	37,375
	3,170,879	3,170,407
Cost of Capital Assets	3,170,879	3,170,407
Less Accumulated Depreciation	(1,517,836)	(1,366,014)
	\$ 1,653,043	\$ 1,804,393
Net Capital Assets		

See Note 4 on page 14 of the financial statements for more detailed information about District capital assets.

Economic Factors

Management is not aware of any changes in conditions that could have a significant effect on the financial position or results of activities of the District in the near future.

Requests for Information

This financial report is designed to provide a general overview of the District's finances for all those with an interest in its finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the Executive Director, North Shore Mosquito Abatement District, 117 Northfield Road, Northfield, Illinois 60093.

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

GOVERNMENTAL FUND BALANCE SHEET
AND STATEMENT OF NET POSITION

DECEMBER 31, 2022

	General Fund	Capital Improvements Fund	Total	Adjustments (Note 8)	Statement of Net Position
ASSETS					
Cash and Deposits	\$ 1,122,960	\$ 199,440	\$ 1,322,400	\$ -	\$ 1,322,400
Property Tax Receivable, net	1,831,845	-	1,831,845	-	1,831,845
Prepaid Expense	123,062	-	123,062	-	123,062
Inventory	-	-	-	377,123	377,123
Capital Assets, net of accumulated depreciation	-	-	-	1,653,043	1,653,043
Total Assets	3,077,867	199,440	3,277,307	2,030,166	5,307,473
DEFERRED OUTFLOWS OF RESOURCES					
Deferred Outflows Related to Pension (IMRF)	-	-	-	583,611	583,611
Total Assets and Deferred Outflows of Resources	\$ 3,077,867	\$ 199,440	\$ 3,277,307	2,613,777	5,891,084
LIABILITIES					
Accounts Payable	\$ 5,123	\$ -	\$ 5,123	\$ -	\$ 5,123
Long-Term Liabilities					
Due within one year	-	-	-	-	-
Due after one year	-	-	-	64,628	64,628
Total Liabilities	5,123	-	5,123	64,628	69,751
DEFERRED INFLOWS OF RESOURCES					
Deferred Inflows Related to Pension (IMRF)	-	-	-	168,940	168,940
Deferred Property Taxes	1,520,127	-	1,520,127	-	1,520,127
Total Deferred Inflows of Resources	1,520,127	-	1,520,127	168,940	1,689,067
Total Liabilities and Deferred Inflows of Resources	1,525,250	-	1,525,250	233,568	1,758,818
FUND BALANCES / NET POSITION					
Fund Balances					
Non-spendable	123,062	-	123,062	(123,062)	-
Committed	-	199,440	199,440	(199,440)	-
Unassigned	1,429,555	-	1,429,555	(1,429,555)	-
Total Fund Balances	1,552,617	199,440	1,752,057	(1,752,057)	-
Total Liabilities, Deferred Inflows of Resources and Fund Balances	\$ 3,077,867	\$ 199,440	\$ 3,277,307		
Net Position					
Net Investment in Capital Assets				1,653,043	1,653,043
Unrestricted				2,479,223	2,479,223
Total Net Position				\$ 4,132,266	\$ 4,132,266

The accompanying notes are an integral part of these financial statements.

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

GOVERNMENTAL FUND STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES AND STATEMENT OF ACTIVITIES

YEAR ENDED DECEMBER 31, 2022

	General Fund	Capital Improvements Fund	Total	Adjust- ments (Note 8)	Statement of Activities
REVENUES					
Property Taxes	\$1,585,077	\$ -	\$1,585,077	\$ -	\$1,585,077
Personal Property Replacement Taxes	206,329	-	206,329	-	206,329
Interest	4,113	6,046	10,159	-	10,159
Total Revenues	<u>1,795,519</u>	<u>6,046</u>	<u>1,801,565</u>	<u>-</u>	<u>1,801,565</u>
EXPENDITURES / EXPENSES					
Administration	70,705	-	70,705	-	70,705
Purchase of Supplies	646,778	-	646,778	(266,496)	380,282
Building Maintenance	20,339	-	20,339	-	20,339
Utilities	34,159	-	34,159	-	34,159
Legal and Audit	30,981	-	30,981	-	30,981
Salaries and Wages	852,653	-	852,653	-	852,653
IMRF and Social Security	95,826	-	95,826	32,529	128,355
Insurance, including OPEB	160,829	-	160,829	(28,166)	132,663
Capital Fund	-	32,143	32,143	(13,538)	18,605
Contingency	10,971	-	10,971	-	10,971
Depreciation	-	-	-	164,888	164,888
Total Expenditures / Expenses	<u>1,923,241</u>	<u>32,143</u>	<u>1,955,384</u>	<u>(110,783)</u>	<u>1,844,601</u>
Excess (Deficiency) of Revenues Over (Under) Expenditures	(127,722)	(26,097)	(153,819)	-	-
OTHER FINANCING SOURCES (USES)					
Operating Transfer In (Out)	<u>(170,000)</u>	<u>170,000</u>	<u>-</u>	<u>-</u>	<u>-</u>
Net Change in Fund Balances	(297,722)	143,903	(153,819)	153,819	-
Change in Net Position				(43,036)	(43,036)
FUND BALANCES / NET POSITION					
Beginning of Year	<u>1,850,339</u>	<u>55,537</u>	<u>1,905,876</u>	<u>2,269,426</u>	<u>4,175,302</u>
End of Year	<u>\$1,552,617</u>	<u>\$ 199,440</u>	<u>\$1,752,057</u>	<u>\$2,380,209</u>	<u>\$4,132,266</u>

The accompanying notes are an integral part of these financial statements.

Note 1: Summary of Significant Accounting Policies

The North Shore Mosquito Abatement District (District) was chartered on December 8, 1927 to serve the Illinois townships of Evanston, Niles, New Trier and parts of Northfield and Maine. The objective of the District is the reduction of the regional mosquito population to reduce the probability of mosquito borne diseases, minimize annoyance by pestiferous mosquitoes, and educate residents on proper breeding source reduction in their own backyards.

The financial statements of North Shore Mosquito Abatement District have been prepared in conformity with U.S. generally accepted accounting principles (GAAP) as applied to governmental units. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. The more significant of the District's accounting policies are described below.

A. Reporting Entity

The District is a special-purpose district and the reporting entity includes all entities for which the District exercised oversight responsibility as defined by GASB.

The District has developed criteria to determine whether outside agencies should be included within its financial reporting entity. The criteria include, but are not limited to, whether the District (1) selects the governing authority or management, (2) has the ability to significantly influence operations, or (3) has accountability for fiscal matters (e.g., final budget approval, responsibility for funding deficits, management of assets, etc.). Using these criteria, the District has not included in its financial statements the activities of any other entity.

B. Basis of Presentation

The government-wide and fund financial statements are combined, with a reconciliation shown between them.

The Governmental Fund Balance Sheet and Statement of Net Position and Governmental Fund Statement of Revenues, Expenditures, and Changes in Fund Balances and Statement of Activities combine information about the reporting government as a whole and fund statements to report its financial position and the results of its operations. Fund accounting is designed to demonstrate legal compliance and to aid financial management by segregating transactions related to certain District functions or activities. The General Fund is used to account for all financial resources not accounted for in another fund. The Capital Improvements Fund is a capital projects fund and is used to account for specific capital acquisitions. Both the General and Capital Improvements funds are considered major funds of the District.

Note 1: Summary of Significant Accounting Policies (Continued)**C. Basis of Accounting**

The government-wide statements (the Statement of Net Position and the Statement of Activities) are prepared using the economic resources measurement focus and the accrual basis of accounting. Fund financial statements (the Governmental Funds Balance Sheet and Governmental Funds Statement of Revenues, Expenditures, and Changes in Fund Balance) are prepared using the current financial measurement focus and are accounted for using the modified accrual basis of accounting. Under this basis, revenues are recognized in the accounting period in which they become measurable and available. “Measurable” means collectible within the current period or within sixty days after the year end. Expenditures are recognized in the accounting period in which the liability is incurred, if measurable.

The District recognizes property taxes receivable during the fiscal year in which the taxes are levied and become a legal claim of the District, however, property taxes are not recognized as revenue until the subsequent fiscal year when the property taxes are extended by Cook County and remitted to the District. Accordingly, the property tax levy for the 2022 tax year is recognized as deferred inflows of resources in the accompanying balance sheet.

D. Budgets

Budgets are adopted on a basis consistent with generally accepted accounting principles. An annual appropriated budget is adopted for the general fund. All annual appropriations lapse at fiscal year end. Project-length financial plans are adopted for the capital project fund.

E. Cash and Deposits

Cash and deposits represent amounts in a demand deposit account, money market accounts and certificates of deposit.

Illinois Revised Statutes authorize the District to invest in securities guaranteed by the full faith and credit of the United States of America, interest bearing savings accounts, certificates of deposit or any other investments constituting direct obligations of any bank as defined by the Illinois Banking Act, the State Treasurer's investment pool, and other permitted investments under paragraph 902, chapter 85 of the Statutes as amended by Public Act 86-426. Investments may only be made in banks which are insured by the Federal Deposit Insurance Corporation.

F. Capital Assets

The accounting treatment over capital assets depends on whether the assets are reported in the government-wide or fund financial statements.

Note 1: Summary of Significant Accounting Policies (Continued)

Government-wide Statements

In the government-wide financial statements capital assets are valued at historical cost or estimated historical cost if actual is unavailable, except for donated capital assets, which are recorded at their estimated fair value at the date of donation.

Depreciation of all exhaustible capital assets is recorded as an allocated expense in the Statement of Activities, with accumulated depreciation reflected in the Statement of Net Position. Depreciation is provided over the assets’ estimated useful lives using the straight-line method of depreciation. The range of estimated useful lives by type of asset is as follows:

Land Improvements	15 years
Buildings and Improvements	10 – 50 years
Field Equipment	3 – 7 years
Lab Equipment	5 – 10 years
Office Equipment	3 – 5 years
Shop Equipment	7 – 20 years
Software	3 years

The minimum capitalization threshold is any item with a total cost greater than \$5,000. Prior to January 1, 2022, the minimum capitalization threshold was \$1,500.

Fund Financial Statements

In the fund financial statements, capital assets used in governmental fund operations are accounted for as capital outlay expenditures of the governmental fund upon acquisition.

G. Inventory

Inventory is valued at cost, which approximates market, using the first-in/first-out (FIFO) method, on the government-wide financial statement. Inventory is expended at the time of purchase (purchase method) on the fund financial statements. Inventory consists of insecticides.

H. Compensated Absences

Every employee must use his or her vacation days during the calendar year in which they are earned. Any vacation days unused by December 31 of the calendar year will be lost unless granted a carry-over into the next calendar year by the Executive Director based on his/her judgment. Sick pay benefits can be accumulated; however, they are not paid upon termination, so no liability is recognized.

I. Deferred Outflows and Inflows of Resources

Deferred outflows and inflows of resources related to pension expense represent amounts related to the difference between expected and actual experience, changes in

Note 1: Summary of Significant Accounting Policies (Continued)

assumptions and the net difference between projected and actual earnings on pension plan investments. See Note 6 for additional information on the deferred outflows.

Deferred property tax revenue is listed under deferred inflows. Deferred property taxes do not fit the definition of a liability, that is, the use of resources to satisfy an obligation. Rather, deferred property taxes represent a future recognition of revenue, and therefore are classified as deferred inflows of resources.

J. Fund Equity

The following classifications describe the relative strength of the spending constraints placed on the purposes for which resources can be used:

- Non-spendable fund balance – amounts that are not in a spendable form or are required to be maintained intact; prepaid expense amounts are considered non-spendable;
- Restricted fund balance – amounts constrained to specific purposes by their providers (such as grantors, bondholders, and higher levels of government), through constitutional provisions, or by enabling legislation;
- Committed fund balance – amounts constrained to specific purposes by a government itself using its highest level of decision-making authority (the board of trustees); to be reported as committed, amounts cannot be used for any other purpose unless the government takes the same highest level action to remove or change the constraint (such action would be passing a resolution or ordinance); capital projects fund balance is considered committed for capital purchases and maintenance;
- Assigned fund balance – amounts a government intends to use for a specific purpose; intent can be expressed by the board of trustees or, can be delegated by the Board to the District Superintendent;
- Unassigned fund balance – amounts that are available for any purpose; positive amounts are reported only in the general fund.

The board of trustees establishes (and modifies or rescinds) fund balance commitments by passage of an ordinance or resolution. This is typically done through adoption and amendment of the budget. A fund balance commitment is further indicated in the budget document as a designation or commitment of the fund. An assigned fund balance is established by the board of trustees through adoption or amendment of the budget as intended for specific purpose.

When fund balance resources are available for a specific purpose in more than one classification, it is the District's policy to use the most restrictive funds first in the following order: restricted, committed, assigned, and unassigned as they are needed.

K. Estimates

The preparation of financial statements in conformity with U.S. generally accepted

Note 1: Summary of Significant Accounting Policies (Continued)

accounting principles requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

L. Defined Benefit Pension Plan (IMRF)

For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the Illinois Municipal Retirement Fund (IMRF) and additions to/deductions from IMRF fiduciary net position have been determined on the same basis as they are reported by IMRF. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

M. Interfund Transfer

The annual transfer from the General Fund to the Capital Improvement Fund is to supply monies to acquire capital assets and fund their maintenance.

Note 2: Deposits

At December 31, 2022, the carrying amount of the District's deposits was \$1,322,400 and the bank balance was \$1,738,333. Of the bank balance, \$603,084 was covered by federal depository insurance and \$1,135,249 was collateralized with securities held by the pledging financial institution's agent in the District's name. Included in deposits are certificates of deposit (CDs) totaling \$339,872. CDs terms are generally six months or less. The interest rate on CDs held at year end ranged from .05% to 1.10%.

Note 3: Property Tax

Property taxes are payable in two installments generally on or around March 1 and August 1; however, the due date for the second billing of the 2021 property tax was delayed until December 30, 2022. Property tax revenue is recorded when received and includes those amounts paid within 60 days after year end. The amount of the 2021 tax levy receivable at year end, and collected within 60 days, was \$311,718. A total of \$1,564,750 was collected related to the 2021 extended tax levy of \$1,594,453 (requested levy \$1,520,127) in 2022 and the first 60 days of 2023. Prior year collections, totaling \$20,327, increased the overall tax levy collection. The extended levy was \$74,326 higher than the requested levy due to rounding of the tax rate by the county.

The District passed its 2022 tax levy ordinance in December 2022. This \$1,520,127 levy is presented as both Property Tax Receivable and Deferred Inflows of Resources. It attached as an enforceable lien on property as of January 1, 2022. No allowance for uncollectible taxes is recorded for the 2022 levy since the levy is rounded up when extended, and this rounding is usually adequate to cover collection losses.

Note 4: Capital Assets

The following is a summary of changes in the capital assets during the fiscal year:

	Balance December 31, 2021	Increases	Decreases	Balance December 31, 2022
Capital assets, not being depreciated				
Land	\$ 60,000	\$ -	\$ -	\$ 60,000
Capital assets, being depreciated				
Land Improvements	586,269	-	-	586,269
Building and Improvements	1,780,886	-	-	1,780,886
Field Equipment	563,105	21,992	(21,520)	563,577
Lab Equipment	106,744	-	-	106,744
Office Equipment	5,670	-	-	5,670
Shop Equipment	30,358	-	-	30,358
Software	37,375	-	-	37,375
Total capital assets being depreciated	3,110,407	21,992	(21,520)	3,110,879
Less accumulated depreciation for				
Land Improvements	(303,509)	(35,700)	-	(339,209)
Building and Improvements	(534,179)	(56,111)	-	(590,290)
Field Equipment	(426,858)	(46,046)	13,066	(459,838)
Lab Equipment	(54,311)	(14,689)	-	(69,000)
Office Equipment	(5,670)	-	-	(5,670)
Shop Equipment	(19,701)	(703)	-	(20,404)
Software	(21,786)	(11,639)	-	(33,425)
Total accumulated depreciation	(1,366,014)	(164,888)	13,066	(1,517,836)
Capital assets being depreciated, net	1,744,393	(142,896)	(8,454)	1,593,043
Capital assets, net	\$ 1,804,393	\$ (142,896)	\$ (8,454)	\$ 1,653,043

Note 5: Long-Term (Assets) Liabilities

Changes in long-term liabilities (assets) during the year were as follows:

	Balance December 31, 2021	Additions	Reductions	Balance December 31, 2022	Amounts Due In One Year
Net Pension (Asset)					
Liability	\$ (735,277)	\$ 799,552	\$ -	\$ 64,275	\$ -
Net OPEB					
Liability	28,519	-	28,166	353	-

Note 6: Defined Benefit Pension Plan

IMRF Plan Description. The District's defined benefit pension plan for regular employees provides retirement and disability benefits, post-retirement increases, and death benefits to plan members and beneficiaries. The District's plan is managed by the Illinois Municipal

Note 6: Defined Benefit Pension Plan (Continued)

Retirement Fund (IMRF), the administrator of a multi-employer public pension fund. A summary of IMRF’s pension benefits is provided in the “Benefits Provided” section of this document. Details of all benefits are available from IMRF. Benefit provisions are established by statute and may only be changed by the General Assembly of the State of Illinois. IMRF issues a publicly available Comprehensive Annual Financial Report that includes financial statements, detailed information about the pension plan’s fiduciary net position, and required supplementary information. The report is available for download at www.imrf.org.

Benefits Provided. IMRF has three benefit plans. The District participates in the Regular Plan (RP). All three IMRF benefit plans have two tiers. Employees hired before January 1, 2011, are eligible for Tier 1 benefits. Tier 1 employees are vested for pension benefits when they have at least eight years of qualifying service credit. Tier 1 employees who retire at age 55 (at reduced benefits) or after age 60 (at full benefits) with eight years of service are entitled to an annual retirement benefit, payable monthly for life, in an amount equal to 1-2/3% of the final rate of earnings for the first 15 years of service credit, plus 2% for each year of service credit after 15 years to a maximum of 75% of their final rate of earnings. Final rate of earnings is the highest total earnings during any consecutive 48 months within the last 10 years of service, divided by 48. Under Tier 1, the pension is increased by 3% of the original amount on January 1 every year after retirement.

Employees hired on or after January 1, 2011, are eligible for Tier 2 benefits. For Tier 2 employees, pension benefits vest after ten years of service. Participating employees who retire at age 62 (at reduced benefits) or after age 67 (at full benefits) with ten years of service are entitled to an annual retirement benefit, payable monthly for life, in an amount equal to 1-2/3% of the final rate of earnings for the first 15 years of service credit, plus 2% for each year of service credit after 15 years to a maximum of 75% of their final rate of earnings. Final rate of earnings is the highest total earnings during any 96 consecutive months within the last 10 years of service, divided by 96. Under Tier 2, the pension is increased on January 1 every year after retirement, upon reaching age 67, by the lesser of:

- 3% of the original pension amount, or
- 1/2 of the increase in the Consumer Price Index of the original pension amount.

Employees Covered by Benefit Terms. As of December 31, 2022, the following employees were covered by the benefit terms:

	<u>IMRF</u>
Retirees and Beneficiaries currently receiving benefits	5
Inactive Plan Members entitled to but not yet receiving	1
Active Plan Members	<u>7</u>
Total	<u>13</u>

Contributions. As set by statute, the District’s Regular Plan Members are required to contribute 4.50% of their annual covered salary. The statute requires employers to contribute the amount necessary, in addition to member contributions, to finance the retirement coverage of its own employees. The District’s annual contribution rate for calendar year 2022 was 4.63%. For the fiscal year ended December 31, 2022 the District

Note 6: Defined Benefit Pension Plan (Continued)

contributed \$30,598 to the plan. The District also contributes for disability benefits, death benefits, and supplemental retirement benefits, all of which are pooled at the IMRF level. Contribution rates for disability and death benefits are set by IMRF's Board of Trustees, while the supplemental retirement benefits rate is set by statute.

Net Pension (Asset) Liability. The District's net pension (asset) liability was measured as of December 31, 2022. The total pension liability (asset) was determined by an actuarial valuation as of that date.

Actuarial Assumptions. The following are the methods and assumptions used to determine total pension (asset) liability at December 31, 2022:

- The *Actuarial Cost Method* used was Entry Age Normal.
- The *Asset Valuation Method* used was Market Value of Assets.
- The *Inflation Rate* was assumed to be 2.25%.
- *Salary Increases* were expected to be 2.85% to 13.75%, including inflation.
- The *Investment Rate of Return* was assumed to be 7.25%.
- *Projected Retirement Age* was from the Experience-based Table of Rates, specific to the type of eligibility condition, last updated for the 2020 valuation according to an experience study from years 2017 to 2019.
- The IMRF-specific rates for *Mortality* (for non-disabled retirees) were developed from the Pub-2010, Amount Weighted, below-median income, General, Retiree, Male (adjusted 106%) and Female (adjusted 105%) tables with future mortality improvements projected using scale MP-2020.
- For *Disabled Retirees*, the Pub-2010, Amount-Weighted, below-median income, General Disabled Retiree, Male and Female (both unadjusted) tables were used with future mortality improvements projected using scale MP-2020.
- For *Active Members*, the Pub-2010, Amount-Weighted, below-median income, General, Employee, Male and Female (both unadjusted) tables were used with future mortality improvements projected using scale MP-2020.
- There were no benefit changes during the year.

A detailed description of the actuarial assumptions and methods can be found in the December 31, 2022 Illinois Municipal Retirement Fund annual actuarial valuation report.

The *long-term expected rate of return* on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense, and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return to the target asset allocation percentage and adding expected inflation. The target allocation and best estimates of geometric real rates of return for each major asset class are summarized in the following table as of December 31, 2022:

Note 6: Defined Benefit Pension Plan (Continued)

Asset Class	Portfolio Target Percentage	Long-Term Expected Real Rate of Return
Equities	35.5%	6.50%
International Equities	18.0	7.60%
Fixed Income	25.5	4.90%
Real Estate	10.5	6.20%
Alternative Investments	9.5	6.25-9.90%
Cash Equivalents	1.0	4.00%
Total	100.0%	

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25%; the municipal bond rate is 4.05%; and the resulting single discount rate is 7.25%.

Changes in the Net Pension (Asset) Liability.

	Total Pension Liability (A)	Plan Fiduciary Net Position (B)	Net Pension (Asset) Liability (A) - (B)
Balances at December 31, 2021	\$ 3,006,743	\$ 3,742,020	\$ (735,277)
Change for the year:			
Service Cost	56,470	-	56,470
Interest on the Total Pension Liability	214,982	-	214,982
Change in Benefit Terms	-	-	-
Differences Between Expected and Actual Experience of the Total Pension Liability	89,733	-	89,733
Changes in Assumptions	-	-	-
Contributions - Employer	-	30,598	(30,598)
Contributions - Employees	-	29,738	(29,738)
Net Investment Income	-	(450,491)	450,491
Benefit Payments, including Refunds of Employee Contributions	(139,408)	(139,408)	-
Other (Net Transfers)	-	(48,212)	48,212
Net Changes	221,777	(577,775)	799,552
Balances at December 31, 2022	\$ 3,228,520	\$ 3,164,245	\$ 64,275

Notes to Financial Statements

Note 6: Defined Benefit Pension Plan (Continued)

Sensitivity of the Net Pension (Asset) Liability to Changes in the Discount Rate. The following presents the plan’s net pension (asset) liability, calculated using a Single Discount Rate of 7.25%, as well as what the plan’s net pension (asset) liability would be if it were calculated using a Single Discount Rate that is 1% lower or 1% higher:

	1% Lower (6.25%)	Current (7.25%)	1% Higher (8.25%)
Net Pension (Asset) Liability	\$ 545,474	\$ 64,275	\$ (299,325)

Pension Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources Related to Pensions. For the year ended December 31, 2022, the District recognized an increase in pension expense of \$63,127. At December 31, 2022, the District reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

Deferred Amounts Related to Pensions	Deferred Outflows of Resources	Deferred Inflows of Resources
Deferred Amounts to be Recognized in Pension Expense in Future Periods		
Differences between expected and actual experience	\$ 290,263	\$ 130,142
Changes of assumptions	19,109	38,798
Net difference between projected and actual earnings on pension plan investments	274,239	-
Total Deferred Amounts Related to Pensions	\$ 583,611	\$ 168,940

Amounts reported as net deferred outflows of resources related to pensions will be recognized in pension expense in future periods as follows:

Year Ending December 31	Net Deferred Outflows of Resources
2023	\$ 10,157
2024	69,568
2025	106,002
2026	188,819
2027	32,322
Thereafter	7,803
Total	\$ 414,671

Note 7: Other Post-Employment Benefits

Plan Descriptions, Provisions and Funding Policies

In addition to providing the pension benefits described above, the District provides post-employment health care benefits (OPEB) for retired employees of the District through a single employer defined benefit plan. The benefits, benefit levels, employee contributions and employer contributions are governed by the District and can be amended by the.

Notes to Financial Statements

Note 7: Other Post-Employment Benefits (Continued)

District through its personnel manual. The plan is not accounted for as a trust fund; as an irrevocable trust has not been established to account for the plan. The plan does not issue a separate report. To be eligible for benefits, an employee must qualify for retirement through the Illinois Municipal Retirement Fund.

All health care benefits for retired employees of the District are provided through the District’s health plan. The benefit levels are the same as those afforded to active employees. Benefits include general inpatient and outpatient medical services; mental, nervous, and substance abuse care; vision care; dental care; and prescriptions.

All retirees contribute 100% of the paid premium to the plan. For the fiscal year ending December 31, 2022, retirees contributed \$0. Active employees do not contribute to the plan until retirement.

At December 31, 2022, membership consisted of:

Total active employees	7
Inactive employees currently receiving benefit payments	0
Inactive entitled to but not yet receiving benefit payments	0
	7

Contributions

There are no actuarially determined contributions or employer contributions as there is no Trust that exists for funding the OPEB liabilities. There are only contributions from other District resources which relate to the increase in active premiums due to the presence of retirees in the determination of blended retiree/active premiums, and current premium payments on behalf of one retiree whom the District pays their Medicare Supplemental health insurance payment under a previous, unique plan.

Net OPEB Liability

The District’s net OPEB liability of \$353 was measured as of December 31, 2022, and was determined by an actuarial valuation performed as of January 1, 2023.

Actuarial Assumptions and Other Inputs. The net OPEB liability in the January 1, 2023 actuarial valuation was determined using the following assumptions and other inputs, applied to all periods in the measurement, unless otherwise specified:

- The *Actuarial Valuation Method* used was the Alternative Measurement Method.
- *Salary Increases* are expected to be 2.5%, average, including inflation.
- The *Discount Rate* used was 3.72%, based on the High Quality 20-Year Tax Exempt G.O. Bond Rate.
- The *Health Care Cost Trend Rates* beginning January 1, 2022 at 7.40% reduced annually in .27% increments to 5.0%.

Notes to Financial Statements

Note 6: Other Post-Employment Benefits (Continued)

- *Plan Participation Rate* assumes 15% of employees currently enrolled in medical plans will participate in the plan.
- *Retirement Rates* used were Age 61 for Tier 1 IMRF Employees and Age 62 for Tier II IMRF employees.
- *Retiree Lapse Rates* used was 100% at age 65 once Medicare eligible.
- *Mortality Rates* follows the Sex Distinct Raw Rates as developed in the PubG-2010(B) Study. These rates are improved generationally using MP-2020 Improvement Rates.
- *Spouse Mortality* follows the Sex Distinct Raw Rates as developed in the PubG-2010(B) Study. These rates are improved generationally using MP-2020 Improvement Rates.

	Total OPEB Liability (A)	OPEB Plan Net Position (B)	Net OPEB Liability (A)-(B)
	(A)	(B)	(A)-(B)
Balances at December 31, 2021	\$ 28,519	\$ -	\$ 28,519
Change for the year:			
Service Cost	34	-	34
Interest on the Total OPEB Liability	524	-	524
Change in Benefit Terms	-	-	-
Differences Between Expected and Actual Experience of the Total OPEB Liability	(22,529)	-	(22,529)
Changes in Assumptions	(37)	-	(37)
Benefit Payments	(6,158)	6,158	(12,316)
Contributions - Employer	-	(6,158)	6,158
Contributions - Employees	-	-	-
Administrative Expenses	-	-	-
Net Changes	(28,166)	-	(28,166)
Balances at December 31, 2022	\$ 353	\$ -	\$ 353

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate. The following presents the net OPEB liability, calculated using a Single Discount Rate of 3.72%, as well as what the plan's total OPEB liability would be if it were calculated using a Discount Rate that is 1% lower or 1% higher:

	1% Lower (2.72%)	Current (3.72%)	1% Higher (4.72%)
Net OPEB Liability	\$ 383	\$ 353	\$ 324

Notes to Financial Statements

Note 7: Other Post-Employment Benefits (Continued)

Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates. The following presents the net OPEB liability, as well as what the plan’s total OPEB liability would be if it were calculated using healthcare cost trend rates that are 1% lower or 1% higher:

	1% Decrease (Varies)	Healthcare Cost Trend Rates (Varies)	1% Increase (Varies)
Employer’s Net OPEB	\$ <u>304</u>	\$ <u>353</u>	\$ <u>410</u>

OPEB Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources Related to OPEB. For the year ended December 31, 2022, the District recognized OPEB expense of (\$28,166). At December 31, 2022, the District reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources:

Deferred Amounts Related to OPEB	Deferred Outflows of Resources	Deferred Inflows of Resources
Deferred Amounts to be Recognized in OPEB Expense in Future Periods		
Differences between expected and actual experience	\$ -	\$ -
Changes of assumptions or other inputs	-	-
Total Deferred Amounts Related to OPEB	\$ -	\$ -

Note 8: Adjustments

Amounts reported in the statement of net position are different from the governmental fund balance sheet because:

Significant balances of inventory items need not be reported as assets in the fund statements if the purchases method is used	\$ 377,123
Capital assets used in governmental activities are not financial resources and therefore are not capitalized in the funds.	1,653,043
Deferred outflows related to pensions	583,611
Net pension liability reported in the government-wide	(64,275)
Net OPEB liabilities reported in the government wide statements	(353)
Deferred inflows related to pensions	(168,940)
	\$ 2,380,209

Note 8: Adjustments (Continued)

The governmental funds report capital outlays as expenditures. In the statement of activities, the cost of these assets is allocated over their estimated useful lives as depreciation expense. The amount by which depreciation exceeded capital outlays is \$151,350 (\$164,888 less \$13,538). Also, the inventory increased by \$(266,496), and the increase in government-wide pension expense was \$32,529. In addition, OPEB liability decreased by \$(28,166).

Note 9: Excess of Expenditures Over Appropriations

For the year ended December 31, 2022, expenditures exceeded appropriations for administration by \$2,705, the purchase of supplies by \$327,425, building maintenance by \$10,339, utilities by \$1,612, salaries and wages by \$23,199, social security by \$4,228 and contingencies by \$4,971 in the general fund. These over expenditures were funded by greater than anticipated revenues and by the available fund balance.

Note 10: Fund Balances - Non-Spendable and Committed

The non-spendable portion of fund balances in the general fund represents the amount recorded as prepaid expense. The fund balance of the capital improvement fund is listed as committed as it has been designated by the board of trustees for capital improvement and maintenance purposes.

Note 11: Risk Management

The District is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions, injuries to employees and natural disasters. As such, the District carries commercial insurance for all risks of loss. Settled claims resulting from these risks have historically not exceeded insurance coverage in the past three years and there have been no significant reductions in coverage.

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

SCHEDULE OF REVENUES AND EXPENDITURES -
ESTIMATED RECEIPTS AND APPROPRIATIONS COMPARED TO ACTUAL
GENERAL FUND

YEAR ENDED DECEMBER 31, 2022

	ESTIMATED RECEIPTS AND APPROPRIATIONS ORIGINAL	ESTIMATED RECEIPTS AND APPROPRIATIONS FINAL	ACTUAL
REVENUES			
Property Taxes	\$ 1,520,127	\$ 1,520,127	\$ 1,585,077
Personal Property Replacement Taxes	50,000	50,000	206,329
Interest	500	500	4,113
Total Revenues	<u>1,570,627</u>	<u>1,570,627</u>	<u>1,795,519</u>
EXPENDITURES			
ADMINISTRATION			
Education	2,500	2,500	1,783
Meetings	32,000	32,000	19,226
IT Service	25,000	25,000	29,399
Subscriptions	5,000	5,000	3,000
Printing and Publications	3,500	3,500	17,297
	<u>68,000</u>	<u>68,000</u>	<u>70,705</u>
PURCHASE OF EQUIPMENT			
Lab Equipment	-	-	-
Office Equipment	-	-	-
Shop Equipment	-	-	-
Field Equipment	-	-	-
	<u>-</u>	<u>-</u>	<u>-</u>
PURCHASE OF SUPPLIES			
Lab Supplies	38,000	38,000	37,005
Office Supplies	11,600	11,600	18,175
Motor Vehicle Expense	16,000	16,000	21,552
Insecticides	243,253	243,253	554,092
Gasoline	-	-	-
Field Supplies	10,500	10,500	15,954
Shop Supplies	-	-	-
	<u>319,353</u>	<u>319,353</u>	<u>646,778</u>
BUILDING MAINTENANCE			
Building Maintenance and Repair	10,000	10,000	20,339
	<u>10,000</u>	<u>10,000</u>	<u>20,339</u>

(Continued)

Required Supplementary Information

GENERAL FUND SCHEDULE OF REVENUES AND EXPENDITURES-ESTIMATED
RECEIPTS AND APPROPRIATIONS COMPARED TO ACTUAL (Continued)

	ESTIMATED RECEIPTS AND APPROPRIATIONS ORIGINAL	ESTIMATED RECEIPTS AND APPROPRIATIONS FINAL	ACTUAL
UTILITIES			
Electricity	\$ 1,500	\$ 1,500	\$ 3,562
Heat	8,000	8,000	6,773
Water	900	900	479
Telephone	20,647	20,647	21,747
Garbage Collection	1,500	1,500	1,598
	<u>32,547</u>	<u>32,547</u>	<u>34,159</u>
LEGAL AND AUDIT			
Audit	14,242	14,242	12,900
Attorney	18,200	18,200	18,081
Regulatory / Legal Review	-	-	-
	<u>32,442</u>	<u>32,442</u>	<u>30,981</u>
SALARIES AND WAGES			
Salary - Executive Director	112,429	112,429	112,428
Salary - Internal Operations Manager	98,344	98,344	98,344
Salary - Field Supervisor	83,574	83,574	83,574
Salary - Chief Inspector	60,711	60,711	60,711
Salary - Lab Director	112,156	112,156	112,156
Salary - Communications Manager	93,492	93,492	93,492
Salary - Vector Biologist	92,548	92,548	92,548
Consultants	12,000	12,000	11,095
Employee Overtime	14,200	14,200	8,179
Part-time Labor/Overtime	150,000	150,000	180,126
	<u>829,454</u>	<u>829,454</u>	<u>852,653</u>
IMRF AND SOCIAL SECURITY			
Employer's Share of F.I.C.A.	61,000	61,000	65,228
Employer's Share of I.M.R.F.	32,000	32,000	30,598
	<u>93,000</u>	<u>93,000</u>	<u>95,826</u>
INSURANCE			
Employee Health Insurance	115,000	115,000	102,489
Comprehensive and Liability Insurance	45,200	45,200	47,420
Workman's Compensation Insurance	12,300	12,300	9,009
Unemployment Insurance	2,000	2,000	1,911
	<u>174,500</u>	<u>174,500</u>	<u>160,829</u>
CONTINGENCIES			
	<u>6,000</u>	<u>6,000</u>	<u>10,971</u>
Total Expenditures	<u>1,565,296</u>	<u>1,565,296</u>	<u>1,923,241</u>
Excess of Revenues Over Expenditures	5,331	5,331	(127,722)
OTHER FINANCING SOURCES (USES)			
Transfer to Capital Improvements Fund	<u>(270,000)</u>	<u>(270,000)</u>	<u>(170,000)</u>
Net Change in Fund Balances	<u>\$ (264,669)</u>	<u>\$ (264,669)</u>	<u>\$ (297,722)</u>

Required Supplementary Information

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

SCHEDULE OF CHANGES IN NET PENSION (ASSET) LIABILITY AND RELATED RATIOS

CALENDAR YEAR ENDED DECEMBER 31,

	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability									
Service Cost	\$ 56,470	\$ 57,206	\$ 59,361	\$ 58,754	\$ 53,273	\$ 54,451	\$ 59,071	\$ 55,908	\$ 57,778
Interest on the Total Pension Liability	214,982	206,715	180,734	189,173	174,660	204,788	193,359	173,475	158,892
Benefit Changes	-	-	-	-	-	-	-	-	-
Difference between Expected and Actual Experience	89,733	(11,056)	309,244	(257,514)	61,216	(436,658)	52,737	180,904	8,917
Assumption Changes	-	-	(55,722)	-	82,254	(95,060)	-	-	96,616
Benefit Payments and Refunds	(139,408)	(137,515)	(130,841)	(83,398)	(103,927)	(153,340)	(147,616)	(145,865)	(107,794)
Net Change in Total Pension Liability	221,777	115,350	362,776	(92,985)	267,476	(425,819)	157,551	264,422	214,409
Total Pension Liability - Beginning	3,006,743	2,891,393	2,528,617	2,621,602	2,354,126	2,779,945	2,622,394	2,357,972	2,143,563
Total Pension Liability - Ending (a)	\$ 3,228,520	\$ 3,006,743	\$ 2,891,393	\$ 2,528,617	\$ 2,621,602	\$ 2,354,126	\$ 2,779,945	\$ 2,622,394	\$ 2,357,972
Plan Fiduciary Net Position									
Employer Contributions	\$ 30,598	\$ 30,798	\$ 35,534	\$ 23,699	\$ 38,757	\$ 37,484	\$ 38,049	\$ 40,640	\$ 39,890
Employee Contributions	29,738	26,964	27,240	26,529	27,124	25,365	55,359	25,062	23,807
Pension Plan Net Investment Income	(450,491)	549,327	345,776	448,116	(111,849)	483,956	184,372	12,742	148,475
Benefit Payments and Refunds	(139,408)	(137,515)	(130,841)	(83,398)	(103,927)	(153,340)	(147,616)	(145,865)	(107,794)
Other	(48,212)	14,921	210,083	(200,719)	38,883	(536,073)	43,474	114,519	27,954
Net Change in Plan Fiduciary Net Position	(577,775)	484,495	487,792	214,227	(111,012)	(142,608)	173,638	47,098	132,332
Plan Fiduciary Net Position - Beginning	3,742,020	3,257,525	2,769,733	2,555,506	2,666,518	2,809,126	2,635,488	2,588,390	2,456,058
Plan Fiduciary Net Position - Ending (b)	\$ 3,164,245	\$ 3,742,020	\$ 3,257,525	\$ 2,769,733	\$ 2,555,506	\$ 2,666,518	\$ 2,809,126	\$ 2,635,488	\$ 2,588,390
Net Pension Liability/(Asset) - Ending (a) - (b)	\$ 64,275	\$ (735,277)	\$ (366,132)	\$ (241,116)	\$ 66,096	\$ (312,392)	\$ (29,181)	\$ (13,094)	\$ (230,418)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	98.01%	124.45%	112.66%	109.54%	97.48%	113.27%	101.05%	100.50%	109.77%
Covered Valuation Payroll	\$ 660,852	\$ 599,194	\$ 605,342	\$ 589,522	\$ 602,751	\$ 563,670	\$ 570,444	\$ 558,821	\$ 529,044
Net Pension (Asset) Liability as a Percentage of Covered Valuation Payroll	9.73%	-122.71%	-60.48%	-40.90%	10.97%	-55.42%	-5.12%	-2.34%	-43.55%

Note to Schedule: This is presented to illustrate the requirements to show information for 10 years. However, until a full 10-year trend is compiled, information is presented for those years for which information is available.

Required Supplementary Information

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

SCHEDULE OF EMPLOYER PENSION CONTRIBUTIONS

Calendar Year Ended December 31,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Valuation Payroll	Actual Contribution as a Percentage of Covered Valuation Payroll
2022	\$ 30,598	\$ 30,598	\$ -	\$ 660,852	4.63%
2021	30,798	30,798	-	599,194	5.14%
2020	35,534	35,534	-	605,342	5.87%
2019	23,699	23,699	-	589,522	4.02%
2018	38,757	38,757	-	602,751	6.43%
2017	37,484	37,484	-	563,370	6.65%
2016	38,049	38,049	-	570,444	6.67%
2015	40,801	40,801	-	558,821	7.30%
2014	39,890	39,890	-	529,044	7.54%

This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, information is presented for those years for which information is available

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS USED IN THE
CALCULATION OF THE 2022 CONTRIBUTION RATE*

Valuation Date: Actuarially determined contribution rates are calculated as of December 31 each year, which are 12 months prior to the beginning of the fiscal year in which contributions are reported.

Methods and Assumptions Used to Determine 2022 Contribution Rates:

Actuarial Cost Method: Aggregate entry age normal
Amortization Method: Level percentage of payroll, closed
Remaining Amortization Period: 21-year closed period
Asset Valuation Method: 5-year smoothed market; 20% corridor
Wage Growth: 2.75%
Price Inflation: 2.25%, approximate; No explicit price inflation assumption is used in this valuation.
Salary Increases: 2.85% to 13.75%, including inflation
Investment Rate of Return: 7.25%
Retirement Age: Experience-based table of rates that are specific to the type of eligibility condition; last updated for the 2020 valuation pursuant to an experience study of the period 2017 to 2019.
Mortality: For non-disabled retirees, the Pub-2010 Amount-Weighted, below-medial income, General, Retiree, Mail (adjusted 106%) and Female (adjusted 105%) tables, and future mortality improvements projected using scale MP-2020. For disabled retirees, the Pub-2010, Amount-

Required Supplementary Information

Weighted, below-median income, General, Disabled Retiree, Male and Female (both unadjusted) tables, and figure mortality improvements projected using scale MP-2020. For active members, the Pub-2010, Amount-Weighted, below-median income, General, Employee, Male and Female (both unadjusted) tables, and future mortality improvements projected using scale MP-2020.

Other Information:

Notes:

There were no benefit changes during the year.

* Based on Valuation Assumptions used in the December 31, 2020, actuarial valuation; note two year lag between valuation and rate setting.

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

SCHEDULE OF CHANGES IN NET OPEB LIABILITY AND RELATED RATIOS

YEAR ENDED DECEMBER 31,

	2022	2021	2020	2019	2018
Total OPEB Liability					
Service Cost	\$ 34	\$ 40	\$ 6	\$ 5	\$ 5
Interest	524	666	730	1,250	1,417
Changes on Benefit Terms	-	-	-	-	-
Difference between Expected and Actual Experience	(22,529)	-	8,517	-	-
Changes in Assumptions	(37)	(637)	1,349	544	-
Benefit Payments	(6,158)	(5,927)	(5,739)	(5,560)	(5,422)
Net Change in Total OPEB Liability	(28,166)	(5,858)	4,863	(3,761)	(4,000)
Total OPEB Liability - Beginning	28,519	34,377	29,514	33,275	37,275
Total OPEB Liability - Ending (a)	\$ 353	\$ 28,519	\$ 34,377	\$ 29,514	\$ 33,275
OPEB Plan Net Position					
Contributions - Employer	\$ 6,158	\$ 5,927	\$ 5,739	\$ 5,560	\$ 5,422
Contributions - Employee	-	-	-	-	-
Contributions - Other	-	-	-	-	-
Net Investment Income	-	-	-	-	-
Benefit Payments	(6,158)	(5,927)	(5,739)	(5,560)	(5,422)
Administrative Expense	-	-	-	-	-
Employer Net Change in OPEB Plan Net Position	-	-	-	-	-
OPEB Plan Net Position - Beginning	-	-	-	-	-
OPEB Plan Net Position - Ending (b)	\$ -	\$ -	\$ -	\$ -	\$ -
Net OPEB Liability - Ending (a) - (b)	\$ 353	\$ 28,519	\$ 34,377	\$ 29,514	\$ 33,275
OPEB Plan Net Position as a Percentage of Net OPEB Liability	0.00%	0.00%	0.00%	0.00%	0.00%
Covered-Employee Payroll	\$ 653,253	\$ 596,428	\$ 581,042	\$ 589,522	\$ 602,751
Employer Net OPEB Liability as a Percentage of Covered-Employee Payroll	0.05%	4.78%	5.92%	5.01%	5.52%

Note to Schedule: This is presented to illustrate the requirements to show information for 10 years. However, until a full 10-year trend is compiled, information is presented for those years for which information is available.

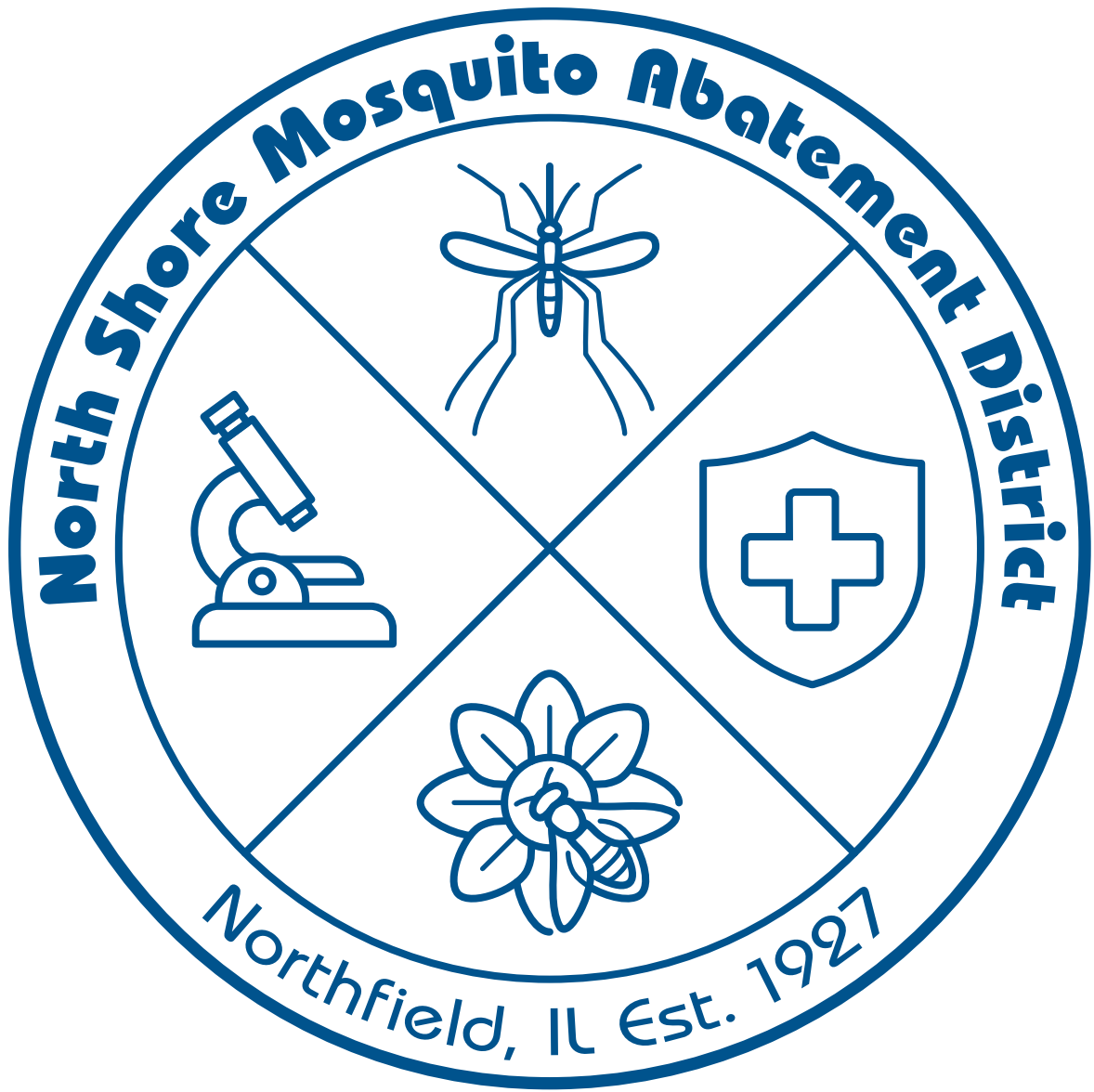
Required Supplementary Information

NORTH SHORE MOSQUITO ABATEMENT DISTRICT
 SCHEDULE OF EMPLOYER OPEB CONTRIBUTIONS

Calendar Year Ended June 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Valuation Payroll	Actual as a Percentage of Covered Valuation Payroll
2022	\$ N/A	\$ -	\$ N/A	\$ 653,253	0.00%
2021	N/A	-	N/A	596,428	0.00%
2020	N/A	-	N/A	581,042	0.00%
2019	N/A	-	N/A	589,522	0.00%
2018	N/A	-	N/A	602,751	0.00%

Notes to the Required Supplementary Information

There is no Actuarially Determined Contribution (ADC) or employer contribution in relation to the ADC, as there is no Trust that exists for funding the OPEB liabilities. However, the District did make contributions from other District resources in the current year in the amount of \$6,158 as a pass-thru.



Annual Report 2022

117 Northfield Road
Northfield, IL 60093
www.nsmad.org
847.446.9434

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

2022 ANNUAL REPORT

TRUSTEES

**John M. Zbesko, President
Nelson Howard, Vice-President
Kathleen Kendrick, Secretary
William Zimmer, Treasurer
Position Vacant During 2022**

EXECUTIVE DIRECTOR

Mark Clifton, Ph.D.

Report prepared by Dave Zazra, Communications Manager, under the direction of Mark Clifton, Executive Director, with the assistance of the NSMAD staff.

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Preface

After 95 years of service, the North Shore Mosquito Abatement District continues to adapt to meet the challenges of a changing world. In 2022, we continued to expand our service offerings, advanced the science of mosquito control through publication and research as well as set the stage for future research and advancement through building improvements and expanded collaborations with our academic partners. We were able to accomplish this while maintaining a flat levy for the sixth year in a row. The North Shore Mosquito Abatement District is proud to share the progress we have made over the last year with our residents and other stakeholders of the 14 communities we serve.

Mosquitoes have been known to favor abandoned tires as they provide the perfect protected wet and dark habitat that is optimal for larval development. Prior to 2022, there were no waste tire collection programs in the North Shore region. Last year, the NSMAD instituted a used tire collection program to reduce the habitat available for mosquitoes to reproduce. Residents were encouraged to contact us to collect their unwanted tires. We collected more than 200 waste tires which would have produced thousands of mosquitoes during the season. Tires were collected from residents' homes, forest preserves, parks, alleys, and utility easements. Using funds from the Illinois Used Tire Fund, the NSMAD was able to have all of these tires recycled with no additional cost to our residents. For more information about our used tire collection program please visit:

https://www.nsmad.org/our_services/how_we_can_help/tire_collection_program.php

The NSMAD was also very active in advancing the science of mosquito control using mosquito-specific larvicide formulations based on bacteria. In December 2022, we published a paper in *The Journal of the American Mosquito Control Association*, which outlined a new and very effective method for using bacteria formulations to control mosquitoes in flooded areas. This technique has been in use around the District since 2019, and is now finding more widespread adoption throughout the country. In addition to our published research, the NSMAD has also signed on as a main collaborator for the CDC's Midwest Center of Excellence in Vector-borne disease. This Center of Excellence is focused on preventing mosquito and tick-borne disease in the Midwest region and the NSMAD will continue serving as a vital field training and research site for the next five years.

Building improvements continued in 2022 with the addition of new laboratory space. This lab space will be utilized to support our collaborations with the CDC as well as to establish a quality control and resistance testing component to our operational program. One of the guiding principles in the way the District operates is to achieve a sustainable mosquito control program that practices good stewardship of materials to ensure that public health is protected from vector-borne disease far into the future. This additional lab space will help ensure that the work we are doing will continue to be effective.

Finally, it is important to highlight some of the operational details of 2022. We responded to 154 service requests from residents, conducted more than 2,800 larval control treatments to flooded areas, inspected more than 5,000 locations for mosquitoes and treated more than 67,000 catch basins. Please continue reading this report for a more comprehensive look at the 2022 season.

Introduction to The North Shore Mosquito Abatement District

The passage of the *Mosquito Abatement District Act* (Chap. 111 ½, Illinois Revised Act) by the Illinois legislature in September 1927, prompted a group of citizens to work for the establishment of a mosquito abatement program for the North Shore of Cook County. This led to the organization of the North Shore Mosquito Abatement District (NSMAD), which was officially chartered on December 8, 1927.

Area Served

The District serves approximately 330,000 residents in the municipalities of Deerfield (east of Pfingsten and south of Lake Cook Road only) Evanston, Glencoe, Glenview (east of Pfingsten Road), Golf, Kenilworth, Lincolnwood, Morton Grove (east of Washington Street), Niles (east of Harlem Avenue), Northbrook (east of Pfingsten Road), Northfield, Skokie, Wilmette and Winnetka.

The area covered by the NSMAD consists of 70 square miles of Cook County's North Shore. This sprawling and diverse area includes more than 900 miles of streets, 40,000 catch basins, 26.9 miles of rivers, 31.8 miles of railroad rights of way, 2.9 miles of ravines, 21.8 miles of bike trails, 17.8 miles of Forest Preserve District trails and approximately 3,500 acres of Forest Preserve District land.

Organization

A five-person Board of Trustees governs the North Shore Mosquito Abatement District. Trustees are residents of the District appointed by the Cook County Board President, and serve without compensation. Operation of the District is supported by taxes levied on property located within the boundaries of the member townships.

The NSMAD employs seven full-time staff members throughout the year and between 10 to 14 seasonal staff members during the months of April through October.

The District office, laboratory and maintenance facility is located at 117 Northfield Road, Northfield, Illinois.

Mission Statement

The NSMAD controls mosquito populations in the District to:

1. Reduce the risk of disease from mosquito-borne illness
2. Minimize the negative impact mosquitoes have on quality of life

Public Health and Mosquitoes

Mosquitoes are responsible for the transmission of many debilitating and potentially deadly diseases around the globe, such as Malaria, Yellow Fever, Dengue, Zika, Filariasis and many forms of viral encephalitis. These diseases are transmitted through the bite of an infected female mosquito.

In the United States, mosquito-borne viral encephalitis is the primary health concern of public health agencies. West Nile Virus (WNV), St. Louis Encephalitis (SLE), Eastern Equine Encephalomyelitis (EEE), Western Equine Encephalitis (WEEV), and La Crosse Encephalitis (LAC), are serious diseases with symptoms ranging from mild or flu-like to severe, including paralysis, coma and death. In northern Illinois, WNV is the mosquito-transmitted virus of greatest concern. Recovery from these diseases can be a long and painful process, with some people never fully recuperating. Unfortunately, there are no vaccines for humans for any of these diseases at this time, and prevention relies on mosquito control and avoiding mosquito bites.

Operations: Integrated Pest Management

Our abatement program is based on the principles of integrated pest management (IPM). IPM utilizes a thorough understanding of the biology and ecology of the mosquitoes and mosquito-transmitted viruses that occur in the District and employs a comprehensive surveillance program to provide the information needed to develop action thresholds and to make sound decisions about mosquito control activities. In addition, IPM utilizes the full range of mosquito control tools and procedures and applies them as appropriate for a given situation.

There are four principal components of the NSMAD Integrated Pest Management Program:

- **Surveillance/Action Thresholds**
- **Larval Control/Source Reduction**
- **Adult Mosquito Control**
- **Public Outreach/Education**

Surveillance Program and Determining Action Thresholds

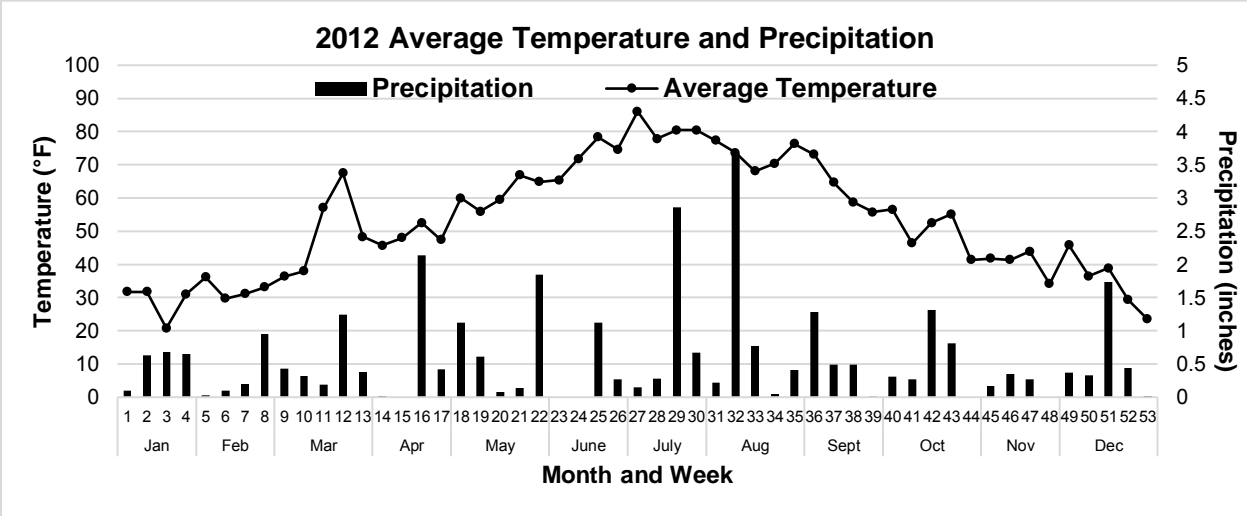
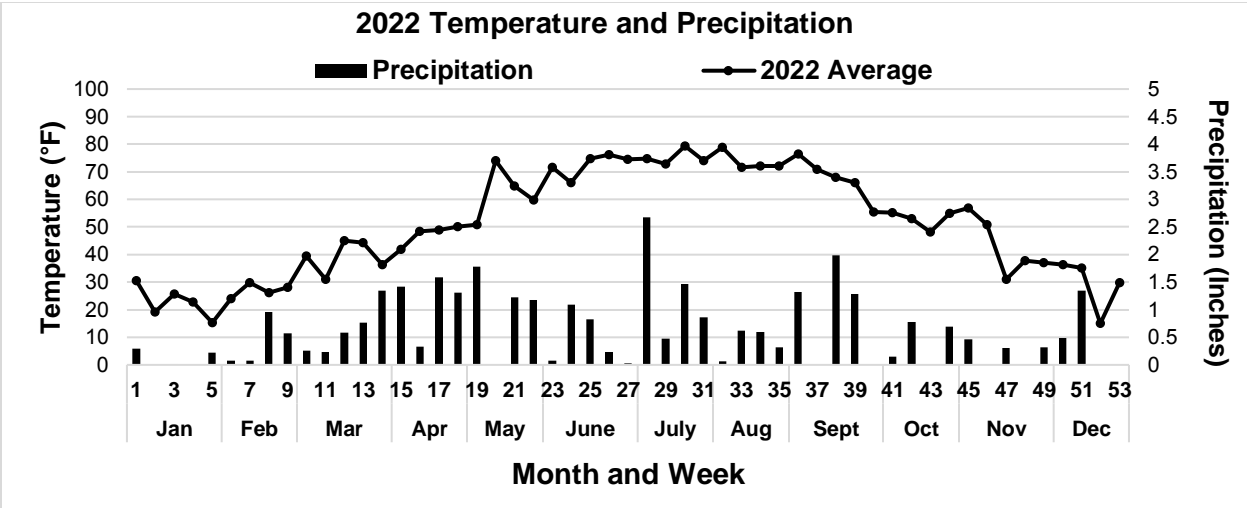
The surveillance program monitors local mosquito population abundance and the prevalence of WNV-infected mosquitoes in the area. We also collect data about weather patterns that are associated with mosquito abundance and WNV activity levels. This information is evaluated against our evidence-based action thresholds and helps us make decisions regarding appropriate control methods.

Environmental Surveillance

Weather conditions have a significant influence on the type and number of mosquitoes produced in the NSMAD. Temperature and rainfall patterns are monitored throughout the year, and help determine when we initiate our surveillance and control efforts and to anticipate the type of mosquito problems we will encounter. Heavy, flooding rains early in the year tend to create large broods of nuisance mosquitoes that can affect the quality of life in the area, while warm and dry early-season conditions tend to create a favorable environment for increased *Culex* mosquitoes and a greater risk of WNV transmission during the latter part of the summer.

Weather Monitoring

The graphs on the following page show the weekly precipitation and average temperature for the 2022 season (top graph) and 2012 (the last outbreak year; bottom graph). Average temperatures during spring 2022 were cooler and wetter than in 2012.



Monitoring Mosquito Populations

We utilize mosquito traps, strategically placed throughout the District to monitor mosquito abundance and WNV infection rates. Nine New Jersey Light Traps (NJLT) are placed in residential yards. These traps are used primarily to monitor the abundance of nuisance mosquitoes in the area. Mosquitoes are attracted to a light source in the trap and a fan blows the mosquitoes into a jar where they are killed and held until picked up by one of the NSMAD field technicians. New Jersey Light Traps are run four nights/week and the collections are made once per week.

Gravid traps are placed at 19 sites throughout the District and are used to capture *Culex* mosquitoes, the vector of WNV and other mosquito-transmitted diseases in this area. These traps are run seven days a week and the collections are returned to the laboratory for processing three times per week. Gravid traps provide a measure of the abundance of *Culex* mosquitoes. In addition, the mosquitoes are tested for the presence of WNV. Mosquitoes collected from the traps are identified to species and sex, then female *Culex* mosquitoes are grouped into batches of 50 or fewer mosquitoes and tested in our laboratory for WNV via Real Time Quantitative Polymerase Chain (RT-qPCR). This information is used to provide an estimate of the WNV risk in the area. In addition to being used by the NSMAD, the data is shared with the Illinois Department of Public Health (IDPH) and the Cook County Department of Public Health (CCDPH) for use in developing statewide and countywide WNV risk evaluations.

Larval mosquito populations are monitored either by directly observing the larval habitat for the presence of mosquito larvae and pupae in the water, or by taking water samples from the aquatic habitats using a standard volume dipper and examining the sample for the presence of larvae or pupae.

2022 West Nile Virus Surveillance Summary

As of the date of this report, the Illinois Department of Public Health is reporting 32 human WNV cases have occurred statewide with five deaths. There were 18 from Cook County. Of the human cases reported in Cook County, one was from a community served by the NSMAD. Symptom onset of this case occurred during week 35.

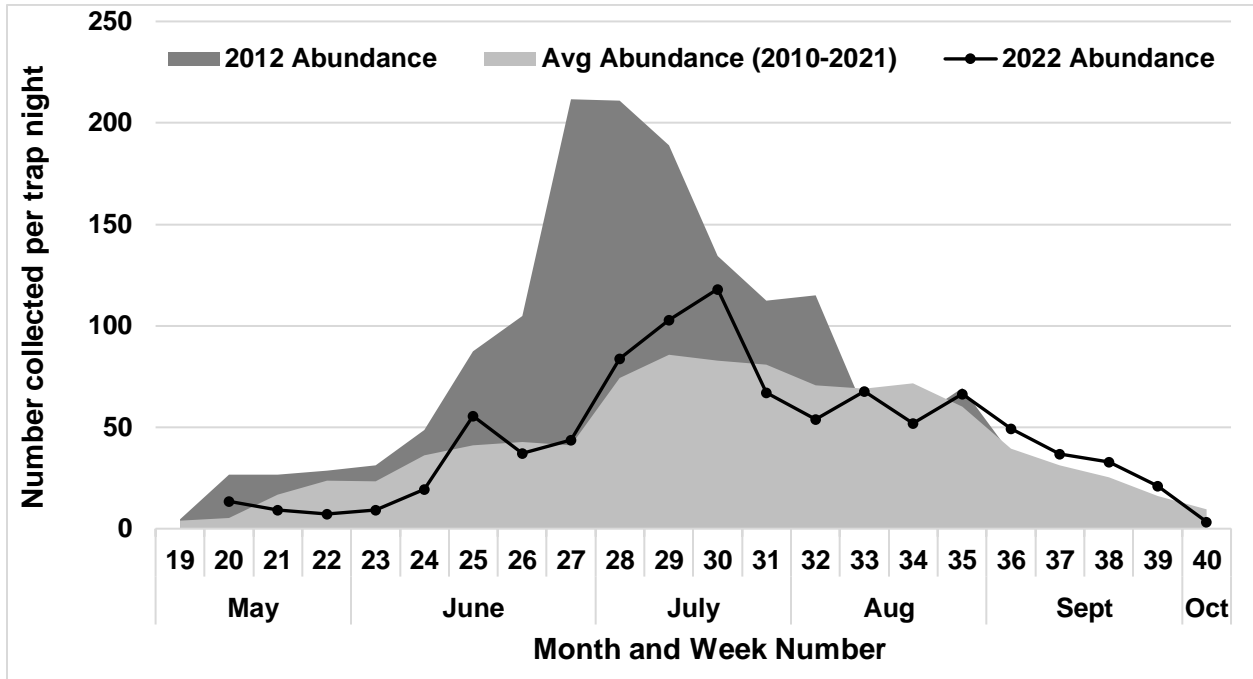
2022 NSMAD WNV Test Results

During 2022, a total of 131,804 *Cx. pipiens/restuans* mosquitoes were collected in our gravid traps. Of these, 73,928 were tested for WNV in a total of 1,726 batches. Evidence of WNV was detected in 456 batches, with positive batches found in all of the municipalities where our gravid traps are placed (see table below).

Municipality	# Positive Batches	# Batches Tested	# of Mosquitoes Tested
Evanston	135	445	19,304
Glencoe	18	84	3,449
Glenview/Golf	47	155	6,328
Kenilworth	24	118	5,173
Lincolnwood	36	136	6,453
Morton Grove	30	91	3,880
Niles	24	96	4,001
Northbrook	8	72	2,987
Northfield	13	68	2,562
Skokie	77	296	12,869
Wilmette	30	106	4,656
Winnetka	14	59	2,266
Totals	456	1,726	73,928

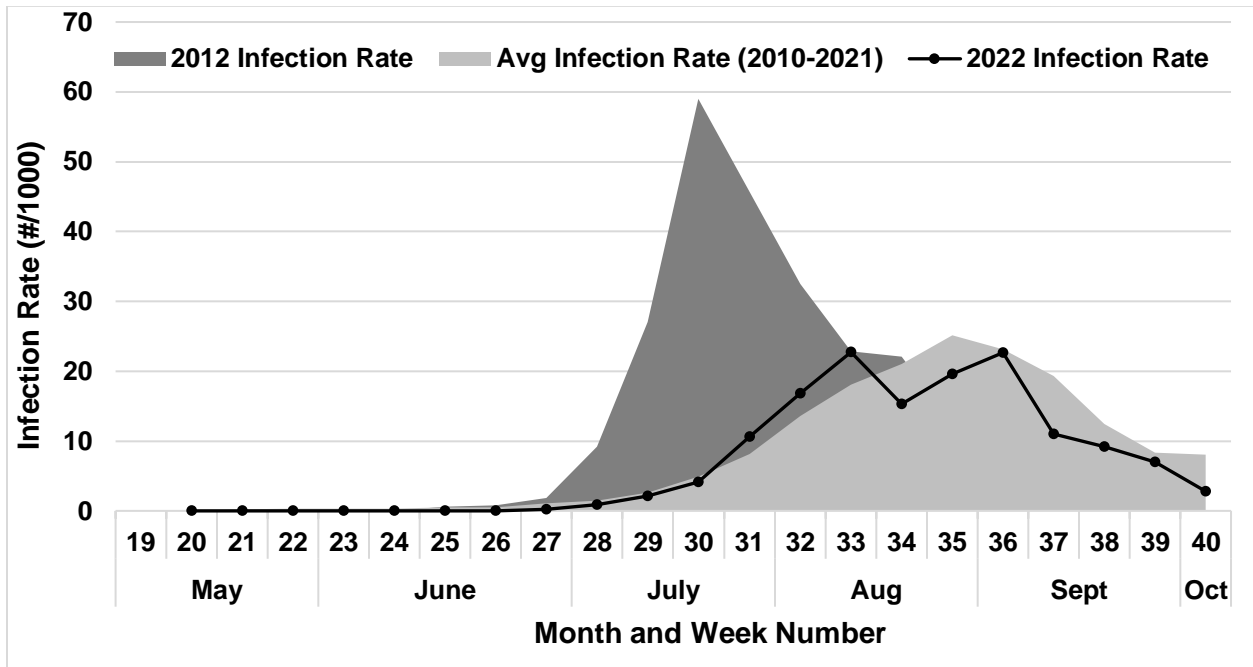
Trap collections for WNV surveillance started May 14, 2022 (week 21). In the graphs on the following pages, 2022 surveillance results are shown as the black line, results obtained during 2012 (the most recent WNV outbreak year with 20 human cases in the District) are shown in the dark grey area, results obtained between 2010 and 2021 (excluding 2012) represent non-outbreak years (0-4 cases per year) and are shown in the light grey area.

Vector Species Abundance: After starting the season slightly above average during the first week of surveillance, *Cx. pipiens/restuans* abundance in our gravid traps were average until week 25, when populations increased and remained above average through the end of the season. WNV surveillance ended September 30, 2022.



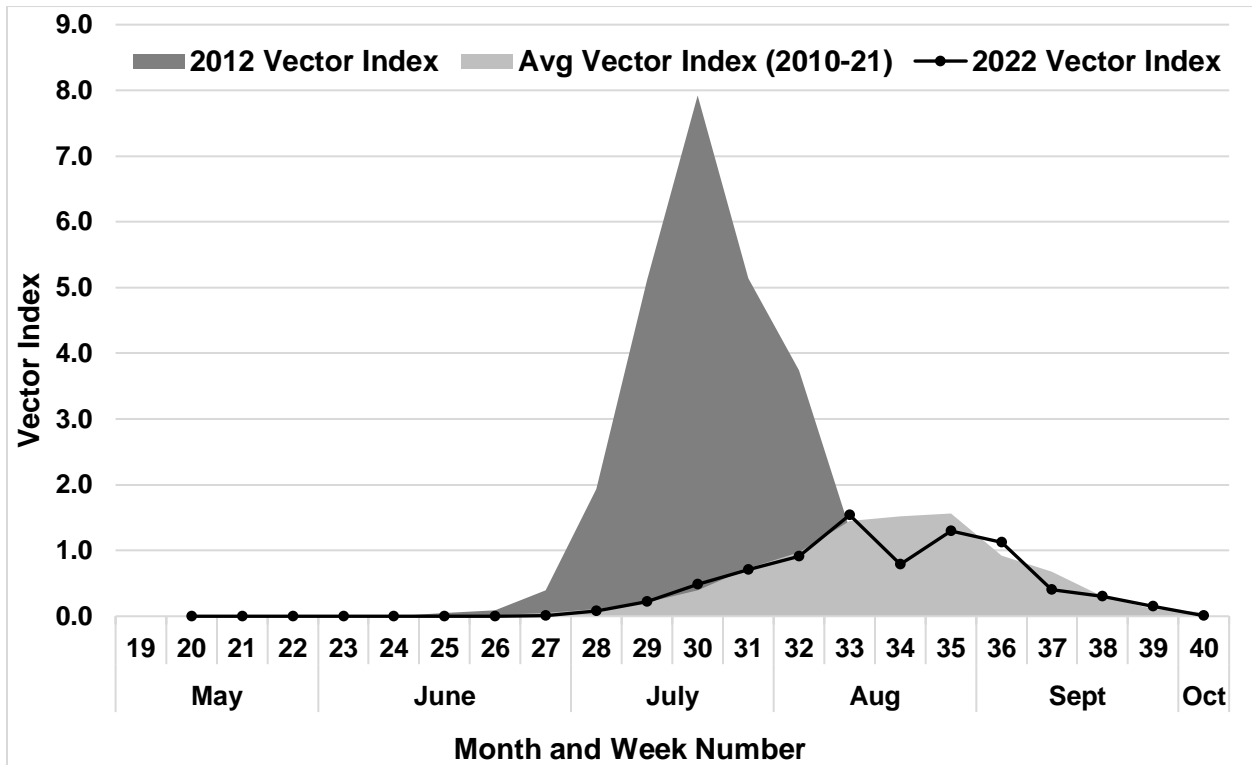
WNV Infection Rate: WNV infection in *Cx. pipiens/restuans* (shown in the graph below as the Maximum Likelihood Estimate of the Infection Rate per 1,000 mosquitoes) was first detected during week 27. At that point, the infection rate was low at 0.23/1,000. Infected mosquitoes were consistently found somewhere in the District during every subsequent week of the surveillance season.

The infection rate peaked at 22.73 during week 33, decreasing in week 34 before increasing during the following three weeks until making a decline that continued through the end of the season.



WNV Vector Index: The Vector Index (VI) combines the *Cx. pipiens/restuans* abundance and infection rate data to produce an estimate of the number of WNV infected mosquitoes in the area. This index is associated with human risk of WNV infection and helps us identify locations and time periods when risk increases. In the NSMAD surveillance program, a vector index >1 occurring early in the season (prior to July) is associated with an increased risk of multiple human WNV cases. We track the weekly VI relative to prior epidemic (2012) and non-epidemic years shown in the graph below. **The NSMAD considers a VI of 0.00-1.00 low risk, a VI of 1.01-3.0 moderate risk, and a VI of 3.01 or greater to be high risk.**

During 2022, the Vector Index did not exceed 1.0 until week 33, about two weeks later than in 2021. It peaked at 1.54 during week 33 and declined to 0.79 in week 34, rebounded to greater than 1.0 for the next two weeks before declining weekly through the end of the season.



**NSMAD Human WNV Cases
Per Year by Community**

Year	Evanston	Glencoe	Glenview	Golf	Kenilworth	Lincolnwood	Morton Grove	Niles	Northbrook	Northfield	Skokie	Wilmette	Winnetka	Total
2002	30	3	16	0	4	3	12	8	3	2	49	22	6	158
2003	1	0	0	0	0	0	0	0	0	0	3	0	0	4
2004	1	0	0	0	0	0	0	0	0	0	1	0	0	2
2005	8	0	4	0	1	0	4	3	2	0	8	6	3	39
2006	3	0	0	0	0	1	0	0	2	0	2	1	1	10
2007	1	0	1	0	0	0	0	0	0	0	1	1	0	4
2008	1	0	1	0	0	0	0	0	0	0	1	0	0	3
2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	1	0	0	0	0	0	0	0	1	0	0	0	0	2
2011	0	0	1	0	1	0	0	0	1	0	0	0	0	3
2012	10	0	3	0	0	0	2	0	0	1	3	1	0	20
2013	0	0	0	0	0	0	0	3	0	0	1	0	0	4
2014	1	0	1	0	0	0	1	0	0	0	0	0	0	3
2015	0	0	0	0	0	0	0	0	1	0	2	0	0	3
2016	1	0	1	0	0	0	0	0	0	1	0	0	0	3
2017	2	1	1	0	0	0	0	0	0	0	0	0	0	4
2018	1	0	1	0	0	3	0	0	1	0	1	0	0	7
2019	0	0	0	0	0	0	0	0	0	0	0	1	0	1
2020	0	0	0	0	0	0	0	0	0	0	0	1	0	1
2021	1	1	0	0	0	0	1	0	3	0	0	1	0	7
2022	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	62	5	30	0	6	7	20	14	14	4	72	35	10	279

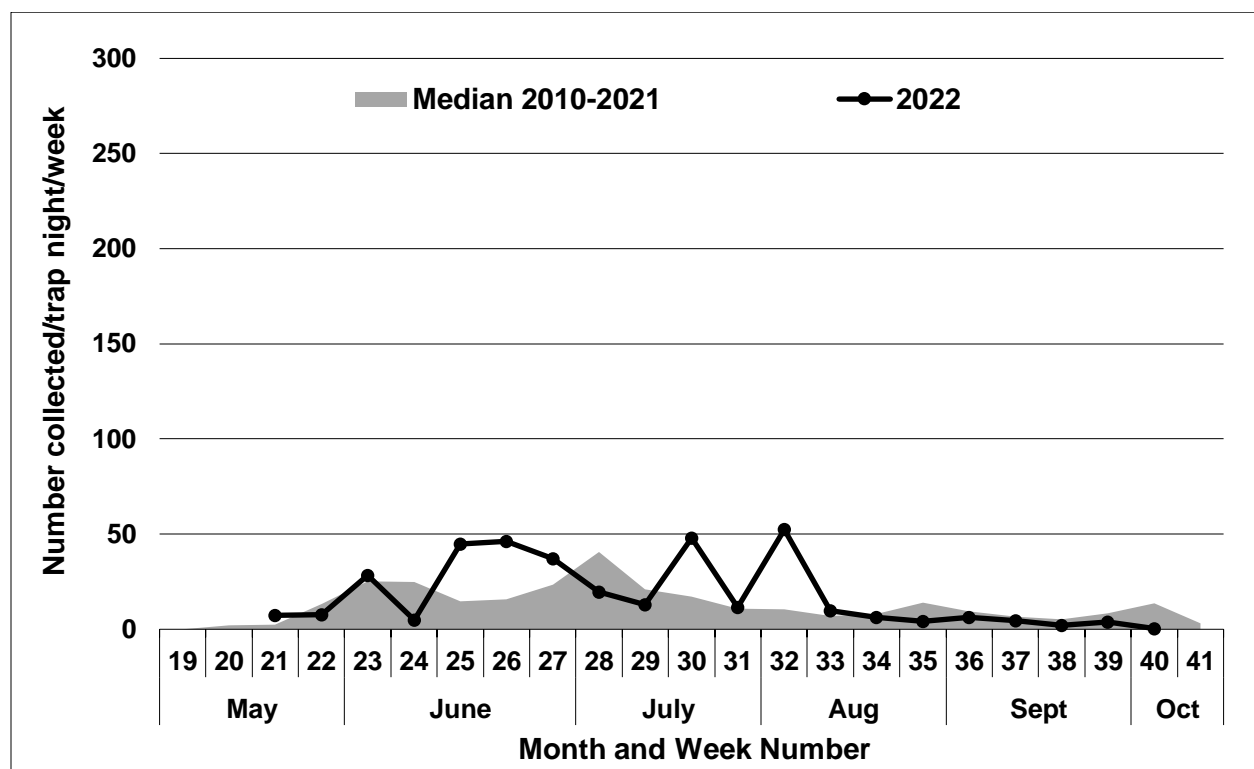
The first West Nile virus outbreak in the NSMAD occurred in 2002. Human WNV cases have occurred in the District each subsequent year with the exception of 2009. Following 2002, outbreaks have occurred in 2005, 2006 and most recently in 2012. Human cases of WNV have been reported from every town served by the NSMAD, with half of the reported cases in the District occurring in Skokie and Evanston.

Nuisance Mosquito Surveillance

New Jersey Light Traps (NJLT) are placed in nine locations throughout the District to sample biting adult mosquitoes that affect quality of life. Specimens are collected four nights per week, identified and counted to provide an estimate of the biting mosquito abundance in the District. This information is used to determine nuisance mosquito levels and plan larval and adult control activities. The graph below shows the median number of mosquitoes (all species) collected per trap night, per week during 2010-2020 in the grey area. The black line indicates the number collected per week during 2022. In general, biting mosquitoes become very noticeable to residents when the abundance reaches 20-30 mosquitoes per trap night.

During 2022, sampling using NJLTs began in mid-May (week 20). There were five weeks when the populations increased to more than 20-30 per night with only one week exceeding 50 per night (week 32 at 52.40). These increases coincided with rainfall events greater than 1.25 inches (see 2022 Temperature and Precipitation graph on page three).

New Jersey Light Trap Collections



2022 Female Mosquitoes Collected by Species

Illinois is home to approximately 75 different mosquito species. The three most commonly collected species are *Aedes vexans*, the primary floodwater/nuisance species found in the District and *Cx. pipiens/restuans*, the primary West Nile virus vectors in the region. The third most abundant species is the invasive Asian Bush Mosquito, *Aedes japonicus*. The number of each species collected by NSMAD surveillance during 2022 is shown below.

Mosquito Species		Trap Type		Totals
		New Jersey	Gravid	
Aedes	<i>albopictus</i>¹	0	25	25
<i>Aedes</i>	<i>canadensis</i>	0	0	0
<i>Aedes</i>	<i>excrucians</i>	0	0	0
<i>Aedes</i>	<i>grossbecki</i>	1	0	1
Aedes	<i>japonicus</i>	4	567	571
<i>Aedes</i>	<i>sticticus</i>	1	0	1
<i>Aedes</i>	<i>stimulans</i>	0	2	2
<i>Aedes</i>	<i>triseriatus</i>	23	181	204
<i>Aedes</i>	<i>trivittatus</i>	16	75	91
Aedes	<i>vexans</i>²	9,364	67	9,431
<i>Anopheles</i>	<i>barberi</i>	4	6	10
<i>Anopheles</i>	<i>punctipennis</i>	85	30	115
<i>Anopheles</i>	<i>quadrimaculatus</i>	106	2	108
Culex	<i>pipiens/restuans</i>³	1,749	131,804	133,553
<i>Culex</i>	<i>salinarius</i>	4	5	9
<i>Culex</i>	<i>tarsalis</i>	1	0	1
<i>Culex</i>	<i>territans</i>	4	0	4
<i>Culiseta</i>	<i>inornata</i>	10	2	12
<i>Coquillettidia</i>	<i>perturbans</i>	4	0	4
<i>Orthopodomyia</i>	<i>signifera</i>	1	21	22
<i>Psorophora</i>	<i>ciliata</i>	0	0	0
	<i>ferox</i>	2	8	10
	<i>howardii</i>	0	0	0
<i>Uranotaenia</i>	<i>sapphirina</i>	148	9	157
Totals		11,527	132,802	144,329

1 *Aedes albopictus* is a potential vector of Chikungunya, and Zika virus

2 *Aedes vexans* are the primary nuisance/floodwater species found within the NSMAD

3 *Culex pipiens/restuans* are the primary WNV vector species found within the NSMAD

Mosquito Control

Mosquito larvae develop in water and are found in a variety of water-holding habitats including numerous types of man-made structures. **Larval Control** is aimed at killing mosquitoes while in their larval stages when they are the most concentrated and accessible. **Source reduction** is the physical elimination and/or reduction of aquatic breeding sites. Our employees are trained to identify potential breeding sources and remove and properly discard them when possible. When the physical elimination of a breeding site is not possible, we utilize a variety of insecticide products specifically designed for larval mosquito control.

During an average season, approximately 90 percent of the District's field program is focused on controlling mosquito larvae. We treat approximately **3,000** off-road sites and more than **40,000** stormwater catch basins every year. Swampy lowland areas, new construction sites, ditches along roadways, railroad rights-of-way, flooded yards, storm sewers and other small, temporary impoundments of water, are potential sources that can produce a brood of mosquitoes in 6-10 days. Fishponds and ornamental pools are also potential mosquito sources. These and other similar habitats are mapped and inspected periodically for the presence of mosquito larvae and are treated when natural predators are not present. Inspection and treatment of these types of areas continues throughout the summer on a weekly basis.

The NSMAD utilizes three categories of larval control products: growth regulators, bacterial insecticides and surface oils. Growth regulators contain methoprene, an insect hormone that is similar to that found naturally in mosquito larvae. Pellet formulations containing methoprene are used to treat small enclosures of water such as poorly maintained ornamental ponds, abandoned swimming pools and catch basins that frequently produce *Culex* mosquitoes. When placed in these sites, the pellets slowly release the active ingredient into the water and prevent mosquito larvae from developing past the pupal stage for at least 30 days. Liquid formulations can be utilized in our ultra-low volume spray machines allowing us to treat the more densely urban areas of the District when necessary. Methoprene-containing formulations are categorized as bio-rational products that have limited effects on non-target organisms.

The bacterially derived larval control products used by the NSMAD contain active ingredients produced by naturally occurring, soil inhabiting, bacteria species: *Bacillus sphaericus* (*B.s.*), *Bacillus thuringiensis var. israelensis* (*Bti*) and *Saccharopolyspora spinosa* (*Spinosad*). These larvicides pose very little risk to humans and other animals. In order to treat small marshes, wastewater, drainage systems, tire dumps, and natural or man-made aquatic sites and catch basins, we apply these bacterial larvicides in granular formulations either by hand, backpack sprayer or in liquid formulations via our Buffalo Turbine for larger sites. *Bti* and *B.s.* granules are used in a variety of habitats ranging from temporary floodwater sites to permanent water sites. *Bacillus sphaericus* performs very well in stagnant and polluted water-areas where the encephalitis transmitting *Culex* breed. Spinosad is derived from a naturally occurring bacterium and is a reduced risk, larval control product formulated as both short-duration and extended-release products for use in a variety of larval habitats.

Surface oils are used when late-stage larvae or pupae are present. These products prevent pupae and larvae from attaching to the water surface to breathe, resulting in their death. Surface oils are quick acting short duration products.

The NSMAD **adult mosquito control** program is comprised of barrier applications and truck mounted, ultra-low-volume (ULV) insecticide applications. Barrier control consists of applying a mosquito insecticide to vegetation (shrubs and bushes, tall grasses, hedges) and surfaces where mosquitoes rest. Care is taken to avoid applying barrier treatments to flowering plants to reduce the potential impact on pollinators. Barrier applications are utilized to protect a limited size area for a relatively short period of time. Under ideal weather conditions, these applications can reduce local biting mosquito numbers for up to four weeks. The NSMAD occasionally uses barrier control to reduce mosquito biting before municipal promoted community events in public

areas, such as picnics, movies in the park, and other special events. We use Flit™ for barrier control treatments.

The NSMAD’s truck mounted ULV sprayers are an essential tool when controlling adult mosquitoes is required. It is used only when action thresholds are met and is applied only in the evening when host-seeking mosquitoes are active. The ULV adult mosquito control operations are used to immediately reduce the adult mosquito population to reduce the number of WNV-infected mosquitoes in an area, to interrupt WNV transmission and to limit the production of new mosquitoes in the area. The ULV technology uses specially designed spray devices to deliver very small amounts of insecticide per acre in a fine aerosol mist that contacts and kills flying mosquitoes. The NSMAD currently uses Duet™, at a rate of 1.25 ounces per acre, for ULV applications. This insecticide contains the active ingredients Sumithrin and Prallethrin, and a Piperonyl Butoxide synergist, providing a quick knockdown of adult mosquitoes with no residual effect.

The NSMAD only conducts ULV adult mosquito control operations at night when mosquitoes are most active and other insects are not. This minimizes exposure to non-target insects such as bees, butterflies and other pollinators.

As part of the adult mosquito control program, the NSMAD maintains a Prior Notification List for residents who wish to be informed before adult mosquito control operations occur in their neighborhood. Residents can sign up for notification via our website to receive either an email or text message alerting them to scheduled adult mosquito control operations, as well as other important mosquito related news. When operations are scheduled, an email or SMS message will be sent to the resident, typically with a 24-hour advance notice.

Persons unable to receive email or SMS notification may contact our office to arrange to be notified via telephone. Residents who wish to have their property skipped during adult mosquito control operations must provide the NSMAD with a physician’s note supporting a medical reason for such action. Please contact us for instructions on submitting your request.

The NSMAD also maintains a list of beehives in the area and avoids applying adult mosquito control products in areas where active beehives are present. These actions, in addition to spraying at night when bees are inactive, provides an added measure protection to these pollinators.

2022 Control Activities Summary

Activity	Quantity
Resident Service Requests	154
Flood Water Sites, Drainage Ditches & Other Non-Catch Basins (Larval Control)	2,853
Resident Biting Mosquito Complaints	21
Site Inspections	5,444
Tires Collected (New Service in 2022)	213
Storm Water Catch Basin Treatments (Larval Control)	67,464
Barrier Treatment (Adult Mosquito Treatment)	1
ULV Adult Mosquito Treatment Nights (Trucks)	Zero

Public Health and Ticks

Ticks are responsible for the transmission of many pathogenic bacteria and viruses. Lyme disease, Rickettsial diseases, Babesiosis, Ehrlichiosis, Anaplasmosis, Tularemia and Heartland Virus are among the diseases that can be transmitted by the 15 known species of ticks found in Illinois. These pathogens are transmitted through the bite of an infected female tick. In general, male ticks will attach to a human host but do not feed long enough or in amounts that facilitate infection.

Distributions of ticks and tick-borne pathogens are increasing nationwide. For example, Black-legged Ticks (*Ixodes scapularis*) capable of transmitting Lyme disease were relatively unknown outside of the Northeast USA thirty years ago but are now widespread throughout the Midwest and East. The Lone Star Tick (*Amblyomma americanum*) previously restricted to Southern and Southeastern states has been expanding its range northward into the Northeast and Midwest. In Illinois, the incidence of tick-borne illness has remained relatively low but is expected to continue to increase due to the expansion of the ranges of many tick species.

Tick Biology

In general, the tick life cycle consists of four stages: Egg, Larva, Nymph and Adult. These stages do not happen in a single season but instead progress over multiple years and often multiple blood meal hosts. Feeding on blood is required for development and reproduction and is, therefore, vital for the tick life-cycle. A habit of blood feeding on multiple hosts also enables the transmission of pathogens such as Lyme disease from one organism to another. For many species of ticks, eggs hatch in the spring to become larvae. Larvae seek an initial blood meal by climbing up vegetation, extending their arms and attaching to an animal that may pass by (this is known as questing). Often this first meal may be a small mammal such as a mouse, squirrel or chipmunk. Larval ticks will become engorged with blood, drop off the host and remain dormant until the spring. During Spring, potentially infected larval ticks will molt into nymphs and pursue a second blood meal. For ticks such as the Black-legged or Deer Tick, a second blood meal can involve a wide variety of organisms including deer or humans. The nymphal tick will molt again into an adult during the summer which will again pursue a third blood meal. This third blood meal will be used to provision eggs for hatching the following spring.

Tick Surveillance

Tick-borne illnesses are an emerging public health challenge that requires monitoring for the species of ticks and pathogens present. Establishing a surveillance system will help guide future public health responses. Tick collections are accomplished by dragging a piece of fabric (tick drag) through woodland habitat and periodically collecting any ticks that have attached. These ticks are identified under a microscope to life stage, gender and species and are stored for pathogen testing at a later date at either the NSMAD or the Illinois Natural History Survey labs.

Monitoring Tick Populations

Beginning in 2019, the NSMAD started to utilize periods of decreased mosquito activity to conduct tick drags in forested areas and identify the species collected, as well as, their relative abundance (ticks per person hour). The information collected will help the NSMAD communicate with the public and public health authorities about the tick-borne diseases.

Tick Collection Results

		2019		2020		2021		2022	
Tick Species	Life Stage	M	F	M	M	F	F	M	F
American Dog Tick (<i>Dermacentor variabilis</i>)	Larvae	0	0	0	0	0	0	0	0
	Nymphs	0	0	0	0	0	0	1	0
	Adults	53	46	19	64	72	27	343	288
Lone Star Tick (<i>Amblyomma americanum</i>)									
	Larvae	0	0	0	0	0	0	0	0
	Nymphs	0	0	0	0	0	0	0	0
	Adults	0	0	0	0	0	0	0	0
Blacklegged/Deer Tick (<i>Ixodes scapularis</i>)									
	Larvae	0	0	0	0	0	0	0	0
	Nymphs	0	0	0	0	0	0	0	0
	Adults	1	0	0	0	4	0	0	4
Brown Dog Tick (<i>Rhipicephalus sanguineus</i>)									
	Larvae	0	0	0	0	0	0	0	0
	Nymphs	0	0	0	0	0	0	0	0
	Adults	0	0	0	0	0	0	0	0
Rabbit Tick (<i>Haemaphysalis leporispalustris</i>)									
	Larvae	0	0	0	0	0	0	0	0
	Nymphs	0	0	0	0	0	0	1	0
	Adults	0	0	0	0	0	0	0	0
Total		54	46	19	64	76	27	345	272

Tick Control

Currently, there are no universally accepted methods for tick control. Personal protective measures such as repellent use, proper clothing and personal behavior remain the best method for preventing tick-borne illness. Acaricides and other pesticides need to be applied in much greater quantities than for mosquito or other insect control to be effective. Proper landscaping around one's home can have a great impact on minimizing tick habitats and further reducing risk.

Operational Research

The NSMAD is very active in advancing the science of mosquito control using mosquito-specific larvicide formulations based on bacteria. In December of 2022, we published a paper in *The Journal of the American Mosquito Control Association*, which outlined a new and very effective method for using bacteria formulations to control mosquitoes in flooded areas. This technique has been in use around the District since 2019 and is now finding more widespread adoption throughout the country. In addition to our published research, the NSMAD has also signed on as a main collaborator for the CDC's Midwest Center of Excellence in Vector-borne Disease (MCE-VBD). This Center of Excellence is focused on preventing mosquito and tick-borne disease in the Midwest and the NSMAD will continue serving as a vital field training and research site for the next five years.

Additional laboratory capacity was added in 2022. This lab space will be utilized to support our collaborations with the CDC, as well as, enhance the quality control and resistance testing component of our operational program. One of the guiding principles in the way the District operates is to achieve a sustainable mosquito control program that practices good stewardship of materials to ensure that public health is protected from vector-borne disease far into the future. The addition of this lab space helps ensure that the work we are doing continues to be effective.

NSMAD Integrated Pest Management Protocol Summary

The table below is excerpted from the NSMAD Pesticide Discharge Management Plan (PDMP) and summarizes the management options, associated surveillance and action thresholds, and the application methods used in the NSMAD integrated pest management program.

Pest Management Options(PMO)	Surveillance / Threshold	Application Method
No Action (Larval)	<ul style="list-style-type: none"> Dip sample shows no signs of larvae present Larvae predators present in habitat Adverse weather is forecast 	N/A
No Action (Adult)	<ul style="list-style-type: none"> Adverse weather is forecast Environmental conditions Mosquito population below threshold 	N/A
Pesticide Application (Larval)	<ul style="list-style-type: none"> Weather or environmental conditions Rainfall producing standing water in forested areas Larval surveillance conducted by dip samples of standing water and containers holding water containing 1-5 larvae per dip on average Seasonal temperature and precipitation changes warrant the beginning of larval control in catch basins and off-road sites Inspecting catch basins and other sources of stagnant water for breeding and larval activity Institutional knowledge and experience Inspecting known mosquito breeding habitats 	Hand or broadcast spreader application of either granular or briquet product using the application rates stipulated on the product labels. Broadcast application of liquid larvicide product via Buffalo Turbine or ULV spray equipment as stipulated on product label.
Source Reduction - Urban	<ul style="list-style-type: none"> Property checks for mosquito breeding and larvae in pools, ponds, fountains and any other container with the ability to hold water Larval dip counts looking for presence of mosquito larvae in containers. 	Removing and or emptying containers that hold water.
Source Reduction - Forested	<ul style="list-style-type: none"> Weather conditions Environmental conditions Rainfall producing standing water in forested areas Institutional knowledge and experience Inspecting known mosquito breeding habitats 	Flood prevention, removing and or emptying containers that hold water, ditch clearing, debris removal, increasing flow of water.
Pesticide Application ULV (Adult Control)	<ul style="list-style-type: none"> WNV positive mosquito pool found via RAMP or PCR test resulting in an infection rate $\geq 5/1000$ WNV, SLE, EEE, or other vector /mosquito borne virus positive human, bird or other animal reported within the district or its border High count or significant increase of public health risk mosquitoes (<i>Cx. pipiens</i>) in trap collection (daily average greater than 45 mosquitoes per trap for ≥ 2 weeks) Resident complaints of mosquitoes. High count or significant increase of nuisance mosquitoes in trap collection (daily average greater than 25 mosquitoes per trap) Combination of precipitation and temperature per institutional knowledge and experience 	Ultra-Low Volume (ULV) application of insecticide via hand or truck mounted spray equipment applied as stipulated on the product labels.
Pesticide Application Barrier (Adult Control)	<ul style="list-style-type: none"> Resident complaints of mosquitoes Public gatherings and events Any combination of light trap counts, gravid counts, WNV or other positive pools of mosquitoes, dip samples or environmental and weather conditions Areas inaccessible to truck ULV 	Insecticide applied to vegetation using a handheld or backpack sprayer as stipulated on the product labels.
Public Relations and Education	<ul style="list-style-type: none"> Continual 	<ul style="list-style-type: none"> Media Relations Public Information Booth/Events Website Intergovernmental Agency Relations Community Outreach Social media Email and SMS messaging

Education and Communications

The NSMAD website (www.nsmad.org) provides residents a user-friendly interface with easy access to a wealth of information. We made improvements to the site this year with the inclusion of a new interactive map of the District and additional options to our service request form, including property inspections. Also new for the 2022 season was the inclusion of our Real Time Treatment Activity web application, that provides visitors to our website the ability to see exactly what mosquito control activities are being conducted throughout the District. Residents are encouraged to visit our website to find out where and when adult mosquito control operations will be taking place (we utilize embedded maps to provide a better visual reference), report biting activity, standing water and any other concerns regarding mosquitoes. Residents can sign up for email and/or SMS text message blasts to provide the most current information regarding our adult mosquito control operations, the risk of infection and other important mosquito news. Additionally, minutes from the NSMAD Board of Trustee's meetings can be found on our website.

The NSMAD Twitter feed (@NorthShoreMAD) is used to provide information on West Nile virus risk, adult mosquito control operations and other important news items and information.

In addition to our website and Twitter feed, the NSMAD has a 24-hour hotline (847-446-9434 and follow the prompts) that residents can call to learn the status of our adult mosquito control program, inform us of matters that we can address (i.e., increased adult mosquito activity in a specific area) and report standing water sites.

Media and Community Relations

During the season, we distribute a weekly status report via email with updates about our surveillance and operations along with information regarding human mosquito-borne illness risk. This report is delivered to more than 170 stakeholders and members of the news media. Additionally, the weekly report is posted on the front page of our website for residents and the general public and is distributed directly to our email and SMS subscribers.

We proactively pursue news media opportunities to cover timely topics such as repellent usage, WNV activity, trap counts, testing data, and when adult mosquito control operations are to be conducted in the District. The NSMAD was consulted on numerous news stories this past year. We provided information for at least 29 news items regarding mosquitoes, mosquito-borne illness and personal protection measures to the Chicago Tribune, the Chicago Sun-Times, the Daily Herald, Pioneer Press, The Daily Northwestern, Evanston Now, the Evanston Roundtable, Patch and other community publications, as well as, WMAQ-TV, WLS-TV, WBBM-TV, WGN-TV and WBBM-News Radio.

During a typical season, the NSMAD public information booth visits numerous public events throughout the year. The Communications Manager, along with other staff members, attend these events to educate residents regarding personal protection methods and answer questions about mosquitoes and our control program. We were able to participate in six events in 2022, Glenview Park District's Earth Day and Get Out & Go, Skokie's National Night Out, the second annual Morton Grove Sustainability Fair, New Trier Township's Wellness Fair and Skokie Park District's Fall Health Fair. We are scheduled to participate in several events during 2023.

2022 marked the first year of our partnership with CivicReady to manage email and SMS/text alerts delivered to our subscribers regarding our mosquito control operations, West Nile virus activity and risk level, as well as, other important mosquito information during the season.

2022 Budget

Purchase of Equipment & Supplies	\$ 144,100.00
Mosquito Control Products	\$ 393,553.00
Building Maintenance & Repairs	\$ 10,000.00
Capital Improvements Fund	\$ 32,200.00
Utilities	\$ 32,547.00
Legal & Audit	\$ 32,442.00
Salaries & Wages (7 Full-Time & 18 Seasonal)	\$ 829,454.00
Social Security	\$ 61,000.00
IMRF	\$ 32,000.00
Liability Insurance	\$ 59,500.00
Health Insurance	\$ 102,500.00
Contingency	<u>\$ 6,000.00</u>
	\$ 1,735,296.00

2022 Staffing

Full Time Staff

- Executive Director: Mark Clifton
- Field and Shop Technician: Justin Bamberg
- Operations Manager: Marlon Henry
- GIS Manager/Field Supervisor: Amy Runde
- Vector Biologist: Christopher Xamplas
- Communications Manager: David Zazra
- Internal Operations Manager: Jennifer Zimmer

Seasonal Staff

- Laboratory: four lab technicians
- Field Operations: 14 field technicians

2022 Pesticide Usage

Larval Mosquito Control Products

Product	# Of Applications	Quantity Used	Acres Treated
Altosid® P35	7,573	302.92 lbs.	7.67323
Altosid® P35 SD	1	20.00 lbs.	0.01148
Altosid® Pellets	7	13.00 lbs.	2.20990
Altosid® SR-20	120	360.00 lbs.	360.24622
Altosid® XR-G	7	46.00 lbs.	4.60000
BVA Larvicide Oil	50	0.88 gal.	0.17554
Natular™ G	13	49.00 lbs.	4.90000
Natular™ G30	15,530	1,401.16 lbs.	27.31036
Natular™ XRT	570	744.00 briquets	101.12842
Sumilarv® 0.5G	13	1.15 lbs.	6.94545
Sumilarv® 0.5G WSP	28,225	86,112.00 pouches	62.82323
VectoBac® WDG	19	100.00 lbs.	98.56351
VectoLex® FG	818	1,744.75 lbs.	473.42452
VectoLex® WDG	184	559.25 lbs.	553.48624
VectoLex® WSP	7,863	15,778.00 pouches	18.90140
VectoMax® FG	1,489	3,201.71 lbs.	491.28695
VectoMax® WSP	9,131	18,271.00 pouches	20.93637
VectoPrime® FG	107	398.50 lbs.	39.85000
Total Applications/Treatments: 71,721			
Total Acres Treated: 2,275.47			

Adult Mosquito Control Products

Product	Applications	Amount	Acres Treated
Duet™ ULV	Zero	Zero	Zero
Flit™ 13.3	1	1.0 oz.	1.0

2022 Vehicles and Equipment

Vehicles

- 1 2007 GMC Canyon 4x4 Pick-Up Truck
- 1 2011 Ford F250 4x4 Pick-Up Truck w/ Snow Plow
- 1 2011 Ford Escape SUV
- 1 2012 Ford F150 Pick-Up Truck
- 1 2012 Toyota Tacoma Pick-Up Truck
- 1 2014 Ford F150 Pick-Up Truck
- 1 2015 GMC Sierra K1500 4x4 Pick-Up Truck
- 1 2015 GMC Canyon Crew Cab Pick-Up Truck
- 2 2016 GMC Canyon Pick-Up Truck
- 1 2016 GMC Sierra K1500 4x4 Pick-Up Truck
- 1 2018 GMC Canyon Pick-Up Truck
- 1 2019 Ford F250 Flatbed Truck
- 2 2019 GMC Canyon Pick-Up Truck
- 1 2021 Ford F150 Crew Cab Pick-Up Truck
- 1 2021 Ford Ranger Pick-Up Truck
- 1 2022 Ford Maverick Pick-Up Truck

Equipment

Application Equipment

- 6 Cougar Ultra Low Volume Sprayers (Gas Engine)
- 2 ProMist Dura Ultra Low Volume Sprayers (Electric)
- 11 Stihl® Backpack Sprayers
- 3 Maruyama Backpack Sprayers
- 1 Vortex Granular Spreader
- 1 Stihl® Manual Backpack Sprayer
- 1 Buffalo Turbine Mist Sprayer
- 3 DeWalt® Granular Spreaders

Trap Equipment

- 10 BG Sentinel™ Traps
- 4 BG Counters
- 10 CO₂ Traps
- 30 Gravid Traps
- 15 New Jersey Light Traps
- 8 Encephalitis Virus Traps (EVS)
- 11 Gravid *Aedes* Traps (GAT)
- 3 Passive Box Traps

Information maintained by the Legislative Reference Bureau

Updating the database of the Illinois Compiled Statutes (ILCS) is an ongoing process. Recent laws may not yet be included in the ILCS database, but they are found on this site as [Public Acts](#) soon after they become law. For information concerning the relationship between statutes and Public Acts, refer to the [Guide](#).

Because the statute database is maintained primarily for legislative drafting purposes, statutory changes are sometimes included in the statute database before they take effect. If the source note at the end of a Section of the statutes includes a Public Act that has not yet taken effect, the version of the law that is currently in effect may have already been removed from the database and you should refer to that Public Act to see the changes made to the current law.

**SPECIAL DISTRICTS
(70 ILCS 1005/) Mosquito Abatement District Act.**

(70 ILCS 1005/0.01) (from Ch. 111 1/2, par. 73.990)

Sec. 0.01. Short title. This Act may be cited as the Mosquito Abatement District Act.
(Source: P.A. 86-1324.)

(70 ILCS 1005/1) (from Ch. 111 1/2, par. 74)

Sec. 1. Any contiguous territory having a population of not less than 300 inhabitants and no part of which is already included in a mosquito abatement district may be organized as a mosquito abatement district in the following manner:

Any 5% of the legal voters within the limits of the proposed mosquito abatement district may petition the circuit court for the county in which such territory lies, to order the question whether such territory shall be organized as a mosquito abatement district under this Act to be submitted to the legal voters of such territory, but every petition shall be signed by at least 25 legal voters residing within the territory proposed to be organized as a mosquito abatement district, and in case such territory includes more than one city, village or incorporated town, or any portions thereof, or includes one or more cities, villages or incorporated towns, or any portion thereof and territory not a part of any city, village or incorporated town, then such petition must be signed by at least 5% of the legal voters residing in each of the said cities, villages, or incorporated towns, or portions thereof, and by at least 5% of the legal voters residing in the territory not a part of any city, village or incorporated town. Such petition addressed to the court shall contain a definite description of the boundaries of the territory proposed to be organized as a mosquito abatement district, and shall set forth the name of the proposed district, which name shall be The... Mosquito Abatement District.

(Source: P.A. 81-1489.)

(70 ILCS 1005/2) (from Ch. 111 1/2, par. 75)

Sec. 2. Upon the filing of such a petition in the office of the circuit clerk the court to whom the petition is addressed shall give notice of the time and place of a hearing on the question of the necessity for the organization of such a district and of the boundaries of such district. The notice shall be published at least once each week for 2 weeks in one or more newspapers of general circulation in the proposed district, and a copy of the notice shall be posted in at least 10 of the most public places in the district at least 10 days before the hearing. The hearing shall be held within 20 days after the petition is filed with the circuit clerk.

The court shall preside at the hearing, and all persons resident within the territory proposed to be organized as a mosquito abatement district shall be given an opportunity to be heard touching the necessity of the organization of such a

district and to make suggestions regarding the boundaries of the district. After hearing the statements, evidence and suggestions if the court determines that considerations of public health and welfare make the organization of such a district necessary it shall fix the boundaries of the proposed mosquito abatement district and for that purpose and to that extent it may alter and amend the petition. In case the boundaries as fixed by the court include any territory not included in the boundaries as described in the original petition, the court shall cause a notice to be inserted at least twice in some newspaper of general circulation in the additional territory, which notice shall state the time and place at which a hearing will be held to permit the owners of the land in the additional territory to appear and be heard on the question of including the additional territory. The notice shall be published at least 10 days before the hearing, and the hearing shall be held within 3 weeks after the court first fixes the boundaries. At the hearing the boundaries of the proposed district shall be finally fixed by the court.

(Source: P.A. 76-1373.)

(70 ILCS 1005/3) (from Ch. 111 1/2, par. 76)

Sec. 3. The determination of the court as to the necessity for the organization of the proposed mosquito abatement district, together with the description of the boundaries of such district as fixed by such court, shall be entered of record in the court. Thereupon the court shall certify the question of the organization of the territory included within the boundaries fixed by it as a mosquito abatement district to the proper election officials who shall submit the question to the legal voters resident within such territory at an election to be held in the district. Notice of such referendum shall be given and the referendum conducted in the manner provided by the general election law. The notice of such election shall state the purpose of the referendum, describe the territory proposed to be organized as a mosquito abatement district, and state the time of such election.

The proposition shall be in substantially the following form:

```

-----
      Shall this territory (describing          YES
it) be organized as The ..... -----
Mosquito Abatement District?                NO
-----

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The court shall cause a statement of the result to be entered of record in the court.

(Source: P.A. 90-655, eff. 7-30-98.)

(70 ILCS 1005/4) (from Ch. 111 1/2, par. 77)

Sec. 4. If a majority of the votes cast on the question are in favor of the organization of the territory as a mosquito abatement district such territory shall thenceforth be deemed an organized mosquito abatement district under this Act. The district so organized shall have the name set forth in the petition and by such name may transact all corporate business. Such district shall constitute a body corporate and politic and exercise the powers herein prescribed. All courts of this State shall take judicial notice of the organization of the said mosquito abatement district.

(Source: Laws 1927, p. 694.)

(70 ILCS 1005/5) (from Ch. 111 1/2, par. 78)

Sec. 5. Within 60 days after the organization of any mosquito abatement district under the provisions of this Act a

board of trustees, consisting of 5 members, for the government and control of the affairs and business of such mosquito abatement district shall be appointed in the following manner:

(1) If the district lies wholly within a single township, the board of trustees of that township shall appoint the trustees for the district but no township official is eligible for such appointment;

(2) If the district is not contained wholly within a single township, but is located wholly within a single county, the trustees for the district shall be appointed by the presiding officer of the county board with the advice and consent of the county board;

(3) If the district lies wholly within a municipality, the governing body of the municipality shall appoint trustees for the district;

(4) If the district does not conform to any of the foregoing classifications, the trustees for the district shall be from each county in the district in numbers proportionate, as nearly as practicable, to the number of residents of the district who reside in each county in relation to the total population of the district. Trustees shall be appointed by the county board of their respective counties, or in the case of a home rule county as defined by Article VII, Section 6 of the Illinois Constitution, by the chief executive officer of that county with the advice and consent of the county board.

Upon the expiration of the term of a trustee who is in office on the effective date of this amendatory Act of 1975 or at the time of the publication of each decennial Federal census of population, the successor shall be a resident of whichever county is entitled to such representation in order to bring about the proportional representation required herein, and he shall be appointed by the appointing authority of that county. Thereafter, each trustee shall be succeeded by a resident of the same county who shall be appointed by the same appointing authority. Of the trustees thus appointed 3 shall hold office until the second Monday in December after the next succeeding general election for members of the General Assembly and 2 shall hold office until the second Monday in December, 2 years after the next succeeding general election for members of the General Assembly, and until their successors are appointed and qualified. Thereafter the trustees of the district shall be appointed in every year in which the term of any of the trustees expires and shall hold office for 4 years and until their successors are appointed and qualified. Each trustee shall be a legal voter in the district, and such trustees shall serve without compensation.

Whenever a vacancy occurs in the board of trustees the appropriate appointing authority shall appoint some person to fill the remainder of the unexpired term.

(Source: P.A. 82-783.)

(70 ILCS 1005/6) (from Ch. 111 1/2, par. 79)

Sec. 6. The trustees appointed in accordance with the foregoing provisions shall constitute a board of trustees for the mosquito abatement district for which they are appointed, and such board of trustees is declared to be the corporate authority of said district and shall exercise all of the powers and control all of the affairs and property of such district. Such board of trustees may provide and adopt a corporate seal. Immediately after their appointment and at their first meeting in December of each year thereafter the board of trustees shall elect one of their number as president, one as secretary, and one as treasurer, and shall elect such other officers as may be necessary. The board of trustees shall provide for the time and

place of holding its regular meetings, and may establish rules for its proceedings. Special meetings may be called by the president of the board or by any three trustees, but each member of the board shall be given notice of such special meeting at least three hours prior thereto. All of the meetings of such board, whether regular or special, shall be open to the public. A majority of the board of trustees shall constitute a quorum but a smaller number may adjourn from day to day. Said board shall keep a regular book of records of all of the proceedings of said board, which book shall be open to the inspection of any person residing in said district at all reasonable and proper times.

(Source: Laws 1927, p. 694.)

(70 ILCS 1005/7) (from Ch. 111 1/2, par. 80)

Sec. 7. The board of trustees of such district shall have power to take all necessary or proper steps for the extermination of mosquitoes, flies or other insects within the district, and, subject to the paramount control of the municipal or other public authorities, to abate as nuisances all stagnant pools of water and other breeding places for mosquitoes, flies or other insects within the district; to purchase such supplies and materials and to employ such labor and assistants as may be necessary or proper in furtherance of the objects of this Act, and if necessary or proper, in the furtherance of the same, to build, construct and thereafter to repair and maintain necessary levees, cuts, canals or channels upon any land within the district, and to acquire by purchase, condemnation or other lawful means, in the name of the district, any necessary lands, rights of way, easements, property or material requisite or necessary for any such purpose; to make contracts to indemnify or compensate any owner of land or other property for any injury or damage necessarily caused by the exercise of the powers of this Act conferred or arising out of the use, taking or damage of such property for any such purposes, and generally to do any and all things necessary or incident to the powers hereby granted and to carry out the objects specified herein.

(Source: Laws 1927, p. 694.)

(70 ILCS 1005/7.1) (from Ch. 111 1/2, par. 80.1)

Sec. 7.1. Sale of personal property.

Whenever any mosquito abatement district owns any personal property which in the opinion of three-fourths of the members of the board of trustees is no longer necessary or useful to, or for the best interests of the district, such a majority of the board of trustees then holding office, at any regular meeting or at any special meeting called for that purpose, by ordinance may authorize the sale of that personal property in such manner as they may designate, with or without advertising the sale.

(Source: P.A. 76-619.)

(70 ILCS 1005/7.2) (from Ch. 111 1/2, par. 80.2)

Sec. 7.2. Sale of real estate.

Any mosquito abatement district which acquires or holds any real estate for any purpose whatsoever has the power to convey the real estate when, in the opinion of three-fourths of the members of the board of trustees, the real estate is no longer necessary, appropriate, required for the use of, profitable to, or for the best interests of the mosquito abatement district. This power shall be exercised by an ordinance passed by such majority of the board of trustees then holding office, at any regular meeting or at any special meeting called for that purpose.

(Source: P.A. 76-619.)

(70 ILCS 1005/7.3) (from Ch. 111 1/2, par. 80.3)

Sec. 7.3. Ordinance directing sale-Publication-Bids-Deed of Conveyance.

An ordinance directing a sale of real estate shall specify the location of the real estate, the use thereof, and such conditions with respect to further use of the real estate as the board of trustees may deem necessary and desirable to the public interest. Before the board of trustees makes a sale, by virtue of such an ordinance, notice of the proposal to sell shall be published once each week for three successive weeks in a daily or weekly paper published in any county in which the mosquito abatement district is located. The first publication shall be not less than 30 days before the day provided in the notice for the opening of bids for the real estate. The notice shall contain an accurate description of the property, state the purpose for which it is used, the consideration which is acceptable for the sale, and the date of the regular or special meeting the bids will be considered and opened, and shall advertise for bids therefor. The board of trustees may accept the highest responsible bid by a vote of three-fourths of the members of the board of trustees then holding office, or by such majority vote of those holding office, they may reject any and all bids. If consideration other than money is offered for the sale of such real estate, the monetary value of that consideration must be determined by an appropriate, independent appraiser, and the appraisal must accompany the bid. Before accepting a bid of consideration other than money, the board of trustees must obtain a second, independent appraisal of such consideration in order to verify the appraisal which accompanied the bid.

If a bid is accepted by the board of trustees and the ordinance has been adopted and the consideration paid or secured, the chairman of the board of trustees shall convey the real estate and transfer it by proper deed of conveyance, stating therein the consideration therefor.

(Source: P.A. 76-619.)

(70 ILCS 1005/7.4) (from Ch. 111 1/2, par. 80.4)

Sec. 7.4. Purchases made pursuant to this Act shall be made in compliance with the "Local Government Prompt Payment Act", approved by the Eighty-fourth General Assembly.

(Source: P.A. 84-731.)

(70 ILCS 1005/7.5)

Sec. 7.5. Eminent domain. Notwithstanding any other provision of this Act, any power granted under this Act to acquire property by condemnation or eminent domain is subject to, and shall be exercised in accordance with, the Eminent Domain Act.

(Source: P.A. 94-1055, eff. 1-1-07.)

(70 ILCS 1005/8) (from Ch. 111 1/2, par. 81)

Sec. 8. The board of trustees of any mosquito abatement district shall, in its work, advise and cooperate with the Department of Public Health of the State, and the board of trustees of such district shall submit to such Department, on or before January 1st of each year, a report of the work done and results obtained by the district during the preceding year.

The board of trustees of any mosquito abatement district, or its designee, shall conduct routine surveillance of mosquitoes to detect the presence of mosquito-borne diseases of public health significance. The surveillance shall be conducted in accordance with mosquito abatement and control guidelines as set

forth by the U.S. Centers for Disease Control and Prevention. Areas reporting disease in humans shall be included in the surveillance activities. Mosquito abatement districts shall report to the local certified public health department the results of any positive mosquito samples infected with any arboviral infections, including, but not limited to: West Nile Virus, St. Louis Encephalitis, and Eastern Equine Encephalitis. Reports shall be made to the local certified public health department's director of environmental health, or a designee of the department, within 24 hours after receiving a positive report. The report shall include the type of infection, the number of mosquitoes collected in the trapping device, the type of trapping device used, and the type of laboratory testing used to confirm the infection. Any trustee of a mosquito abatement district, or designee of the board of trustees of a mosquito abatement district, that fails to comply with the requirements of this Act is guilty of a Class A Misdemeanor.
(Source: P.A. 93-734, eff. 7-14-04.)

(70 ILCS 1005/9) (from Ch. 111 1/2, par. 82)

Sec. 9. Any mosquito abatement district organized under the provisions of this Act may levy and collect a general tax on the property situated in such district, but the aggregate amount of taxes levied for any one year shall not exceed the rate of .025%, or the limitation in effect on July 1, 1967, whichever is greater, of value, as equalized or assessed by the Department of Revenue. The board of trustees shall determine and certify the amount to be levied and shall return the same to the county clerk. The county clerk in reducing the tax levies under Section 2 of "An Act concerning the levy and extension of taxes", approved May 9, 1901, as amended, shall not include the tax authorized by this Act in the limitation of one per cent of the assessed valuation upon which taxes are required to be extended. The foregoing limitations upon tax rates may be increased or decreased under the referendum provisions of the General Revenue Law of Illinois.

In case the district is located in more than one county the board of trustees shall determine and certify the amount to be levied upon the taxable property lying in each county and return the same to the respective county clerks of the counties in which the amount is to be levied. In order to determine the amount to be levied upon the taxable property of that part of the district lying in each county the board shall ascertain from the county clerk of the respective counties in which the district lies, the last ascertained equalized value of the taxable property of such district lying in their respective counties, then shall ascertain the rate per cent required and shall, accordingly, apportion the whole amount to be raised between the several parts of the district so lying in the different counties. The tax provided for in this Section shall be levied at the same time and in the same manner as nearly as practicable as taxes are now levied for city and village purposes under the laws of this State.

All such general taxes when collected shall be paid over to the treasurer of the board of trustees, who is authorized to receive and receipt for the same.
(Source: P.A. 81-1509.)

(70 ILCS 1005/9.1) (from Ch. 111 1/2, par. 82.1)

Sec. 9.1. Any mosquito abatement district organized under the provisions of this Act in the preparation of its annual budget and appropriation ordinance may provide that an amount equal to not more than one-half of one percent of the total equalized assessed value of real property situated in the

district shall be allocated to and accumulated in a Capital Improvement, Repair or Replacement Fund for the purposes of specific capital improvements, repairs or replacements of specific types of district equipment or other real or personal property. Expenditures from the Capital Improvement, Repair or Replacement Fund shall be budgeted and appropriated for the fiscal year in which the capital improvement, repair or replacement will occur. Upon completion or abandonment of any object or purpose for which a Capital Improvement, Repair or Replacement Fund has been initiated, monies remaining in such fund shall be transferred into the general corporate fund of the district on the first day of the fiscal year following such abandonment or completion resulting in such surplus monies in such fund.

(Source: P.A. 83-171.)

(70 ILCS 1005/9.5)

Sec. 9.5. Levy and collection of taxes by municipalities and districts for mosquito abatement services. If a municipality budgets for and provides mosquito abatement services and levies, within its general tax levy, a tax to fund those services, and if the municipality lies wholly or partially within a district that also levies a district tax upon territory that lies in both the affected municipality and the district, then:

(1) The affected municipality shall pay to the district the amount collected by the municipality from its levy upon territory that lies within the affected district that is also levying a district tax on the territory for the same type and quantity of services.

(2) Whenever a district receives any payment from any municipality, as provided for in this Section, the district shall reduce and abate the taxes levied by the district on the territory that is subject to taxation for the same type and quantity of mosquito abatement purposes by both the affected municipality and the district, at a rate that would reduce the taxes by an amount equal to the amount received by the district.

(Source: P.A. 90-431, eff. 8-16-97.)

(70 ILCS 1005/10) (from Ch. 111 1/2, par. 83)

Sec. 10. Any territory lying adjacent and contiguous to a mosquito abatement district, and not part of another mosquito abatement district, may be annexed to such district in the following manner:

(a) Upon petition in writing, describing the territory proposed to be annexed and signed by a majority of the legal voters in such territory and by the owners of more than half of the taxable property in such territory as shown by the last ascertained equalized value of the taxable property in such territory, being filed with the trustees of such mosquito abatement district, such trustees may annex such territory by a resolution which shall be published at least once in a newspaper having a general circulation in the territory and shall include a notice of (1) the specific number of voters required to sign a petition requesting that the question of the adoption of the resolution be submitted to the electors of the territory; (2) the time in which the petition must be filed; and (3) the date of the prospective referendum. The county clerk of the county in which the territory is situated shall provide a petition form to any individual requesting one. The resolution shall be effective 30 days from the date of publication and is subject to a referendum, if such referendum is requested, prior to the effective date of the resolution, by the voters in the district equal to 10% or more of the registered voters in the district.

Such trustees may also order the question of the annexation of such territory to be submitted to the legal voters of such district at a regular election therein by certifying the question to the proper election officials. Notice of such election shall be given and the election conducted in the manner provided by the general election law. The proposition shall be stated, "Shall the territory (describing it) be annexed to The.... Mosquito Abatement District?" If the majority of all the votes cast on the question is in favor of such annexation, the board of trustees shall so certify to the county clerk, and within ten days of such election the trustees by an order duly entered upon their records shall annex such territory to the district and shall file a map of the annexed territory in the office of the county clerk of the county where the annexed territory is situated. Thereupon such territory shall be deemed annexed to and shall be a part of such mosquito abatement district.

(b) Whenever a mosquito abatement district contains over 90% of territory of a specific city or village, the mosquito abatement district may annex additional adjacent and contiguous territory within that city or village, but not incorporated within a mosquito abatement district, by the passage of an ordinance to that effect.

The ordinance authorizing the annexation shall be published within 10 days after the ordinance has been adopted, in one or more newspapers having a general circulation within the territory. The publication of the ordinance shall be accompanied by a notice of (1) the specific number of voters required to sign a petition requesting the question of annexation; (2) the time within which the petition must be filed; and (3) the date of the prospective referendum. The county clerk of the county in which the territory is situated shall provide a petition form to any individual requesting one.

The ordinance shall take effect 30 days after the date of publication unless a referendum is requested prior to the effective date of the ordinance by 10% or more of the registered voters in the territory. The question of the annexation of the territory may be submitted to the legal voters of the territory at a regular election by certifying the question to the proper election officials. Notice of the election shall be given and the election conducted in the manner provided by the general election law. The proposition shall be stated, "Shall the territory (describing it) be annexed to The.... Mosquito Abatement District?" If the majority of all the votes cast on the question is in favor of the annexation, the territory shall be deemed annexed to and shall be a part of the mosquito abatement district.

No territory may be annexed under this subsection (i) more than one year after it has first been included in that city or village unless the territory so annexed is 50 acres or less or (ii) if the annexation would expand the mosquito abatement district's boundaries outside of a county unless the district already contains territory in that county.

(Source: P.A. 95-664, eff. 10-11-07.)

(70 ILCS 1005/11) (from Ch. 111 1/2, par. 84)

Sec. 11. Any mosquito abatement district organized under the provisions of this Act may be dissolved and discontinued upon like petition, hearing and election as is provided in this Act for the organization of such district. If a majority of the votes cast on the question at such election are in favor of such dissolution, the court shall enter an order of record in the court dissolving such district. The trustees of such mosquito abatement district shall immediately proceed to wind up the

affairs of such district and shall have the same powers as before dissolution to levy taxes for the purpose of paying the debts, obligations and liabilities of such mosquito abatement district outstanding on the date of such dissolution and the necessary expenses of closing up the affairs of such district. All property of such district shall be sold and in case any excess remains after all liabilities of such district are paid such excess shall be paid to the various common school districts located in such mosquito abatement district ratably in the proportion that the taxable value of all the property in each of the school districts bears to the taxable value of all the property in the mosquito abatement district.

(Source: P.A. 83-343.)

(70 ILCS 1005/11.5)

Sec. 11.5. Cessation of district organization. Notwithstanding any other provision of law, if a majority vote of the board of trustees of a mosquito abatement district is in favor of a proposition to annex the district to another mosquito abatement district whose boundaries are contiguous, consolidate the district into a municipality whose boundaries are coterminous or substantially coterminous with the district, consolidate the district into the township in which the district sits, or consolidate the district into the county in which the district sits, and if the governing authorities of the governmental unit assuming the functions of the former district agree by resolution to accept the functions (and jurisdiction over the territory, if applicable) of the consolidated or annexed district, then the district shall cease. On the effective date of the annexation or consolidation, all the rights, powers, duties, assets, property, liabilities, indebtedness, obligations, bonding authority, taxing authority, and responsibilities of the district shall vest in and be assumed by the governmental unit assuming the functions of the former district.

The employees of the former district shall be transferred to the governmental unit assuming the functions of the former district. The governmental unit assuming the functions of the former district shall exercise the rights and responsibilities of the former district with respect to those employees. The status and rights of the employees of the former district under any applicable contracts or collective bargaining agreements, historical representation rights under the Illinois Public Labor Relations Act, or under any pension, retirement, or annuity plan shall not be affected by this amendatory Act of the 100th General Assembly.

(Source: P.A. 100-793, eff. 1-1-19.)

(70 ILCS 1005/12) (from Ch. 111 1/2, par. 85)

Sec. 12. The invalidity of any part or portion of this act shall not affect the validity of the remaining part thereof.

(Source: Laws 1927, p. 694.)

(70 ILCS 1005/12a) (from Ch. 111 1/2, par. 85.1)

Sec. 12a. Any mosquito abatement district organized under the provisions of this Act which lies wholly within a county having fewer than 1,000,000 inhabitants which levies a tax for mosquito abatement pursuant to Section 25.05-4 of "An Act in relation to counties", approved March 31, 1874, as heretofore or hereafter amended, shall be dissolved and discontinued upon the action by such county board which levies such tax.

The trustees of such mosquito abatement district shall immediately proceed to wind up the affairs of such district and shall have the same powers as before dissolution to levy taxes

for the purpose of paying the debts, obligations and liabilities of such mosquito abatement district outstanding on the date of such dissolution and the necessary expenses of closing up the affairs of such district. All property of such district shall be sold and in case any excess remains after all liabilities of such district are paid such excess shall be paid to the various common school districts located in such mosquito abatement district ratably in the proportion that the taxable value of all the property in each of the school districts bears to the taxable value of all the property in the mosquito abatement district.

(Source: Laws 1963, p. 3019.)

(70 ILCS 1005/13) (from Ch. 111 1/2, par. 85a)

Sec. 13. The owner or owners of record of any area of land consisting of one or more tracts lying within the corporate limits of any mosquito abatement district may have the area disconnected from the mosquito abatement district in the following manner:

The owner or owners of record of any such tract or tracts of land shall file a petition in the Circuit Court of the county in which the district was organized alleging facts in support of disconnection, including the following:

(1) That the tract or tracts involved are located upon the border of the district;

(2) That disconnection will not result in the isolation of any part of the district from the remainder of the district;

(3) That disconnection will not destroy, or impair the effectiveness of the mosquito abatement district in the performance of its lawful functions of controlling and exterminating mosquitoes, flies and other insects within the district;

(4) That disconnection will not jeopardize the financial position of the district;

(5) And that disconnection will not adversely affect the public health and welfare.

The mosquito abatement district from which disconnection is sought shall be made a defendant, and it or any taxpayer residing in the district may appear and defend against the petition.

The court shall set the petition for hearing on a date not less than 30 days after the filing of the petition, and copy of the petition shall be mailed to the Department of Public Health of the State of Illinois and to the Illinois State Natural History Survey by the clerk of the court, such copies to be furnished by the petitioners. The court shall not proceed to final hearing of the petition without a joint written report from the Department of Public Health and the Illinois State Natural History Survey as to the probable effect upon the public health and welfare and upon the effectiveness of the mosquito abatement district in the performance of its lawful duties if disconnection were granted as prayed. A copy of such report shall also be mailed to the petitioners or their attorneys of record. The court shall upon request grant to any party the right to examine witnesses from such state agencies as may have investigated the facts incorporated in any such reports.

If the court finds that the allegations of the petition are true and that the area of land is entitled to disconnection, it shall order the specified land disconnected from the mosquito abatement district and thereupon said land shall cease to be a part of such district. Said land shall not, however, be relieved from any bonded indebtedness of the district previously created as to its proportionate share thereof.

The decision of the court is appealable as in other civil

cases.

The provisions of this section 13 shall not apply to districts incorporated in counties of over 500,000 population. (Source: Laws 1967, p. 3973.)

(70 ILCS 1005/13a) (from Ch. 111 1/2, par. 85b)

Sec. 13a. Any territory which lies within a mosquito abatement district and which lies within a county which levies a tax for mosquito abatement pursuant to Section 25.05-4 of "An Act in relation to counties", approved March 31, 1874, as heretofore or hereafter amended, shall be disconnected from such mosquito abatement district upon the action by the county board of such county which levies such tax and shall cease to be a part of such district. Such land shall not, however, be relieved from any bonded indebtedness of the district previously created as to its proportionate share thereof.

(Source: Laws 1963, p. 3019.)



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ENVIRONMENTAL SAFETY (415 ILCS 5/) Environmental Protection Act.

(415 ILCS 5/Tit. XIV heading)
TITLE XIV. USED TIRES

(415 ILCS 5/53) (from Ch. 111 1/2, par. 1053)
Sec. 53. (a) The General Assembly finds:

(1) that used and waste tires constitute a growing solid waste problem of considerable magnitude that is exacerbated by the fact that tires do not readily degrade or decompose;

(2) that the accumulation of used and waste tires constitutes a fire hazard and a threat to air and water quality;

(3) that unmanaged used and waste tire sites encourage open dumping of other types of waste;

(4) that used and waste tire accumulations pose a threat to the public health, safety and welfare by providing habitat for a number of disease-spreading mosquitoes and other nuisance organisms, and that the transport of used tires has introduced such mosquitoes into the State and dispersed them;

(5) that State agencies need the ability to remove, or cause the removal of, used and waste tire accumulations as necessary to abate or correct hazards to public health and to protect the environment; and

(6) that used and waste tires may also afford a significant economic opportunity for recycling into new and useful products or as a source of fuel.

(b) It is the purpose of this Act:

(1) to ensure that used and waste tires are collected and are put to beneficial use or properly disposed of;

(2) to provide for the abatement of used and waste tire dumps and associated threats to the public health and welfare;

(3) to encourage the development of used and waste

tire processing facilities and technologies, including energy recovery; and

(4) to provide for research on disease vectors associated with used and waste tires, and the diseases they spread.

It shall be the policy of the State of Illinois to provide for the recovery, recycling and reuse of materials from scrap vehicle tires. The following hierarchy shall be in effect for tires generated for waste management in this State:

(1) Reuse of tire casings for remanufacture or retreading.

(2) Processing of tires into marketable products, such as stamped parts from portions of tire casings.

(3) Total destruction of tires into a uniform product that is marketable as a fuel or recycled material feedstock, including such products as tire-derived fuel, or recovered rubber for recycling into rubber or other products or as an asphalt additive.

(4) Total destruction of tires through primary shredding to produce a nonuniform product for use as in road beds or other construction applications, or at a landfill or similar site for erosion control or cover.

(5) Total destruction of tires to a nonuniform product consistency for direct landfill disposal.

(Source: P.A. 86-452; 87-727.)

(415 ILCS 5/54) (from Ch. 111 1/2, par. 1054)

Sec. 54. For the purposes of this Title, except as the context otherwise clearly requires, the words and terms defined in the Sections which follow this Section and precede Section 55 shall have the meanings given therein. Words and terms not defined shall have the meanings otherwise set forth in this Act. (Source: P.A. 86-452.)

(415 ILCS 5/54.01) (from Ch. 111 1/2, par. 1054.01)

Sec. 54.01. "Altered tire" means a used tire which has been altered so that it is no longer capable of holding accumulations of water, including, but not limited to, used tires that have been shredded, chopped, drilled with holes sufficient to assure drainage, slit longitudinally and stacked so as not to collect water, or wholly or partially filled with cement or other material to prevent the accumulation of water. "Alteration" or "altering" means action which produces an altered tire. (Source: P.A. 86-452.)

(415 ILCS 5/54.02) (from Ch. 111 1/2, par. 1054.02)

Sec. 54.02. "Converted tire" means a used tire which has been manufactured into a usable commodity other than a tire. "Conversion" or "converting" means action which produces a converted tire. Usable products manufactured from tires, which products are themselves capable of holding accumulations of water, shall be deemed to be "converted" if they are stacked, packaged, boxed, containerized or enclosed in such a manner as to preclude exposure to precipitation prior to sale or conveyance. (Source: P.A. 86-452.)

(415 ILCS 5/54.03) (from Ch. 111 1/2, par. 1054.03)

Sec. 54.03. "Covered tire" means a used tire located in a building, vehicle or facility with a roof extending over the tire, or securely located under a material so as to preclude exposure to precipitation. (Source: P.A. 86-452.)

(415 ILCS 5/54.04) (from Ch. 111 1/2, par. 1054.04)

Sec. 54.04. "Disposal" means the placement of used tires into or on any land or water except as an integral part of systematic reuse or conversion in the regular course of business.

(Source: P.A. 86-452.)

(415 ILCS 5/54.05) (from Ch. 111 1/2, par. 1054.05)

Sec. 54.05. "New tire" means a tire which has never been placed on a vehicle wheel rim.

(Source: P.A. 86-452.)

(415 ILCS 5/54.06) (from Ch. 111 1/2, par. 1054.06)

Sec. 54.06. "Processing" means the altering, converting or reprocessing of used or waste tires.

(Source: P.A. 86-452.)

(415 ILCS 5/54.06a)

Sec. 54.06a. "Recyclable tire" means a used tire which is free of permanent physical damage and maintains sufficient tread depth to allow its use through resale or repairing.

(Source: P.A. 89-200, eff. 1-1-96.)

(415 ILCS 5/54.07) (from Ch. 111 1/2, par. 1054.07)

Sec. 54.07. "Reprocessed tire" means a used tire which has been recapped, retreaded or regrooved and which has not been placed on a vehicle wheel rim.

(Source: P.A. 86-452.)

(415 ILCS 5/54.08) (from Ch. 111 1/2, par. 1054.08)

Sec. 54.08. "Reused tire" means a used tire that is used again, in part or as a whole, by being employed in a particular function or application as an effective substitute for a commercial product or fuel without having been converted.

(Source: P.A. 86-452.)

(415 ILCS 5/54.09) (from Ch. 111 1/2, par. 1054.09)

Sec. 54.09. "Storage" means any accumulation of used tires that does not constitute disposal. At a minimum, such an accumulation must be an integral part of the systematic alteration, reuse, reprocessing or conversion of the tires in the regular course of business.

(Source: P.A. 86-452.)

(415 ILCS 5/54.10) (from Ch. 111 1/2, par. 1054.10)

Sec. 54.10. "Tire" means a hollow ring, made of rubber or similar materials, which was manufactured for the purpose of being placed on the wheel rim of a vehicle.

(Source: P.A. 86-452.)

(415 ILCS 5/54.10a)

Sec. 54.10a. "Tire carcass" means the internal part of a used tire containing the plies, beads, and belts suitable for retread or remanufacture.

(Source: P.A. 89-200, eff. 1-1-96.)

(415 ILCS 5/54.10b)

Sec. 54.10b. "Tire derived fuel" means a product made from used tires to exact specifications of a system designed to accept a tire derived fuel as a primary or supplemental fuel source.

(Source: P.A. 89-200, eff. 1-1-96.)

(415 ILCS 5/54.11) (from Ch. 111 1/2, par. 1054.11)

Sec. 54.11. "Tire disposal site" means a site where used tires have been disposed of other than a sanitary landfill permitted by the Agency.

(Source: P.A. 86-452.)

(415 ILCS 5/54.11a)

Sec. 54.11a. "Tire retreader" means a person or firm that retreads or remanufactures tires.

(Source: P.A. 89-200, eff. 1-1-96.)

(415 ILCS 5/54.12) (from Ch. 111 1/2, par. 1054.12)

Sec. 54.12. "Tire storage site" means a site where used tires are stored or processed, other than (1) the site at which the tires were separated from the vehicle wheel rim, (2) the site where the used tires were accepted in trade as part of a sale of new tires, or (3) a site at which tires are sold at retail in the regular course of business, and at which not more than 250 used tires are kept at any time or (4) a facility at which tires are sold at retail provided that the facility maintains less than 1300 recyclable tires, 1300 tire carcasses, and 1300 used tires on site and those tires are stored inside a building or so that they are prevented from accumulating water.

(Source: P.A. 92-24, eff. 7-1-01.)

(415 ILCS 5/54.12a)

Sec. 54.12a. "Tire storage unit" means a pile of tires or a group of piles of tires at a storage site.

(Source: P.A. 89-200, eff. 1-1-96.)

(415 ILCS 5/54.12b)

Sec. 54.12b. "Tire transporter" means a person who transports used or waste tires in a vehicle.

(Source: P.A. 89-200, eff. 1-1-96.)

(415 ILCS 5/54.13) (from Ch. 111 1/2, par. 1054.13)

Sec. 54.13. "Used tire" means a worn, damaged, or defective tire that is not mounted on a vehicle.

(Source: P.A. 92-24, eff. 7-1-01.)

(415 ILCS 5/54.14) (from Ch. 111 1/2, par. 1054.14)

Sec. 54.14. "Vector" means arthropods, rats, mice, birds or other animals capable of carrying disease-producing organisms to a human or animal host. "Vector" does not include animals that transmit disease to humans only when used as human food.

(Source: P.A. 86-452.)

(415 ILCS 5/54.15) (from Ch. 111 1/2, par. 1054.15)

Sec. 54.15. "Vehicle" means every device in, upon or by which any person or property is or may be transported or drawn, except devices moved by human power or by animal power, devices used exclusively upon stationary rails or tracks, and motorized wheelchairs.

(Source: P.A. 86-452.)

(415 ILCS 5/54.16) (from Ch. 111 1/2, par. 1054.16)

Sec. 54.16. "Waste tire" means a used tire that has been disposed of.

(Source: P.A. 86-452.)

(415 ILCS 5/55) (from Ch. 111 1/2, par. 1055)

Sec. 55. Prohibited activities.

(a) No person shall:

(1) Cause or allow the open dumping of any used or waste tire.

(2) Cause or allow the open burning of any used or waste tire.

(3) Except at a tire storage site which contains more than 50 used tires, cause or allow the storage of any used tire unless the tire is altered, reprocessed, converted, covered, or otherwise prevented from accumulating water.

(4) Cause or allow the operation of a tire storage site except in compliance with Board regulations.

(5) Abandon, dump or dispose of any used or waste tire on private or public property, except in a sanitary landfill approved by the Agency pursuant to regulations adopted by the Board.

(6) Fail to submit required reports, tire removal agreements, or Board regulations.

(b) (Blank.)

(b-1) No person shall knowingly mix any used or waste tire, either whole or cut, with municipal waste, and no owner or operator of a sanitary landfill shall accept any used or waste tire for final disposal; except that used or waste tires, when separated from other waste, may be accepted if the sanitary landfill provides and maintains a means for shredding, slitting, or chopping whole tires and so treats whole tires and, if approved by the Agency in a permit issued under this Act, uses the used or waste tires for alternative uses, which may include on-site practices such as lining of roadways with tire scraps, alternative daily cover, or use in a leachate collection system. In the event the physical condition of a used or waste tire makes shredding, slitting, chopping, reuse, reprocessing, or other alternative use of the used or waste tire impractical or infeasible, then the sanitary landfill, after authorization by the Agency, may accept the used or waste tire for disposal.

(c) Any person who sells new or used tires at retail or operates a tire storage site or a tire disposal site which contains more than 50 used or waste tires shall give notice of such activity to the Agency. Any person engaging in such activity for the first time after January 1, 1990, shall give notice to the Agency within 30 days after the date of commencement of the activity. The form of such notice shall be specified by the Agency and shall be limited to information regarding the following:

(1) the name and address of the owner and operator;

(2) the name, address and location of the operation;

(3) the type of operations involving used and waste tires (storage, disposal, conversion or processing); and

(4) the number of used and waste tires present at the location.

(d) Beginning January 1, 1992, no person shall cause or allow the operation of:

(1) a tire storage site which contains more than 50 used tires, unless the owner or operator, by January 1, 1992 (or the January 1 following commencement of operation, whichever is later) and January 1 of each year thereafter, (i) registers the site with the Agency, except that the registration requirement in this item (i) does not apply in the case of a tire storage site required to be permitted under subsection (d-5), (ii) certifies to the Agency that the site complies with any applicable standards adopted by the Board pursuant to Section 55.2, (iii) reports to the Agency the number of tires accumulated, the status of vector controls, and the actions taken to handle and process the

tires, and (iv) pays the fee required under subsection (b) of Section 55.6; or

(2) a tire disposal site, unless the owner or operator (i) has received approval from the Agency after filing a tire removal agreement pursuant to Section 55.4, or (ii) has entered into a written agreement to participate in a consensual removal action under Section 55.3.

The Agency shall provide written forms for the annual registration and certification required under this subsection (d).

(d-4) On or before January 1, 2015, the owner or operator of each tire storage site that contains used tires totaling more than 10,000 passenger tire equivalents, or at which more than 500 tons of used tires are processed in a calendar year, shall submit documentation demonstrating its compliance with Board rules adopted under this Title. This documentation must be submitted on forms and in a format prescribed by the Agency.

(d-5) Beginning July 1, 2016, no person shall cause or allow the operation of a tire storage site that contains used tires totaling more than 10,000 passenger tire equivalents, or at which more than 500 tons of used tires are processed in a calendar year, without a permit granted by the Agency or in violation of any conditions imposed by that permit, including periodic reports and full access to adequate records and the inspection of facilities, as may be necessary to ensure compliance with this Act and with regulations and standards adopted under this Act.

(d-6) No person shall cause or allow the operation of a tire storage site in violation of the financial assurance rules established by the Board under subsection (b) of Section 55.2 of this Act. In addition to the remedies otherwise provided under this Act, the State's Attorney of the county in which the violation occurred, or the Attorney General, may, at the request of the Agency or on his or her own motion, institute a civil action for an immediate injunction, prohibitory or mandatory, to restrain any violation of this subsection (d-6) or to require any other action as may be necessary to abate or mitigate any immediate danger or threat to public health or the environment at the site. Injunctions to restrain a violation of this subsection (d-6) may include, but are not limited to, the required removal of all tires for which financial assurance is not maintained and a prohibition against the acceptance of tires in excess of the amount for which financial assurance is maintained.

(e) No person shall cause or allow the storage, disposal, treatment or processing of any used or waste tire in violation of any regulation or standard adopted by the Board.

(f) No person shall arrange for the transportation of used or waste tires away from the site of generation with a person known to openly dump such tires.

(g) No person shall engage in any operation as a used or waste tire transporter except in compliance with Board regulations.

(h) No person shall cause or allow the combustion of any used or waste tire in an enclosed device unless a permit has been issued by the Agency authorizing such combustion pursuant to regulations adopted by the Board for the control of air pollution and consistent with the provisions of Section 9.4 of this Act.

(i) No person shall cause or allow the use of pesticides to treat tires except as prescribed by Board regulations.

(j) No person shall fail to comply with the terms of a tire removal agreement approved by the Agency pursuant to Section 55.4.

(k) No person shall:

(1) Cause or allow water to accumulate in used or waste tires. The prohibition set forth in this paragraph (1) of subsection (k) shall not apply to used or waste tires located at a residential household, as long as not more than 4 used or waste tires at the site are covered and kept dry.

(2) Fail to collect a fee required under Section 55.8 of this Title.

(3) Fail to file a return required under Section 55.10 of this Title.

(4) Transport used or waste tires in violation of the registration and vehicle placarding requirements adopted by the Board.

(Source: P.A. 100-103, eff. 8-11-17; 100-327, eff. 8-24-17; 100-621, eff. 7-20-18; 100-863, eff. 8-14-18.)

(415 ILCS 5/55.1) (from Ch. 111 1/2, par. 1055.1)

Sec. 55.1. (a) The prohibitions set forth in subdivision (a) (3) of Section 55 of this Act shall not apply to used tires:

(1) generated and located at a site as a result of the growing and harvesting of agricultural crops or the raising of animals, as long as not more than 20 used tires are located at the site;

(2) located at a residential household, as long as not more than 12 used tires are located at the site; or

(3) which were placed in service for recreational purposes prior to January 1, 1990 at a school, park or playground, provided that the used tires are altered by January 1, 1992.

(b) The prohibitions set forth in subdivisions (a)(3), (a) (4), (c), (d), (d-5), (d-6), (e), (g), and (k)(4) of Section 55 of this Act shall not apply to used or waste tires collected by a not-for-profit corporation if:

(1) the collection location has been approved by the applicable general purpose unit of local government;

(2) the collected tires are transported to a facility permitted by the Agency to store, process or dispose of used or waste tires within 7 days after collection; and

(3) the collection does not occur as a continuous business operation.

(c) The prohibitions set forth in subdivisions (a)(3), (a) (4), (c), (d), (d-5), (d-6), (e), (g), and (k)(4) of Section 55 of this Act shall not apply to used or waste tires collected by the State or a unit of local government, provided that:

(1) the collection is part of an established program to take preventive or corrective action regarding such tires;

(2) any staging sites for handling such tires are reasonably secure and regularly maintained in a safe manner; and

(3) the Agency is notified in writing during January of each calendar year regarding the location of the staging sites, the number of such tires accumulated, the status of vector controls, and actions taken to process such tires.

The Agency shall provide written confirmation to a State agency or unit of local government regarding the applicability of this subsection upon receipt of a written description of its established program, and each January following receipt of the annual report required under subdivision (c)(3) of this subsection.

For purposes of determining the applicability of this subsection, any municipality with a population over 1,000,000 may certify to the Agency by January 1, 1990 that it operates an

established program. Upon the filing of such a certification, the established program shall be deemed to satisfy the provisions of subdivisions (1) and (2) of this subsection.

(d) The prohibitions set forth in subdivision (a)(5) of Section 55 of this Act shall not apply to used tires that are generated and located at a permitted coal mining site after use on specialized coal hauling and extraction vehicles.
(Source: P.A. 98-656, eff. 6-19-14.)

(415 ILCS 5/55.2) (from Ch. 111 1/2, par. 1055.2)

Sec. 55.2. (a) Not later than July 1, 1990, the Agency shall propose regulations which prescribe standards for the storage, disposal, processing and transportation of used and waste tires.

(b) Not later than one year after the receipt of the Agency's proposed regulations, the Board shall adopt, pursuant to Sections 27 and 28 of this Act, regulations which are consistent with the provisions of this Title. These regulations shall, at a minimum, specify: recordkeeping and reporting requirements; criteria for minimizing the danger of tire fires, including dimensions for piling tires and minimum aisle spacing; financial assurance criteria; and criteria for distinguishing storage from disposal. In addition, such regulations shall prohibit the use of pesticides as an ongoing means of demonstrating compliance with this Title.

(b-5) Not later than 6 months after the effective date of this amendatory Act of the 98th General Assembly, the Agency shall propose, and, not later than 9 months after receipt of the Agency's proposal, the Board shall adopt, revisions to the rules adopted under this Title that are necessary to conform those rules to the requirements of this Title, including, but not limited to, revisions to those rules that are necessary to implement the changes made to this Act by this amendatory Act of the 98th General Assembly.

(c) In adopting regulations under this Section, the Board may impose different requirements for different categories of used or waste tire storage, disposal, transport, and processing.

(d) Nothing in this Section shall be construed as limiting the general authority of the Board to promulgate regulations pursuant to Title VII of this Act.

(Source: P.A. 98-656, eff. 6-19-14.)

(415 ILCS 5/55.3) (from Ch. 111 1/2, par. 1055.3)

Sec. 55.3. (a) Upon finding that an accumulation of used or waste tires creates an immediate danger to health, the Agency may take action pursuant to Section 34 of this Act.

(b) Upon making a finding that an accumulation of used or waste tires creates a hazard posing a threat to public health or the environment, the Agency may undertake preventive or corrective action in accordance with this subsection. Such preventive or corrective action may consist of any or all of the following:

(1) Treating and handling used or waste tires and other infested materials within the area for control of mosquitoes and other disease vectors.

(2) Relocation of ignition sources and any used or waste tires within the area for control and prevention of tire fires.

(3) Removal of used and waste tire accumulations from the area.

(4) Removal of soil and water contamination related to tire accumulations.

(5) Installation of devices to monitor and control groundwater and surface water contamination related to tire accumulations.

(6) Such other actions as may be authorized by Board regulations.

(c) The Agency may, subject to the availability of appropriated funds, undertake a consensual removal action for the removal of up to 1,000 used or waste tires at no cost to the owner according to the following requirements:

(1) Actions under this subsection shall be taken pursuant to a written agreement between the Agency and the owner of the tire accumulation.

(2) The written agreement shall at a minimum specify:

(i) that the owner relinquishes any claim of an ownership interest in any tires that are removed, or in any proceeds from their sale;

(ii) that tires will no longer be allowed to be accumulated at the site;

(iii) that the owner will hold harmless the Agency or any employee or contractor utilized by the Agency to effect the removal, for any damage to property incurred during the course of action under this subsection, except for gross negligence or intentional misconduct; and

(iv) any conditions upon or assistance required from the owner to assure that the tires are so located or arranged as to facilitate their removal.

(3) The Agency may by rule establish conditions and priorities for removal of used and waste tires under this subsection.

(4) The Agency shall prescribe the form of written agreements under this subsection.

(d) The Agency shall have authority to provide notice to the owner or operator, or both, of a site where used or waste tires are located and to the owner or operator, or both, of the accumulation of tires at the site, whenever the Agency finds that the used or waste tires pose a threat to public health or the environment, or that there is no owner or operator proceeding in accordance with a tire removal agreement approved under Section 55.4.

The notice provided by the Agency shall include the identified preventive or corrective action, and shall provide an opportunity for the owner or operator, or both, to perform such action.

For sites with more than 250,000 passenger tire equivalents, following the notice provided for by this subsection (d), the Agency may enter into a written reimbursement agreement with the owner or operator of the site. The agreement shall provide a schedule for the owner or operator to reimburse the Agency for costs incurred for preventive or corrective action, which shall not exceed 5 years in length. An owner or operator making payments under a written reimbursement agreement pursuant to this subsection (d) shall not be liable for punitive damages under subsection (h) of this Section.

(e) In accordance with constitutional limitations, the Agency shall have authority to enter at all reasonable times upon any private or public property for the purpose of taking whatever preventive or corrective action is necessary and appropriate in accordance with the provisions of this Section, including but not limited to removal, processing or treatment of used or waste tires, whenever the Agency finds that used or waste tires pose a threat to public health or the environment.

(f) In undertaking preventive, corrective or consensual removal action under this Section the Agency may consider use of the following: rubber reuse alternatives, shredding or other conversion through use of mobile or fixed facilities, energy recovery through burning or incineration, and landfill disposal.

(g) Except as otherwise provided in this Section, the owner or operator of any site or accumulation of used or waste tires at which the Agency has undertaken corrective or preventive action under this Section shall be liable for all costs thereof incurred by the State of Illinois, including reasonable costs of collection. Any monies received by the Agency hereunder shall be deposited into the Used Tire Management Fund. The Agency may in its discretion store, dispose of or convey the tires that are removed from an area at which it has undertaken a corrective, preventive or consensual removal action, and may sell or store such tires and other items, including but not limited to rims, that are removed from the area. The net proceeds of any sale shall be credited against the liability incurred by the owner or operator for the costs of any preventive or corrective action.

(h) Any person liable to the Agency for costs incurred under subsection (g) of this Section may be liable to the State of Illinois for punitive damages in an amount at least equal to, and not more than 2 times, the costs incurred by the State if such person failed without sufficient cause to take preventive or corrective action pursuant to notice issued under subsection (d) of this Section.

(i) There shall be no liability under subsection (g) of this Section for a person otherwise liable who can establish by a preponderance of the evidence that the hazard created by the tires was caused solely by:

- (1) an act of God;
- (2) an act of war; or
- (3) an act or omission of a third party other than an employee or agent, and other than a person whose act or omission occurs in connection with a contractual relationship with the person otherwise liable.

For the purposes of this subsection, "contractual relationship" includes, but is not limited to, land contracts, deeds and other instruments transferring title or possession, unless the real property upon which the accumulation is located was acquired by the defendant after the disposal or placement of used or waste tires on, in or at the property and one or more of the following circumstances is also established by a preponderance of the evidence:

(A) at the time the defendant acquired the property, the defendant did not know and had no reason to know that any used or waste tires had been disposed of or placed on, in or at the property, and the defendant undertook, at the time of acquisition, all appropriate inquiries into the previous ownership and uses of the property consistent with good commercial or customary practice in an effort to minimize liability;

(B) the defendant is a government entity which acquired the property by escheat or through any other involuntary transfer or acquisition, or through the exercise of eminent domain authority by purchase or condemnation; or

(C) the defendant acquired the property by inheritance or bequest.

(j) Nothing in this Section shall affect or modify the obligations or liability of any person under any other provision of this Act, federal law, or State law, including the common law, for injuries, damages or losses resulting from the circumstances leading to Agency action under this Section.

(k) The costs and damages provided for in this Section may be imposed by the Board in an action brought before the Board in accordance with Title VIII of this Act, except that subsection (c) of Section 33 of this Act shall not apply to any such action.

(1) The Agency shall, when feasible, consult with the Department of Public Health prior to taking any action to remove or treat an infested tire accumulation for control of mosquitoes or other disease vectors. The Agency may by contract or agreement secure the services of the Department of Public Health, any local public health department, or any other qualified person in treating any such infestation as part of an emergency or preventive action.

(m) Neither the State, the Agency, the Board, the Director, nor any State employee shall be liable for any damage or injury arising out of or resulting from any action taken under this Section.

(Source: P.A. 102-444, eff. 8-20-21.)

(415 ILCS 5/55.4) (from Ch. 111 1/2, par. 1055.4)

Sec. 55.4. (a) The owner or operator of a tire disposal site required to file and receive approval of a tire removal agreement under subsection (d) of Section 55 shall remove used or waste tires from the site in a manner that:

- (1) minimizes the need for further maintenance;
- (2) removes all used and waste tires and any residues therefrom; and
- (3) protects human health during the removal and post-removal periods.

(b) A tire removal agreement submitted to the Agency shall include the following:

- (1) A complete inventory of the tires located on the site.
- (2) A description of how the removal will be conducted in accordance with subsection (a) of this Section.
- (3) A description of the methods to be used during removal including, but not limited to, the methods for removing, transporting, processing, storing or disposing of tires and residues, and the offsite facilities to be used.
- (4) A detailed description of other activities necessary during the removal period to ensure that the requirements of subsection (a) of this Section are met.
- (5) A schedule for completing the removal of tires from the site, as required in subsection (d).

(c) For a site at which the owner or operator is proposing to proceed with removal, the Agency shall approve, modify or disapprove a proposed agreement within 90 days of receiving it. If the Agency does not approve the agreement, the Agency shall provide the owner or operator with a written statement of reasons for the refusal, and the owner or operator shall modify the agreement or submit a new agreement for approval within 30 days after receiving the statement. The Agency shall approve or modify the second proposed agreement within 60 days. If the Agency modifies the second proposed agreement, the agreement as modified shall become the approved agreement.

(d) Each approved agreement shall include a schedule by which the owner or operator must complete the removal activities. The total time allowed shall not exceed the following:

- (1) one year if the site contains 1,000 tires or less;
- (2) two years if the site contains more than 1,000 tires but less than 10,000 tires;
- (3) five years if the site contains 10,000 or more tires.

The owner or operator may apply for an extension of time, no later than 90 days before the end of the time period specified in the agreement. The Agency shall not grant such an extension unless it determines that the owner or operator has proceeded to carry out the agreement with all due diligence. The requested

extension of time may not exceed 3 years, and the Agency may approve the request as submitted or may approve a lesser amount of time.

(e) Within 60 days after the completion of removal activities under an approved agreement, the owner or operator shall submit to the Agency a certification that the site or the affected portion of the site has been cleared of tires in accordance with the approved agreement.

(f) Modification of or refusal to modify an agreement submitted by an owner or operator proposing to proceed with removal is a permit denial for purposes of subsection (a) of Section 40 of this Act.

(Source: P.A. 86-452.)

(415 ILCS 5/55.5) (from Ch. 111 1/2, par. 1055.5)

Sec. 55.5. (a) The Agency shall investigate alleged violations of this Title XIV, or of any regulation promulgated hereunder, or of any approval granted by the Agency, and may cause such other investigations to be made as it may deem advisable.

(b) If an investigation discloses that a violation may exist, the Agency shall take action pursuant to Title VIII of this Act in a timely manner.

(c) Notwithstanding the provisions of subsection (b) of this Section, prior to taking action pursuant to Title VIII for violation of subsection (a), (b) or (c) of Section 55 of this Act, the Agency or unit of local government shall issue and serve upon the person complained against a written warning notice informing such person that the Agency or unit of local government intends to take such action. Such written warning notice shall specify the alleged violation, describe the corrective action which should be taken, and provide a period of 30 days in which one of the following response actions may be taken by such person:

(1) initiation and completion of the corrective action, and notification of the Agency or unit of local government in writing that such action has been taken; or

(2) notification of the Agency or unit of local government in writing that corrective action will be taken and completed within a period of 45 days from the date of issuance of the warning notice.

In the event that the person fails to take a response action, initiates but does not adequately complete a response action, or takes other action in contravention of the described corrective action, the Agency or unit of local government may proceed pursuant to subsection (b) of this Section. If the same person has been issued 2 written warning notices for similar violations in any calendar year, thereafter the Agency or unit of local government may proceed pursuant to subsection (b) without first following the provisions of this subsection for the remainder of such calendar year with respect to such person. (Source: P.A. 91-357, eff. 7-29-99.)

(415 ILCS 5/55.6) (from Ch. 111 1/2, par. 1055.6)

Sec. 55.6. Used Tire Management Fund.

(a) There is hereby created in the State Treasury a special fund to be known as the Used Tire Management Fund. There shall be deposited into the Fund all monies received as (1) recovered costs or proceeds from the sale of used tires under Section 55.3 of this Act, (2) repayment of loans from the Used Tire Management Fund, or (3) penalties or punitive damages for violations of this Title, except as provided by subdivision (b) (4) or (b) (4-5) of Section 42.

(b) Beginning January 1, 1992, in addition to any other fees

required by law, the owner or operator of each site required to be registered or permitted under subsection (d) or (d-5) of Section 55 shall pay to the Agency an annual fee of \$100. Fees collected under this subsection shall be deposited into the Environmental Protection Permit and Inspection Fund.

(c) Pursuant to appropriation, moneys up to an amount of \$4 million per fiscal year from the Used Tire Management Fund shall be allocated as follows:

(1) 38% shall be available to the Agency for the following purposes, provided that priority shall be given to item (i):

(i) To undertake preventive, corrective or removal action as authorized by and in accordance with Section 55.3, and to recover costs in accordance with Section 55.3.

(ii) For the performance of inspection and enforcement activities for used and waste tire sites.

(iii) (Blank).

(iv) To provide financial assistance to units of local government for the performance of inspecting, investigating and enforcement activities pursuant to subsection (r) of Section 4 at used and waste tire sites.

(v) To provide financial assistance for used and waste tire collection projects sponsored by local government or not-for-profit corporations.

(vi) For the costs of fee collection and administration relating to used and waste tires, and to accomplish such other purposes as are authorized by this Act and regulations thereunder.

(vii) To provide financial assistance to units of local government and private industry for the purposes of:

(A) assisting in the establishment of facilities and programs to collect, process, and utilize used and waste tires and tire-derived materials;

(B) demonstrating the feasibility of innovative technologies as a means of collecting, storing, processing, and utilizing used and waste tires and tire-derived materials; and

(C) applying demonstrated technologies as a means of collecting, storing, processing, and utilizing used and waste tires and tire-derived materials.

(2) (Blank).

(2.1) For the fiscal year beginning July 1, 2004 and for all fiscal years thereafter, 23% shall be deposited into the General Revenue Fund. Such transfers are at the direction of the Department of Revenue, and shall be made within 30 days after the end of each quarter.

(3) 25% shall be available to the Illinois Department of Public Health for the following purposes:

(A) To investigate threats or potential threats to the public health related to mosquitoes and other vectors of disease associated with the improper storage, handling and disposal of tires, improper waste disposal, or natural conditions.

(B) To conduct surveillance and monitoring activities for mosquitoes and other arthropod vectors of disease, and surveillance of animals which provide a reservoir for disease-producing organisms.

(C) To conduct training activities to promote

vector control programs and integrated pest management as defined in the Vector Control Act.

(D) To respond to inquiries, investigate complaints, conduct evaluations and provide technical consultation to help reduce or eliminate public health hazards and nuisance conditions associated with mosquitoes and other vectors.

(E) To provide financial assistance to units of local government for training, investigation and response to public nuisances associated with mosquitoes and other vectors of disease.

(4) 2% shall be available to the Department of Agriculture for its activities under the Illinois Pesticide Act relating to used and waste tires.

(5) 2% shall be available to the Pollution Control Board for administration of its activities relating to used and waste tires.

(6) 10% shall be available to the University of Illinois for the Prairie Research Institute to perform research to study the biology, distribution, population ecology, and biosystematics of tire-breeding arthropods, especially mosquitoes, and the diseases they spread.

(d) By January 1, 1998, and biennially thereafter, each State agency receiving an appropriation from the Used Tire Management Fund shall report to the Governor and the General Assembly on its activities relating to the Fund.

(e) Any monies appropriated from the Used Tire Management Fund, but not obligated, shall revert to the Fund.

(f) In administering the provisions of subdivisions (1), (2) and (3) of subsection (c) of this Section, the Agency, the Department of Commerce and Economic Opportunity, and the Illinois Department of Public Health shall ensure that appropriate funding assistance is provided to any municipality with a population over 1,000,000 or to any sanitary district which serves a population over 1,000,000.

(g) Pursuant to appropriation, monies in excess of \$4 million per fiscal year from the Used Tire Management Fund shall be used as follows:

(1) 55% shall be available to the Agency for the following purposes, provided that priority shall be given to subparagraph (A):

(A) To undertake preventive, corrective or renewed action as authorized by and in accordance with Section 55.3 and to recover costs in accordance with Section 55.3.

(B) To provide financial assistance to units of local government and private industry for the purposes of:

(i) assisting in the establishment of facilities and programs to collect, process, and utilize used and waste tires and tire-derived materials;

(ii) demonstrating the feasibility of innovative technologies as a means of collecting, storing, processing, and utilizing used and waste tires and tire-derived materials; and

(iii) applying demonstrated technologies as a means of collecting, storing, processing, and utilizing used and waste tires and tire-derived materials.

(C) To provide grants to public universities for vector-related research, disease-related research, and for related laboratory-based equipment and field-based equipment.

(2) (Blank).

(3) For the fiscal year beginning July 1, 2004 and for all fiscal years thereafter, 45% shall be deposited into the General Revenue Fund. Such transfers are at the direction of the Department of Revenue, and shall be made within 30 days after the end of each quarter.

(Source: P.A. 100-103, eff. 8-11-17; 100-327, eff. 8-24-17; 100-587, eff. 6-4-18; 100-621, eff. 7-20-18; 100-863, eff. 8-14-18; 101-10, eff. 6-5-19; 101-636, eff. 6-10-20.)

(415 ILCS 5/55.6a)

Sec. 55.6a. Emergency Public Health Fund.

(a) Beginning on July 1, 2003, moneys in the Emergency Public Health Fund, subject to appropriation, shall be allocated annually as follows: (i) \$300,000 to the University of Illinois for the purposes described in Section 55.6(c)(6) and (ii) subject to subsection (b) of this Section, all remaining amounts to the Department of Public Health to be used to make vector control grants and surveillance grants to the Cook County Department of Public Health (for areas of the County excluding the City of Chicago), to the City of Chicago health department, and to other certified local health departments. These grants shall be used for expenses related to West Nile Virus and other vector-borne diseases. The amount of each grant shall be based on population and need as supported by information submitted to the Department of Public Health. For the purposes of this Section, need shall be determined by the Department based primarily upon surveillance data and the number of positive human cases of West Nile Virus and other vector-borne diseases occurring during the preceding year and current year in the county or municipality seeking the grant.

(b) Beginning on July 31, 2003, on the last day of each month, the State Comptroller shall order transferred and the State Treasurer shall transfer the fees collected in the previous month pursuant to item (1.5) of subsection (a) of Section 55.8 from the Emergency Public Health Fund to the Communications Revolving Fund. These transfers shall continue until the cumulative total of the transfers is \$3,000,000. (Source: P.A. 100-327, eff. 8-24-17.)

(415 ILCS 5/55.7) (from Ch. 111 1/2, par. 1055.7)

Sec. 55.7. The Agency may adopt regulations as necessary for the administration of the grant and loan programs funded from the Used Tire Management Fund, including but not limited to procedures and criteria for applying for, evaluating, awarding and terminating grants and loans. The Agency may by rule specify criteria for providing grant assistance rather than loan assistance; such criteria shall promote the expeditious development of alternatives to the disposal of used tires, and the efficient use of monies for assistance. Evaluation criteria may be established by rule, considering such factors as:

(1) the likelihood that a proposal will lead to the actual collection and processing of used tires and protection of the environment and public health in furtherance of the purposes of this Act;

(2) the feasibility of the proposal;

(3) the suitability of the location for the proposed activity;

(4) the potential of the proposal for encouraging recycling and reuse of resources; and

(5) the potential for development of new technologies consistent with the purposes of this Act.

(Source: P.A. 102-444, eff. 8-20-21.)

(415 ILCS 5/55.7a)

Sec. 55.7a. (Repealed).

(Source: P.A. 87-727. Repealed by P.A. 99-933, eff. 1-27-17.)

(415 ILCS 5/55.8) (from Ch. 111 1/2, par. 1055.8)

Sec. 55.8. Tire retailers.

(a) Any person selling new or used tires at retail or offering new or used tires for retail sale in this State shall:

(1) beginning on June 20, 2003 (the effective date of Public Act 93-32), collect from retail customers a fee of \$2 per new or used tire sold and delivered in this State, to be paid to the Department of Revenue and deposited into the Used Tire Management Fund, less a collection allowance of 10 cents per tire to be retained by the retail seller and a collection allowance of 10 cents per tire to be retained by the Department of Revenue and paid into the General Revenue Fund; the collection allowance for retail sellers, however, shall be allowed only if the return is filed timely and in the manner required by this Title XIV and only for the amount that is paid timely in accordance with this Title XIV;

(1.5) beginning on July 1, 2003, collect from retail customers an additional 50 cents per new or used tire sold and delivered in this State; the money collected from this fee shall be deposited into the Emergency Public Health Fund;

(2) accept for recycling used tires from customers, at the point of transfer, in a quantity equal to the number of new tires purchased; and

(3) post in a conspicuous place a written notice at least 8.5 by 11 inches in size that includes the universal recycling symbol and the following statements: "DO NOT put used tires in the trash."; "Recycle your used tires."; and "State law requires us to accept used tires for recycling, in exchange for new tires purchased.".

(b) A person who accepts used tires for recycling under subsection (a) shall not allow the tires to accumulate for periods of more than 90 days.

(c) The requirements of subsection (a) of this Section do not apply to mail order sales nor shall the retail sale of a motor vehicle be considered to be the sale of tires at retail or offering of tires for retail sale. Instead of filing returns, retailers of tires may remit the tire user fee to their suppliers of tires if the supplier of tires is a registered retailer of tires and agrees or otherwise arranges to collect and remit the tire fee to the Department of Revenue, notwithstanding the fact that the sale of the tire is a sale for resale and not a sale at retail. A tire supplier who enters into such an arrangement with a tire retailer shall be liable for the tax on all tires sold to the tire retailer and must (i) provide the tire retailer with a receipt that separately reflects the tire tax collected from the retailer on each transaction and (ii) accept used tires for recycling from the retailer's customers. The tire supplier shall be entitled to the collection allowance of 10 cents per tire, but only if the return is filed timely and only for the amount that is paid timely in accordance with this Title XIV.

The retailer of the tires must maintain in its books and records evidence that the appropriate fee was paid to the tire supplier and that the tire supplier has agreed to remit the fee to the Department of Revenue for each tire sold by the retailer. Otherwise, the tire retailer shall be directly liable for the fee on all tires sold at retail. Tire retailers paying the fee to their suppliers are not entitled to the collection allowance

of 10 cents per tire. The collection allowance for suppliers, however, shall be allowed only if the return is filed timely and in the manner required by this Title XIV and only for the amount that is paid timely in accordance with this Title XIV.

(d) The requirements of subsection (a) of this Section shall apply exclusively to tires to be used for vehicles defined in Section 1-217 of the Illinois Vehicle Code, aircraft tires, special mobile equipment, and implements of husbandry.

(e) The requirements of paragraph (1) of subsection (a) do not apply to the sale of reprocessed tires. For purposes of this Section, "reprocessed tire" means a used tire that has been recapped, retreaded, or regrooved and that has not been placed on a vehicle wheel rim.

(Source: P.A. 100-303, eff. 8-24-17.)

(415 ILCS 5/55.9) (from Ch. 111 1/2, par. 1055.9)

Sec. 55.9. Collection of fee. Retailers shall collect the fee from the purchaser by adding the fee to the selling price of the tire. The fee imposed by Section 55.8 shall be stated as a distinct item separate and apart from the selling price of the tire. The fee imposed by Section 55.8 shall not be includable in the gross receipts of the retailer subject to the Retailers' Occupation Tax Act, the Use Tax Act or any locally imposed retailers' occupation tax. The fee imposed by Section 55.8, and any such fees collected by a retailer, shall constitute a debt owed by the retailer to this State.

(Source: P.A. 87-727.)

(415 ILCS 5/55.10) (from Ch. 111 1/2, par. 1055.10)

Sec. 55.10. Tax returns by retailer.

(a) Except as otherwise provided in this Section, for returns due on or before January 31, 2010, each retailer of tires maintaining a place of business in this State shall make a return to the Department of Revenue on a quarter annual basis, with the return for January, February and March of a given year being due by April 30 of that year; with the return for April, May and June of a given year being due by July 31 of that year; with the return for July, August and September of a given year being due by October 31 of that year; and with the return for October, November and December of a given year being due by January 31 of the following year.

For returns due after January 31, 2010, each retailer of tires maintaining a place of business in this State shall make a return to the Department of Revenue on a quarter annual basis, with the return for January, February, and March of a given year being due by April 20 of that year; with the return for April, May, and June of a given year being due by July 20 of that year; with the return for July, August, and September of a given year being due by October 20 of that year; and with the return for October, November, and December of a given year being due by January 20 of the following year.

Notwithstanding any other provision of this Section to the contrary, the return for October, November, and December of 2009 is due by February 20, 2010.

On and after January 1, 2018, tire retailers and suppliers required to file electronically under Section 3 of the Retailers' Occupation Tax Act or Section 9 of the Use Tax Act must electronically file all returns pursuant to this Act. Tire retailers and suppliers who demonstrate that they do not have access to the Internet or demonstrate hardship in filing electronically may petition the Department to waive the electronic filing requirement.

(b) Each return made to the Department of Revenue shall state:

- (1) the name of the retailer;
- (2) the address of the retailer's principal place of business, and the address of the principal place of business (if that is a different address) from which the retailer engages in the business of making retail sales of tires;
- (3) total number of tires sold at retail for the preceding calendar quarter;
- (4) the amount of tax due; and
- (5) such other reasonable information as the Department of Revenue may require.

If any payment provided for in this Section exceeds the retailer's liabilities under this Act, as shown on an original return, the retailer may credit such excess payment against liability subsequently to be remitted to the Department under this Act, in accordance with reasonable rules adopted by the Department. If the Department subsequently determines that all or any part of the credit taken was not actually due to the retailer, the retailer's discount shall be reduced by the monetary amount of the discount applicable to the difference between the credit taken and that actually due, and the retailer shall be liable for penalties and interest on such difference.

Notwithstanding any other provision of this Act concerning the time within which a retailer may file his return, in the case of any retailer who ceases to engage in the retail sale of tires, the retailer shall file a final return under this Act with the Department of Revenue not more than one month after discontinuing that business.

(Source: P.A. 100-303, eff. 8-24-17; 100-1171, eff. 1-4-19.)

(415 ILCS 5/55.11) (from Ch. 111 1/2, par. 1055.11)

Sec. 55.11. Application of Retailers' Occupation Tax provisions. All the provisions of Sections 4, 5, 5a, 5b, 5c, 5d, 5e, 5f, 5g, 5i, 5j, 6, 6a, 6b, 6c, 7, 8, 9, 10, 11, and 13 1/2 of the Retailers' Occupation Tax Act, which are not inconsistent with this Act, shall apply, as far as practicable, to the fee imposed by Section 55.8 of this Act to the same extent as if such provisions were included herein. References in the incorporated Sections of the Retailers' Occupation Tax Act to retailers, to sellers or to persons engaged in the business of selling tangible personal property mean retailers of tires.

(Source: P.A. 87-727.)

(415 ILCS 5/55.12) (from Ch. 111 1/2, par. 1055.12)

Sec. 55.12. Review under Administrative Review Law. The circuit court of any county wherein a hearing is held shall have the power to review all final administrative decisions of the Department of Revenue in administering the fee imposed under Section 55.7. However, if the administrative proceeding which is to be reviewed judicially is a claim for refund proceeding commenced under this Act and Section 2a of the State Officers and Employees Money Disposition Act, the circuit court having jurisdiction over the action for judicial review under this Section and under the Administrative Law shall be the same court that entered the temporary restraining order or preliminary injunction which is provided for in that Section 2a, and which enables the claim proceeding to be processed and disposed of as a claim for refund proceeding other than as a claim for credit proceeding.

The provisions of the Administrative Review Law, and the rules adopted pursuant thereto, shall apply to and govern all proceeding for the judicial review of final administrative decisions of the Department of Revenue hereunder. The term "administrative decision" is defined as in Section 3-101 of the Code of Civil Procedure.

Service upon the Director or Assistant Director of the Department of Revenue of summons issued in any action to review a final administrative decision shall be service upon the Department of Revenue. The Department of Revenue shall certify the record of its proceedings if the taxpayer shall pay to it the sum of 75 cents per page of testimony taken before the Department of Revenue and 25 cents per page of all other matters contained in such record, except that these charges may be waived where the Department of Revenue is satisfied that the aggrieved party is a poor person who cannot afford to pay such charges.

(Source: P.A. 87-727.)

(415 ILCS 5/55.13) (from Ch. 111 1/2, par. 1055.13)

Sec. 55.13. Rules, etc. The Department of Revenue may adopt and enforce such reasonable rules and regulations relating to the administration and enforcement of the fee imposed by Section 55.8 of this Act as may be deemed expedient.

Whenever the Department of Revenue is required to provide notice to a retailer under this Act, such notice may be personally served or given by United States certified or registered mail, addressed to the retailer or taxpayer concerned at his last known address, and proof of such mailing shall be sufficient for the purposes of this Article. In the case of a notice of hearing, such notice shall be mailed not less than 7 days prior to the date fixed for the hearing.

All hearings provided by the Department of Revenue under this Act with respect to or concerning a taxpayer having his or her principal place of business in this State other than in Cook County shall be held at the Department's office nearest to the location of the taxpayer's principal place of business. If the taxpayer has his or her principal place of business in Cook County, such hearing shall be held in Cook County. If the taxpayer does not have his or her principal place of business in this State, such hearing shall be held in Sangamon County.

Whenever any proceeding provided by this Act has been begun by the Department of Revenue or by a person subject thereto and such person thereafter dies or becomes a person under legal disability before the proceeding has been concluded, the legal representative of the deceased person or person under legal disability shall notify the Department of Revenue of such death or legal disability. The legal representative, as such, shall then be substituted by the Department of Revenue in place of and for the person. Within 20 days after notice to the legal representative of the time fixed for that purpose, the proceeding may proceed in all respects and with like effect as though the person had not died or become a person under legal disability.

(Source: P.A. 87-727.)

(415 ILCS 5/55.14) (from Ch. 111 1/2, par. 1055.14)

Sec. 55.14. Administrative procedures. The Illinois Administrative Procedure Act is hereby expressly adopted and shall apply to all administrative rules and procedures of the Department of Revenue under this Act, except that: (1) paragraph (b) of Section 4 of the Illinois Administrative Procedure Act does not apply to final orders, decisions and opinions of the Department of Revenue; (2) subparagraph (a)(2) of Section 4 of the Illinois Administrative Procedure Act does not apply to forms established by the Department of Revenue for use under this Act; and (3) the provisions of Section 13 of the Illinois Administrative Procedure Act regarding proposals for decision are excluded and not applicable to the Department of Revenue

under this Act.

(Source: P.A. 87-727.)

(415 ILCS 5/55.15) (from Ch. 111 1/2, par. 1055.15)
Sec. 55.15. Violations.

(a) Any retailer who fails to make a return, or who makes a fraudulent return, or who willfully violates any rule or regulation of the Department of Revenue for the administration and enforcement of the fee imposed by Section 55.8, is guilty of a Class 4 felony.

(b) Any retailer who knowingly violates subsections (a) (2), (a) (3), or (b) of Section 55.8 commits a petty offense punishable by a fine of \$100.

(Source: P.A. 87-727.)

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**ENVIRONMENTAL SAFETY
(415 ILCS 60/) Illinois Pesticide Act.**

(415 ILCS 60/1) (from Ch. 5, par. 801)

Sec. 1. This Act shall be known as the Illinois Pesticide Act.

(Source: P.A. 85-177.)

(415 ILCS 60/2) (from Ch. 5, par. 802)

Sec. 2. Declaration of Purpose: The purpose of this Act is to regulate in the public interest the labeling, distribution, use and application of pesticides as herein defined. It is recognized that pesticides are valuable and necessary to Illinois' agricultural production and to the protection of man and his environment from pests, but it is essential to our general health and welfare that they be regulated to prevent adverse effects on man and his environment. New pesticides and application methods are continually being synthesized or discovered which may be valuable for pest control. However, such pesticides may cause unreasonable adverse effects on the environment or may be injurious to animals or man if not properly used. It is, therefore, deemed necessary to provide for the regulation of pesticides.

(Source: P.A. 81-197.)

(415 ILCS 60/3) (from Ch. 5, par. 803)

Sec. 3. Delegation of Authority. The Illinois Department of Agriculture shall administer "The Illinois Pesticide Act".

1. It shall be the duty of the Department of Agriculture to enforce this Act and such provisions of other Acts intended to control the registration, purchase, use, storage and disposal of pesticides, unless otherwise specified in this Section. Also, the Department of Agriculture shall control the purchase and use of pesticides pertaining to the production, protection, care, storage, or transportation of agricultural commodities and to control the use of pesticides applied by agricultural equipment. Also, the Department shall establish and implement an Agrichemical Facility Response Action Program as provided in Section 19.3.

2. It shall be the duty of the Department of Public Health to enforce such provisions of this Act and other Acts intended to control structural pest pesticides, as defined in subparagraph 37 of Section 4, of this Act. It shall be the duty of the Department of Public Health to enforce such provisions of this Act related to vector control, control of pestiferous and disease carrying insects, rodents and other animals, and control of birds and other mammals that may pose a threat to the health of the public.

3. It shall be the duty of the Environmental Protection Agency to enforce such provisions of this Act and other Acts intended to protect and preserve the quality of air, water, and guard against unreasonable contamination of land resources.

4. The regulation of pesticides by any political subdivision

of this State, including home rule units, is specifically prohibited except for counties and municipalities with a population over 2,000,000. The regulation of pesticides under this Act is an exclusive power and function of the State, except as provided in this paragraph, and is a denial and limitation, under Article VII, Section 6, subsection (h) of the Illinois Constitution, of the power of a home rule unit to regulate pesticides.

(Source: P.A. 89-94, eff. 7-6-95.)

(415 ILCS 60/4) (from Ch. 5, par. 804)

Sec. 4. Definitions. As used in this Act:

1. "Director" means Director of the Illinois Department of Agriculture or his authorized representative.

2. "Active Ingredient" means any ingredient which will prevent, destroy, repel, control or mitigate a pest or which will act as a plant regulator, defoliant or desiccant.

3. "Adulterated" shall apply to any pesticide if the strength or purity is not within the standard of quality expressed on the labeling under which it is sold, distributed or used, including any substance which has been substituted wholly or in part for the pesticide as specified on the labeling under which it is sold, distributed or used, or if any valuable constituent of the pesticide has been wholly or in part abstracted.

4. "Agricultural Commodity" means produce of the land including but not limited to plants and plant parts, livestock and poultry and livestock or poultry products, seeds, sod, shrubs and other products of agricultural origin including the premises necessary to and used directly in agricultural production. Agricultural commodity also includes aquatic products, including any aquatic plants and animals or their by-products that are produced, grown, managed, harvested and marketed on an annual, semi-annual, biennial or short-term basis, in permitted aquaculture facilities.

5. "Animal" means all vertebrate and invertebrate species including, but not limited to, man and other mammals, bird, fish, and shellfish.

5.5 "Barrier mosquitocide" means a pesticide that is formulated to kill adult mosquitoes and that is applied so as to leave a residual mosquitocidal coating on natural or manmade surfaces. "Barrier mosquitocide" does not include a product that is exempt from registration under the Federal Insecticide, Fungicide, and Rodenticide Act, or rules adopted pursuant to that Act.

5.6 "Barrier mosquitocide treatment" means application of a barrier mosquitocide to a natural or manmade surface.

6. "Beneficial Insects" means those insects which during their life cycle are effective pollinators of plants, predators of pests or are otherwise beneficial.

7. "Certified applicator".

A. "Certified applicator" means any individual who is certified under this Act to purchase, use, or supervise the use of pesticides which are classified for restricted use.

B. "Private applicator" means a certified applicator who purchases, uses, or supervises the use of any pesticide classified for restricted use, for the purpose of producing any agricultural commodity on property owned, rented, or otherwise controlled by him or his employer, or applied to other property if done without compensation other than trading of personal services between no more than 2 producers of agricultural commodities.

C. "Licensed Commercial Applicator" means a certified

applicator, whether or not he is a private applicator with respect to some uses, who owns or manages a business that is engaged in applying pesticides, whether classified for general or restricted use, for hire. The term also applies to a certified applicator who uses or supervises the use of pesticides, whether classified for general or restricted use, for any purpose or on property of others excluding those specified by subparagraphs 7 (B), (D), (E) of Section 4 of this Act.

D. "Commercial Not For Hire Applicator" means a certified applicator who uses or supervises the use of pesticides classified for general or restricted use for any purpose on property of an employer when such activity is a requirement of the terms of employment and such application of pesticides under this certification is limited to property under the control of the employer only and includes, but is not limited to, the use or supervision of the use of pesticides in a greenhouse setting. "Commercial Not For Hire Applicator" also includes a certified applicator who uses or supervises the use of pesticides classified for general or restricted use as an employee of a state agency, municipality, or other duly constituted governmental agency or unit.

8. "Defoliant" means any substance or combination of substances which cause leaves or foliage to drop from a plant with or without causing abscission.

9. "Desiccant" means any substance or combination of substances intended for artificially accelerating the drying of plant tissue.

10. "Device" means any instrument or contrivance, other than a firearm or equipment for application of pesticides when sold separately from pesticides, which is intended for trapping, repelling, destroying, or mitigating any pest, other than bacteria, virus, or other microorganisms on or living in man or other living animals.

11. "Distribute" means offer or hold for sale, sell, barter, ship, deliver for shipment, receive and then deliver, or offer to deliver pesticides, within the State.

12. "Environment" includes water, air, land, and all plants and animals including man, living therein and the interrelationships which exist among these.

13. "Equipment" means any type of instruments and contrivances using motorized, mechanical or pressure power which is used to apply any pesticide, excluding pressurized hand-size household apparatus containing dilute ready to apply pesticide or used to apply household pesticides.

14. "FIFRA" means the Federal Insecticide, Fungicide, and Rodenticide Act, as amended.

15. "Fungi" means any non-chlorophyll bearing thallophytes, any non-chlorophyll bearing plant of a lower order than mosses or liverworts, as for example rust, smut, mildew, mold, yeast and bacteria, except those on or in living animals including man and those on or in processed foods, beverages or pharmaceuticals.

16. "Household Substance" means any pesticide customarily produced and distributed for use by individuals in or about the household.

17. "Imminent Hazard" means a situation which exists when continued use of a pesticide would likely result in unreasonable adverse effect on the environment or will involve unreasonable hazard to the survival of a species declared endangered by the U.S. Secretary of the Interior or to species declared to be protected by the Illinois Department of Natural Resources.

18. "Inert Ingredient" means an ingredient which is not an

active ingredient.

19. "Ingredient Statement" means a statement of the name and percentage of each active ingredient together with the total percentage of inert ingredients in a pesticide and for pesticides containing arsenic in any form, the ingredient statement shall include percentage of total and water soluble arsenic, each calculated as elemental arsenic. In the case of spray adjuvants the ingredient statement need contain only the names of the functioning agents and the total percent of those constituents ineffective as spray adjuvants.

20. "Insect" means any of the numerous small invertebrate animals generally having the body more or less obviously segmented for the most part belonging to the class Insects, comprised of six-legged, usually winged forms, as for example beetles, caterpillars, and flies. This definition encompasses other allied classes of arthropods whose members are wingless and usually have more than 6 legs as for example spiders, mites, ticks, centipedes, and millipedes.

21. "Label" means the written, printed or graphic matter on or attached to the pesticide or device or any of its containers or wrappings.

22. "Labeling" means the label and all other written, printed or graphic matter: (a) on the pesticide or device or any of its containers or wrappings, (b) accompanying the pesticide or device or referring to it in any other media used to disseminate information to the public, (c) to which reference is made to the pesticide or device except when references are made to current official publications of the U. S. Environmental Protection Agency, Departments of Agriculture, Health, Education and Welfare or other Federal Government institutions, the state experiment station or colleges of agriculture or other similar state institution authorized to conduct research in the field of pesticides.

23. "Land" means all land and water area including airspace, and all plants, animals, structures, buildings, contrivances, and machinery appurtenant thereto or situated thereon, fixed or mobile, including any used for transportation.

24. "Licensed Operator" means a person employed to apply pesticides to the lands of others under the direction of a "licensed commercial applicator" or a "licensed commercial not-for-hire applicator".

25. "Nematode" means invertebrate animals of the phylum nemathelminthes and class nematoda, also referred to as nemas or eelworms, which are unsegmented roundworms with elongated fusiform or sac-like bodies covered with cuticle and inhabiting soil, water, plants or plant parts.

26. "Permit" means a written statement issued by the Director or his authorized agent, authorizing certain acts of pesticide purchase or of pesticide use or application on an interim basis prior to normal certification, registration, or licensing.

27. "Person" means any individual, partnership, association, fiduciary, corporation, or any organized group of persons whether incorporated or not.

28. "Pest" means (a) any insect, rodent, nematode, fungus, weed, or (b) any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other microorganism, excluding virus, bacteria, or other microorganism on or in living animals including man, which the Director declares to be a pest.

29. "Pesticide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest or any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant.

30. "Pesticide Dealer" means any person who distributes registered pesticides to the user.

31. "Plant Regulator" means any substance or mixture of substances intended through physiological action to affect the rate of growth or maturation or otherwise alter the behavior of ornamental or crop plants or the produce thereof. This does not include substances which are not intended as plant nutrient trace elements, nutritional chemicals, plant or seed inoculants or soil conditioners or amendments.

32. "Protect Health and Environment" means to guard against any unreasonable adverse effects on the environment.

33. "Registrant" means person who has registered any pesticide pursuant to the provision of FIFRA and this Act.

34. "Restricted Use Pesticide" means any pesticide with one or more of its uses classified as restricted by order of the Administrator of USEPA.

35. "SLN Registration" means registration of a pesticide for use under conditions of special local need as defined by FIFRA.

36. "State Restricted Pesticide Use" means any pesticide use which the Director determines, subsequent to public hearing, that an additional restriction for that use is needed to prevent unreasonable adverse effects.

37. "Structural Pest" means any pests which attack and destroy buildings and other structures or which attack clothing, stored food, commodities stored at food manufacturing and processing facilities or manufactured and processed goods.

38. "Unreasonable Adverse Effects on the Environment" means the unreasonable risk to the environment, including man, from the use of any pesticide, when taking into account accrued benefits of as well as the economic, social, and environmental costs of its use.

39. "USEPA" means United States Environmental Protection Agency.

40. "Use inconsistent with the label" means to use a pesticide in a manner not consistent with the label instruction, the definition adopted in FIFRA as interpreted by USEPA shall apply in Illinois.

41. "Weed" means any plant growing in a place where it is not wanted.

42. "Wildlife" means all living things, not human, domestic, or pests.

43. "Bulk pesticide" means any registered pesticide which is transported or held in an individual container in undivided quantities of greater than 55 U.S. gallons liquid measure or 100 pounds net dry weight.

44. "Bulk repackaging" means the transfer of a registered pesticide from one bulk container (containing undivided quantities of greater than 100 U.S. gallons liquid measure or 100 pounds net dry weight) to another bulk container (containing undivided quantities of greater than 100 U.S. gallons liquid measure or 100 pounds net dry weight) in an unaltered state in preparation for sale or distribution to another person.

45. "Business" means any individual, partnership, corporation or association engaged in a business operation for the purpose of selling or distributing pesticides or providing the service of application of pesticides in this State.

46. "Facility" means any building or structure and all real property contiguous thereto, including all equipment fixed thereon used for the operation of the business.

47. "Chemigation" means the application of a pesticide through the systems or equipment employed for the primary purpose of irrigation of land and crops.

48. "Use" means any activity covered by the pesticide label including but not limited to application of pesticide, mixing

and loading, storage of pesticides or pesticide containers, disposal of pesticides and pesticide containers and reentry into treated sites or areas.

(Source: P.A. 102-555, eff. 1-1-22; 102-916, eff. 1-1-23.)

(415 ILCS 60/5) (from Ch. 5, par. 805)

Sec. 5. Misbranded. The term misbranded shall apply:

1. To any pesticide or device designated as requiring registration by the Director under authority of this Act:

A. If its labeling bears any statement or graphic representation relating to labeling or to the ingredients which is misleading or false in any particular.

B. If it is an imitation of, or is distributed under, the name of another pesticide.

C. If any word, statement, or other required information is not prominently placed upon the label or labeled with such conspicuousness and in such terms as to render it readable and understandable by the ordinary person under customary conditions of purchase and use.

2. To any pesticide:

A. If the labeling does not contain a statement of the federal use classification under which the product is registered.

B. If the labeling accompanying it does not contain directions for use which are necessary for effecting the purpose for which the product is intended and any precautions or requirements imposed by FIFRA which, if complied with, are adequate to protect health and the environment.

C. If the label does not bear:

i. Name, brand or trademark under which the pesticide is distributed.

ii. An ingredient statement on that part of the immediate container which is presented or customarily displayed under usual conditions of purchase.

iii. A warning or caution statement commensurate with the toxicity categories levels assigned by USEPA.

iv. The net weight or measure of contents.

v. The name and address of the manufacturer, registrant, or person for whom manufactured.

vi. The USEPA registration number assigned to the pesticide as well as the USEPA number assigned to the producing or manufacturing establishment in which the pesticide was produced.

D. If the pesticide contains any substance or substances highly toxic to man (as defined in the USEPA) unless the label bears, in addition to other label requirements:

i. The skull and crossbones.

ii. The word "POISON" in red prominently displayed on a contrasting background.

iii. A statement of practical treatment in case of poisoning by the pesticide.

E. If the pesticide container does not bear a registered label, is not accompanied by registered labeling instructions, does not bear a label registered for "experimental use only", or does not bear a label showing SLN registration.

F. If the pesticide container is not in

compliance with child resistant packaging requirements as set forth by the USEPA.

(Source: P.A. 102-558, eff. 8-20-21.)

(415 ILCS 60/6) (from Ch. 5, par. 806)

Sec. 6. Registration.

1. Every pesticide which is distributed, sold, offered for sale within this State, delivered for transportation or transported in interstate commerce or between points within the State through any point outside the State, shall be registered with the Director or his designated agent, subject to provisions of this Act. Such registration shall be for a period determined under item 1.5 of this Section and shall expire on December 31st. Registration is not required if a pesticide is shipped from one plant or warehouse to another plant or warehouse by the same person and is used solely at such plant or warehouse as a constituent part to make a pesticide which is registered under provisions of this Act and FIFRA.

1.5. In order to stagger product registrations, the Department shall, for the 2011 registration year, register half of the applicants and their products for one year and the other half for 2 years. Thereafter, a business registration and product registration shall be for 2 years.

2. Registration applicant shall file a statement with the Director which shall include:

A. The name and address of the applicant and the name and address of the person whose name will appear on the label if different from the applicant's.

B. The name of the pesticide.

C. A copy of the labeling accompanying the pesticide under customary conditions of distribution, sale and use, including ingredient statement, direction for use, use classification, and precautionary or warning statements.

3. The Director may require the submission of complete formula data.

4. The Director may require a full description of tests made and the results thereof, upon which the claims are based, for any pesticide not registered pursuant to FIFRA, or on any pesticide under consideration to be classified for restricted use.

A. The Director will not consider data he required of the initial registrant of a pesticide in support of another applicants' registration unless the subsequent applicant has obtained written permission to use such data.

B. In the case of renewal registration, the Director may accept a statement only with respect to information which is different from that furnished previously.

5. The Director may prescribe other requirements to support a pesticide registration by regulation.

6. For the years preceding the year 2004, any registrant desiring to register a pesticide product at any time during one year shall pay the annual registration fee of \$100 per product registered for that applicant. For the years 2004 through 2010, the annual product registration fee is \$200 per product. For the years 2011 and thereafter, the product registration fee shall be \$600 per product per 2-year registration period and shall be paid at the time of registration.

In addition, for the years preceding the year 2004 any business registering a pesticide product at any time during one year shall pay the annual business registration fee of \$250. For the years 2004 through 2010, the annual business registration fee shall be \$400. For the years 2011 and thereafter, the business registration fee shall be \$800 per 2-year registration period and shall be paid at the time of registration. Each legal

entity of the business shall pay the business registration fee.

For the years preceding the year 2004, any applicant requesting an experimental use permit shall pay the annual fee of \$100 per permit and all special local need pesticide registration applicants shall pay an annual fee of \$100 per product. For the years 2004 through 2010, the annual experimental use permit fee and special local need pesticide registration fee is \$200 per permit. For the years 2011 and thereafter, the annual experimental use permit and special local need pesticide registration fee shall be \$300 per product. Subsequent SLN registrations for a pesticide already registered shall be exempted from the registration fee.

A. All registration accepted and approved by the Director shall expire on the 31st day of December in any one year unless cancelled. Registration for a special local need may be granted for a specific period of time with the approval date and expiration date specified.

B. If a registration for special local need granted by the Director does not receive approval of the Administrator of USEPA, the registration shall expire on the date of the Administrator's disapproval.

7. Registrations approved and accepted by the Director and in effect on the 31st day of December, for which renewal application is made, shall continue in full force and effect until the Director notifies the registrant that the renewal has been approved and accepted or the registration is denied under this Act. Renewal registration forms will be provided to applicants by the Director.

8. If the renewal of a pesticide registration is not filed within 30 days of the date of expiration, a penalty late registration assessment of \$100 per product shall apply in addition to the regular product registration fee. The late registration assessment shall not apply if the applicant furnishes an affidavit certifying that no unregulated pesticide was distributed or sold during the period of registration. The late assessment is not a bar to prosecution for doing business without proper registry.

9. The Director may prescribe by regulation to allow pesticide use for a special local need, pursuant to FIFRA.

10. The Director may prescribe by regulation the provisions for and requirements of registering a pesticide intended for experimental use.

11. The Director shall not make any lack of essentiality a criterion for denial of registration of any pesticide. Where 2 pesticides meet the requirements, one should not be registered in preference to the other.

12. It shall be the duty of the pesticide registrant to properly dispose of any pesticide the registration of which has been suspended, revoked or cancelled or which is otherwise not properly registered in the State.

(Source: P.A. 100-115, eff. 8-15-17.)

(415 ILCS 60/7) (from Ch. 5, par. 807)

Sec. 7. Refusal to Register, Cancellation, Suspension.

1. The Director may refuse to register a pesticide or cancel or suspend a pesticide registration if:

A. It does not appear that the composition of the pesticide is such as to warrant the proposed claims, if the pesticide does not comply with provisions of this Act or regulations promulgated thereunder, or if the labeling and other materials required for registration do not comply with provisions of this Act or regulations promulgated thereunder. The Director shall notify the applicant of the manner in which the pesticide labeling or other material

fails to comply so as to afford the applicant an opportunity to make necessary corrections. The Director may refuse to register the pesticide if the required changes are not made. The applicant may request a hearing as provided under the Illinois Administrative Procedure Act.

B. It is determined that a pesticide or its labeling does not comply with provisions of this Act or regulations promulgated thereunder or unreasonable adverse effects on the environment would result from continued registration, the Director may cancel the registration or change the use classification of the pesticide. Prior to cancellation or a change in classification, the Director shall conduct a hearing in accordance with provisions of the Illinois Administrative Procedure Act.

C. It is determined that there is an imminent hazard. The Director may, of his own accord, suspend the registration of a pesticide and with utmost expedition conduct a hearing in accordance with the Illinois Administrative Procedure Act for the purposes of determining whether to cancel the registration or reclassify the pesticide's use.

2. Any person adversely affected by any order as provided for in this Section may obtain judicial review by filing in the Circuit Court, within 60 days after entry of such order, a petition praying the order in whole or in part be set aside. The petition shall be forthwith transmitted by the Clerk of the Court to the Director. The Director shall file with the court a record of the proceedings on which the order is based. The Court shall have jurisdiction to affirm or set aside in whole or in part such order. The findings of the Director with respect to questions of fact shall be sustained if supported by substantial evidence. Upon application, the Court may remand the matter to the Director to take further testimony if there are reasonable grounds for failure to adduce such evidence in the prior hearing. The Director may modify his order by reason of additional evidence and shall file the additional record and modification with the Clerk of the Court.

3. If the Director determines that a pesticide does not comply with registration provisions of FIFRA or the regulations adopted thereunder, he shall advise USEPA of the manner in which said pesticide fails to comply and suggest necessary correction. (Source: P.A. 91-357, eff. 7-29-99.)

(415 ILCS 60/8) (from Ch. 5, par. 808)

Sec. 8. Authority, Determinations, Rules and Regulations, Uniformity.

1. The Director is authorized, after due notice and opportunity for hearing, to declare and establish as a pest, for purposes of pesticide use and application, any form of plant or animal life, other than man himself, bacteria, viruses, and the microorganisms on or in living man or other living animals, which is injurious to health or the environment, provided that the classification of plants as pest does not violate provisions of the Illinois Noxious Weed Law.

2. The Director is authorized, after due notice and public hearing as provided in the Illinois Administrative Procedure Act, to make appropriate regulations for enforcement and administration of the Act including, but not limited to, regulations providing for:

A. The collection, examination, and analysis of samples of pesticides or devices.

B. The storage, display, distribution and disposal of pesticides or devices and their containers.

C. The methods of pesticide application which may

relate to time, place, manner, methods, material amounts, or combinations and concentrations, in connection with the application of the pesticide.

D. Packaging, and material coloration necessary to protect public health and the environment from pesticides with experimental use or special local need registration. Such regulations must be consistent with the FIFRA rules and regulations promulgated thereunder.

E. The storage, handling, and containment of pesticides at agrichemical facilities and the protection of groundwater consistent with the provisions of Section 14.6 of the Environmental Protection Act.

F. The development and implementation of an Agrichemical Facility Response Action Program as provided in Section 19.3.

3. For purposes of uniformity and in order to enter into cooperative agreements, the Director may adopt use classifications and other pertinent pesticide registration provisions which are established by the Administrator, EPA.

4. Regulations adopted under this Act shall not permit any pesticide use prohibited by the FIFRA or any regulations or orders issued thereunder.

5. The Director is authorized to cooperate with such state or federal agencies as may be reasonable and proper to carry out the provisions of this Act.

(Source: P.A. 91-357, eff. 7-29-99.)

(415 ILCS 60/9) (from Ch. 5, par. 809)

Sec. 9. Licenses and pesticide dealer registrations requirements; certification.

(a) Licenses and pesticide dealer registrations issued pursuant to this Act as a result of certification attained in calendar year 2017 or earlier shall be valid for the calendar year in which they were issued, except that private applicator licenses shall be valid for the calendar year in which they were issued plus 2 additional calendar years. All licenses and pesticide dealer registrations shall expire on December 31 of the year in which they are to expire. A license or pesticide dealer registration in effect on the 31st of December, for which renewal has been made within 60 days following the date of expiration, shall continue in full force and effect until the Director notifies the applicant that renewal has been approved and accepted or is to be denied in accordance with this Act. The Director shall not issue a license or pesticide dealer registration to a first time applicant or to a person who has not made application for renewal on or before March 1 following the expiration date of the license or pesticide dealer registration until such applicant or person has been certified by the Director as having successfully demonstrated competence and knowledge regarding pesticide use. The Director shall issue a license or pesticide dealer registration to a person that made application after March 1 and before April 15 if that application is accompanied by a late application fee. A licensee or pesticide dealer shall be required to be recertified for competence and knowledge regarding pesticide use at least once every 3 years and at such other times as deemed necessary by the Director to assure a continued level of competence and ability. The Director shall by regulation specify the standard of qualification for certification and the manner of establishing an applicant's competence and knowledge. A certification shall remain valid only if an applicant attains licensure or pesticide dealer registration during the calendar year in which certification was granted and the licensure is maintained throughout the 3-year certification period.

(b) Multi-year licenses and pesticide dealer registrations issued pursuant to this Act as a result of certification attained in calendar year 2018 or thereafter shall be valid for the calendar year in which they were issued plus 2 additional calendar years. All licenses and pesticide dealer registrations shall expire on December 31 of the year in which they are to expire. A license or pesticide dealer registration in effect on the 31st of December, for which recertification and licensure has been made within 60 days following the date of expiration, shall continue in full force and effect until the Director notifies the applicant that recertification and licensure has been approved and accepted or is to be denied in accordance with this Act. A licensee or pesticide dealer shall be required to be recertified for competence and knowledge regarding pesticide use at least once every 3 years and at such other times as deemed necessary by the Director to assure a continued level of competence and ability. The Director shall by rule specify the standard of qualification for certification and the manner of establishing the applicant's competence and knowledge. A certification shall remain valid only if an applicant attains licensure or pesticide dealer registration during the calendar year in which certification was granted and the licensure is maintained throughout the 3-year certification period. Notwithstanding the other provisions of this subsection (b), the employer of a pesticide applicator or operator licensee may notify the Director that the licensee's employment has been terminated. If the employer submits that notification, the employer shall return to the Director the licensee's pesticide applicator or operator license card and may request that the unused portion of the terminated licensee's pesticide applicator or operator license term be transferred to a newly certified or re-certified individual, and the Director may issue the appropriate pesticide applicator or operator license to the newly certified or re-certified individual with an expiration date equal to the original license after payment of a \$10 transfer fee.

(c) The Director may refuse to issue a license or pesticide dealer registration based upon the violation history of the applicant.

(Source: P.A. 99-540, eff. 1-1-17; 100-201, eff. 8-18-17.)

(415 ILCS 60/10) (from Ch. 5, par. 810)

Sec. 10. Commercial applicator license. No commercial applicator shall use or supervise the use of any pesticide without a commercial license issued by the Director. For the years preceding the year 2001, the Director shall require an annual fee for commercial applicator license of \$35. For the years 2001, 2002, 2003, 2004, 2005, and 2006, the annual fee for a commercial applicator license is \$45. For the years 2007 through 2017, the annual fee for a commercial applicator license is \$60. For the years 2018 and thereafter, the fee for a multi-year commercial applicator license is \$180. The late application fee for a commercial applicator license shall be \$20 in addition to the normal license fee. A commercial applicator shall be assessed a fee of \$10 for a duplicate license.

1. Application for the commercial applicator license shall be made in writing on designated forms available from the Director. Each application shall contain information regarding the applicants qualifications, nature of the proposed operation, classification of license being sought, and shall include the following:

- A. The full name of the applicant.
- B. The address of the applicant.
- C. Any necessary information prescribed by the

Director on the designated application form.

2. An applicant for a license shall demonstrate competence and knowledge regarding pesticide use in accordance with Section 9 of this Act.

3. A licensed commercial applicator must provide to the Director at the time of original licensing and must maintain throughout the licensure period evidence of financial responsibility protecting persons who may suffer personal injury or property damage or both as a result of the pesticide operation of the applicant in either of the following manners:

A. Evidence of responsibility may be provided in the form of a surety bond for each licensed commercial applicator naming the licensed commercial applicator as principal of the bond. The amount of the bond shall be not less than \$50,000 per year. It is permissible to provide two bonds; one for \$25,000 for bodily injury liability and the second for \$25,000 for property damage liability. The bond or bonds shall be made payable to the Director of Agriculture, State of Illinois, for the benefit of the injured party and shall be conditioned upon compliance with the provisions of this Act by the principal, his or her officers, representatives and employees; or

B. Evidence of responsibility may be provided in the form of a certificate of liability insurance providing coverage for each licensed commercial applicator or licensed entity in the amount of not less than \$50,000 per person, \$100,000 per occurrence bodily injury liability coverage, with an annual aggregate of not less than \$500,000, and \$50,000 per occurrence property damage liability, with an annual aggregate of not less than \$50,000; or, in lieu thereof, a combined single limit of not less than \$100,000 bodily injury and property damage liability combined, with an annual aggregate of not less than \$500,000.

4. Every insurance policy or bond shall contain a provision that it will not be cancelled or reduced by the principal or insurance company, except upon 30 days prior notice in writing to the Director of the Department at the Springfield, Illinois office and the principal insured. A reduction or cancellation of policy shall not affect the liability accrued or which may accrue under such policy before the expiration of the 30 days. The notice shall contain the termination date. Upon said reduction or cancellation, the Director shall immediately notify the licensee that his or her license will be suspended and the effective date until the minimum bond or liability insurance requirements are met by the licensee for the current license period.

5. Nothing in this Act shall be construed to relieve any person from liability for any damage to persons or property caused by use of pesticides even though such use conforms to label instructions and pertinent rules and regulations of this State.

6. The Director may renew any applicant's license in the classifications for which such applicant is licensed, subject to requalification requirements imposed by the Director. Requalification standards shall be prescribed by regulations adopted pursuant to this Act and are required to ensure that the licensed commercial applicator meets the requirements of changing technology and to assure a continued level of competence and ability.

7. The Director may limit the license of an applicant to allow only the use of certain pesticides in a delimited geographic area, or to the use of certain application techniques or equipment. If a license is not issued as applied for, the Director shall inform the applicant in writing of the reasons

and extend an opportunity for the applicant to complete the requirements for the license desired.

8. For the purpose of uniformity, the Director may enter into agreements for accepting standards of qualification of other states as a basis for licensing commercial applicators. (Source: P.A. 99-540, eff. 1-1-17.)

(415 ILCS 60/11) (from Ch. 5, par. 811)

Sec. 11. Certified Pesticide Applicators. No person shall use or supervise the use of pesticides classified for restricted use without a license issued by the Director. Persons licensed or desiring to be licensed as certified pesticide applicators shall comply with the certification requirements as set forth in Section 9 of this Act in order to protect public health and the environment, including injury to the applicator or other persons using these pesticides.

An applicant for certification as a private pesticide applicator shall meet qualification requirements prescribed by regulation. The application for certification shall be made in writing to the Director, on forms available from the Director or the local county agricultural extension adviser's office and be accompanied by payment of a \$10 license fee in the years preceding the year 2001. During the years 2001, 2002, 2003, 2004, 2005, and 2006, the private pesticide applicator license fee shall be \$15. During the years 2007 through 2010, the private pesticide applicator license fee shall be \$20. For the years 2011 and thereafter, the private pesticide applicator license fee shall be \$30. A private pesticide applicator shall be assessed a fee of \$5 for a duplicate license. Such application shall include:

- A. The full name of the applicant.
- B. The mailing address of the applicant.
- C. The documents required as evidence of competence and knowledge regarding the use of pesticides.

Certification, as a private pesticide applicator, issued by the Director shall be valid for a period prescribed by regulation. The Director shall develop regulatory standards to ensure that certified private pesticide applicators continue to meet the requirements of a changing technology and assure a continued level of competence and ability.

(Source: P.A. 96-1310, eff. 7-27-10.)

(415 ILCS 60/11.1) (from Ch. 5, par. 811.1)

Sec. 11.1. Commercial not-for-hire license. No commercial not-for-hire applicator shall use or supervise the use of any pesticide without a license issued by the Director. For the years 2011 through 2017, the commercial not-for-hire pesticide applicator license fee shall be \$20. For the years 2018 and thereafter, the fee for a multi-year commercial not-for-hire pesticide applicator license is \$60. The late application fee for a public or commercial not-for-hire applicator license shall be \$20 in addition to the normal license fees. A commercial not-for-hire applicator shall be assessed a fee of \$10 for a duplicate license.

1. Application for certification as a commercial not-for-hire pesticide applicator shall be made in writing on designated forms available from the Director. Each application shall contain information regarding the qualifications of the applicant, classification of certification being sought, and shall include the following:

- A. The full name of the applicant.
- B. The name of the applicant's employer.
- C. The address at the applicant's place of employment.
- D. Any other information prescribed by the Director

on the designated form.

2. The Director shall not issue a certification to a commercial not-for-hire pesticide applicator until the individual identified has demonstrated his competence and knowledge regarding pesticide use in accordance with Section 9 of this Act.

3. The Director shall not renew a certification as a commercial not-for-hire pesticide applicator until the applicant reestablishes his qualifications in accordance with Section 9 of this Act or has met other requirements imposed by regulation in order to ensure that the applicant meets the requirements of changing technology and to assure a continued level of competence and ability.

4. (Blank).

5. (Blank).

6. (Blank).

7. Persons applying general use pesticides, approved by the Inter-Agency Committee on the Use of Pesticides, to scrap tires for the control of mosquitoes shall be exempt from the license requirements of this Section.

(Source: P.A. 99-540, eff. 1-1-17.)

(415 ILCS 60/12) (from Ch. 5, par. 812)

Sec. 12. Licensed operator. No pesticide operator shall use any pesticides without a pesticide operator license issued by the Director.

1. Application for an operator license shall be made in writing on designated forms available from the Director. Each application shall contain information regarding the nature of applicants pesticide use, his qualifications, and such other facts as prescribed on the form. The application shall also include the following:

A. The full name of applicant.

B. The address of the applicant.

C. The name of and license/certification number of the pesticide applicator under whom the applicant will work.

2. The Director shall not issue a pesticide operator license until the individual identified has demonstrated his competence and knowledge regarding pesticide use in accordance with Section 9 of this Act.

3. The Director shall not issue an operator license to any person who is unable to provide the name and license/certification number of an applicator under whom the operator will work.

4. For the years preceding the year 2001, a licensed commercial operator working for or under the supervision of a certified licensed commercial pesticide applicator shall pay an annual fee of \$25. For the years 2001, 2002, and 2003, the annual fee for a commercial operator license is \$30. For the years 2004, 2005, and 2006, the annual fee for a commercial operator license is \$35. For the years 2007 through 2017, the annual fee for a commercial operator license is \$40. For the years 2018 and thereafter, the fee for a multi-year commercial operator license is \$120. The late application fee for an operator license shall be \$20 in addition to the normal license fee. A licensed operator shall be assessed a fee of \$10 for a duplicate license.

5. For the years 2011 through 2017, the commercial not-for-hire pesticide operator license fee shall be \$15. For the years 2018 and thereafter, the fee for a multi-year commercial not-for-hire pesticide operator license is \$45. The late application fee for a commercial not-for-hire operator license shall be \$20 in addition to the normal license fee. A commercial not-for-hire

operator shall be assessed a fee of \$10 for a duplicate license. (Source: P.A. 99-540, eff. 1-1-17; 100-115, eff. 8-15-17.)

(415 ILCS 60/13) (from Ch. 5, par. 813)

Sec. 13. Pesticide dealers. Any pesticide dealer who sells Restricted Use pesticides shall be registered with the Department on forms provided by the Director. Beginning July 1, 2005, any pesticide dealer that sells non-restricted use pesticides for use in the production of an agricultural commodity in containers with a capacity of 2.5 gallons or greater or 10 pounds or greater must also register with the Department on forms provided by the Director. Through 2017, registration shall consist of passing a required examination and payment of a \$100 registration fee. For the years 2018 and thereafter, the pesticide dealer registration fee for a multi-year registration period is \$300. The late application fee for a pesticide dealer registration shall be \$20 in addition to the normal pesticide dealer registration fee. A pesticide dealer shall be assessed a fee of \$10 for a duplicate registration.

Dealers who hold a Structural Pest Control license with the Illinois Department of Public Health or a Commercial Applicator's license with the Illinois Department of Agriculture are exempt from the registration fee but must register with the Department.

Each place of business which sells restricted use pesticides or non-restricted pesticides for use in the production of an agricultural commodity in containers with a capacity of 2.5 gallons or greater or 10 pounds or greater shall be considered a separate entity for the purpose of registration.

Registration as a pesticide dealer shall expire on December 31 of the year in which it is to expire. Pesticide dealers shall be certified in accordance with Section 9 of this Act.

The Director may prescribe, by rule, requirements for the registration and testing of any pesticide dealer selling other than restricted use pesticides and such rules shall include the establishment of a registration fee in an amount not to exceed the pesticide dealer registration fee.

The Department may refuse to issue or may suspend the registration of any person who fails to file a return, or to pay the tax, penalty, or interest shown in a filed return, or to pay any final assessment of tax, penalty, or interest, as required by any tax Act administered by the Illinois Department of Revenue, until such time as the requirements of any such tax Act are satisfied.

(Source: P.A. 99-540, eff. 1-1-17.)

(415 ILCS 60/13.1) (from Ch. 5, par. 813.1)

Sec. 13.1. (Repealed).

(Source: P.A. 87-1108; repealed internally.)

(415 ILCS 60/13.2)

Sec. 13.2. Agrichemical facility.

(a) An agrichemical facility located within the State of Illinois that was not in existence during the years 1991, 1992, and 1993 and therefore did not pay the registration fee of \$500 per year per agrichemical facility for those years may make a one-time payment of \$1,500 to the Department of Agriculture for deposit into the Agrichemical Incident Response Trust Fund to meet the eligibility requirement of subdivision (2) of subsection (a) of Section 22.3 of this Act. The payment must be received by the Department of Agriculture prior to an incident for which reimbursement is sought under Section 22.3 to qualify for eligibility under subdivision (2) of subsection (a) of Section 22.3.

(b) An agrichemical facility located within the State of Illinois that was not in existence during the years 1991, 1992, and 1993 and therefore did not pay the registration fee of \$500 per year per agrichemical facility for those years may also meet the eligibility requirement of subdivision (2) of subsection (a) of Section 22.3 of this Act through the transfer of eligibility from a facility under the same ownership whose operations were discontinued after 1993 and replaced by the new facility. To qualify for the eligibility transfer, the owner must submit a written request for the eligibility transfer to the Department of Agriculture, must have paid the \$500 registration fee for each of the years 1991, 1992, and 1993 for the original facility, and completed all closure requirements contained in rules promulgated by the Department of Agriculture. Upon receipt of the eligibility transfer request, the Department of Agriculture shall review the submittal and all related containment facility files and shall notify the owner whether eligibility can be transferred.

(c) An agrichemical facility located within the State of Illinois that was in existence during the years 1991, 1992, and 1993 but did not pay the registration fee of \$500 per year per agrichemical facility for those years may make payment of the unremitted balance to the Department of Agriculture for deposit into the Agrichemical Incident Response Trust Fund to meet the eligibility requirement of subdivision (2) of subsection (a) of Section 22.3 of this Act. The payment must be received by the Department of Agriculture prior to an incident for which reimbursement is sought under Section 22.3 to qualify for eligibility under subdivision (2) of subsection (a) of Section 22.3.

(d) The moneys collected under this Section shall be deposited into the Agrichemical Incident Response Trust Fund.

(e) For purposes of this Section, "agrichemical facility" means a site:

(1) used for commercial purposes,

(A) where bulk pesticides are stored in a single container in excess of 300 gallons of liquid pesticide or 300 pounds of dry pesticide for more than 30 days per year; or

(B) where more than 300 gallons of liquid pesticide or 300 pounds of dry pesticide are being mixed, repackaged, or transferred from one container to another within a 30 day period; and

(2) that serves at a point in the pesticide

distribution chain immediately prior to final use.

(Source: P.A. 90-403, eff. 8-15-97.)

(415 ILCS 60/13.3)

Sec. 13.3. Agrichemical facility containment permits. An agrichemical containment permit issued by the Department shall be obtained for each existing and new agrichemical facility and non-commercial agrichemical facility as defined by rules promulgated by the Department. A permit fee of \$100 shall be submitted to the Department with each permit application or permit renewal application. All moneys collected under this Section must be deposited into the Pesticide Control Fund.

(Source: P.A. 96-1310, eff. 7-27-10.)

(415 ILCS 60/13.4)

Sec. 13.4. Barrier mosquitocides.

(a) Except as provided under subsection (e) and rules adopted by the Department of Agriculture under subsection (b), no commercial applicator shall apply a barrier mosquitocide between October 16 and April 14.

(b) The Department of Agriculture may adopt rules allowing for the application of barrier mosquitocides by commercial applicators between October 16 and April 14, provided that the Department of Agriculture determines, as a part of the rulemaking proceeding, that there is evidence of a significant unmet need for the commercial application of barrier mosquitocides between October 16 and April 14 due to the abundance of target mosquito populations in the State during that period.

(c) A commercial applicator of a barrier mosquitocide must, at a minimum:

(1) not apply a barrier mosquitocide when wind speeds are greater than or equal to 10 miles per hour;

(2) be licensed under this Act and have completed the additional licensure and testing requirements established by the Department of Agriculture under subsection (d);

(3) erect, immediately following application of the barrier mosquitocide, signage for residential properties treated with barrier mosquitocides that is comparable to the notification requirements under subsection (a) of Section 3 of the Lawn Care Products Application and Notice Act; and

(4) provide, upon request and in a manner that is comparable to the notification requirements under subsection (d) of Section 3 of the Lawn Care Products Application and Notice Act, a copy of the product labels required for the barrier mosquitocide under the Federal Insecticide Fungicide, and Rodenticide Act (FIFRA).

(d) The Department of Agriculture shall adopt rules to expand its existing commercial applicator licensure and testing program to include training in the residential application of barrier mosquitocides. The training developed by the Department of Agriculture shall include a course on mosquito control and pollinator protection in the residential environment and shall also include training in the following topics:

(1) requirements for domestic inspections by commercial applicators prior to application of barrier mosquitocides;

(2) identification of mosquitoes in areas to be treated with the barrier mosquitocide;

(3) distinguishing between species of mosquitoes;

(4) mosquito behavior, biology, and life cycle;

(5) pesticide-free source mosquito-reduction methods;

(6) pesticide drift and the protection of bystanders during pesticide application;

(7) pesticide label requirements;

(8) proper technique for application of barrier mosquitocides;

(9) protection of pollinators from barrier mosquitocides;

(10) mosquito-borne diseases;

(11) proper use of equipment for application of mosquitocides;

(12) use of personal protective equipment during application of barrier mosquitocides;

(13) areas where barrier mosquitocides cannot be applied; and

(14) any other topic the Department of Agriculture determines to be relevant.

(e) Any barrier mosquitocide treatment made for public health purposes by or on behalf of a mosquito abatement district, public health department, township, municipality, or other unit of local government is exempt from this Section and any rules adopted under this Section.

(f) The Department of Agriculture may partner with the University of Illinois to develop and administer a voluntary continuing education curriculum that includes as a curricular element a unit on pollinator protection and ecological protection.

(Source: P.A. 102-916, eff. 1-1-23.)

(415 ILCS 60/13.5)

Sec. 13.5. Mosquito misters prohibited. No person shall install or use any residential automatic pesticide misting system in this State. For purposes of this Section, "residential automatic pesticide misting system" means any device that is designed to be installed on, near, or around the exterior of any residential dwelling or the grounds of a residential dwelling and to automatically spray any pesticide solution at timed intervals.

(Source: P.A. 102-916, eff. 1-1-23.)

(415 ILCS 60/14) (from Ch. 5, par. 814)

Sec. 14. Unlawful acts.

1. The following are violations of this Act, if any person:

A. Made false or fraudulent claims through any media misrepresenting the effect of pesticides or methods.

B. Applied known ineffective or improper pesticides.

C. Applied pesticides in a faulty, careless, or negligent manner.

D. Used or made recommendation for use of a pesticide inconsistent with the labeling of the pesticide.

E. Neglected, or after notice in writing, refused, to comply with provisions of this Act, the regulations adopted hereunder, or of any lawful order of the Director, including the limitations specified in a duly issued permit, certification, or registration.

F. Failed to keep and maintain records required by this Act or failed to make reports when and as required or made false or fraudulent records or reports.

G. Used or supervised the use of a pesticide without qualifying as a certified applicator or licensed operator.

H. Used fraud or misrepresentation in making application for, or renewal of, any license, permit, certification, or registration or in demonstration of competence.

I. Aided or abetted a person to evade provisions of this Act, conspired with any person to evade provisions of this Act or allowed a license, permit, certification or registration to be used by another person.

J. Impersonated any federal, state, county, or city official.

K. Purchased pesticides by using another person's license or using or purchasing pesticides outside of a specific category for which that person is licensed or any other misrepresentation.

L. Fails to comply with the rules and regulations adopted under the authority of this Act.

2. Except as provided in Section 14 (2G), it is unlawful for any person to distribute in the State the following:

A. A pesticide not registered pursuant to provisions of this Act.

B. Any pesticide, if any claim made for it, use recommendation, other labeling or formulation, differs from the representations made in connection with registration. However, a change in labeling or formulation may be made

within a registration if the change does not violate provisions of FIFRA or this Act.

C. Any pesticide unless in the registrants unbroken container.

D. Any pesticide container to which all label information required under provisions of this Act has not been securely affixed.

E. Any pesticide which is adulterated or misbranded or any device which is misbranded.

F. Any pesticide in a container which, due to damage, is hazardous to handle and store.

G. It shall not be unlawful to distribute pesticides "in bulk" provided such distribution does not violate the provisions of this Act, the Rules and Regulations under this Act, or FIFRA.

3. It shall be unlawful:

A. To sell any pesticide labeled for restricted use to any applicator not certified, unless such applicator has a valid permit authorizing purchase under a special exemption from certification requirements.

B. To handle, store, display, use or distribute pesticides in such manner as to endanger man and his environment, to endanger food, feed or other products that may be stored, displayed or distributed with such pesticides.

C. To use, dispose of, discard, or store pesticides or their containers in such a manner as to endanger public health and the environment or to pollute water supplies.

D. To use for personal advantage, reveal to persons, other than the Director designee or properly designated official of other jurisdictions, or to a physician or other qualified person in cases of emergency for preparation of an antidote any information judged as relating to trade secrets. To use or reveal a financial information obtained by authority or marked as privileged or confidential by a registrant.

E. To sell any pesticide labeled for restricted use over an Internet website to an Illinois resident who is not a certified pesticide applicator as provided under Section 11 of this Act.

F. To apply a restricted use pesticide on or within 500 feet of school property during normal hours, except for whole structure fumigation. However, if the pesticide application information listed on the pesticide label is more restrictive than this paragraph (F), then the more restrictive provision shall apply. The Department of Agriculture shall adopt rules necessary to implement the provisions of this paragraph (F). As used in this paragraph (F), "normal school hours" means Monday through Friday from 7 a.m. until 4 p.m., excluding days when classes are not in session.

4. Exemptions from the violation provisions of this Act are as follows:

A. Carriers lawfully engaged in transporting pesticides within this State, provided that such carrier shall upon request permit the Director to copy all records showing transactions in the movement of the pesticide or device.

B. Public officials of this State or the federal government while engaged in the performance of official duties in administration of pesticide laws or regulations.

C. Persons who ship a substance or mixture of substances being tested for the purpose of determining its value for pesticide use, to determine its toxicity or other

properties and from which such user does not derive any benefit in pest control from its use.

5. No pesticide or device shall be deemed in violation of this Act when intended solely for export to a foreign country. If it is not exported all the provisions of this Act shall apply.

(Source: P.A. 102-548, eff. 1-1-22.)

(415 ILCS 60/15) (from Ch. 5, par. 815)

Sec. 15. Enforcement. 1. The sampling and examination of pesticides, devices, books and records, and the labeling of pesticides or devices shall be made under the supervision of the Director for the purposes of determining compliance with provisions of this Act. The Director, upon presentation of identification, is authorized to enter a premises at reasonable times during normal working hours in order to have access to pesticides, devices, books and records, and labeling for pesticides or devices.

A. The Director shall provide a copy of the results of any analysis made of such samples to the owner, operator or agent in charge of the site.

B. If upon such analysis or examination there appears to be a violation of provisions of this Act or regulations adopted thereunder, the Director shall cause notice to be given to the owner, operator or agent in charge and specify any administrative proceedings or criminal actions that are contemplated against such person.

C. In seeking the institution of criminal charges against a violator, the Director shall refer copies of findings or the results of analysis or both, to the prosecuting attorney for the county in which the violation occurred.

2. For the purpose of carrying out the provisions of this Act the Director, upon presentation of identification, is authorized to enter upon public or private premises at reasonable times during normal working hours in order to:

A. Investigate or inspect to determine the facts in complaints of pesticide injury, mis-use, mis-handling, or reported excessive pesticide exposure.

B. Determine the facts in any pesticide incident reported to him, including collecting samples for analysis.

C. Observe pesticide use and sample the pesticides being applied, as well as the site to which the pesticide is being applied.

D. To inspect and collect samples in any place where pesticides are produced, manufactured, sold or distributed.

3. The Director upon being denied access to any land may apply to the court of jurisdiction for a search warrant authorizing such access for purpose of carrying out provision of this Act. The court may upon receiving such request issue such warrant.

4. The Director, with or without the aid and advice of the court of jurisdiction, is charged with enforcing the requirements of this Act and rules adopted hereunder. In the event the enforcement agent of local jurisdiction refuses to act on behalf of the Director, the Attorney General may so act.

5. The Director may bring action to enjoin the violation or threatened violation of any provision of this Act or regulation adopted thereunder in the court of jurisdiction for the county in which such occurs or is about to occur.

6. Nothing in this Act shall be construed as requiring the Director to report minor violations for prosecution or the institution of condemnation proceedings when he believes the public interest would be better served by a suitable written notice of warning.

7. Any person who impedes, obstructs, hinders or otherwise prevents or attempts to prevent the Director in the performance of official duties shall be guilty of a Class A misdemeanor. Any person using physical force against the Director in the performance of official duties shall be guilty of a Class 4 felony.

(Source: P.A. 85-177.)

(415 ILCS 60/16) (from Ch. 5, par. 816)

Sec. 16. Orders to Stop Sale or Use or to Regulate Removal.

1. Under any circumstance where the Director has reason to believe a pesticide or device is being sold, distributed, stored or used in violation of any provision of this Act, or regulations adopted thereunder, he may issue and serve a written order to stop sale, stop use or regulate removal upon the owner, operator, manager or agent in charge of any such pesticide or device. Any pesticide or device so offered shall not be sold or used until brought into compliance with the provisions of this Act and regulation adopted thereunder.

A. The Director shall also provide the registrant of such pesticide or device with a written notice of the order if the violation appears to require corrective action by the registrant.

B. If the owner, operator, manager, or agent in charge is not available for service of the order upon him, the Director shall attach the order to the pesticide or device and shall notify the registrant.

C. The Director shall remove the order by written notice when the violated provisions of this Act or regulations adopted thereunder have been complied with or the condition specified by the Director in said order have been met, or the violation has been otherwise disposed of by a court of local jurisdiction.

2. When the Director has reason to believe a pesticide or device is being used in violation of any provision of this Act or regulations adopted thereunder he may issue and serve a written order to stop the identified use.

A. The Director shall specify conditions under which the order may be removed.

B. The Director shall remove the order by written notice when the violated provisions of this Act or regulations adopted thereunder have been complied with or the conditions specified by the Director in such order have been met or the violation has been otherwise disposed of by a court of local jurisdiction.

(Source: P.A. 81-197.)

(415 ILCS 60/17) (from Ch. 5, par. 817)

Sec. 17. Judicial Action in order to Stop Sale or Use, or to Regulate Removal.

1. After service of an order to stop sale or use or to regulate removal is made upon any person, either that person, the registrant or the Director may file an action in the circuit court for the county in which a violation is alleged to have occurred for an adjudication of the alleged violation. The court in such action may enter a temporary restraining order or preliminary or permanent injunctions or other order as it deems necessary or advisable. Such injunction or order shall be entered without bond. The court may order condemnation of any pesticide or device not meeting the requirements of this Act or regulation adopted thereunder.

2. After entry of a judgment that the pesticide or device is condemned it shall be disposed of at the direction of the court.

A. The condemned pesticide or device may be delivered to the owner or registrant for relabeling, reprocessing, or removal from the State.

B. The condemned pesticide or device may remain condemned and existing stocks in the State sold by the Director who will pay all costs associated with the disbursement, with the balance of the proceeds being deposited in the State Treasury. The pesticide or device shall not be sold contrary to any provision of this Act, regulations adopted thereunder or a provision of FIFRA. The purchaser shall pay the costs and provide good and sufficient bond insuring that the pesticide or device shall not be disposed of unlawfully.

C. The current inventory stocks of the condemned pesticide or device may be disposed of by sale at the places of distribution under supervision of the Director. No new stock shall be delivered for distribution, sale, or use in the State until any condition giving rise to the order to stop sale or use or to regulate removal and the subsequent condemnation has been corrected.

(Source: P.A. 84-545.)

(415 ILCS 60/18) (from Ch. 5, par. 818)

Sec. 18. Records.

1. Any person issued a license, certificate or permit under the provisions of this Act may be required by the Director to keep records. The record required by the Director shall be kept on forms provided by him. The form shall prescribe the information necessary for effecting compliance with and enforcement of provisions of this Act or rules adopted thereunder.

2. The Director shall have access to such records as required at any reasonable time during normal working hours. Any information on the required record shall be confidential. If it is summarized for any purposes other than that required for enforcement it shall not identify any individual person.

3. All files, records and data gathered by or under the direction or authority of the Director under this Act shall be made available to the Department of Public Health pursuant to the Illinois Health and Hazardous Substances Registry Act.

(Source: P.A. 83-1361.)

(415 ILCS 60/19) (from Ch. 5, par. 819)

Sec. 19. Interagency Committee on Pesticides. The Director is authorized to create an interagency committee on pesticides. Its purpose is to study and advise on the use of pesticides on State property. Also, its purpose is to advise any State agency in connection with quarantine programs or the protection of the public health and welfare, and to recommend needed legislation concerning pesticides.

1. An interagency committee on pesticides shall consist of: (1) the Director of the Department of Agriculture, (2) the Director of Natural Resources, (3) the Director of the Environmental Protection Agency, (4) the Director of the Department of Public Health, (5) the Secretary of the Department of Transportation, (6) the President of the University of Illinois or his or her designee representing the State Natural History Survey and (7) the Dean of the College of Agriculture, University of Illinois. Each member of the committee may designate some person in his department to serve on the committee in his stead. Other State agencies may, at the discretion of the Director, be asked to serve on the interagency committee on pesticides. The Director of the Department of Agriculture shall be chairman of this committee.

2. The interagency committee shall: (1) Review the current status of the sales and use of pesticides within the State of Illinois. (2) Review pesticide programs to be sponsored or directed by a governmental agency. (3) Consider the problems

arising from pesticide use with particular emphasis on the possible adverse effects on human health, livestock, crops, fish, and wildlife, business, industry, agriculture, or the general public. (4) Recommend legislation to the Governor, if appropriate, which will prohibit the irresponsible use of pesticides. (5) Review rules and regulations pertaining to the regulation or prohibition of the sale, use or application of pesticides and labeling of pesticides for approval prior to promulgation and adoption. (6) Contact various experts and lay groups, such as the Illinois Pesticide Control Committee, to obtain their views and cooperation. (7) Advise on and approve of all programs involving the use of pesticides on State owned property, state controlled property, or administered by State agencies. This shall not be construed to include research programs, or the generally accepted and approved practices essential to good farm and institutional management on the premises of the various State facilities.

3. Members of this committee shall receive no compensation for their services as members of this committee other than that provided by law for their respective positions with the State of Illinois. All necessary expenses for travel of the committee members shall be paid out of regular appropriations of their respective agencies.

4. The committee shall meet at least once each quarter of the calendar year, and may hold additional meetings upon the call of the chairman. Four members shall constitute a quorum.

5. The committee shall make a detailed report of its findings and recommendations to the Governor of Illinois prior to each General Assembly Session.

6. The Interagency Committee on Pesticides shall, at a minimum, annually, during the spring, conduct a statewide public education campaign and agriculture chemical safety campaign to inform the public about pesticide products, uses and safe disposal techniques. A toll-free hot line number shall be made available for the public to report misuse cases.

The Committee shall include in its educational program information and advice about the effects of various pesticides and application techniques upon the groundwater and drinking water of the State.

7. The Interagency Committee on Pesticides shall conduct a special study of the effects of chemigation and other agricultural applications of pesticides upon the groundwater of this State. The results of such study shall be reported to the General Assembly by March 1, 1989. The members of the Committee may utilize the technical and clerical resources of their respective departments and agencies as necessary or useful in the conduct of the study.

8. In consultation with the Interagency Committee, the Department shall develop, and the Interagency Committee shall approve, procedures, methods, and guidelines for addressing agrichemical pesticide contamination at agrichemical facilities in Illinois. In developing those procedures, methods, and guidelines, the following shall be considered and addressed: (1) an evaluation and assessment of site conditions and operational practices at agrichemical facilities where agricultural pesticides are handled; (2) what constitutes pesticide contamination; (3) cost effective procedures for site assessments and technologies for remedial action; and (4) achievement of adequate protection of public health and the environment from such actual or potential hazards. In consultation with the Interagency Committee, the Department shall develop, and the Interagency Committee shall approve, guidelines and recommendations regarding long term financial resources which may be necessary to remediate pesticide

contamination at agrichemical facilities in Illinois. The Department, in consultation with the Interagency Committee, shall present a report on those guidelines and recommendations to the Governor and the General Assembly on or before January 1, 1993. The Department and the Interagency Committee shall consult with the Illinois Pesticide Control Committee and other appropriate parties during this development process.

9. As part of the consideration of cost effective technologies pursuant to subsection 8 of this Section, the Department may, upon request, provide a written authorization to the owner or operator of an agrichemical facility for land application of agrichemical contaminated soils at agronomic rates. As used in this Section, "agrichemical" means pesticides or commercial fertilizers, at an agrichemical facility, in transit from an agrichemical facility to the field of application, or at the field of application. The written authorization may also provide for use of groundwater contaminated by the release of an agrichemical, provided that the groundwater is not also contaminated due to the release of a petroleum product or hazardous substance other than an agrichemical. The uses of agrichemical contaminated groundwater authorized by the Department shall be limited to supervised application or irrigation onto farmland and blending as make-up water in the preparation of agrichemical spray solutions that are to be applied to farmland. In either case, the use of the agrichemical contaminated water shall not cause (i) the total annual application amounts of a pesticide to exceed the respective pesticide label application rate on any authorized sites or (ii) the total annual application amounts of a fertilizer to exceed the generally accepted annual application rate on any authorized sites. All authorizations shall prescribe appropriate operational control practices to protect the site of application and shall identify each site or sites where land application or irrigation take place. Where agrichemical contaminated groundwater is used on farmland, the prescribed practices shall be designed to prevent off-site runoff or conveyance through underground tile systems. The Department shall periodically advise the Interagency Committee regarding the issuance of such authorizations and the status of compliance at the application sites.

(Source: P.A. 95-728, eff. 7-1-08 - See Sec. 999.)

(415 ILCS 60/19.1) (from Ch. 5, par. 819.1)

Sec. 19.1. Collection programs. The Department of Agriculture may conduct a voluntary program for the collection and proper disposal of unwanted agricultural pesticides from Illinois farmers. The Department may also, in cooperation with the Illinois Department of Public Health, develop and implement a voluntary program for the collection and disposal of unwanted pesticides from structural pest control businesses. In conducting these programs, the Department has the authority to collect a fee from participants of not more than \$10 per pound of material submitted for collection or disposal. In calculating the fee, the Department shall consider costs associated with administering the program and whether grant moneys or other funds are available to cover those costs. Any fees collected pursuant to these programs shall be deposited into the Pesticide Control Fund and shall be appropriated by the General Assembly to the Department for the purposes of this Section. The Department shall periodically advise the interagency committee regarding the status of programs implemented under this Section. (Source: P.A. 89-614, eff. 1-1-97.)

(415 ILCS 60/19.2) (from Ch. 5, par. 819.2)
Sec. 19.2. (Repealed).
(Source: Repealed by P.A. 89-94, eff. 7-6-95.)

(415 ILCS 60/19.3)

Sec. 19.3. Agrichemical Facility Response Action Program.

(a) It is the policy of the State of Illinois that an Agrichemical Facility Response Action Program be implemented to reduce potential agrichemical pollution and minimize environmental degradation risk potential at these sites. In this Section, "agrichemical facility" means a site where agrichemicals are stored or handled, or both, in preparation for end use. "Agrichemical facility" does not include basic manufacturing or central distribution sites utilized only for wholesale purposes. As used in this Section, "agrichemical" means pesticides or commercial fertilizers at an agrichemical facility.

The program shall provide guidance for assessing the threat of soil agrichemical contaminants to groundwater and recommending which sites need to establish a voluntary corrective action program.

The program shall establish appropriate site-specific soil cleanup objectives, which shall be based on the potential for the agrichemical contaminants to move from the soil to groundwater and the potential of the specific soil agrichemical contaminants to cause an exceedence of a Class I or Class III groundwater quality standard or a health advisory level. The Department shall use the information found and procedures developed in the Agrichemical Facility Site Contamination Study or other appropriate physical evidence to establish the soil agrichemical contaminant levels of concern to groundwater in the various hydrological settings to establish site-specific cleanup objectives.

No remediation of a site may be recommended unless (i) the agrichemical contamination level in the soil exceeds the site-specific cleanup objectives or (ii) the agrichemical contaminant level in the soil exceeds levels where physical evidence and risk evaluation indicates probability of the site causing an exceedence of a groundwater quality standard.

When a remediation plan must be carried out over a number of years due to limited financial resources of the owner or operator of the agrichemical facility, those soil agrichemical contaminated areas that have the greatest potential to adversely impact vulnerable Class I groundwater aquifers and adjacent potable water wells shall receive the highest priority rating and be remediated first.

(b) (Blank).

(c) (Blank).

(d) The Director has the authority to do the following:

(1) When requested by the owner or operator of an agrichemical facility, may investigate the agrichemical facility site contamination.

(2) After completion of the investigation under item (1) of this subsection, recommend to the owner or operator of an agrichemical facility that a voluntary assessment be made of the soil agrichemical contaminant when there is evidence that the evaluation of risk indicates that groundwater could be adversely impacted.

(3) Review and make recommendations on any corrective action plan submitted by the owner or operator of an agrichemical facility.

(4) On approval by the Director, issue an order to the owner or operator of an agrichemical facility that has filed a voluntary corrective action plan that the owner or

operator may proceed with that plan.

(5) Provide remedial project oversight and monitor remedial work progress.

(6) Provide staff to support program activities.

(7) (Blank).

(8) Incorporate the following into a handbook or manual: the procedures for site assessment; pesticide constituents of concern and associated parameters; guidance on remediation techniques, land application, and corrective action plans; and other information or instructions that the Department may find necessary.

(9) Coordinate preventive response actions at agrichemical facilities pursuant to the Groundwater Quality Standards adopted pursuant to Section 8 of the Illinois Groundwater Protection Act to mitigate resource groundwater impairment.

Upon completion of the corrective action plan, the Department shall issue a notice of closure stating that site-specific cleanup objectives have been met and no further remedial action is required to remedy the past agrichemical contamination.

When a soil agrichemical contaminant assessment confirms that remedial action is not required in accordance with the Agrichemical Facility Response Action Program, a notice of closure shall be issued by the Department stating that no further remedial action is required to remedy the past agrichemical contamination.

(e) Upon receipt of notification of an agrichemical contaminant in groundwater pursuant to the Groundwater Quality Standards, the Department shall evaluate the severity of the agrichemical contamination and shall submit to the Environmental Protection Agency an informational notice characterizing it as follows:

(1) An agrichemical contaminant in Class I or Class III groundwater has exceeded the levels of a standard adopted pursuant to the Illinois Groundwater Protection Act or a health advisory established by the Illinois Environmental Protection Agency or the United States Environmental Protection Agency; or

(2) An agrichemical has been detected at a level that requires preventive notification pursuant to a standard adopted pursuant to the Illinois Groundwater Protection Act.

(f) When agrichemical contamination is characterized as in subsection (e)(1) of this Section, a facility may elect to participate in the Agrichemical Facility Response Action Program. In these instances, the scope of the corrective action plans developed, approved, and completed under this program shall be limited to the soil agrichemical contamination present at the site unless implementation of the plan is coordinated with the Illinois Environmental Protection Agency as follows:

(1) Upon receipt of notice of intent to include groundwater in an action by a facility, the Department shall also notify the Illinois Environmental Protection Agency.

(2) Upon receipt of the corrective action plan, the Department shall coordinate a joint review of the plan with the Illinois Environmental Protection Agency.

(3) The Illinois Environmental Protection Agency may provide a written endorsement of the corrective action plan.

(4) The Illinois Environmental Protection Agency may approve a groundwater management zone for a period of 5 years after the implementation of the corrective action plan to allow for groundwater impairment mitigation results.

(5) (Blank).

(6) The Department, in cooperation with the Illinois

Environmental Protection Agency, shall provide remedial project oversight and monitor remedial work progress.

(7) The Department shall, upon completion of the corrective action plan, issue a notice of closure stating that no further remedial action is required to remedy the past agrichemical contamination.

(g) When an owner or operator of an agrichemical facility initiates a soil contamination assessment on the owner's or operator's own volition and independent of any requirement under this Section 19.3, information contained in that assessment may be held as confidential information by the owner or operator of the facility.

(h) Except as otherwise provided by Department rule, on and after the effective date of this amendatory Act of the 98th General Assembly, any Agrichemical Facility Response Action Program requirement that may be satisfied by an industrial hygienist licensed pursuant to the Industrial Hygienists Licensure Act repealed in this amendatory Act may be satisfied by a Certified Industrial Hygienist certified by the American Board of Industrial Hygiene.

(Source: P.A. 98-78, eff. 7-15-13; 98-692, eff. 7-1-14; 99-78, eff. 7-20-15.)

(415 ILCS 60/20) (from Ch. 5, par. 820)

Sec. 20. Cooperation. The Director may cooperate with, receive grants in aid and enter into cooperative agreements or contracts with, any agency of the federal government, of this State, or any other state in order to:

1. Secure uniformity of regulation.
2. Register pesticides under the authority of this Act and FIFRA.
3. Cooperate for the enforcement of any pesticide law and regulation adopted thereunder.
4. Develop and maintain a State Plan for training certification, licensing and the issuance of permits.
5. Monitor pesticides or regulate certified applicators in order to protect public health and the environment.

(Source: P.A. 81-197.)

(415 ILCS 60/21) (from Ch. 5, par. 821)

Sec. 21. Publications. The Director may publish, at such times and in such form as is deemed proper, the results of official samples analysis as compared to distributor guarantee, results of other analyses, and information concerning pesticide distribution and use. However, no individual information shall be a public record.

(Source: P.A. 81-197.)

(415 ILCS 60/22) (from Ch. 5, par. 822)

Sec. 22. Reports of Pesticide Accidents and Incidents. The Director shall have the authority to report significant pesticide accidents or incidents to other state agencies with designated authority.

(Source: P.A. 81-197.)

(415 ILCS 60/22.1) (from Ch. 5, par. 822.1)

Sec. 22.1. Pesticide Control Fund. There is hereby created in the State Treasury a special fund to be known as the Pesticide Control Fund. All registration, penalty and license fees collected by the Department pursuant to this Act shall be deposited into the Fund. The amount annually collected as fees shall be appropriated by the General Assembly to the Department for the purposes of conducting a public educational program on

the proper use of pesticides, for other activities related to the enforcement of this Act, and for administration of the Insect Pest and Plant Disease Act. However, the increase in fees in Sections 6, 10, and 13 of this Act resulting from this amendatory Act of 1990 shall be used by the Department for the purpose of carrying out the Department's powers and duties as set forth in paragraph 8 of Section 19 of this Act. The monies collected under Section 13.1 of this Act shall be deposited in the Agrichemical Incident Response Fund. In addition, for the years 2004 and thereafter, \$125 of each pesticide annual business registration fee and \$50 of each pesticide product annual registration fee collected by the Department pursuant to Section 6, paragraph 6 of this Act shall be deposited by the Department directly into the State's General Revenue Fund. (Source: P.A. 93-32, eff. 7-1-03.)

(415 ILCS 60/22.2) (from Ch. 5, par. 822.2)

Sec. 22.2. (a) There is hereby created a trust fund in the State Treasury to be known as the Agrichemical Incident Response Trust Fund. Any funds received by the Director of Agriculture from the mandates of Section 13.1 shall be deposited with the Treasurer as ex-officio custodian and held separate and apart from any public money of this State, with accruing interest on the trust funds deposited into the trust fund. Disbursement from the fund for purposes as set forth in this Section shall be by voucher ordered by the Director and paid by a warrant drawn by the State Comptroller and countersigned by the State Treasurer. The Director shall order disbursements from the Agrichemical Incident Response Trust Fund only for payment of the expenses authorized by this Act. Monies in this trust fund shall not be subject to appropriation by the General Assembly but shall be subject to audit by the Auditor General. Should the program be terminated, all unobligated funds in the trust fund shall be transferred to a trust fund to be used for purposes as originally intended or be transferred to the Pesticide Control Fund. Interest earned on the Fund shall be deposited in the Fund. Monies in the Fund may be used by the Department of Agriculture for the following purposes:

- (1) for payment of costs of response action incurred by owners or operators of agrichemical facilities as provided in Section 22.3 of this Act;
- (2) for the Department to take emergency action in response to a release of agricultural pesticides from an agrichemical facility that has created an imminent threat to public health or the environment;
- (3) for the costs of administering its activities relative to the Fund as delineated in subsections (b) and (c) of this Section; and
- (4) for the Department to:
 - (A) (blank); and
 - (B) administer the Agrichemical Facility Response Action Program.

The total annual expenditures from the Fund for these purposes under this paragraph (4) shall not be more than \$120,000, and no expenditure from the Fund for these purposes shall be made when the Fund balance becomes less than \$750,000.

(b) The action undertaken shall be such as may be necessary or appropriate to protect human health or the environment.

(c) The Director of Agriculture is authorized to enter into contracts and agreements as may be necessary to carry out the Department's duties under this Section.

(d) Neither the State, the Director, nor any State employee shall be liable for any damages or injury arising out of or

resulting from any action taken under this Section.

(e) (Blank).

(Source: P.A. 98-692, eff. 7-1-14.)

(415 ILCS 60/22.3) (from Ch. 5, par. 822.3)

Sec. 22.3. (a) An owner or operator of an agrichemical facility is eligible to receive money from the Agrichemical Incident Response Trust Fund for costs of response action only if all of the following requirements are satisfied:

(1) the owner or operator has provided notification of the release as required by law;

(2) the owner or operator was current with payment of all fees required under Section 13.1 at the time of the incident;

(3) the costs of response action were incurred by the owner or operator as a result of an incident involving a release of an agricultural pesticide at an agrichemical facility in Illinois.

(b) The Department shall not approve payment of costs of response action to an owner or operator which would result in the payment of funds from the Agrichemical Incident Response Trust Fund in excess of \$500,000 during a calendar year. The Department shall not approve any payment from the Fund to reimburse an owner or operator for costs of response action incurred by such owner or operator in an amount in excess of \$500,000 per incident.

(c) Notwithstanding subsection (a) or (b), no owner or operator is eligible to receive money from the Fund unless the owner or operator demonstrates to the Department that, at the time of the incident, the agrichemical facility was in compliance with requirements adopted by the Department for secondary containment of agrichemicals.

(d) (1) Costs of response action incurred by an owner or operator relating to an incident which occurred prior to the effective date of this Section are not eligible for payment or reimbursement under this Section.

(2) Costs of response action incurred by an owner or operator prior to reporting the incident as required by law are not eligible for payment or reimbursement under this Section.

(3) Costs of response action incurred by an owner or operator which have been paid under a policy of insurance shall not be eligible for payment or reimbursement under this Section.

(e) Requests for partial or final payment for claims under this Section shall be sent to the Department and partial or final payment shall be made only if all of the following are satisfied:

(1) The owner or operator is eligible under subsections (a) and (c) of this Section;

(2) Approval of the payments requested will not result in the limitations set forth in subsection (b) of this Section being exceeded;

(3) The owner or operator provides an accounting of all costs, demonstrates the costs to be reasonable, and provides either proof of payment of such costs or demonstrates the financial need for joint payment to the owner or operator and the owner's or operator's contractor in order to pay such costs;

(4) The owner or operator demonstrates that the response action taken was necessary and appropriate.

(f) If an owner or operator submits a claim or claims to the Department for approval under this Section, the Department shall deduct from the amount approved a total of \$50,000 plus 10% of

the total response costs incurred by that owner or operator, but in no event shall the Department deduct in excess of \$100,000 for each agrichemical facility for which a claim is submitted. This deductible amount shall apply annually for each agrichemical facility at which costs were incurred under a claim submitted pursuant to this Section.

(g) (1) Upon receipt of notification from the Department that the requirements of this Section have been met, the Department shall make payment to the owner or operator of the amount approved by the Department. If there is insufficient money in the Fund to make payment in full of a claim submitted for reimbursement, the Department may make partial payment until such time as sufficient money in the Fund becomes available.

(2) In no case shall the Fund or the State of Illinois be liable to pay claims or requests for costs of response action if money in the Fund is insufficient to meet such claims or requests.

(h) Payment of any amount from the Fund for response action shall be subject to the State of Illinois acquiring, by subrogation, the rights of any owner or operator to recover the costs of response action for which the Fund has compensated the owner or operator from the person responsible or liable for the release.

(i) (1) Nothing in this Section shall be construed to authorize recovery for costs of response action for any release authorized or permitted pursuant to State or federal law.

(2) Nothing in this Section shall be construed to authorize recovery for costs of response action as the result of the storage, handling and use, or recommendation for storage, handling and use, of a pesticide consistent with:

(A) its directions for storage, handling and use as stated in its label or labeling;

(B) its warning and cautions as stated in its label or labeling; and

(C) the uses for which it is registered under the federal Insecticide, Fungicide and Rodenticide Act and the Illinois Pesticide Act.

(j) For purposes of this Section and Section 22.2:

(1) "Agrichemical facility" means a site:

(A) used for commercial purposes

(i) where bulk pesticides are stored in a single container in excess of 300 gallons of liquid pesticide or 300 pounds of dry pesticide for more than 30 days per year, or

(ii) where more than 300 gallons of liquid pesticide or 300 pounds of dry pesticide are being mixed, repackaged, or transferred from one container to another within a 30 day period; and

(B) that serves at a point in the pesticide distribution chain immediately prior to final use.

(2) "Response action" means an action to stop, eliminate, contain, or mitigate a release of agricultural pesticides and its effects at an agrichemical facility as may be necessary or appropriate to protect human health and the environment.

(3) "Incident" means a flood, fire, tornado, on-site transportation accident, equipment malfunction, storage container rupture, leak, spill, discharge, escape, or other event that suddenly releases an agricultural pesticide into the environment and that creates an imminent threat to public health or the environment.

(4) "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.

(Source: P.A. 86-1172; 87-128.)

(415 ILCS 60/23) (from Ch. 5, par. 823)

Sec. 23. Subpoenas. The Director may issue subpoenas to compel the attendance of witnesses or the production of books, documents, records, or other information in the State at any hearing affecting the privilege granted by license, certification, registration or permit issued under provisions of this Act.

(Source: P.A. 90-655, eff. 7-30-98.)

(415 ILCS 60/24) (from Ch. 5, par. 824)

Sec. 24. Criminal Penalties.

(a) Except as otherwise provided in this Section, any person violating any provisions of this Act or regulations adopted thereunder is guilty of a Class A misdemeanor with a fine of not less than \$5,000.

(b) A retailer convicted of distributing or selling a pesticide that has never been registered with or for which the registration has been cancelled or suspended by the United States Environmental Protection Agency shall be guilty of a Class A misdemeanor with a fine of not less than \$5,000. A retailer convicted of a second or subsequent violation of distributing or selling a pesticide that has never been registered with or for which the registration has been cancelled or suspended by the United States Environmental Protection Agency shall be guilty of a Class 4 felony. For the purposes of this Section, "retailer" means a person who transfers ownership of or title to pesticides to a purchaser for use and who is not certified under the Structural Pest Control Act.

(c) A wholesaler who distributes or sells a pesticide that has never been registered with or for which the registration has been cancelled or suspended by the United States Environmental Protection Agency shall be guilty of a Class 4 felony for a first offense and shall be guilty of a Class 3 felony for a second or subsequent offense. For the purposes of this Section, "wholesaler" means a person who sells or distributes pesticides to a retailer.

(Source: P.A. 93-191, eff. 7-14-03.)

(415 ILCS 60/24.1) (from Ch. 5, par. 824.1)

Sec. 24.1. Administrative actions and penalties.

(1) The Director is authorized after an opportunity for an administrative hearing to suspend, revoke, or modify any license, permit, special order, registration, or certification issued under this Act. This action may be taken in addition to or in lieu of monetary penalties assessed as set forth in this Section. When it is in the interest of the people of the State of Illinois, the Director may, upon good and sufficient evidence, suspend the registration, license, or permit until a hearing has been held. In such cases, the Director shall issue an order in writing setting forth the reasons for the suspension. Such order shall be served personally on the person or by registered or certified mail sent to the person's business address as shown in the latest notification to the Department. When such an order has been issued by the Director, the person may request an immediate hearing.

(2) Before initiating hearing proceedings, the Director may issue an advisory letter to a violator of this Act or its rules and regulations when the violation points total 6 or less, as

determined by the Department by the Use and Violation Criteria established in this Section. When the Department determines that the violation points total more than 6 but not more than 13, the Director shall issue a warning letter to the violator.

(3) The hearing officer upon determination of a violation or violations shall assess one or more of the following penalties:

(A) For any person applying pesticides without a license or misrepresenting certification or failing to comply with conditions of an agrichemical facility permit or failing to comply with the conditions of a written authorization for land application of agrichemical contaminated soils or groundwater, a penalty of \$500 shall be assessed for the first offense and \$1,000 for the second and subsequent offenses.

(B) For violations of a stop use order imposed by the Director, the penalty shall be \$2500.

(C) For violations of a stop sale order imposed by the Director, the penalty shall be \$1500 for each individual item of the product found in violation of the order.

(D) For selling restricted use pesticides to a non-certified applicator the penalty shall be \$1000.

(E) For selling restricted use pesticides without a dealer's license the penalty shall be \$1,000.

(F) For constructing or operating without an agrichemical facility permit after receiving written notification, the penalty shall be \$500 for the first offense and \$1,000 for the second and subsequent offenses.

(G) For violations of the Act and rules and regulations, administrative penalties will be based upon the total violation points as determined by the Use and Violation Criteria as set forth in paragraph (4) of this Section. The monetary penalties shall be as follows:

Total Violation Points	Monetary Penalties
14-16	\$750
17-19	\$1000
20-21	\$2500
22-25	\$5000
26-29	\$7500
30 and above	\$10,000

(4) The following Use and Violation Criteria establishes the point value which shall be compiled to determine the total violation points and administrative actions or monetary penalties to be imposed as set forth in paragraph (3)(G) of this Section:

(A) Point values shall be assessed upon the harm or loss incurred.

(1) A point value of 1 shall be assessed for the following:

- (a) Exposure to a pesticide by plants, animals or humans with no symptoms or damage noted.
- (b) Fraudulent sales practices or representations with no apparent monetary losses involved.

(2) A point value of 2 shall be assessed for the following:

- (a) Exposure to a pesticide which resulted in:
 - (1) Plants or property showing signs of damage including but not limited to leaf curl, burning, wilting, spotting, discoloration, or dying.
 - (2) Garden produce or an agricultural crop not being harvested on schedule.
 - (3) Fraudulent sales practices or representations resulting in losses under \$500.

(3) A point value of 4 shall be assessed for the following:

(a) Exposure to a pesticide resulting in a human experiencing headaches, nausea, eye irritation and such other symptoms which persisted less than 3 days.

(b) Plant or property damage resulting in a loss below \$1000.

(c) Animals exhibiting symptoms of pesticide poisoning including but not limited to eye or skin irritations or lack of coordination.

(d) Death to less than 5 animals.

(e) Fraudulent sales practices or representations resulting in losses from \$500 to \$2000.

(4) A point value of 6 shall be assessed for the following:

(a) Exposure to a pesticide resulting in a human experiencing headaches, nausea, eye irritation and such other symptoms which persisted 3 or more days.

(b) Plant or property damage resulting in a loss of \$1000 or more.

(c) Death to 5 or more animals.

(d) Fraudulent sales practices or representations resulting in losses over \$2000.

(B) Point values shall be assessed based upon the signal word on the label of the chemical involved:

Point Value	Signal Word
1	Caution
2	Warning
4	Danger/Poison

(C) Point values shall be assessed based upon the degree of responsibility.

Point Value	Degree of Responsibility
2	Accidental (such as equipment malfunction)
4	Negligence
10	Knowingly

(D) Point values shall be assessed based upon the violator's history for the previous 3 years:

Point Value	Record
2	Advisory letter
3	Warning letter
5	Previous criminal conviction of this Act or administrative violation resulting in a monetary penalty
7	Certification, license or registration currently suspended or revoked

(E) Point values shall be assessed based upon the violation type:

(1) Application Oriented:

Point Value	Violation
1	Inadequate records
2	Lack of supervision
2	Faulty equipment
Use contrary to label directions:	
2	a. resulting in exposure to applicator or operator
3	b. resulting in exposure to

- other persons or the environment
- 3 c. precautionary statements, sites, rates, restricted use requirements
- 3 Water contamination
- 3 Storage or disposal contrary to label directions
- 3 Pesticide drift
- 4 Direct application to a non-target site
- 6 Falsification of records
- 6 Failure to secure a permit or violation of permit or special order

(2) Product Oriented:

Point Value	Violation
6	Pesticide not registered
4	Product label claims differ from approved label
4	Product composition (active ingredients differs from that of approved label)
4	Product not colored as required
4	Misbranding as set forth in Section 5 of the Act (4 points will be assessed for each count)

(5) Any penalty not paid within 60 days of notice from the Department shall be submitted to the Attorney General's Office for collection. Failure to pay a penalty shall also be grounds for suspension or revocation of permits, licenses and registrations.

(6) Private applicators, except those private applicators who have been found by the Department to have committed a "use inconsistent with the label" as defined in subsection 40 of Section 4 of this Act, are exempt from the Use and Violation Criteria point values.

(Source: P.A. 102-558, eff. 8-20-21.)

(415 ILCS 60/25) (from Ch. 5, par. 825)

Sec. 25. Continuity: Regulations adopted under laws repealed by enactment of this Act shall remain in full force and effect.

(Source: P.A. 81-197.)

(415 ILCS 60/29)

Sec. 29. Administrative review. All final administrative decisions of the Department are subject to judicial review under Article III of the Code of Civil Procedure and rules adopted under that Article. The term "administrative decision" is defined as in Section 3-101 of the Code of Civil Procedure. Proceedings for judicial review shall be commenced in the circuit court of any county permitted by Section 3-104 of the Code of Civil Procedure.

(Source: P.A. 89-94, eff. 7-6-94.)

(415 ILCS 60/30)

Sec. 30. Emergency rulemaking. The Department may implement the amendatory changes made by this amendatory Act of 1995 through the use of emergency rules in accordance with Section 5-45 of the Illinois Administrative Procedure Act. For purposes of

the Illinois Administrative Procedure Act, the adoption of rules to implement the amendatory changes made by this amendatory Act of 1995 shall be deemed an emergency and necessary for the public interest, safety, and welfare.

(Source: P.A. 89-94, eff. 7-6-95.)

ORDINANCE NO. 104

AN ORDINANCE ANNEXING PROPERTY IN GLENVIEW, ILLINOIS TO THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT FOR THE ONLY PURPOSE OF MOSQUITO ABATEMENT TREATMENT.

BE IT ORDAINED BY THE PRESIDENT OF THE BOARD OF TRUSTEES OF THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT OF COOK COUNTY, ILLINOIS AS FOLLOWS:

Section 1: That the President and Board of Trustees find as follows:

(a) A petition has been filed with the District requesting that the territory described in Exhibits A and B be annexed to the District for the only purpose of treatment for mosquito abatement.

(b) The petition was signed by 31 of 43 property owners and 57 of 99 registered voters being in excess of the 50% minimum number and type of signatures required by Chapter 70, section 1005/10 of the Illinois Compiled Statutes.

(c) An affidavit that notice has been published as provided in the Statute is attached hereto and hereby made a part hereof.

(d) That the territory is adjacent and contiguous to the District Territory.

Section 2: That the territory described be annexed to the North Shore Mosquito Abatement District, subject to the contingency that 10% or more of the registered voters in the District do not request a referendum.

Section 3: That the Superintendent of the District is herewith instructed to file this ordinance with the assessor of Cook County and County Clerk of Cook County.

Section 4: That this ordinance shall be in full force and effect from its passage as required by law.

Passed this 26th day of March on a roll call vote as follows:

AYES: 4

NAYS 0

ABSENT NONE

APPROVED this 26th day of March, 2015



President

ATTEST:



Treasurer

EXHIBIT A

02/05/2015 15:53 FAX 847 4789701

GEWALT HAMILTON

002

All that part of the Lots and dedicated streets in Carol Estates Unit No. 3 recorded January 9, 1981 as Document No. 25730619, Carol Estates Unit No. 4 recorded March 15, 1982 as Document No. 26171533, Carol Estates Unit No. 5 recorded September 13, 1983 as Document No. 26775826 Carol Estates Unit No. 6 recorded July 3, 1984 as Document No. 2715'292 and Carol Estates Resubdivision recorded July 18, 1983 as Document No. 26692703, being Resubdivisions in that part of the Southeast Quarter of Section 32, Township 42 North, Range 12 East of the Third Principal Meridian, in the Village of Glenview, taken as a tract and described as follows: Beginning at the Northwest corner of said Carol Estates Unit No. 6 (being the Northwest corner of Outlot A), thence South 00 degrees 08 minutes 25 seconds on an assumed bearing along the West line of said Resubdivision, 387.77 feet to the Southwest corner of said Resubdivision; thence North 89 degrees 30 minutes 00 seconds East along the South line of said Resubdivision, 286.35 feet to the Northwest corner of Lot 6 in said Carol Estates Unit No. 5; thence South 00 degrees 08 minutes 25 seconds East along the West line of said Resubdivision, 225.00 feet to the Southwest corner of said Resubdivision; (the following three (3) calls being along lines common with said Resubdivision) thence North 89 degrees 30 minutes 00 seconds East, 132.00 feet; thence North 00 degrees 08 minutes 25 seconds West, 11.46 feet; thence North 89 degrees 30 minutes 00 seconds East, 132.00 feet to the West line of Lot 10 in said Carol Estates Resubdivision; thence South 00 degrees 08 minutes 25 seconds East along said last described line, 11.46 feet to the Southwest corner of said Lot 10 and the Southwest corner of said Resubdivision; thence North 89 degrees 30 minutes 00 seconds East along the South line of said Resubdivision, 13.00 feet (to the corner of Lot 10 in previously recorded Carol Estates Unit No. 4); thence continuing along the South line of said Carol Estates Resubdivision, 68.00 feet to the Southeast corner of Lot 10 in Carol Estates Resubdivision, also being the Southwest corner of Lot 11 in said Carol Estates Unit No. 4; (the following three (3) calls being along lines common with said Carol Estates Unit No. 4); thence continuing North 89 degrees 30 minutes 00 seconds East, 183.00 feet; thence North 00 degrees 08 minutes 25 seconds West, 45.00 feet; thence North 89 degrees 30 minutes 00 seconds East, 114.00 feet to the West line of Lot 15 in said Carol Estates Unit No. 3; thence South 00 degrees 08 minutes 25 seconds East along said last described line, 35.00 feet to the Southwest corner of said Lot 15 and the Southwest corner of said Resubdivision; thence North 89 degrees 30 minutes 00 seconds East along the South line of said Resubdivision, 150.00 feet to the East line of the Southeast Quarter of said Section 32; thence North 00 degrees 08 minutes 20 seconds West along said last described line, 600.68 feet to the North line of said Carol Estates Unit No. 3; thence South 89 degrees 36 minutes 30 seconds West along said last described line 23.79 feet to the Northeast corner of Lot 28 in said Resubdivision; thence continuing South 89 degrees 36 minutes 30 seconds West along the North line of said Resubdivision, 131.00 feet to the Northeast corner of said Carol Estates Unit No. 4 (Northeast corner of Lot 37 in said Resubdivision); thence continuing South 89 degrees 36 minutes 30 seconds West along the North line of said Resubdivision, 326.00 feet to the Northeast corner of Carol Estates Unit 5 (Northeast corner of Lot 47 in said Resubdivision); thence continuing South 89 degrees 36 minutes 30 seconds West along the North line of said Resubdivision, 320.45 feet to the Northeast corner of Carol Estates Unit 6 (Northeast corner of Outlot A in said Resubdivision); thence continuing South 89 degrees 36 minutes 30 seconds West along the North line of said Resubdivision, 277.12 feet to the point of beginning, in Cook County, Illinois.

EXHIBIT A

All that part of the Lots and dedicated streets in Carol Estates Unit No. 3 recorded January 9, 1981 as Document No. 25730619, Carol Estates Unit No. 4 recorded March 15, 1982 as Document No. 26171533, Carol Estates Unit No. 5 recorded September 13, 1983 as Document No. 26775826 Carol Estates Unit No. 6 recorded July 3, 1984 as Document No. 27157292 and Carol Estates Resubdivision recorded July 18, 1983 as Document No. 26692703, being Resubdivisions in that part of the Southeast Quarter of Section 32, Township 42 North, Range 12 East of the Third Principal Meridian, in the Village of Glenview, taken as a tract and described as follows: Beginning at the Northwest corner of said Carol Estates Unit No. 6 (being the Northwest corner of Outlot A), thence South 00 degrees 08 minutes 25 seconds on an assumed bearing along the West line of said Resubdivision, 387.77 feet to the Southwest corner of said Resubdivision; thence North 89 degrees 30 minutes 00 seconds East along the South line of said Resubdivision, 286.35 feet to the Northwest corner of Lot 6 in said Carol Estates Unit No. 5; thence South 00 degrees 08 minutes 25 seconds East along the West line of said Resubdivision, 225.00 feet to the Southwest corner of said Resubdivision; (the following three (3) calls being along lines common with said Resubdivision) thence North 89 degrees 30 minutes 00 seconds East, 132.00 feet; thence North 00 degrees 08 minutes 25 seconds West, 11.46 feet; thence North 89 degrees 30 minutes 00 seconds East, 132.00 feet to the West line of Lot 10 in said Carol Estates Resubdivision; thence South 00 degrees 08 minutes 25 seconds East along said last described line, 11.46 feet to the Southwest corner of said Lot 10 and the Southwest corner of said Resubdivision; thence North 89 degrees 30 minutes 00 seconds East along the South line of said Resubdivision, 13.00 feet (to the corner of Lot 10 in previously recorded Carol Estates Unit No. 4); thence continuing along the South line of said Carol Estates Resubdivision, 68.00 feet to the Southeast corner of Lot 10 in Carol Estates Resubdivision, also being the Southwest corner of Lot 11 in said Carol Estates Unit No. 4; (the following three (3) calls being along lines common with said Carol Estates Unit No. 4); thence continuing North 89 degrees 30 minutes 00 seconds East, 183.00 feet; thence North 00 degrees 08 minutes 25 seconds West, 45.00 feet; thence North 89 degrees 30 minutes 00 seconds East, 114.00 feet to the West line of Lot 15 in said Carol Estates Unit No. 3; thence South 00 degrees 08 minutes 25 seconds East along said last described line, 35.00 feet to the Southwest corner of said Lot 15 and the Southwest corner of said Resubdivision; thence North 89 degrees 30 minutes 00 seconds East along the South line of said Resubdivision, 150.00 feet to the East line of the Southeast Quarter of said Section 32; thence North 00 degrees 08 minutes 20 seconds West along said last described line, 600.68 feet to the North line of said Carol Estates Unit No. 3; thence South 89 degrees 36 minutes 30 seconds West along said last described line 23.79 feet to the Northeast corner of Lot 28 in said Resubdivision; thence continuing South 89 degrees 36 minutes 30 seconds West along the North line of said Resubdivision, 131.00 feet to the Northeast corner of said Carol Estates Unit No. 4 (Northeast corner of Lot 37 in said Resubdivision); thence continuing South 89 degrees 36 minutes 30 seconds West along the North line of said Resubdivision, 326.00 feet to the Northeast corner of Carol Estates Unit 5 (Northeast corner of Lot 47 in said Resubdivision); thence continuing South 89 degrees 36 minutes 30 seconds West along the North line of said Resubdivision, 320.45 feet to the Northeast corner of Carol Estates Unit 6 (Northeast corner of Outlot A in said Resubdivision); thence continuing South 89 degrees 36 minutes 30 seconds West along the North line of said Resubdivision, 277.12 feet to the point of beginning, in Cook County, Illinois.

RECEIVED
FEB 5 2015

BY: _____

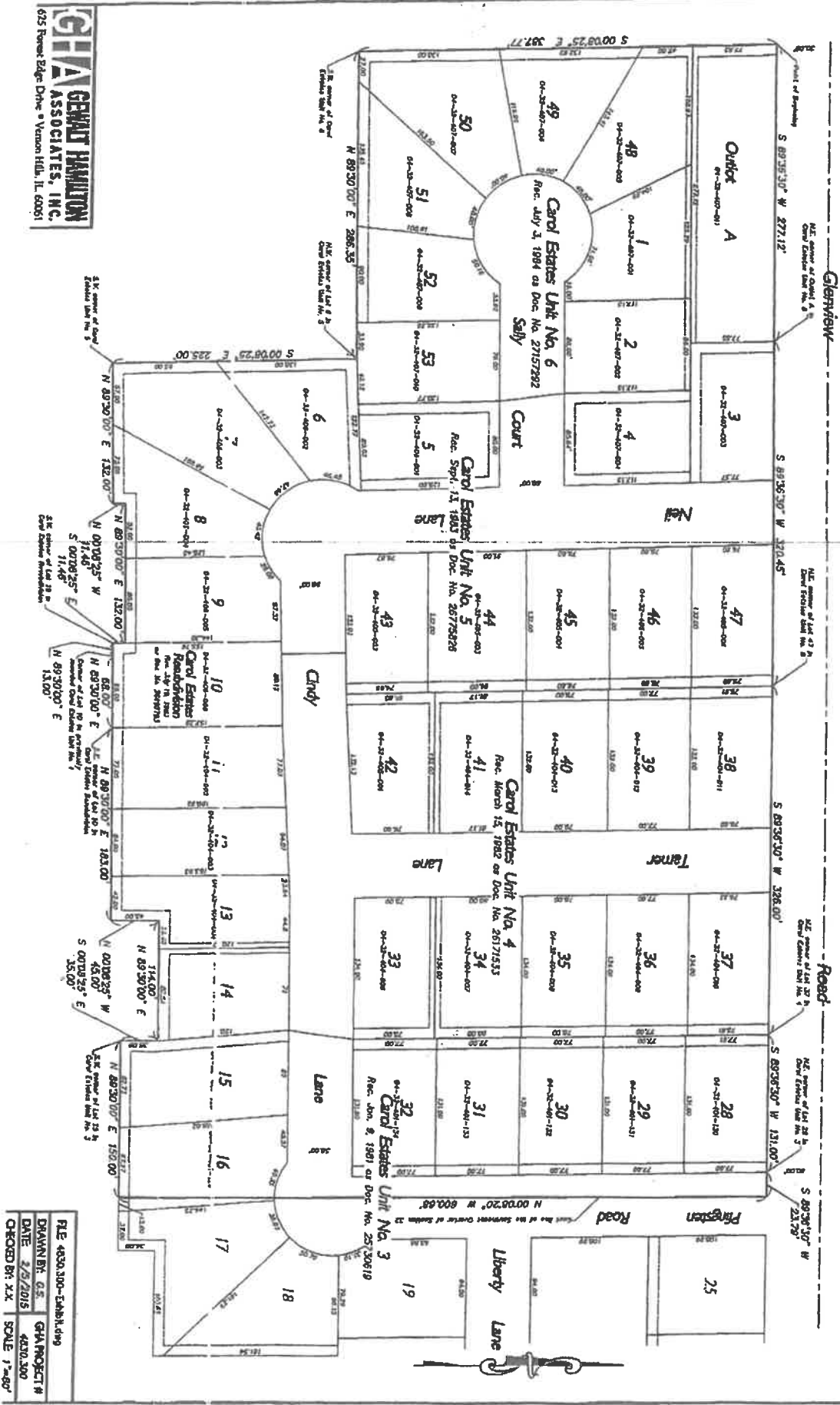
3850-3869 Sally Court
 3800-3841 Cindy Lane
 900-917 Tamer Lane
 904, 908, 912, & 916 Pfingsten Road
 Glenview, IL 60025

EXHIBIT A-1

Proposed annexation properties PINs & Subject Property Addresses

- 04-32-401-130-0000, 916 Pflingsten Rd, Glenview, IL 60025
- 04-32-401-131-0000, 912 Pflingsten Rd, Glenview, IL 60025
- 04-32-401-132-0000, 908 Pflingsten Rd, Glenview, IL 60025
- 04-32-401-133-0000, 904 Pflingsten Rd, Glenview, IL 60025
- 04-32-401-134-0000, 3800 Cindy Ln, Glenview, IL 60025
- 04-32-404-010-0000, 917 Tamer Ln, Glenview, IL 60025
- 04-32-404-009-0000, 913 Tamer Ln, Glenview, IL 60025
- 04-32-404-008-0000, 909 Tamer Ln, Glenview, IL 60025
- 04-32-404-007-0000, 905 Tamer Ln, Glenview, IL 60025
- 04-32-404-006-0000, 901 Tamer Ln, Glenview, IL 60025
- 04-32-404-011-0000, 916 Tamer Ln, Glenview, IL 60025
- 04-32-404-012-0000, 912 Tamer Ln, Glenview, IL 60025
- 04-32-404-013-0000, 908 Tamer Ln, Glenview, IL 60025
- 04-32-404-014-0000, 904 Tamer Ln, Glenview, IL 60025
- 04-32-405-001-0000, 900 Tamer Ln, Glenview, IL 60025
- 04-32-405-006-0000, 917 Neil Ln, Glenview, IL 60025
- 04-32-405-005-0000, 913 Neil Ln, Glenview, IL 60025
- 04-32-405-004-0000, 909 Neil Ln, Glenview, IL 60025
- 04-32-405-003-0000, 905 Neil Ln, Glenview, IL 60025
- 04-32-405-002-0000, 901 Neil Ln, Glenview, IL 60025
- 04-32-407-003-0000, 916 Neil Ln, Glenview, IL 60025
- 04-32-407-011-0000, 3850 Sally Ct, Glenview, IL 60025
- 04-32-407-004-0000, 3850 Sally Ct, Glenview, IL 60025
- 04-32-407-002-0000, 3854 Sally Ct, Glenview, IL 60025
- 04-32-407-001-0000, 3858 Sally Ct, Glenview, IL 60025
- 04-32-407-005-0000, 3862 Sally Ct, Glenview, IL 60025
- 04-32-407-006-0000, 3866 Sally Ct, Glenview, IL 60025
- 04-32-407-007-0000, 3869 Sally Ct, Glenview, IL 60025
- 04-32-407-008-0000, 3865 Sally Ct, Glenview, IL 60025
- 04-32-407-009-0000, 3861 Sally Ct, Glenview, IL 60025
- 04-32-407-010-0000, 3857 Sally Ct, Glenview, IL 60025
- 04-32-406-001-0000, 902 Neil Ln, Glenview, IL 60025
- 04-32-406-002-0000, 3841 Cindy Ln, Glenview, IL 60025
- 04-32-406-003-0000, 3837 Cindy Ln, Glenview, IL 60025
- 04-32-406-004-0000, 3833 Cindy Ln, Glenview, IL 60025
- 04-32-406-005-0000, 3829 Cindy Ln, Glenview, IL 60025
- 04-32-406-006-0000, 3825 Cindy Ln, Glenview, IL 60025
- 04-32-404-002-0000, 3821 Cindy Ln, Glenview, IL 60025
- 04-32-404-003-0000, 3817 Cindy Ln, Glenview, IL 60025
- 04-32-404-004-0000, 3813 Cindy Ln, Glenview, IL 60025
- 04-32-404-005-0000, 3809 Cindy Ln, Glenview, IL 60025
- 04-32-401-128-0000, 3805 Cindy Ln, Glenview, IL 60025
- 04-32-401-129-0000, 3801 Cindy Ln, Glenview, IL 60025

Exhibit B



CHAWHAMILTON
 ASSOCIATES, INC.
 625 River Edge Drive • Vernon Hills, IL 60061

FILE	4630, 300-Sub B, 499
DRAWN BY	G.S.
DATE	2/3/2015
CHECKED BY	X.X.
PROJECT #	4630, 300
SCALE	1"=40'

NORTH SHORE MOSQUITO ABATEMENT DISTRICT
Cook County, Illinois

ORDINANCE
NO. 16-105

AN ORDINANCE ADOPTING WAGE STANDARDS

ROGER NASCI, Executive Director
CAROL BLUSTEIN
KATHLEEN KENDRICK
NELSON HOWARD
JOHN ZBESKO
WILLIAM ZIMMER
Board of Trustees

Published in pamphlet form by authority of the President and Board of Trustees of the North Shore Mosquito Abatement District. Law Offices of Odelson & Sterk, Ltd., Village Attorneys 3318 W. 95th Street, Evergreen Park, IL 60805

NORTH SHORE MOSQUITO ABATEMENT DISTRICT
Cook County, Illinois

ORDINANCE NO. # 16-

AN ORDINANCE ADOPTING PREVAILING WAGE STANDARDS

WHEREAS, the State of Illinois has enacted the "Prevailing Wage Act," 820 ILCS 130/1 et seq. (the "Act"); and

WHEREAS, the Act requires that the NORTH SHORE MOSQUITO ABATEMENT DISTRICT investigate and ascertain the prevailing rate of wages as defined in the Act for laborers, mechanics and other workers in the locality of the District employed in performing construction of public works for the District.

NOW, THEREFORE, BE IT ORDAINED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT:

Section 1. To the extent and as required by the Prevailing Wage Act, the general prevailing rates of wages engaged in construction of public works coming under the jurisdiction of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT is hereby ascertained to be the same as the prevailing rate of wages for construction work in Cook County as determined by the Department of Labor of the State of Illinois as of June of the current year. A copy of said determination is attached hereto and incorporated herein by reference.

As required by the Act, any and all revisions of the prevailing rate of wages by the Department of Labor of the State of Illinois shall supersede the Department's June determination and apply to any and all public works construction undertaken by the NORTH SHORE MOSQUITO ABATEMENT DISTRICT. The definition of any

terms appearing in this ordinance which are used in the Act shall be the same as in the Act.

Section 2. Nothing herein contained shall be construed to apply said general prevailing rate of wages as herein ascertained to any work or employment, except public works construction of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT to extent required by the Act.

Section 3. The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall publicly post or keep available for inspection by any interested part in the main office of the District this determination or any revisions of such prevailing rate of wage. A copy of this determination or of the current revised determination of the prevailing rate of wage then in effect, shall be attached to all contract specifications.

Section 4. The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall mail a copy of this determination to any employer and to any association of employers, and to any person or association of employees who have filed their names and addresses requesting copies of any determination, stating the particular rates and the particular class of workers whose wages will be affected by such rates.

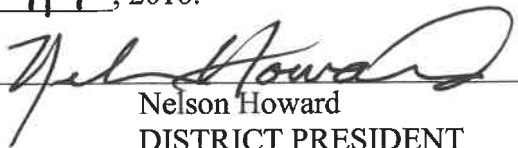
Section 5. The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall promptly file a certified copy of this Ordinance with both the Secretary of State of Illinois, Index Division, 111 East Monroe Street, Springfield, IL 62706 and the Illinois Department of Labor, Fair Labor Standards Division, One West Old State Capitol Plaza, Room 300, Springfield, IL 62701.

Section 6. Within thirty days after filing with the Secretary of State, the President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall cause to be published in a newspaper of general circulation within the area, a notice of passage of this Ordinance. Such publication shall constitute notice that the determination is effective, and that this is the determination of this public body.


ADOPTED by the President and Board of Trustees of the North Shore Mosquito Abatement District, Cook County, Illinois, on April 7, 2016 by the following roll call vote:

	YES	NO	ABSENT	PRESENT
Blustein	X			X
Kendrick	X			X
Zbesko	X			X
Zimmer	X			X
President Howard	X			X
TOTAL	5	0	0	5

APPROVED by the Village President on 4/7, 2016.


Nelson Howard
DISTRICT PRESIDENT

ATTEST:


Roger Nasci
Executive Director

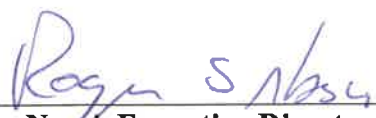
STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

CERTIFICATE

I, Roger Nasci, Executive Director of the North Shore Mosquito Abatement District, County of Cook and State of Illinois, DO HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 16- "AN ORDINANCE ADOPTING PREVAILING WAGE STANDARDS, which Ordinance was duly adopted by said Board of Trustees at a regular meeting held on the 7 of April, 2016.

I do further certify that a quorum of said Board of Trustees was present at said meeting, and that the Board of Trustees complied with all requirements of the Illinois Open Meetings Act.

IN WITNESS WHEREOF, I have hereunto set my hand this 7 day of April, 2016.


Roger Nasci, Executive Director
North Shore Mosquito Abatement District

(SEAL)

Cook County Prevailing Wage for June 2015

(See explanation of column headings at bottom of wages)

Trade Name	RG	TYP	C	Base	FRMAN	M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
ASBESTOS ABT-GEN	ALL			38.200	38.700	1.5	1.5	2.0	13.78	10.12	0.000	0.500
ASBESTOS ABT-MEC	BLD			35.100	37.600	1.5	1.5	2.0	11.17	10.76	0.000	0.720
BOILERMAKER	BLD			45.650	49.760	2.0	2.0	2.0	6.970	17.81	0.000	0.400
BRICK MASON	BLD			42.580	46.840	1.5	1.5	2.0	9.850	13.60	0.000	1.030
CARPENTER	ALL			43.350	45.350	1.5	1.5	2.0	13.29	13.75	0.000	0.630
CEMENT MASON	ALL			43.100	45.100	2.0	1.5	2.0	12.70	13.24	0.000	0.450
CERAMIC TILE FNShER	BLD			35.810	0.000	1.5	1.5	2.0	10.55	8.440	0.000	0.710
COMM. ELECT.	BLD			39.000	41.800	1.5	1.5	2.0	8.420	11.98	1.100	0.700
ELECTRIC PWR EQMT OP	ALL			46.100	51.100	1.5	1.5	2.0	10.76	14.87	0.000	0.460
ELECTRIC PWR GRNDMAN	ALL			35.960	51.100	1.5	1.5	2.0	8.390	11.60	0.000	0.360
ELECTRIC PWR LINEMAN	ALL			46.100	51.100	1.5	1.5	2.0	10.76	14.87	0.000	0.460
ELECTRICIAN	ALL			44.000	47.000	1.5	1.5	2.0	13.33	14.77	0.000	0.750
ELEVATOR CONSTRUCTOR	BLD			50.800	57.150	2.0	2.0	2.0	13.57	14.21	4.060	0.600
FENCE ERECTOR	ALL			35.840	37.840	1.5	1.5	2.0	13.01	11.51	0.000	0.300
GLAZIER	BLD			40.000	41.500	1.5	2.0	2.0	12.49	15.99	0.000	0.940
HT/FROST INSULATOR	BLD			48.450	50.950	1.5	1.5	2.0	11.47	12.16	0.000	0.720
IRON WORKER	ALL			43.000	45.000	2.0	2.0	2.0	13.45	20.65	0.000	0.350
LABORER	ALL			38.000	38.750	1.5	1.5	2.0	13.78	10.12	0.000	0.500
LATHER	ALL			43.350	45.350	1.5	1.5	2.0	13.29	13.75	0.000	0.630
MACHINIST	BLD			44.350	46.850	1.5	1.5	2.0	6.760	8.950	1.850	0.000
MARBLE FINISHERS	ALL			31.400	32.970	1.5	1.5	2.0	9.850	13.10	0.000	0.600
MARBLE MASON	BLD			41.780	45.960	1.5	1.5	2.0	9.850	13.42	0.000	0.760
MATERIAL TESTER I	ALL			28.000	0.000	1.5	1.5	2.0	13.78	10.12	0.000	0.500
MATERIALS TESTER II	ALL			33.000	0.000	1.5	1.5	2.0	13.78	10.12	0.000	0.500
MILLWRIGHT	ALL			43.350	45.350	1.5	1.5	2.0	13.29	13.75	0.000	0.630
OPERATING ENGINEER	BLD 1			47.100	51.100	2.0	2.0	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	BLD 2			45.800	51.100	2.0	2.0	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	BLD 3			43.250	51.100	2.0	2.0	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	BLD 4			41.500	51.100	2.0	2.0	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	BLD 5			50.850	51.100	2.0	2.0	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	BLD 6			48.100	51.100	2.0	2.0	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	BLD 7			50.100	51.100	2.0	2.0	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	FLT 1			52.450	52.450	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER	FLT 2			50.950	52.450	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER	FLT 3			45.350	52.450	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER	FLT 4			37.700	52.450	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER	FLT 5			53.950	52.450	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER	FLT 6			35.000	35.000	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER	HWY 1			45.300	49.300	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	HWY 2			44.750	49.300	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	HWY 3			42.700	49.300	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	HWY 4			41.300	49.300	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	HWY 5			40.100	49.300	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	HWY 6			48.300	49.300	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER	HWY 7			46.300	49.300	1.5	1.5	2.0	17.10	11.80	1.900	1.250
ORNAMNTL IRON WORKER	ALL			43.900	46.400	2.0	2.0	2.0	13.36	17.24	0.000	0.650
PAINTER	ALL			40.750	45.500	1.5	1.5	1.5	10.75	11.10	0.000	0.770
PAINTER SIGNS	BLD			33.920	38.090	1.5	1.5	1.5	2.600	2.710	0.000	0.000
PILEDRIIVER	ALL			43.350	45.350	1.5	1.5	2.0	13.29	13.75	0.000	0.630
PIPEFITTER	BLD			46.000	49.000	1.5	1.5	2.0	9.000	15.85	0.000	1.780
PLASTERER	BLD			42.250	44.790	1.5	1.5	2.0	11.40	12.19	0.000	0.650
PLUMBER	BLD			46.650	48.650	1.5	1.5	2.0	13.18	11.46	0.000	0.880
ROOFER	BLD			40.100	43.100	1.5	1.5	2.0	8.280	10.54	0.000	0.530
SHEETMETAL WORKER	BLD			41.530	44.850	1.5	1.5	2.0	10.48	20.06	0.000	0.690
SIGN HANGER	BLD			31.310	33.810	1.5	1.5	2.0	4.850	3.280	0.000	0.000
SPRINKLER FITTER	BLD			49.200	51.200	1.5	1.5	2.0	11.75	9.650	0.000	0.550
STEEL ERECTOR	ALL			42.070	44.070	2.0	2.0	2.0	13.45	19.59	0.000	0.350
STONE MASON	BLD			42.580	46.840	1.5	1.5	2.0	9.850	13.60	0.000	1.030
SURVEY WORKER	->	NOT IN EFFECT				ALL	37.000	37.750	1.5	1.5	2.0	12.97 9.930 0.000 0.500
TERRAZZO FINISHER	BLD			37.040	0.000	1.5	1.5	2.0	10.55	10.32	0.000	0.620
TERRAZZO MASON	BLD			40.880	43.880	1.5	1.5	2.0	10.55	11.63	0.000	0.820
TILE MASON	BLD			42.840	46.840	1.5	1.5	2.0	10.55	10.42	0.000	0.920
TRAFFIC SAFETY WRKR	HWY			32.750	34.350	1.5	1.5	2.0	6.550	6.450	0.000	0.500
TRUCK DRIVER	E ALL 1			33.850	34.500	1.5	1.5	2.0	8.150	8.500	0.000	0.150
TRUCK DRIVER	E ALL 2			34.100	34.500	1.5	1.5	2.0	8.150	8.500	0.000	0.150
TRUCK DRIVER	E ALL 3			34.300	34.500	1.5	1.5	2.0	8.150	8.500	0.000	0.150
TRUCK DRIVER	E ALL 4			34.500	34.500	1.5	1.5	2.0	8.150	8.500	0.000	0.150
TRUCK DRIVER	W ALL 1			32.550	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000

TRUCK DRIVER	W ALL 2	32.700	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TRUCK DRIVER	W ALL 3	32.900	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TRUCK DRIVER	W ALL 4	33.100	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TUCK POINTER	BLD	42.800	43.800	1.5	1.5	2.0	8.180	12.66	0.000	0.650

Legend: RG (Region)
 TYP (Trade Type - All, Highway, Building, Floating, Oil & Chip, Rivers)
 C (Class)
 Base (Base Wage Rate)
 FRMAN (Foreman Rate)
 M->H (OT required for any hour greater than 8 worked each day, Mon through Fri.)
 OSA (Overtime (OT) is required for every hour worked on Saturday)
 OSH (Overtime is required for every hour worked on Sunday and Holidays)
 H/W (Health & Welfare Insurance)
 Pensn (Pension)
 Vac (Vacation)
 Trng (Training)

Explanations

COOK COUNTY

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

TRUCK DRIVERS (WEST) - That part of the county West of Barrington Road.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

COMMUNICATIONS ELECTRICIAN

Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound vision production and reproduction, telephone and telephone interconnect, facsimile, data apparatus, coaxial, fibre optic and wireless equipment, appliances and systems used for the transmission and reception of signals of any nature, business, domestic, commercial, education, entertainment, and residential purposes, including but not limited to, communication and telephone, electronic and sound equipment, fibre optic and data communication systems, and the performance of any task directly related to such installation or service whether at new or existing

sites, such tasks to include the placing of wire and cable and electrical power conduit or other raceway work within the equipment room and pulling wire and/or cable through conduit and the installation of any incidental conduit, such that the employees covered hereby can complete any job in full.

MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all rigging for heavy work, the handling of all material that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installation of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone, granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and exteriors and customarily known as stone in the trade), carrara, sanionyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and exterior which are installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

OPERATING ENGINEER - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Conveyor (Truck Mounted); Concrete Paver Over 27E cu. ft; Concrete Paver 27E cu. ft. and Under; Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Spider Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Heavy Duty Self-Propelled Transporter or Prime Mover; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, One, Two and Three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes; Squeeze Cretes-Screw Type Pumps; Gypsum Bulker and Pump; Raised and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-Form Paver; Straddle Buggies; Operation of Tie Back Machine; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Inside Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rock Drill (Self-Propelled); Rock Drill (Truck Mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators (remodeling or renovation work); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Low Boys; Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

Class 5. Assistant Craft Foreman.

Class 6. Gradall.

Class 7. Mechanics; Welders.

OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfing; Asphalt Spreader; Autograder/GOMACO or other similar type machines; ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower Cranes of all types; Creter Crane; Spider Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dredges; Elevators, Outside type Rack & Pinion and Similar Machines; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Truck Mounted; Hoists, One, Two and Three Drum; Heavy Duty Self-Propelled Transporter or Prime Mover; Hydraulic Backhoes; Backhoes with shear attachments up to 40' of boom reach; Lubrication Technician; Manipulators; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Snow Melters; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Operation of Tieback Machine; Tractor Drawn Belt Loader; Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Traffic Barrier Transfer Machine; Trenching; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole Drills (Tunnel Shaft); Underground Boring and/or Mining Machines 5 ft. in diameter and over tunnel, etc.; Underground Boring and/or Mining Machines under 5 ft. in diameter; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (Less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Maglund or Similar Type); Drills, All; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; Hydro Excavating (excluding hose work); Laser Screed; All Locomotives, Dinky; Off-Road Hauling Units (including articulating) Non Self-Loading Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper - Single/Twin Engine/Push and Pull; Scraper - Prime Mover in Tandem (Regardless of Size); Tractors pulling attachments, Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than Asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper-Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Vacuum Trucks (excluding hose work); Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. SkidSteer Loader (all); Brick Forklifts; Oilers.

Class 6. Field Mechanics and Field Welders

Class 7. Dowell Machine with Air Compressor; Gradall and machines of like nature.

OPERATING ENGINEER - FLOATING

Class 1. Craft Foreman; Master Mechanic; Diver/Wet Tender; Engineer; Engineer (Hydraulic Dredge).

Class 2. Crane/Backhoe Operator; Boat Operator with towing endorsement; Mechanic/Welder; Assistant Engineer (Hydraulic Dredge); Leverman (Hydraulic Dredge); Diver Tender.

Class 3. Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs. or more); Tug/Launch Operator; Loader/Dozer and like equipment on Barge, Breakwater Wall, Slip/Dock, or Scow, Deck Machinery, etc.

Class 4. Deck Equipment Operator, Machineryman/Fireman (4 Equipment

Units or More); Off Road Trucks; Deck Hand, Tug Engineer, Crane Maintenance (50 Ton Capacity and Under) or Backhoe Weighing (115,000 pounds or less); Assistant Tug Operator.

Class 5. Friction or Lattice Boom Cranes.

Class 6. ROV Pilot, ROV Tender

SURVEY WORKER - Operated survey equipment including data collectors, G.P.S. and robotic instruments, as well as conventional levels and transits.

TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

TRAFFIC SAFETY

Work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary lane markings, and the installation and removal of temporary road signs.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - EAST & WEST

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics; Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters; Unskilled Dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turntrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turntrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

MATERIAL TESTER & MATERIAL TESTER/INSPECTOR I AND II

Notwithstanding the difference in the classification title, the classification entitled "Material Tester I" involves the same job

duties as the classification entitled "Material Tester/Inspector I". Likewise, the classification entitled "Material Tester II" involves the same job duties as the classification entitled "Material Tester/Inspector II".

Proposal: Amend the NSMAD Seasonal Employee Handbook to specify compensation for seasonal employees working night spray operations.

Motion: Accept proposal to amend the NSMAD Seasonal Employee Handbook to specify that seasonal staff working night spray operations are compensated at a rate 1.5 times the basic hourly rate they are paid based on years of prior employment at NSMAD.

Background: Current NSMAD policy does not specify compensation for seasonal staff working night spray operations. At the end of the 2016 season we had two seasonal employees who were not working days for NSMAD, but were called in to work at night. We paid them at a rate equivalent to what would have been their overtime rate (1.5 times their standard hourly rate). We anticipate having seasonal staff working only night spraying again during 2017 and wanted to explicitly address compensation in the Seasonal Employee Handbook.

IV. Compensation

- A. Seasonal employees will be paid on the 15th and the last day of each month of employment.
- B. Due to the possibility that work may be called off due to inclement weather after payroll has been submitted, the first 40 hours that a seasonal employee works for the season will be withheld until the employee's last paycheck for the season.
- C. Employees in their first year of employment with NSMAD will receive \$13 per hour.
- D. An employee that is rehired with the District will receive a \$1 per hour raise upon their return the next season. Seasonal employee hourly rates will be capped at \$20 per hour.
- E. Due to IMRF standards, seasonal employees will not be able to work over 1,000 hours in a calendar year. (A 600 hour per year standard will apply to some employees hired before 2014).
- F. Seasonal employees do not receive sick, personal, or vacation days with pay. Should a seasonal employee not report to work they will not be paid for the day.
- G. In the event that weather shortens the end of the workday and an employee has worked more than 4 hours, they will be paid for the entire day.
- H. Seasonal employees working nighttime spray operations will be compensated at 1.5 times the hourly rate appropriate for the number of years of prior employment at NSMAD.

4/6/17

Date Approved



NSMAD Secretary

Proposal: Approve a new part-time, seasonal position description for on-call, night spray operators.

Motion: Accept proposal to approve the Night-Spray Operator – On Call position description.

Background: Previously, night spray operations for adult mosquito control was accomplished using a combination of NSMAD full time staff and seasonal employees who worked full time during the day and agreed to work extra hours at night (contingent upon holding the appropriate applicators and following specific training by NSMAD staff for night spray operations). As a contingency for periods when more spray operators are needed, or for when some of the NSMAD full-time staff are not available, we want to be able to use operators who meet the licensing and training requirements on an on-call basis. Currently, NSMAD does not have an appropriate position description for Night Spray Operators who are not employed at NSMAD in another capacity. We need to have an explicit position description for these employees.

See attached position description draft:

4/6/17

Date Approved



NSMAD Secretary

Night-Spray Operator – On Call

Position Description

March 2017

POSITION SUMMARY (GENERAL RESPONSIBILITIES):

Responsible for driving a company vehicle (pick-up truck) with a mounted spray unit to apply an Ultra-Low Volume mosquito control product during night spray operations. Operates sprayer and tablet computer controls to document application of insecticide to assigned area, following instructions from Operations Manager, Field Supervisor or Executive Director.

EMPLOYMENT STATUS:

- Part time during mosquito season, up to 1,000 hours in a calendar year

ESSENTIAL FUNCTIONS

Employee must be able to fulfill the following essential functions with or without reasonable accommodation:

- Attend and participate in planning meetings with NSMAD supervisory staff the evening of spray operations.
- Operate a handheld tablet computer and GIS-based software applications associated with spray equipment and operations.
- Drive spray truck in assigned areas and apply pesticides according to label requirements and supervisor instructions.
- Safe operation and upkeep of a service vehicle during night-driving conditions.

ADDITIONAL FUNCTIONS:

- Perform other related duties as assigned by the Operations Manager or Field Supervisor.

QUALIFICATIONS

- Minimum 18 years of age.
- Possess a valid driver's license with no moving violations within the past year.
- Able to pass an NSMAD-specified defensive driving course.
- Able to pass the Illinois Department of Agriculture Pesticide Applicator General Standards examination.
- Ability to lift and carry 60 pounds.
- Prior experience and training in performing nighttime spray operations, or successful completion of on-the-job training at NSMAD

COMPENSATION

- Employees in their first year of employment with NSMAD will receive \$19.50 per hour.

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

Cook County, Illinois

**ORDINANCE
NO. 17-108**

AN ORDINANCE ADOPTING WAGE STANDARDS

**ROGER NASCI, Executive Director
CAROL BLUSTEIN, President**

**KATHLEEN KENDRICK
NELSON HOWARD
JOHN ZBESKO
WILLIAM ZIMMER
Board of Trustees**

Published in pamphlet form by authority of the President and Board of Trustees of the North Shore Mosquito Abatement District.
Law Offices of Odelson & Sterk, Ltd., Village Attorneys 3318 W. 95th Street, Evergreen Park, IL 60805

NORTH SHORE MOSQUITO ABATEMENT DISTRICT
Cook County, Illinois

ORDINANCE NO. # 17-108

AN ORDINANCE ADOPTING PREVAILING WAGE STANDARDS

WHEREAS, the State of Illinois has enacted the "Prevailing Wage Act," 820 ILCS 130/1 et seq. (the "Act"); and

WHEREAS, the Act requires that the NORTH SHORE MOSQUITO ABATEMENT DISTRICT (the "District") investigate and ascertain the prevailing rate of wages as defined in the Act for laborers, mechanics and other workers in the locality of the District employed in performing construction of public works for the District.

NOW, THEREFORE, BE IT ORDAINED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT:

Section 1. To the extent and as required by the Prevailing Wage Act, the general prevailing rates of wages engaged in construction of public works coming under the jurisdiction of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT is hereby ascertained to be the same as the prevailing rate of wages for construction work in Cook County as determined by the Department of Labor of the State of Illinois as of June of the current year. A copy of said determination is attached hereto and incorporated herein by reference.

As required by the Act, any and all revisions of the prevailing rate of wages by the Department of Labor of the State of Illinois shall supersede the Department's June determination and apply to any and all public works construction undertaken by the NORTH SHORE MOSQUITO ABATEMENT DISTRICT. The definition of any terms appearing in this ordinance which are used in the Act shall be the same as in the Act.

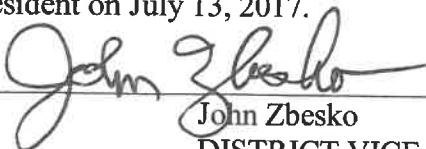
- Section 2.** Nothing herein contained shall be construed to apply said general prevailing rate of wages as herein ascertained to any work or employment, except public works construction of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT to extent required by the Act.
- Section 3.** The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall publicly post or keep available for inspection by any interested party in the main office of the District this determination or any revisions of such prevailing rate of wage. A copy of this determination or of the current revised determination of the prevailing rate of wage then in effect, shall be attached to all contract specifications.
- Section 4.** The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall mail a copy of this determination to any employer and to any association of employers, and to any person or association of employees who have filed their names and addresses requesting copies of any determination, stating the particular rates and the particular class of workers whose wages will be affected by such rates.
- Section 5.** The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall promptly file a certified copy of this Ordinance with both the Secretary of State of Illinois, Index Division, 111 East Monroe Street, Springfield, IL 62706 and the Illinois Department of Labor, Fair Labor Standards Division, One West Old State Capitol Plaza, Room 300, Springfield, IL 62701.
- Section 6.** Within thirty days after filing with the Secretary of State, the President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall cause to be published in a newspaper of general circulation within the area, a notice of passage

of this Ordinance. Such publication shall constitute notice that the determination is effective, and that this is the determination of this public body.

ADOPTED by the District Vice President and Board of Trustees of the North Shore Mosquito Abatement District, Cook County, Illinois, on July 13, 2017 by the following roll call vote:

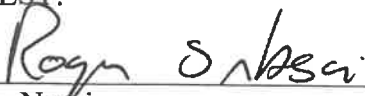
	YES	NO	ABSENT	PRESENT
Howard	X			X
Kendrick	X			X
Zbesko	X			X
Zimmer	X			X
President				
Blustein			X	
TOTAL				

APPROVED by the District Vice President on July 13, 2017.



 John Zbesko
 DISTRICT VICE PRESIDENT

ATTEST:



 Roger Narci
 Executive Director

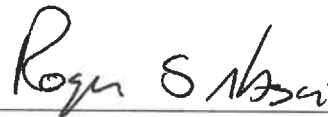
STATE OF ILLINOIS)
)
COUNTY OF COOK) SS.

CERTIFICATE

I, Roger Nasci, Executive Director of the North Shore Mosquito Abatement District, County of Cook and State of Illinois, DO HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 17- “AN ORDINANCE ADOPTING PREVAILING WAGE STANDARDS, which Ordinance was duly adopted by said Board of Trustees at a regular meeting held on the 13th of July, 2017.

I do further certify that a quorum of said Board of Trustees was present at said meeting, and that the Board of Trustees complied with all requirements of the Illinois Open Meetings Act.

IN WITNESS WHEREOF, I have hereunto set my hand this 13th day of July, 2017.



Roger Nasci, Executive Director
North Shore Mosquito Abatement District

(SEAL)



**RESOLUTION NO. 16-106
RESOLUTION REGARDING PUBLIC COMMENT
AT DISTRICT BOARD MEETINGS**

WHEREAS, the North Shore Mosquito Abatement District (“District”) is a duly organized unit of local government organized and operating under the constitution and laws of the State of Illinois; and

WHEREAS, Section 6 of the Mosquito Abatement District Act declares the board of trustees of a mosquito abatement district to be the corporate authority of said district and shall exercise all of the powers and control all of the affairs and property of such district; and

WHEREAS, the District’s Board of Trustees (“Board”) meetings are subject to the Illinois Open Meetings Act; and

WHEREAS, the Illinois Open Meetings Meeting Act provides that, “Any person shall be permitted an opportunity to address public officials under the rules established and recorded by the public body.”

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the North Shore Mosquito Abatement District, in the exercise of its statutory powers, as follows:

SECTION 1: The recitals set forth above are incorporated herein by reference.

SECTION 2: Any member of the public may address the Board once, for a maximum of five (5) minutes, during the public comment section of a Board meeting. Prior to the beginning of the meeting, each person who desires to speak shall write his/her name, address (if they wish to provide it) and topic on a sign-in sheet to be provided by the District then wait until they are recognized by the Board President, or temporary chairperson in the absence of the Village President. When recognized, each person who desires to speak will then state his/her name, address (if they wish to provide it), and any comment or question he/she may have. This portion of the meeting shall generally not exceed twenty (20) minutes, unless a majority of the Board of Trustees agrees to extend the time allotted for public participation for that specific meeting. All items must pertain to District business.

SECTION 3: If any section, paragraph, clause or provision of this Resolution shall be held invalid, the invalidity thereof shall not affect any of the other provisions of this Resolution.

SECTION 4: All ordinances, resolutions, motions, orders or fees in conflict with this Resolution are hereby repealed to the extent of such conflict.

SECTION 5: This Resolution shall be in full force and effective immediately after its passage.

PASSED by the Board of Trustees of the North Shore Mosquito Abatement District, Cook County, Illinois this 6th day of April, 2017.

AYES: Blustein, Howard, Kendrick, Zbesko, Zimmer
NAYS: _____
ABSTAIN: _____
ABSENT: _____

ATTEST:


President


Secretary

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

CERTIFICATION

I, KATHALEEN HENDRICK, do hereby certify that I am the duly (elected or appointed) Secretary of the North Shore Mosquito Abatement District. I further certify that on April 6, 2017, the Board of Trustees of the North Shore Mosquito Abatement District approved and passed Resolution No. 110-104 entitled:

**RESOLUTION NO. 110-104
RESOLUTION REGARDING PUBLIC COMMENT
AT DISTRICT BOARD MEETINGS**

I do further certify that said Resolution became effective upon passage.

IN WITNESS WHEREOF, I hereunto affix my official signature and the seal of the North Shore Mosquito Abatement District, this 6th day of April, 2017.

[SEAL]




Secretary

RESOLUTION NO. 17-107

RESOLUTION TO REGULATE TRAVEL EXPENSE REIMBURSEMENTS

WHEREAS, the North Shore Mosquito Abatement District (“District”) is a duly organized unit of local government organized and operating under the constitution and laws of the State of Illinois; and

WHEREAS, Section 6 of the Mosquito Abatement District Act declares the board of trustees of a mosquito abatement district to be the corporate authority of said district and shall exercise all of the powers and control all of the affairs and property of such district; and

WHEREAS, the Board of Trustees (“Board”) regulates the types of expenses that are allowed in Section 23-Employee Travel and Reimbursement of the North Shore Mosquito Abatement District Board Full Time Staff Employee Handbook; and

WHEREAS, the Illinois General Assembly has recently enacted Public Act 99-0604, known as the “Local Government Travel Expense Control Act” (“Act”) which becomes effective on January 1, 2017; and

WHEREAS, pursuant to the Act, non-home rule units of local government are required to establish regulations with respect to allowable travel, meal, and lodging expenses.

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the North Shore Mosquito Abatement District, in the exercise of its statutory powers, as follows:

SECTION 1. The recitals set forth hereinabove shall be and are hereby incorporated herein by reference.

SECTION 2. Definitions

“Entertainment” includes, but is not limited to, shows, amusements, theaters, circuses, sporting events, or any other place of public or private entertainment or amusement, unless ancillary to the purpose of the program or event.

“Public Business” means expenses incurred in the performance of a public purpose which is required or useful for the benefit of the District to carry out the responsibilities of District business.

“Travel” means any expenditure directly incident to official travel by employees and officers of the District involving reimbursement to travelers or direct payment to private agencies providing transportation or related services.

SECTION 3. Maximum Allowable Reimbursement

The District shall reimburse actual costs for the following types of travel, meal, and lodging expenses incurred by its employees and officers up to the following maximum allowable amounts:

- (a) Economy class flight expenses, including baggage fees. Any upgrades to will be at the expense of the traveler. (b) The maximum reimbursement for use of a privately owned automobile for District employees or officers will be the mileage rate determined by the most recently published IRS Standard Mileage Rates for Business at the time the expense was incurred.(c) Tolls, taxi, parking and other ground transportation costs will be reimbursed for actual expenses shown on receipt. (d) Lodging reimbursement shall be reasonable and customary for the area where the traveler is staying. (d) Meal and incidental expense (MIE) reimbursement shall not exceed the maximum amount for the destination locality as published at www.gsa.gov. Exceptions to MIE reimbursement amounts, to account for high costs of certain locations, must be explicitly approved by the NSMAD Executive Director.

SECTION 4. Reimbursement Request Form

No reimbursement of travel, meal or lodging expenses incurred by a District employee or officer shall be authorized unless the “Travel Reimbursement Form”, attached hereto and made a part hereof, has been submitted with appropriate receipts and documentation, and approved. All documents and information submitted with the form shall be subject to disclosure under the Freedom of Information Act (5 ILCS 140/1 et seq.).

SECTION 5. Roll Call Vote

Expenses for travel, meal, and lodging of: (a) any employee or officer that exceeds the District’s maximum allowable reimbursement amount allowed under the regulations adopted under Section 3 of this Resolution; or (2) any member of the NSMAD Board of Trustees or other authority of the District may only be approved by roll call at an open meeting. However, in the

event of an emergency or other extraordinary circumstance exists, the District may approve more than the maximum allowable expenses set forth above.

SECTION 6. Entertainment

The District shall not reimburse any employee or officer for any activities which would be considered entertainment. Activities which would otherwise be considered entertainment, but which are excluded from the prohibition on reimbursement due to being ancillary to the purpose of the program or event, may be reimbursed in accordance with the provisions of this Resolution.

SECTION 7. If any section, paragraph, clause or provision of this Resolution shall be held invalid, the invalidity thereof shall not affect any of the other provisions of this Resolution.

SECTION 8. All ordinances, resolutions, motions, orders or fees in conflict with this Resolution are hereby repealed to the extent of such conflict.

SECTION 9. This Resolution shall be in full force and effective immediately after its passage.

EXHIBIT

See attached travel expense report form

Federal MIE per diem for destination at:
<https://www.gsa.gov/portal/content/104877>

2017 MIE Per Diem Rates - vary by location

MIE total	Breakfast	Lunch	Dinner	IE
\$ 51	\$ 11	\$ 12	\$ 23	\$ 5
\$ 54	\$ 12	\$ 13	\$ 24	\$ 5
\$ 59	\$ 13	\$ 15	\$ 26	\$ 5
\$ 64	\$ 15	\$ 16	\$ 28	\$ 5
\$ 69	\$ 16	\$ 17	\$ 31	\$ 5
\$ 74	\$ 17	\$ 18	\$ 34	\$ 5

Reimbursement excludes meals paid for by NSMAD as part of registration at a meeting (e.g., banquet, luncheon, etc.)

Reimbursed expenses (receipts required)

Lodging (reasonable and customary for the area)

Air transportation (economy fare)

Airline ticket

Baggage fees

Change fees if approved by Director

Ground transportation

Personal vehicle mileage at current IRS Standard Mileage rate

Rental car

Gas for rental car

Tolls

Parking (including parking at airport "economy lot" equivalent)

Taxi or shared ride shuttle

Train, Subway, Bus

PASSED by the Board of Trustees of the North Shore Mosquito Abatement District, Cook County,

Illinois this 6th day of April, 2017.

AYES: Blustein, Howard, Kendrick, Zbesko, Zimmer

NAYS: _____

ABSTAIN: _____

ABSENT: _____

ATTEST:



President



Secretary



Proposal: Amend the NSMAD Full Time Employee Manual to specify Lodging Expenses as reimbursable travel expenses and to reflect district practices for meal reimbursal.

Motion: Accept proposal to amend the NSMAD Full Time Employee Manual to specify Lodging Expenses as reimbursable travel expenses and to clarify meal reimbursal policy.

Background: Reimbursement for Lodging Expenses was omitted in error during the last handbook revision. Meal per diem may be increased when warranted at high cost destinations at discretion of Executive Director.

23. Employee Travel and Reimbursement

- a. Employees will be reimbursed for reasonable expenses incurred in connection with approved travel on behalf of NSMAD.
- b. Travelers seeking reimbursement should incur the lowest reasonable travel expenses and exercise care to avoid the appearance of impropriety. If a circumstance arises that is not specifically covered in the travel policies, the most conservative course of action should be adopted. If possible, consult with the Executive Director for guidance before incurring unplanned travel expenses.
- c. Travel for staff must be authorized in advance. Travelers should verify with the Executive Director that planned travel is eligible for reimbursement before making travel arrangements.
- d. Upon completion of the trip, and within 7 days, the traveler must submit a Travel Reimbursement Form and supporting documentation to obtain reimbursement of expenses.
- e. Reimbursable expenses(receipts required):
 - i. Air Transportation
 - A. Economy fare ticket
 - B. Baggage fees
 - C. Airline change fees if approved by Executive Director
 - ii. Ground transportation
 - A. Personal vehicle mileage at current IRS Standard Mileage rate
 - B. Rental car
 - C. Gas for rental car
 - D. Tolls
 - E. Parking (including parking at airport "economy lot" or equivalent)
 - F. Taxi or shared ride shuttle
 - G. Train, Subway, Bus
 - iii. Lodging Expenses
 - iv. Meals are reimbursed as a "Per-Diem" expense based on the current federal meals and incidental expense allowance for the travel destination, and excludes meals that are provided through meeting registrations paid by NSMAD. **Per Diem may be increased for certain high cost destinations subject to approval by Executive Director.**
- f. Employees will be paid their regular salary for regular work days in which they travel for travel approved by the District.

5/4/17

Date Approved



NSMAD Secretary

RESOLUTION NO. 17-106
RESOLUTION REGARDING PUBLIC COMMENT
AT DISTRICT BOARD MEETINGS

WHEREAS, the North Shore Mosquito Abatement District (“District”) is a duly organized unit of local government organized and operating under the constitution and laws of the State of Illinois; and

WHEREAS, Section 6 of the Mosquito Abatement District Act declares the board of trustees of a mosquito abatement district to be the corporate authority of said district and shall exercise all of the powers and control all of the affairs and property of such district; and

WHEREAS, the District’s Board of Trustees (“Board”) meetings are subject to the Illinois Open Meetings Act; and

WHEREAS, the Illinois Open Meetings Meeting Act provides that, “Any person shall be permitted an opportunity to address public officials under the rules established and recorded by the public body.”

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the North Shore Mosquito Abatement District, in the exercise of its statutory powers, as follows:

SECTION 1: The recitals set forth above are incorporated herein by reference.

SECTION 2: Any member of the public may address the Board once, for a maximum of five (5) minutes, during the public comment section of a Board meeting. Prior to the beginning of the meeting, each person who desires to speak shall write his/her name, address (if they wish to provide it) and topic on a sign-in sheet to be provided by the District then wait until they are recognized by the Board President, or temporary chairperson in the absence of the Village President. When recognized, each person who desires to speak will then state his/her name, address (if they wish to provide it), and any comment or question he/she may have. This portion of the meeting shall generally not exceed twenty (20) minutes, unless a majority of the Board of Trustees agrees to extend the time allotted for public participation for that specific meeting. All items must pertain to District business.

SECTION 3: If any section, paragraph, clause or provision of this Resolution shall be held invalid, the invalidity thereof shall not affect any of the other provisions of this Resolution.

SECTION 4: All ordinances, resolutions, motions, orders or fees in conflict with this Resolution are hereby repealed to the extent of such conflict.

SECTION 5: This Resolution shall be in full force and effective immediately after its passage.

PASSED by the Board of Trustees of the North Shore Mosquito Abatement District, Cook County, Illinois this 6th day of April, 2017.

AYES: Blustein, Howard, Kendrick, Zbesko, Zimmer
NAYS: _____
ABSTAIN: _____
ABSENT: _____

ATTEST:


President


Secretary

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

CERTIFICATION

I, KATHLEEN HENDRICK, do hereby certify that I am the duly (elected or appointed) Secretary of the North Shore Mosquito Abatement District. I further certify that on April 6, 2017, the Board of Trustees of the North Shore Mosquito Abatement District approved and passed Resolution No. 17-104 entitled:

**RESOLUTION NO. 17-104
RESOLUTION REGARDING PUBLIC COMMENT
AT DISTRICT BOARD MEETINGS**

I do further certify that said Resolution became effective upon passage.

IN WITNESS WHEREOF, I hereunto affix my official signature and the seal of the North Shore Mosquito Abatement District, this 6th day of April, 2017.

[SEAL]




Secretary

NORTH SHORE MOSQUITO ABATEMENT DISTRICT
COOK COUNTY, ILLINOIS

RESOLUTION
NO. 2018-01

**RESOLUTION ADOPTING A POLICY PROHIBITING SEXUAL
HARASSMENT FOR NORTH SHORE MOSQUITO ABATEMENT
DISTRICT**

John M. Zbesko, PRESIDENT
Nelson Howard, SECRETARY
Kathleen Kendrick, VICE PRESIDENT
Carol Blustein, Trustee
William Zimmer, Treasurer

**Published in pamphlet form by authority of the Executive Director and Board of Trustees
of the North Shore Mosquito Abatement District on February 1, 2018.
Odelson & Sterk, Ltd. 3318 West 95th Street Evergreen Park, IL 60805**

Resolution No. 2018-01

RESOLUTION ADOPTING A POLICY PROHIBITING SEXUAL HARASSMENT FOR NORTH SHORE MOSQUITO ABATEMENT DISTRICT

WHEREAS, the Illinois General Assembly has recently enacted Public Act 100-0554, an Act concerning government, which became effective immediately, dated November 16, 2017;

WHEREAS, pursuant to the Act, each governmental unit shall adopt an ordinance or resolution establishing a policy to prohibit sexual harassment;

WHEREAS, all prior existing sexual harassment policies of the North Shore Mosquito Abatement District shall be superseded by the Policy Prohibiting Sexual Harassment adopted by this Resolution; and

WHEREAS, should any section or provision of this Resolution or the adopted Policy Prohibiting Sexual Harassment be declared to be invalid, that decision shall not affect the validity of this Resolution or adopted Policy Prohibiting Sexual Harassment as a whole or any part thereof, other than the part so declared to be invalid;

NOW, THEREFORE, BE IT RESOLVED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT:

Section 1. The Policy Prohibiting Sexual Harassment, included as Exhibit A to this Resolution, is hereby adopted.


Section 2. This resolution shall be in full force and effect on February 1, 2018.

(The Remainder of this Page Intentionally left blank)

ADOPTED this day of February 1, 2018 pursuant to a roll call as follows:

	YES	NO	ABSENT	ABSTAIN
Zbesko, President	✓			
Howard, Secretary	X			
Kendrick, Vice President			X	
Blustein, Trustee	✓			
Zimmer, Treasurer				
TOTAL	4		1	


APPROVED by the President and Board of Trustees on February 1, 2018.



John M. Zbesko — President
North Shore Mosquito Abatement District

Kathleen Kendrick — Vice President
North Shore Mosquito Abatement District

ATTEST:



Nelson Howard, Secretary
North Shore Mosquito Abatement District

Exhibit A
Policy

ANTI-HARASSMENT POLICY

A. Introduction

The North Shore Mosquito Abatement District is proud of its tradition of a collegial work environment in which all individuals are treated with respect and dignity. Each individual has the right to work in a professional atmosphere, which promotes equal opportunities and prohibits discriminatory practices, including harassment. At the North Shore Mosquito Abatement District, harassment, whether verbal, physical, sexual, or environmental, is unacceptable and will not be tolerated.

B. Definitions of Harassment

1. **Sexual harassment** may occur whenever there are unwelcome sexual advances, requests for sexual favors, or any other verbal, physical, or visual conduct of a sexual nature when:
 - a. Submission to the conduct is made either implicitly or explicitly a condition of the individual's employment;
 - b. Submission to or rejection of the conduct is used as the basis for an employment decision affecting the harassed employee; or
 - c. The harassment has the purpose or effect of interfering with the employee's work performance or creating an environment that is intimidating, hostile, or offensive to the employee.

Sexual harassment may include a range of subtle and not so subtle behaviors and may involve individuals of the same or different gender. Depending on the circumstances, these behaviors may include, but are not limited to: unwanted sexual advances or requests for sexual favors; sexual jokes and innuendo; verbal abuse of a sexual nature; commentary about an individual's body, sexual prowess or sexual deficiencies; leering; catcalls or touching; insulting or obscene comments or gestures; display or circulation in the workplace of sexually suggestive objects or pictures (including through e-mail); and other physical, verbal or visual conduct of a sexual nature.

2. **Harassment on the basis of any other protected characteristic** is also strictly prohibited. Under this policy, harassment is verbal or physical conduct that denigrates or shows hostility or aversion toward an individual because of his/her race, color, religion, sex, age, national origin, disability or any other characteristic protected by law or that of his/her relatives, friends or associates, and that: (i) has the purpose or effect of creating an intimidating, hostile or offensive work environment; (ii) has the purpose or effect of unreasonably interfering with an individual's work performance; or (iii) otherwise adversely affects an individual's employment opportunities.

Harassing conduct includes, but is not limited to: epithets, slurs or negative stereotyping; threatening, intimidating or hostile acts; denigrating jokes and display or circulation in the workplace of written or graphic material that denigrates or shows hostility or aversion toward an individual or group (including through e-mail).

Conduct prohibited by these policies is unacceptable in the workplace and in any work-related setting outside the workplace, such as during business trips, professional conferences, business meetings and business-related social events.

C. Individuals Covered Under the Policy

This policy covers all employees (executive management, professionals, support staff, etc.) and elected/appointed officials. The North Shore Mosquito Abatement District will not tolerate, condone or allow harassment, whether engaged in by fellow employees, supervisors, elected officials, suppliers, vendors, or other non-employees who conduct business or provide services to it. The North Shore Mosquito Abatement District encourages reporting of all incidents of harassment, regardless of who the offender may be.

D. Reporting a Complaint

While the North Shore Mosquito Abatement District encourages individuals who believe they are being harassed to firmly and promptly notify the offender that his or her behavior is unwelcome, it also recognizes the power and status disparities between an alleged harasser and a target may make such a confrontation impossible. In the event that such informal, direct communication between individuals is either ineffective or impossible, the following steps should be followed in reporting a harassment member of the committee listed below.

1. Notification of Appropriate Staff

Individuals who believe they have been subject to harassment should report the incident to the Director of the North Shore Mosquito Abatement District.

An individual also may choose to report the complaint to his/her supervisor. If the supervisor successfully resolves the complaint in an informal manner, this policy requires the supervisor to file a confidential report to (North Shore Mosquito Abatement District Board of Trustees or Director) about the complaint and resolution so that the District will be aware of any pattern of harassment by a particular individual. A supervisor who has not had special training in dealing with harassment complaints is strongly encouraged to consult the Director before taking action.

2. Description of Misconduct

An accurate record of objectionable behavior or misconduct is needed to resolve a formal complaint of harassment.

Verbal reports of harassment must be reduced to writing by either the complainant or the individual(s) designated to receive complaints, and be signed by the complainant. Individuals who believe they have been or currently are being harassed should maintain a record of objectionable conduct in order to effectively prepare and corroborate their allegations.

While the North Shore Mosquito Abatement District encourages individuals to keep written notes in order to accurately record offensive conduct or behavior, the Agency hereby notifies all employees that, in the event that a lawsuit develops from the reported

incident, the complainant's written notes may not be considered privileged information, and therefore, not confidential, unless such notes were originally made in anticipation of litigation.

3. Time Frame for Reporting Complaint

The North Shore Mosquito Abatement District encourages a prompt reporting of complaints so that rapid response and appropriate action may be taken. However, due to the sensitivity of these problems and because of the emotional toll such misconduct may have on the individual, no limited time frame will be instituted for reporting harassment complaints. Late reporting of complaints will not in and of itself preclude this Agency from taking remedial action.

4. Protection Against Retaliation

The North Shore Mosquito Abatement District will not in any way retaliate against an individual who makes a report of harassment nor permit any elected official or employee to do so. Retaliation is a serious violation of this harassment policy and should be reported immediately. Any person found to have retaliated against another individual for reporting harassment will be subject to the same disciplinary action provided for offenders (see "Resolving the Complaint" below).

E. Investigation of Complaint

1. Confidentiality

Any allegation of harassment brought to the attention of the Director or Board of Trustees will be promptly investigated in a confidential manner so as to protect the privacy of persons involved. Confidentiality will be maintained throughout the investigatory process to the extent practical and appropriate under the circumstances.

2. Identification of Investigators

Complaints will be investigated and resolved by the Department Supervisor to whom it was reported. In addition, any of the following individuals may be included in reviewing the investigation and outcome: Director or Board of Trustees.

3. Investigation Process

In pursuing the investigation, the investigator will try to take the wishes of the complainant under consideration, but should thoroughly investigate the matter as he/she sees fit, keeping the complainant informed as to the status of the investigation. The objectives of the investigation are to:

- Confirm name and position of the complainant.
- Identify alleged harasser.
- Thoroughly ascertain all facts that explain what happened. (Questions should be asked in a non-judgmental manner not assuming guilt nor assigning blame).
- Determine frequency/type of alleged harassment and, if possible, the dates and locations where harassment occurred.
- Identify individuals, if any, who observed the alleged harassment.

- Ask the individual how he/she responded to the alleged harassment.
- Determine whether the harassed individual consulted anyone else about the alleged harassment and take note of who else knows and their response to the disclosure.
- Develop a thorough understanding of the professional relationship, degree of control and amount of interaction between the alleged harasser and complainant. (Does the person control compensation, terms of employment or promotions? Do these individuals work in close proximity to one another and/or on the same projects)?
- Determine whether the alleged harasser has carried out any threats or promises directed at the complainant.
- Query whether the complainant knows of or suspects that there are other individuals who have been harassed by alleged harasser.
- Determine whether the complainant informed other administrative or supervisory personnel of the situation. What response, if any, did complainant receive from these individuals?
- Ask complainant what action he/she would like the North Shore Mosquito Abatement District to take as a consequence of the alleged harassment.
- When first interviewing the alleged harasser, remind him/her of the North Shore Mosquito Abatement District policy against retaliation for making a complaint of harassment.

F. Resolving the Complaint

Upon completing the investigation of a harassment complaint, the North Shore Mosquito Abatement District will communicate its findings and intended actions to the complainant and alleged harasser.

If the investigator, together with a review committee, determines that harassment has occurred, the harasser will be subject to appropriate disciplinary procedures, up to and including discharge. The complainant will be informed of the disciplinary action taken.

If the investigator, together with a review committee, determines that no harassment has occurred, this finding will be communicated to the complainant in an appropriately sensitive manner.

In the event that no resolution satisfactory to both parties can be reached based on the initial investigation, the matter shall be referred to the Board of Trustees. See "Appeals Process" below.

1. Sanctions

Individuals found to have engaged in misconduct constituting harassment will be severely disciplined, up to and including discharge. Appropriate sanctions will be determined by Director or Board of Trustees. In addressing incidents of harassment, the North Shore Mosquito Abatement District's response at a minimum will include reprimanding the offender and preparing a written record. Additional action may

include: referral to counseling, withholding of a promotion, reassignment, temporary suspension without pay, financial penalties or termination.

Although the North Shore Mosquito Abatement District's ability to discipline a non-employee harasser (e.g. customer, supplier, vendor) is limited by the degree of control if any that the North Shore Mosquito Abatement District has over the alleged harasser, any employee who has been subjected to harassment should file a complaint and be assured that action will be taken.

2. False Accusations

Given the possibility of serious consequences for an individual accused of sexual harassment, false and frivolous charges are considered severe misconduct. If an investigation results in a finding that the complainant falsely accused another of harassment knowingly or in a malicious manner, the complainant will be subject to appropriate discipline up to and including termination.

While we hope to be able to resolve any complaints of harassment within the North Shore Mosquito Abatement District, we acknowledge your right to contact the Illinois Department of Human Rights (IDHR) at the James R. Thompson Center, 100 West Randolph Street, Suite 10-100, Chicago, Illinois 60601, about filing a formal complaint, and, if it determines that there is sufficient evidence of harassment to proceed further, it will file a complaint with the Illinois Human Rights Commission (HRC), located at the same address on the fifth floor. If the IDHR does not complete its investigation within 365 days, you may file a complaint directly with the HRC between the 365th and the 395th day.

3. Appeals Process

If either party directly involved in a harassment investigation is dissatisfied with the outcome or resolution, that individual has the right to appeal the decision. The dissatisfied party should submit his/her written comments in a timely manner to the (Administration).

G. Maintaining a Written Record of the Complaint

The North Shore Mosquito Abatement District will maintain a complete written record of each complaint and how it was investigated and resolved. Written records will be maintained in a confidential manner in the office of the Administrator.

H. Conclusion

The North Shore Mosquito Abatement District has developed this policy to ensure that all its employees can work in an environment free from sexual harassment or any other harassment on the basis of any protected characteristic. The North Shore Mosquito Abatement District will make every effort to ensure that all its personnel are familiar with the policy and know that any complaint received will be thoroughly investigated and appropriately resolved.

STATE OF ILLINOIS)
)
COUNTY OF COOK) ss.

SECRETARY'S CERTIFICATE

I, Nelson Howard, duly qualified Secretary of the Board of Trustees of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT, Cook County, Illinois, do hereby certify that the attached is a true and correct copy of a Resolution entitled:


Resolution No. 2018-01

RESOLUTION ADOPTING A POLICY PROHIBITING SEXUAL HARASSMENT FOR NORTH SHORE MOSQUITO ABATEMENT DISTRICT

which Resolution was duly adopted by said Board of Trustees at a regular meeting held on the 1ST day of February, 2018.

I do further certify that a quorum of said Board of Trustees was present at said meeting, and that the Board of Trustees complied with all requirements of the Illinois Open Meetings Act.

IN WITNESS WHEREOF, I have hereunto set my hand this 1ST day of February, 2018.



Nelson Howard, Secretary
Board of Trustees
NorthShore Mosquito Abatement District

(Seal)



NORTH SHORE MOSQUITO ABATEMENT DISTRICT
Cook County, Illinois

ORDINANCE
NO. 18-102

AN ORDINANCE ADOPTING PREVAILING WAGE STANDARDS
IN THE NORTHSORE MOSQUITO ABATEMENT DISTRICT,
COOK COUNTY, ILLINOIS

MARK CLIFTON, Executive Director
JOHN ZBESKO, President

KATHLEEN KENDRICK
NELSON HOWARD
WILLIAM ZIMMER
CAROL BLUSTEIN
Board of Trustees

NORTH SHORE MOSQUITO ABATEMENT DISTRICT
Cook County, Illinois

ORDINANCE NO. # 18-102

**AN ORDINANCE ADOPTING PREVAILING WAGE STANDARDS IN THE
NORTHSHORE MOSQUITO ABATEMENT DISTRICT, COOK COUNTY, ILLINOIS**

WHEREAS the State of Illinois (the "State") has enacted "An Act regulating wages of laborers, mechanics and other workmen employed in any public works by the State, county, city or any public body or any political subdivision or by any one under contract for public works," approved June 26, 1941, as amended (Illinois Compiled Statutes, 820 ILCS 130/1, *et seq.*) (the "Prevailing Wage Act" or the "Act"); and

WHEREAS, it is the policy of the State that a wage of no less than the general prevailing hourly rate, as paid for work of a similar character in the locality in which the work is performed, shall be paid to all laborers, mechanics and other workers employed by or on behalf of any and all public bodies engaged in public works; and

WHEREAS, the Act requires that the NORTH SHORE MOSQUITO ABATEMENT DISTRICT (the "District") investigate and ascertain the prevailing rate of wages as defined in the Act for laborers, mechanics and other workers in the locality of the District employed in performing construction of public works for the District.

WHEREAS, the District has ascertained and examined the prevailing wage classifications and rates determined by the Department of Labor for Cook County for August 15, 2018, which is the last available date wage rates were published by the Department of Labor of the State of Illinois.

NOW, THEREFORE, BE IT ORDAINED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT:

Section 1. That the above recitals and legislative findings are found to be true and correct and are hereby incorporated herein and made a part hereof, as if fully set forth in their entirety

Section 2. To the extent and as required by the Prevailing Wage Act, the general prevailing rates of wages engaged in construction of public works coming under the jurisdiction of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT is

hereby ascertained to be the same as the prevailing rate of wages for construction work in Cook County as determined by the Department of Labor of the State of Illinois as of the last available date wage rates were published by the Department of Labor. A copy of said determination is attached hereto and incorporated herein by reference as “**Exhibit A**”.

Section 3. As required by the Act, any and all revisions of the prevailing rate of wages by the Department of Labor of the State of Illinois shall supersede the Department’s current determination of prevailing rates, as of the date of this Ordinance, and apply to any and all public works construction undertaken by the NORTH SHORE MOSQUITO ABATEMENT DISTRICT. The definition of any terms appearing in this ordinance which are used in the Act shall be the same as in the Act.

Section 4. Nothing herein contained shall be construed to apply said general prevailing rate of wages as herein ascertained to any work or employment, except public works construction of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT to extent required by the Act.

Section 5. The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall publicly post, and keep available for inspection by any interested party in the main office of the District, this determination or any revisions of such prevailing rate of wage. A copy of this determination or of the current revised determination of the prevailing rate of wage then in effect, shall be attached to all contract specifications.

Section 6. The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall mail a copy of this determination to any employer and to any association of

employers, and to any person or association of employees who have filed their names and addresses requesting copies of any determination, stating the particular rates and the particular class of workers whose wages will be affected by such rates.

Section 7. The prevailing rate of wages as determined herein, or as subsequently revised, shall be included in every contract for public works, and all ordinances, resolutions, calls for bids and bid specifications relating to any public work shall state or provide that any person performing any public works on behalf of NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall be required to pay the prevailing rate of wages to all laborers, mechanics and other workers employed for such public works. All contractors' bonds provided by any contractor on any public works for the District shall provide a guarantee that the contractor will faithfully perform his obligations to pay the prevailing rate of wages as provided by the contractor for such projects and in accordance with the Act

Section 8. The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall promptly file a copy of this Ordinance with the Illinois Department of Labor either by regular U.S. mail or by electronic submission.

Section 9. The President of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT shall cause to be published in a newspaper of general circulation within the area a notice that this Ordinance has been adopted. Such publication shall constitute notice that the determination is effective, and that this is the determination of this public body.

Section 10. If any section, paragraph, clause or provision of this Ordinance shall be held invalid, the invalidity thereof shall not affect any of the other provisions of this Ordinance.

Section 11. All ordinances in conflict herewith are hereby repealed to the extent of such conflict.

Section 12. This Ordinance shall be in full force and effect from and after its passage, approval and publication as provided by law.

[Remainder of page intentionally left blank]

ADOPTED by the President and Board of Trustees of the North Shore Mosquito Abatement District, Cook County, Illinois, on 9/6, 2018 by the following roll call vote:


	YES	NO	ABSENT	PRESENT
Blustein	X			
Kendrick	X			
Howard	X			
Zimmer	X			
President Zbesko	X			
TOTAL:				

APPROVED by the District President on 9/6, 2018.



 John Zbesko
 DISTRICT PRESIDENT

ATTEST:



 Mark Clifton
 Executive Director

STATE OF ILLINOIS)
)
COUNTY OF COOK) SS.

CERTIFICATE

I, Mark Clifton, Executive Director of the North Shore Mosquito Abatement District, County of Cook and State of Illinois, DO HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 18-102 “**AN ORDINANCE ADOPTING PREVAILING WAGE STANDARDS IN THE NORTHSORE MOSQUITO ABATEMENT DISTRICT, COOK COUNTY, ILLINOIS,**” which Ordinance was duly adopted by said Board of Trustees at a regular meeting held on the 6th of September, 2018.

I do further certify that a quorum of said Board of Trustees was present at said meeting, and that the Board of Trustees complied with all requirements of the Illinois Open Meetings Act.

IN WITNESS WHEREOF, I have hereunto set my hand this 6th day of September, 2018



Mark Clifton, Executive Director
North Shore Mosquito Abatement District

(SEAL)



EXHIBIT A

(Prevailing Wage Rates)

Cook County Prevailing Wage for August 2018

County	Trade Title	Region	Type	Class	Base Wage	Foreman Wage	OT M-F	OT Sa	OT Su	OT Hol	H/W	Pension	Vacation	Training	Other Fringe Benefit	
Cook	ASBESTOS ABT-GEN	All	ALL		42.72	43.72	1.5	1.5		2	2	14.9	12.57	0	0.68	0
Cook	ASBESTOS ABT-MEC	All	BLD		37.88	40.38	1.5	1.5		2	1.5	12.92	11.82	0	0.72	0
Cook	BOILERMAKER	All	BLD		49.46	53.91	1.5	1.5		2	2	6.97	20.4	0	1.6	0
Cook	BRICK MASON	All	BLD		46.19	50.8	1.5	2		2	2	10.65	17.92	0	1.77	0
Cook	CARPENTER	All	ALL		47.35	49.35	1.5	1.5		2	2	11.79	20.41	0	0.63	0
Cook	CEMENT MASON	All	ALL		45.25	47.25	2	1.5		2	2	14.25	17.03	0	1.1	1.36
Cook	CERAMIC TILE FNHSHER	All	BLD		39.56		2	1.5		2	2	10.75	12.02	0	0.97	0
Cook	COMM. ELECT.	All	BLD		43.96	46.76	1.5	1.5		2	2	9.85	13.26	1.25	0.85	0
Cook	ELECTRIC PWR EQMT OP	All	ALL		51.9	56.9	1.5	1.5		2	2	12.04	17.18	0	3.23	0
Cook	ELECTRIC PWR GRNDMAN	All	ALL		39.39		1.5	1.5		2	2	3.77	24.62	0	0	0
Cook	ELECTRIC PWR LINEMAN	All	ALL		50.5	55.5	1.5	1.5		2	2	11.69	17.2	0	2.61	0
Cook	ELECTRICIAN	All	ALL		48.35	51.35	1.5	1.5		2	2	15.13	16.52	1.25	1.28	0
Cook	ELEVATOR CONSTRUCTOR	All	BLD		54.85		2	2		2	2	15.43	16.61	4.39	0.61	0
Cook	FENCE ERECTOR	All	ALL		40.88	42.88	1.5	1.5		2	1.5	13.59	14.76	0	0.65	0
Cook	GLAZIER	All	BLD		43.85	45.35	1.5	2		2	2	14.37	21.11	0	0.94	0
Cook	HT/FROST INSULATOR	All	BLD		50.5	59	1.5	1.5		2	2	12.92	13.16	0	0.87	0
Cook	IRON WORKER	All	ALL		48.33	51.83	2	2		2	2	14.15	23.28	0	0.35	0
Cook	LABORER	All	ALL		42.72	44.32	1.5	1.5		2	2	14.9	12.57	0	0.72	0
Cook	LATHER	All	ALL		47.35	49.35	1.5	1.5		2	2	11.79	20.41	0	0.63	0
Cook	MACHINIST	All	BLD		48.38	50.88	1.5	1.5		2	2	7.23	8.95	1.85	1.32	0
Cook	MARBLE FINISHERS	All	ALL		34.65	47.7	1.5	1.5		2	2	10.65	16.46	0	0.49	0
Cook	MARBLE MASON	All	BLD		45.43	49.97	1.5	1.5		2	2	10.65	17.39	0	0.61	0
Cook	MATERIAL TESTER I	All	ALL		32.72		1.5	1.5		2	2	13.77	13.7	0	0.72	0
Cook	MATERIALS TESTER II	All	ALL		40.37		1.5	1.5		2	2	18.55	8.85	0	1.1	1.5
Cook	MILLWRIGHT	All	ALL		46.35	48.35	1.5	1.5		2	2	13.05	18.87	0	0	0
Cook	OPERATING ENGINEER	All	BLD	1	51.1		2	2		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	BLD	2	48.8		2	2		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	BLD	3	46.75		1.5	1.5		2	2	15.05	19.13	2	1.3	0
Cook	OPERATING ENGINEER	All	BLD	4	44.5		2	2		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	BLD	5	54.85	55.1	2	2		2	2	19.65	15.1	2	1.4	0
Cook	OPERATING ENGINEER	All	BLD	6	53.1		2	2		2	2	0	0	0	0	36.45
Cook	OPERATING ENGINEER	All	BLD	7	54.1	55.1	2	2		2	2	19.65	15.1	2	1.4	0
Cook	OPERATING ENGINEER	All	FLT	1	57.05	57.05	1.5	1.5		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	FLT	2	55.55	57.05	1.5	1.5		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	FLT	3	49.45	57.05	1.5	1.5		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	FLT	4	41.1	57.05	1.5	1.5		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	FLT	5	58.55	57.05	1.5	1.5		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	FLT	6	38	57.05	1.5	1.5		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	HWY	1	48.3		1.5	1.5		2	2	18.8	12.05	2	4.63	0
Cook	OPERATING ENGINEER	All	HWY	2	48.75		1.5	1.5		2	2	19.65	15.1	2	1.4	0
Cook	OPERATING ENGINEER	All	HWY	3	48.7		1.5	1.5		2	2	19.65	12.55	2	5	0
Cook	OPERATING ENGINEER	All	HWY	4	51.2		1.5	1.5		2	2	18	21.28	1.5	0.15	0
Cook	OPERATING ENGINEER	All	HWY	5	43.1		1.5	1.5		2	2	18.8	14.35	2	1.3	0
Cook	OPERATING ENGINEER	All	HWY	6	52.3		1.5	1.5		2	2	19.65	15.1	2	1.4	0
Cook	OPERATING ENGINEER	All	HWY	7	50.3		1.5	1.5		2	2	19.65	15.1	2	1.4	0
Cook	ORNAMNTL IRON WORKER	All	ALL		48.05	50.55	2	2		2	2	14.09	20.59	0	1.25	0.38
Cook	PAINTER	All	ALL		46.55	47.55	1.5	1.5	1.5	2	2	11.81	11.94	0	2.24	0
Cook	PAINTER SIGNS	All	BLD		39.24	0	1.5	1.5	1.5	2	2	2.6	3.18	0	0	0
Cook	PILEDRIIVER	All	ALL		47.35	49.35	1.5	1.5		2	2	11.79	20.41	0	0.63	0
Cook	PIPEFITTER	All	BLD		48.5	51.5	1.5	1.5		2	1.5	10.05	18.94	0	2.54	0
Cook	PLASTERER	All	BLD		43.25	45.85	1.5	1.5		2	2	14.25	16.69	0	1.35	0
Cook	PLUMBER	All	BLD		50.25	53.25	1.5	1.5		2	1.5	14.34	14.42	0	1.7	0
Cook	ROOFER	All	BLD		43.65	47.65	1.5	1.5		2	2	9.73	12.44	0	0.53	0
Cook	SHEETMETAL WORKER	All	BLD		44.25	47.79	1.5	1.5		2	2	11.35	24.68	0	1.68	0
Cook	SIGN HANGER	All	BLD		31.31		1.5	1.5		2	2	4.85	3.28	0	0	0
Cook	SPRINKLER FITTER	All	BLO		48.1	50.6	1.5	1.5		2	2	13.25	15.9	0	0.68	0
Cook	STEEL ERECTOR	ALL	ALL		42.07	44.07	2	2		2	2	13.45	19.59	0	0.35	0
Cook	STONE MASON	All	BLD		46.19	50.81	1.5	1.5		2	2	10.65	17.92	0	0.92	0
Cook	TERRAZZO FINISHER	All	BLD		41.54	44.54	1.5	1.5		2	2	10.75	13.47	0	0.4	0
Cook	TERRAZZO MASON	All	BLD		45.38	48.38	1.5	1.5		2	2	10.75	15.89	0	0.4	0
Cook	TILE MASON	All	BLD		46.49		2	1.5		2	2	10.75	14.99	0	1.13	0
Cook	TRAFFIC SAFETY WRKR	All	HWY		37	38.6	1.5	1.5		2	2	8.9	9.27	0	0.5	0
Cook	TRUCK DRIVER	E	ALL	1	35.6		1.5	1.5		2	2	8.6	10.61	1	0.15	1
Cook	TRUCK DRIVER	E	ALL	2	36.7	37.1	1.5	1.5		2	2	9.68	13.25	0	0.15	0
Cook	TRUCK DRIVER	E	ALL	3	36.9		1.5	1.5		2	2	9.68	13.25	0	0.15	0
Cook	TRUCK DRIVER	E	ALL	4	37.1		1.5	1.5		2	2	9.68	13.25	0	0.15	0
Cook	TRUCK DRIVER	W	ALL	1	37.69		1.5	1.5		2	2	10.5	8.5	0	0.15	0
Cook	TRUCK DRIVER	W	ALL	2	36.13		1.5	1.5		2	2	18.85	8.85	0	2.6	0
Cook	TRUCK DRIVER	W	ALL	3	40.34		1.5	1.5		2	2	10.47	12.5	0	0.5	2.81
Cook	TRUCK DRIVER	W	ALL	4	38.16		1.5	1.5		2	2	8.9	11.16	0	0.5	0
Cook	TUCKPOINTER	All	BLD		46	48	1.5	1.5		2	2	8.34	16.81	0	1.76	0

NORTH SHORE MOSQUITO ABATEMENT DISTRICT
COOK COUNTY, ILLINOIS

ORDINANCE
NO. 2019-01

ORDINANCE ESTABLISHING OPEN MEETINGS ACT
REMOTE ATTENDANCE POLICY FOR
THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT

John M. Zbesko, President
Nelson Howard, Vice President
Kathleen Kendrick, Secretary
William Zimmer, Treasurer
Carol Blustein, Trustee

Published in pamphlet form by authority of the Executive Director and Board of Trustees
of the North Shore Mosquito Abatement District on May 2, 2019.

Odelson & Sterk, Ltd. 3318 West 95th Street Evergreen Park, IL 60805

Ordinance No. 2019-01

**ORDINANCE ESTABLISHING OPEN MEETINGS ACT REMOTE
ATTENDANCE POLICY FOR
THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT**

WHEREAS, the North Shore Mosquito Abatement District (the “District”) is unit of local government organized under the Mosquito Abatement Act, 70 ILCS 1005/0.01, *et seq.*, and holds meetings as required by 70 ILCS 1005/6;

WHEREAS, the Illinois Open Meetings Act, 5 ILCS 120/1, *et seq.*, permits attendance at meetings by means other than physical presence;

WHEREAS, in order to permit attendance by means other than physical presence, Section 7 of the Illinois Open Meetings Act requires a public body to adopt rules that conform to the requirements and restrictions provided therein;

WHEREAS, the District desires to permit attendance of members of the public body by means other than physical presence in compliance with the Illinois Open Meetings Act;

NOW, THEREFORE, BE IT ORDAINED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT:

Section 1. The above recitals and legislative findings are found to be true and correct and are hereby incorporated herein and made part hereof, as if fully set forth in their entirety.

Section 2. The Remote Attendance Policy for the North Shore Mosquito Abatement District is hereby approved, as follows:

REMOTE ATTENDANCE POLICY

I. Purpose

The purpose of this Policy is to allow members of the Board of Trustees of the North Shore Mosquito Abatement District to attend and participate in open meetings of the Board by video or audio means as authorized by Section 7 of the Open Meetings Act, 5 ILCS 120/7, subject to the rules and limitations applicable to such attendance and participation as set forth in this Policy.

II. Definitions

“Act” means the Illinois Open Meetings Act, 5 ILCS 120/1 *et seq.*

“Board” means the Board of Trustees of the North Shore Mosquito Abatement District.

“Code” means the Mosquito Abatement District Act, 70 ILCS 1005/0.01, *et seq.*

“Trustee” means a member of the Board.

“District” means the North Shore Mosquito Abatement District.

“Meeting” means any open meeting of the Board that is subject to the Act.

“Qualifying Event” means: (i) personal illness or disability; (ii) employment purposes or the business of the District; or (iii) a family or other emergency.

“Remote Means” means video or audio conference only.

“Secretary” means the secretary appointed by the Board pursuant to Section 6 of the Code.

III. Remote Attendance Permitted

Subject to the limitations set forth in Sections IV and V below, a Trustee may attend any Meeting by Remote Means if the Commissioner is prevented from physically attending the Meeting because of a Qualifying Event.

IV. Restrictions on Remote Attendance

- (a) No Trustee may attend any portion of a Meeting by Remote Means unless:
 - (i) a quorum of the Board is physically present at the Meeting; and
 - (ii) he or she provides written notice to the Secretary and the Internal Operations Manager specifying the Qualifying Event at least one hour prior to the Meeting at the District’s principal office; and
 - (iii) the Remote Means being utilized is fully functional so as to allow all Trustees and any member of the audience to hear all communications taking place at the Meeting. Before allowing any remote attendance of any meeting, adequate equipment to accomplish this objective shall be secured by the Board at the meeting site.
- (b) No Trustee may attend a Meeting by Remote Means for any reason other than a Qualifying Event.

- (c) For the purposes of this section, “written notice” shall include E-Mail correspondence with read receipt requested.

V. Rules of Procedure When Remote Attendance Utilized

- (a) When any Trustee attends any portion of a Meeting by Remote Means as permitted by this Policy:
 - (i) the minutes of the Meeting shall so reflect that such Trustee attended the Meeting by Remote Means; and
 - (ii) every Trustee shall be identified during all Board discussions so that each Trustee is aware of which Trustee is speaking at all times.
- (b) A Trustee attending a Meeting by Remote Means shall:
 - (i) be permitted to fully participate in the Meeting as if he or she were physically present, subject to subsection (iv) below, and to the Board’s guidelines and procedures for conducting the Meeting; and advise the Secretary and Board if he or she leaves or returns from the Meeting;
 - (ii) shall not allow any other persons in the same room as such Trustee attending by Remote Means.
 - (iii) Shall not be permitted to conduct a meeting; and
 - (iv) Shall not participate in or observe a closed session.

VI. Applicability

If any provision of this Policy conflicts with any provision of the Act, the provisions of the Act shall prevail.

VII. Effective Date

This Policy becomes effective upon approval of the Ordinance by a majority of the Board.

VIII. Availability of Policy

The Policy shall remain on file together with the Ordinance of the Board approving this Policy.

IX. Amendments

This Policy may be amended by a majority vote of the Board at any time.

Section 3. If any section, paragraph, clause, or provision of this Ordinance shall be held invalid, the invalidity thereof shall not affect any other provision of this Ordinance.

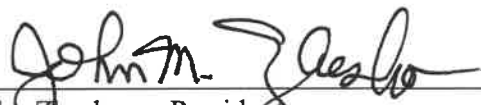
Section 4. All ordinances, resolutions, motions, or order in conflict with this Ordinance are hereby repealed to the extent of such conflict.

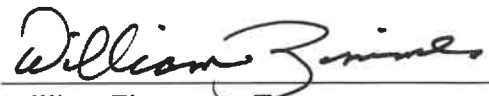
Section 5. This Ordinance shall be in full force and effect upon its passage, approve, and publication as provided by law.

PASSED this 6th day of June, 2019 pursuant to a roll call as follows:


	YES	NO	ABSENT	ABSTAIN
Zbesko, President				
Howard, Vice President				
Kendrick, Secretary				
Zimmer, Treasurer				
Blustein, Trustee				
TOTAL				

APPROVED by the President and Board of Trustees on June 6, 2019.


 John Zbesko — President
 North Shore Mosquito Abatement District


 William Zimmer — Treasurer
 North Shore Mosquito Abatement District

ATTEST:


 Kathleen Kendrick, Secretary
 North Shore Mosquito Abatement District

STATE OF ILLINOIS)
)
COUNTY OF COOK) ss.

SECRETARY’S CERTIFICATE

I, Kathleen Kendrick, duly qualified Secretary of the Board of Trustees of the NORTH SHORE MOSQUITO ABATEMENT DISTRICT, Cook County, Illinois, do hereby certify that the attached is a true and correct copy of an Ordinance entitled:


Resolution No. 2019-01

**ORDINANCE ESTABLISHING OPEN MEETINGS ACT
REMOTE ATTENDANCE POLICY FOR
THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT**

which Ordinance was duly adopted by said Board of Trustees at a regular meeting held on the 6th day of June, 2019.

I do further certify that a quorum of said Board of Trustees was present at said meeting, and that the Board of Trustees complied with all requirements of the Illinois Open Meetings Act.

IN WITNESS WHEREOF, I have hereunto set my hand this 6th day of June, 2019.


Kathleen Kendrick, Secretary
Board of Trustees
North Shore Mosquito Abatement District

(Seal)





**SUGGESTED FORM OF RESOLUTION TO
ADOPT EARLY RETIREMENT INCENTIVE**
IMRF Form 6.77 (Rev. 04/2015)

PLEASE ENTER
Employer IMRF I.D. Number
00055

See next page for additional ERI information.

RESOLUTION Number 2019-02

WHEREAS, Section 7-141.1 of the Illinois Pension Code provides that a participating employer may elect to adopt an early retirement incentive program offered by the Illinois Municipal Retirement Fund by adopting a resolution or ordinance; and

WHEREAS, the goal of adopting an early retirement program is to realize a substantial savings in personnel costs by offering early retirement incentives to employees who have accumulated many years of service credit; and

WHEREAS, IMRF has prepared an actuarial estimate of the cost of an early retirement incentive program for North Shore Mosquito Abatement District and the additional liability created by the early retirement incentive

is estimated to be \$ 45,274 EMPLOYER NAME; and the 10-year amortization cost is estimated to be \$ 63,851.

WHEREAS, the Board of Trustees BOARD, COUNCIL, ETC. has reviewed the cost estimate and determined that the adoption of an early retirement incentive is in the best interests of the North Shore Mosquito Abatement District; therefore be it

RESOLVED by the Board of Trustees of North Shore Mosquito Abatement District that:

(1) The North Shore Mosquito Abatement District EMPLOYER NAME does hereby adopt the Illinois Municipal Retirement Fund early retirement incentive program as provided in Section 7-141.1 of the Illinois Pension Code. The early retirement incentive program shall take effect on December 5, 2019 DATE.

(2) In order to help achieve a true cost savings, an employee who retires under the early retirement incentive program shall lose those incentives if he or she later accepts employment with any IMRF employer in any position. (Exception: employee can hold an elected position if he/she chooses to not participate in IMRF and the pension is not based on any service earned in that position during any term of office.)

(3) In order to utilize an early retirement incentive as a budgeting tool, the North Shore Mosquito Abatement District EMPLOYER NAME will use its best efforts either to limit the number of retiring employees replaced or to limit the salaries paid to the replacement employees.

(4) The effective date of each employee's retirement under this early retirement incentive program shall be set by North Shore Mosquito Abatement District EMPLOYER NAME and shall be no earlier than the effective date of the program and no later than one year after that effective date; except that the employee may require that the retirement date set by the employer be no later than the June 30 next occurring after the effective date of the program and no earlier than the date upon which the employee qualifies for retirement.

(5) To be eligible for the early retirement incentive under this Section, the employee must have attained age 50 and have at least 20 years of creditable service by his or her retirement date; and

(6) As of the date of the adoption of this Resolution, the Board of Trustees BOARD, COUNCIL, ETC. is () is not (X) aware of the pending dissolution of North Shore Mosquito Abatement District EMPLOYER NAME.

(Note: Failure to disclose a potential dissolution shall void this Resolution. If the Board, Council, etc. is aware of the pending dissolution of the IMRF employer, then the successor unit(s) of local government must approve the adoption of the early retirement incentive in order for this Resolution to be effective. If there is no successor, submit your resolution for approval from the IMRF Board of Trustees.)

(7) The Secretary CLERK OR SECRETARY shall promptly file a certified copy of this resolution (ordinance) with the Board of Trustees of the Illinois Municipal Retirement Fund.

CERTIFICATION

I, Kathleen Kendrick NAME the Secretary CLERK OR SECRETARY of the North Shore Mosquito Abatement District EMPLOYER NAME of the County of Cook COUNTY, State of Illinois, do hereby certify that I am the keeper of the books and records of the North Shore Mosquito Abatement District EMPLOYER NAME and that the foregoing is a true and correct copy of a resolution (ordinance) 2019-02 ORDINANCE duly adopted by the Board of Trustees BOARD, COUNCIL, ETC. at a meeting duly convened and held on the 5th day of December, 2019.

If applicable, I further certify that this Resolution has been submitted to the successor unit(s) of local government and that said unit(s) of local government has/have adopted a resolution approving the adoption of the early retirement incentive for

North Shore Mosquito Abatement District EMPLOYER NAME

A copy of the approval resolution is attached hereto.

SEAL


CLERK OR SECRETARY OF THE BOARD

IMRF

2211 York Road Suite 500 Oak Brook, IL 60523-2337
Employer Services Representatives 1-800-728-7971 Fax: (630) 706-4289

Actuarial Analysis of
The Potential Effect of
IMRF's Early Retirement Incentive Program
For
00055 - NORTH SHORE MOSQ ABAT DIST
(Regular Members)

1 Year Window Beginning

12/31/2019

IMRF Retirement Incentive 5-Year Window Program

Actuarial Analysis for

00055 - NORTH SHORE MOSQ ABAT DIST

(Regular Members)

Summary of Valuation Results and Input Variables

Window Period: 12/31/2019 Through 12/31/2020

<u>EMPLOYEES AFFECTED BY WINDOW *</u>	
1. Presently eligible to retire with full or reduced benefits	
a. Number	1
b. Annual Payroll	\$84,679
2. Number newly eligible to retire	
a. Number	0
b. Annual Payroll	\$0
<u>INPUT VARIABLES</u>	
3. Employees presently eligible to retire, who	
a. Would have retired without this window	0
b. Are induced to retire during this window **	1
4. Employees newly eligible to retire who are induced to retire during window period **	0
5. Total number assumed to retire during window period: (3a) + (3b) + (4)	1
6. Total across-the-board pay increase since 12/31/2018	0.00%

* Persons covered by Elected County Official benefit provisions with this employer were not included in this study.

** Inducement to retire is consistent with the assumptions for the Reserve Transfer Program.

IMRF Retirement Incentive 5-Year Window Program

Actuarial Analysis for

00055 - NORTH SHORE MOSQ ABAT DIST

(Regular Members)

Summary of Valuation Results

Window Period: 12/31/2019 Through 12/31/2020

<u>IMRF COSTS</u>						
	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years
1. Unpaid ERI Liability Exists? (See Note Below)	No					
2. Additional Liability Created by Window	45,274					
3. Schedule of Increase in Employer Contribution to IMRF based on indicated amortization of liability increase	Amortization Years					
	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years
First Year	10,243	8,724	7,640	6,830	6,201	5,699
Second Year	10,500	8,942	7,831	7,000	6,356	5,842
Third Year	10,762	9,165	8,027	7,175	6,515	5,988
Fourth Year	11,031	9,394	8,228	7,355	6,678	6,137
Fifth Year	11,307	9,629	8,433	7,538	6,844	6,291
Sixth Year		9,870	8,644	7,727	7,016	6,448
Seventh Year			8,860	7,920	7,191	6,609
Eighth Year				8,118	7,371	6,775
Ninth Year					7,555	6,944
Tenth Year						7,118
Total Estimate Cost First Year	53,843	55,724	57,663	59,663	61,725	63,851

NOTE:

An employer cannot adopt an ERI program until the cost of a previous ERI program is paid in full. A resolution adopting ERI with an effective date prior to the pay-of date is void. Call 1 800 ASK IMRF and ask to speak with Corey Lockwood, Employer Account Analyst, to request a written confirmation of the current balance.

IMRF Retirement Incentive 5-Year Window Program

Actuarial Analysis for

00055 - NORTH SHORE MOSQ ABAT DIST

(Regular Members)

Window Period: 12/31/2019 Through 12/31/2020

Individual Member Results

Name	ID No.	New Salary	Lump Sum Wages	Total Service	ERI Cost
BINNALL, JAMES		84,679.35	0.00	40.00	45,274.11
Total		84,679.35	0.00		45,274.11



SUGGESTED RESOLUTION (ORDINANCE) FOR EMPLOYER PICK-UP (PAYMENT) OF MEMBER CONTRIBUTIONS REQUIRED FOR PURCHASE OF EXTRA SERVICE UNDER THE IMRF EARLY RETIREMENT INCENTIVE

IMRF Form 6.85 (12/2005)

RESOLUTION (ORDINANCE)

Number 2020-01

WHEREAS, Section 7-141.1 of the Illinois Pension Code allows certain IMRF members to purchase additional service credit in order to induce those members to retire early; and

WHEREAS, Section 7-141.1 of the Illinois Pension Code requires a member contribution for the early retirement service credit; and

WHEREAS, Section 414(a) of the Internal Revenue Code provides that contributions designated as member contributions but picked-up by the employer shall be excluded from taxable income until distributed as a refund, annuity or death benefit; and

WHEREAS, it is desirable that the member contributions required by the IMRF early retirement incentive be paid by the employer.

NOW THEREFORE BE IT RESOLVED (ORDAINED) by the Board of Trustees
NAME OF GOVERNING BODY (BOARD OF COMMISSIONERS, ETC.)

of the North Shore Mosquito Abatement District
NAME OF UNIT OF GOVERNMENT that the member contributions required by the IMRF early retirement incentive be paid by the North Shore Mosquito Abatement District
NAME OF UNIT OF GOVERNMENT on behalf of all its employees who retire under the IMRF early retirement incentive.

BE IT FURTHER RESOLVED (ORDAINED) that the payment shall be made by a reduction in earnings payments to those employees.

BE IT FURTHER RESOLVED (ORDAINED) that the pick-up of member contributions shall be effective for all employees of the North Shore Mosquito Abatement District
NAME OF UNIT OF GOVERNMENT who retire under the IMRF early retirement incentive adopted by

the North Shore Mosquito Abatement District
NAME OF UNIT OF GOVERNMENT on December 5, 2019
DATE OF ERI RESOLUTION (ORDINANCE)

CERTIFICATION

I, Kathleen Kendrick
NAME the Secretary
CLERK OR SECRETARY of the North Shore Mosquito Abatement District
EMPLOYER of the County of Cook
COUNTY, State of Illinois, do hereby certify that I am the keeper of the books and records of the North Shore Mosquito Abatement District
EMPLOYER NAME and that the foregoing is a true and correct copy of resolution (ordinance) number 2020-01
RESOLUTION (ORDINANCE) NUMBER duly adopted by the Board of Trustees
BOARD, COUNCIL, ETC.. at a meeting duly convened and held on the 9 day of January, 2020.

SEAL


CLERK OR SECRETARY OF THE BOARD

RESOLUTION NO. 2021-01

A RESOLUTION APPROVING A WHISTLEBLOWER PROTECTION & PREVENTION OF IMPROPER GOVERNMENTAL ACTION POLICY IN THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT

WHEREAS, the North Shore Mosquito Abatement District (the "District" or "NSMAD") is a unit of local government organized under the Mosquito Abatement Act, 70 ILCS 1005/0.01, *et seq.*; and

WHEREAS, Public Act 101-0652, effective July 1, 2021, amends the Public Officers Prohibited Activities Act by adding a new section at 50 ILCS 105/4.1; and

WHEREAS, 50 ILCS 105/4.1 prohibits a unit of local government, or any agent or representative of a unit of local government, from retaliating against an employee or contractor who reports an improper governmental action as defined under 50 ILCS 105/4.1; cooperates with an investigation by an auditing official related to a report of improper governmental action; or, testifies in a proceeding or prosecution arising out of an improper governmental action.

WHEREAS, Section 105/4.1 of the Public Officer Prohibited Activities Act, 50 ILCS 105/4.1, further requires local governments to establish written policies and procedures for reporting and managing complaints of improper governmental actions and retaliation against those who file complaints of improper governmental action; and

WHEREAS, the Board of Trustees of the NSMAD find it be in the best interest of the health, safety and welfare of the District and its citizens to adopt a policy against improper governmental action and for the protection of whistleblowers.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Trustees of the North Shore Mosquito Abatement District, as follows:

Section 1. The foregoing recitals shall be and are hereby incorporated as findings of fact as if said recitals were fully set forth herein.

Section 2. The Whistleblower Protection & Prevention of Improper Governmental Action Policy, included as **Exhibit A** to this Resolution, is hereby approved and adopted as a written policy of the NSMAD.

Section 3. **Exhibit A** shall be incorporated into the NSMAD Personnel Manual.

Section 4. If any section, paragraph, clause, or provision of this resolution shall be held invalid, the invalidity thereof shall not affect any of the other provisions of this resolution.

Section 5. All resolutions in conflict herewith are hereby repealed to the extent of such conflict.

Section 6. This Resolution shall be in full force and effect after its passage, approval and publication as provided by law.

ADOPTED this day 2nd in September 2021.

AYES: Zbesko, Howard, Blustein, Zimmer

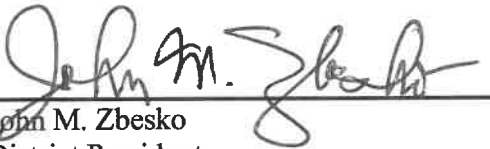
NAYS:

ABSTAIN:


ABSENT: Kendrick

APPROVED:

ATTEST:



John M. Zbesko
District President



Kathleen Kendrick
District Secretary


CERTIFICATION

State of Illinois)
) ss.
County of Cook)

I, Kathleen Kendrick, do hereby certify that I am the duly qualified and acting Secretary of the North Shore Mosquito Abatement District, Cook County, Illinois, and as such official I am the keeper of the records and files of the North Shore Mosquito Abatement District.

I further certify that the foregoing or attached is a complete, true and correct copy of Resolution No. 01, entitled "A RESOLUTION APPROVING A WHISTLEBLOWER PROTECTION & PREVENTION OF IMPROPER GOVERNMENTAL ACTION POLICY IN THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT," which was adopted by the Supervisor and Board of Trustees on September 2, 2021.

IN WITNESS WHEREOF, I have hereunto set my hand in the County of Cook, and State of Illinois, on November 18, 2021.


Kathleen Kendrick, Secretary
Board of Trustees
North Shore Mosquito Abatement District

(Seal)

EXHIBIT A

**Whistleblower Protection &
Prevention of Improper Governmental Action Policy**

**Whistleblower Protection Policy &
Prevention of Improper Governmental Action Policy**

I. Introduction

The North Shore Mosquito Abatement District (“District” or “NSMAD”) is committed to preventing improper governmental actions by its officials and employees. It is the responsibility of each District official and employee to refrain from improper governmental action. Instances of improper governmental action will be investigated in a prompt and effective manner and may result in disciplinary action or referral to the proper law enforcement agency.

Employees or contractors that report improper governmental actions will not be retaliated against by the District. It is the responsibility of all District officials and employees to refrain from retaliation against individuals that report improper governmental action. This includes, but is not limited to, protection from retaliation in the form of an adverse employment action such as termination, compensation decreases, or poor work assignments and threats of physical harm. Any whistleblowers who believe they are being retaliated against must submit a written report to the Auditing Official within 60 days of gaining knowledge of the retaliatory action. The right of a whistleblower for protection against retaliation does not include immunity for any personal wrongdoing that is alleged and investigated.

All complaints of retaliation will also be investigated in a prompt and effective manner and may result in disciplinary action or referral to the proper law enforcement agency.

All employees will be provided a copy of 50 ILCS 105/4.1 entitled “Retaliation against a whistleblower” and the following written processes and procedures for reporting improper governmental actions upon commencement of employment and at their request.

II. Definitions

Auditing Official shall mean the District’s Executive Director or his/her designee.

Employee shall mean anyone employed by the NSMAD, whether permanent or temporary, including full-time, part-time, and intermittent workers; members of appointed boards or commissions, regardless of pay; and persons who have been terminated because of any report or complaint of improper governmental actions submitted.

Improper Governmental Action shall mean:

Any action by a:

- (1) District employee,
- (2) an appointed member of a District Board, commission or committee, or
- (3) an elected District official

that:

- (1) is undertaken in violation of a federal, state or District law or rule

- (2) is an abuse of authority
- (3) violates the public trust or expectation of his or her conduct
- (4) is of substantial and specific danger to the public's health and safety
- (5) is a gross waste of public funds.

The action need not be within the scope of the employee, elected official, board member commission member or committee member's official duties.

Improper governmental action does not include a District personnel action, including but not limited to employee grievances, complaints, appointments, promotions, transfers, assignments, reassignments, reinstatements, restorations, reemployment, performance evaluations, reductions in pay, dismissals, suspensions, demotions, reprimands, or violations of collective bargaining agreements, except to the extent that the action amount to retaliation.

Retaliate, retaliation, or retaliatory action shall mean any adverse change in an employee's employment status or the terms and conditions of employment that results from an employee's protected activity under this section. Retaliatory action includes, but is not limited to, denial of adequate staff to perform duties, frequent staff changes, frequent and undesirable office changes, refusal to assign meaningful work, unsubstantiated letters of reprimand or unsatisfactory performance evaluations, demotion, reduction in pay, denial of promotion, transfer or reassignment, suspension or dismissal, or other disciplinary action made because of an employee's protected activity under this section.

Whistleblower means an employee, as defined in Section II of this policy, of the District who:

1. Reports an improper governmental action as defined under 50 ILCS 105/4.1 (hereinafter "Section 4.1");
2. Cooperates with an investigation by an Auditing Official related to a report of improper governmental action; or,
3. Testifies in a proceeding or prosecution arising out of an improper governmental action.

III. Processes and Procedures for reporting improper governmental actions

If an employee has knowledge of, or a concern of, improper governmental action, the employee shall make a written report of the activity to the Auditing Official. The employee must exercise sound judgment to avoid baseless allegations. An employee who intentionally files a false report of wrongdoing will be subject to discipline up to and including termination.

All reports of illegal and dishonest activities will be promptly submitted to the Auditing Official who is responsible for investigating and coordinating corrective action.

Each incident of improper governmental actions shall be documented in writing. If an employee becomes aware of an improper governmental action, as defined above, it shall make a written report to the Auditing Official. To the extent allowed by law, its identity shall be kept confidential unless the employee waives confidentiality in writing.

The written report shall include the complainants name, date, time, place, what was said or done, by whom, and whether there are any other individuals with knowledge of this conduct. Any tangible evidence such as audio/video recordings, memoranda, emails and the like shall be forwarded to the Auditing Official.

The whistleblower is not responsible for investigating the activity or for determining fault or corrective measures; a designated Auditing Official is charged with these responsibilities.

The Auditing Official shall fully investigate the complaint and advise the complainant and the named employee(s) of the results of the investigation. If it finds that improper governmental action has taken place or employees, or that officials of the District have hindered its investigation, the Auditing Official shall notify the NSMAD President in writing. The Auditing Official may also notify any other individual or entity it deems necessary, including but not limited to: the Board of Trustees, the Human Resources Department, the Legal Department, the appropriate law enforcement agency, and the State's Attorney's Office. An employee may be subject to disciplinary action up to and including discharge in accordance with NSMAD's disciplinary policy and the terms of any applicable employment or collective bargaining agreement.

IV. Processes and Procedures for reporting whistleblower retaliation

If an employee believes it has been retaliated against for:

- (1) reporting an improper governmental action,
- (2) cooperating with an investigation related to a report of improper governmental action, or
- (3) testifies in a proceeding or prosecution arising out of an improper governmental action,

it shall submit a written report to the Auditing Official. Said written report must be submitted immediately, but no later than 60 days after gaining knowledge of the retaliatory action.

The written report shall include the complainants name, date, time, place, what was said or done, by whom, and whether there are any other individuals with knowledge of this conduct. Any tangible evidence such as audio/video recordings, memos, emails, and the like shall be forwarded to the auditing official.

If, however, the auditing official is the person engaging in or involved in the alleged retaliation, the employee shall make a report to the State's Attorney's Office.

The Auditing Official shall fully investigate all written claims of whistleblower retaliation. If it finds that whistleblower retaliation has taken place or employees or officials of the District have hindered its investigation, the auditing official shall notify the NSMAD President in writing.

The Auditing Official may also notify any other individual or entity it deems necessary, including but not limited to: the Board of Trustees, the Human Resources Department, the Legal Department, and the State's Attorney's Office.

Where the auditing official finds that whistleblower retaliation has taken place, the employee subject to adverse actions may be:

- (1) reinstated, reimbursed for lost wages or expenses incurred, promoted, or provided some other form of restitution
- (2) If the auditing official determines that restitution will not suffice, the auditing official may provide its investigation findings to the employee or its attorney in an effort to make the employee whole.

Where the Auditing Official finds that whistleblower retaliation has taken place, it may fine any person engaged in the prohibited retaliatory action between \$500 and \$5000, suspend, demote, discharge, or civilly or criminally prosecute this individual.

V. Additional Requirements

The Auditing Official must provide each employee a written summary or a complete copy of Section 4.1 upon commencement of all employment and at least once each year of employment. At the same time, the employee shall also receive a copy of the written processes and procedures for reporting improper governmental actions from the applicable Auditing Official.

VI. Defend Trade Secrets Act (18 U.S.C. § 1836) Compliance:

Section 7(b): "Immunity from Liability for Confidential Disclosure of a Trade Secret to the Government or in a Court Filing:

- (1) Immunity—An individual shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that—(A) is made—(i) in confidence to a federal, state or local government official, either directly or indirectly, or to an attorney; and, (ii) solely for the purpose of reporting or investigating a suspected violation of law; or, (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

(2) Use of Trade Secret Information in Anti-Retaliation Lawsuit—An individual who files a lawsuit for retaliation by an employer for reporting a suspected violation of law may disclose the trade secret to the attorney of the individual and use the trade secret information in the court proceeding, if the individual—(A) files any document containing the trade secret under seal; and, (B) does not disclose the trade secret, except pursuant to court order.”

Employee Acknowledgment

Employees are required to sign a written acknowledgement that they have received, read, and understand this Policy, and to submit that acknowledgement to the Auditing Official or other designated official of the District. The form that follows on page 6 of this policy will satisfy this requirement upon receipt.

[Remainder of Page Intentionally Left Blank]

**Employee Acknowledgement of Whistleblower Protection &
Prevention of Improper Governmental Action Policy**

I confirm that I have received, read and understand the "Whistleblower Protection & Prevention of Improper Governmental Action Policy" for employees of the North Shore Mosquito Abatement District.

I understand that as an employee, it is my responsibility to abide by this Policy. If I have questions about the Policy, I understand it is my responsibility to seek clarification from the proper supervisory department, the Auditing Official, or the State's Attorney of Cook County.

Print Name: _____

Employee Signature: _____

Date: _____

RESOLUTION NO. 2023-01

**A RESOLUTION APPROVING A SMOKE FREE POLICY IN THE NORTH SHORE
MOSQUITO ABATEMENT DISTRICT**

WHEREAS, the North Shore Mosquito Abatement District (the “District” or “NSMAD”) is a unit of local government organized under the Mosquito Abatement Act, 70 ILCS 1005/0.01, *et seq.*; and

WHEREAS, 410 ILCS 82/1, *et seq.*, entitled the Smoke Free Illinois Act became effective January 1, 2008, and prohibits smoking in many public places, including places of employment; and

WHEREAS, Section 15 of the Smoke Free Illinois Act, 410 ILCS 82/15, specifically prohibits smoking in public places, places of employment, and in publicly owned or operated vehicles such as busses, trains, and public vehicles used by employees, and, in particular, smoking is prohibited within 15 feet of any entrance to a public place or place of employment; and

WHEREAS, Section 30 of the Smoke Free Illinois Act, 410 ILCS 82/30, further allows an employer to prohibit smoking in areas of a public place or place of employment in addition to those specifically prohibited by Section 15, including, but not limited to, specifically designated non-enclosed outdoor areas, provided the employer post signs as set forth in Section 20 of the Smoke Free Illinois Act, 410 ILCS 82/20; and

WHEREAS, Section 20 of the Smoke Free Illinois Act, 410 ILCS 82/20, provides that an employer may place “No Smoking” signs or the international “No Smoking” symbol in clear and conspicuous locations in each and every place smoking is prohibited in or at the place of employment; and

WHEREAS, Section 65 of the Smoke Free Illinois Act, 410 ILCS 82/65, further allows various public and municipal bodies to regulate smoking in ways that are at least as restrictive as the regulations in the Smoke Free Illinois Act; and

WHEREAS, the Board of Trustees of the NSMAD find it be in the best interest of the health, safety and welfare of the District and its citizens to adopt a policy regulating smoking on its property.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Trustees of the North Shore Mosquito Abatement District, as follows:

Section 1. The foregoing recitals shall be and are hereby incorporated as findings of fact as if said recitals were fully set forth herein.

Section 2. The Smoke Free Policy, included as **Exhibit A** to this Resolution, is hereby approved and adopted as a written policy of the NSMAD.

Section 3. **Exhibit A** shall be incorporated into the NSMAD Personnel Manual.

Section 4. If any section, paragraph, clause, or provision of this resolution shall be held invalid, the invalidity thereof shall not affect any of the other provisions of this resolution.

Section 5. All resolutions in conflict herewith are hereby repealed to the extent of such conflict.

Section 6. This Resolution shall be in full force and effect after its passage, approval and publication as provided by law.

ADOPTED this day 9th in February 2023.

AYES: Howard
Kendrick
Zimmer
Zbesko
Calkins

NAYS:

ABSTAIN:


ABSENT:

APPROVED:

ATTEST:



John M. Zbesko
District President



Kathleen Kendrick
District Secretary

CERTIFICATION

State of Illinois)
) ss.
County of Cook)

I, Kathleen Kendrick, do hereby certify that I am the duly qualified and acting Secretary of the North Shore Mosquito Abatement District, Cook County, Illinois, and as such official I am the keeper of the records and files of the North Shore Mosquito Abatement District.

I further certify that the foregoing or attached is a complete, true and correct copy of Resolution No. 2023-01, entitled "**A RESOLUTION APPROVING A SMOKE FREE POLICY IN THE NORTH SHORE MOSQUITO ABATEMENT DISTRICT,**" which was adopted by the Supervisor and Board of Trustees on February 9th, 2023.

IN WITNESS WHEREOF, I have hereunto set my hand in the County of Cook, and State of Illinois, on February 9th, 2023.



Kathleen Kendrick, NSMAD Secretary

(CORPORATE SEAL)

EXHIBIT A

Smoke Free Policy

Smoke Free Policy

I. Introduction

The North Shore Mosquito Abatement District (“District” or “NSMAD”) is committed to providing a safe and healthy work environment for its employees. Consistent with state law, the District hereby adopts this Smoke Free Policy for employees, guests, and visitors to NSMAD facilities and property.

II. Regulations

Section 15 of the Smoke Free Illinois Act, 410 ILCS 82/15, specifically prohibits smoking in public places, places of employment, and in publicly owned or operated vehicles such as busses, trains, and public vehicles used by employees, and, in particular, smoking is prohibited within 15 feet of any entrance to a public place or place of employment.

Section 30 of the Smoke Free Illinois Act, 410 ILCS 82/30, further allows an employer to prohibit smoking in areas of a public place or place of employment in addition to those specifically prohibited by Section 15, including, but not limited to, specifically designated non-enclosed outdoor areas, provided the employer post signs as set forth in Section 20 of the Smoke Free Illinois Act, 410 ILCS 82/20.

Section 20 of the Smoke Free Illinois Act, 410 ILCS 82/20, provides that an employer may place “No Smoking” signs or the international “No Smoking” symbol in clear and conspicuous locations in each and every place smoking is prohibited in or at the place of employment.

III. Requirements

The NSMAD, through its Board of Trustees, expressly states the entire property owned, operated, and controlled by the District shall be smoke-free. Accordingly, the Director and/or the Internal Operations Manager are authorized to place “No Smoking” signs or the international “No Smoking” symbol in clear and conspicuous locations in each and every place smoking is prohibited in, at, or on property owned, operated, and controlled by the NSMAD as provided in Section II (“**Regulations**”) as found in State law.

Employees may not smoke in, at, or on property owned, operated, and controlled by the NSMAD, and that is otherwise clearly and conspicuously marked “No Smoking.”

Employee Acknowledgment

Employees are required to sign a written acknowledgement that they have received, read, and understand this Policy, and to submit that acknowledgement to the Director, the Internal Operations Manager, or other designated official of the District. The form that follows on page 2 of this policy will satisfy this requirement upon receipt.

[Remainder of Page Intentionally Left Blank]

Employee Acknowledgement of Smoke Free Policy

I confirm that I have received, read and understand the "Smoke Free Policy" for employees of the North Shore Mosquito Abatement District.

I understand that as an employee, it is my responsibility to abide by this Policy. If I have questions about the Policy, I understand it is my responsibility to seek clarification from the proper supervisory department.

Print Name: _____

Employee Signature: _____

Date: _____

North Shore Mosquito Abatement District

Full Time Staff Employee Handbook

Revised: August 2019
Mark Clifton, Ph.D.
Executive Director

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Forward

NSMAD Employee Handbook and Work Policy

We consider the employees of NSMAD to be one of its most valuable resources. Your work each day helps protect the public from mosquito borne illnesses. This handbook has been written to serve as the guide for the employer/employee relationship, to assure a productive work environment and for your safety. The policies and procedures within this handbook provide only general information and guidelines. It is not intended to be comprehensive or to address all the possible applications of, or exceptions to, the general policies and procedures described. For that reason, if you have any questions concerning eligibility for a particular benefit or the applicability of a policy or practice to you, you should address your specific questions to the Executive Director. This employee manual is the property of the District and is intended for your personal use and reference as an employee of the North Shore Mosquito Abatement District.

This employee manual supersedes previous employee guides, handbooks or manuals issued by the District. The procedures, practices, policies and benefits described here may be modified or discontinued from time to time. The Executive Director or Board of Trustees will inform you of any changes as they occur.

This employee manual is not intended to be a contract (explicit or implied), nor is it intended to otherwise create any legally enforceable obligation on the part of the District. Should any policies in this employee manual conflict with federal, state or local law or regulations, such laws shall prevail. Also, should any policies in this employee manual conflict with an executed employment or confidentiality agreement, the agreement provisions will prevail unless prohibited by law.

Nothing contained in this manual should be construed as a guarantee of continued employment, but rather, employment with the District is on an at will basis. This means that during the course of employment, you are free to end your relationship with the District at any time and for any reason, or no reason, and the District reserves a similar right to sever that relationship. Thus, both you and the District will have the right to terminate your employment at any time, with or without advance notice and with or without cause for any reason not expressly prohibited by law.

Employees, who violate any of the policies of the North Shore Mosquito Abatement District, including those described in this manual, may be subject to disciplinary action up to and including termination.

NSMAD is a local government entity, performing the service of mosquito control funded by applicable taxing authority.

The Illinois Department of Public Health and the United States Environmental Protection Agency regulate the insecticides used in our work.

Employees handling public health insecticides must obtain a valid general standards pesticide applicator certification as authorized by the Illinois Department of Agriculture. Failure to obtain

this certification by employees hired to handle public health insecticides will disqualify the person for employment with NSMAD.

Equal Employment Opportunity Statement

NSMAD provides equal employment opportunities (EEO) to all employees and applicants for employment without regard to race, color, religion, gender, sexual orientation, gender identity, national origin, age, disability, genetic information, marital status, amnesty or status as a covered veteran in accordance with applicable federal, state and local laws. NSMAD complies with applicable state and local laws governing nondiscrimination in employment in every location in which the District operates. This policy applies to all terms and conditions of employment, including hiring, placement, promotion, termination, layoff, recall, transfer, leaves of absence, compensation and training.

NSMAD expressly prohibits any form of unlawful employee harassment based on race, color, religion, gender, sexual orientation, national origin, age, genetic information, disability or veteran status. Improper interference with the ability of NSMAD employees to perform their expected job duties is absolutely not tolerated.

Americans with Disability Act Policy

NSMAD is committed to complying with all applicable provisions of the Americans with Disabilities Act (“ADA”). It is the NSMAD’s policy not to discriminate against any qualified employee or applicant regarding any terms or conditions of employment because of such individual’s disability or perceived disability so long as the employee can perform the essential functions of the job. Consistent with this policy of non-discrimination, the NSMAD will provide reasonable accommodations to a qualified individual with a disability, as defined by the ADA, who has made the NSMAD aware of his or her disability, provided that such accommodation does not constitute an undue hardship on the NSMAD.

The ADA does not require the NSMAD to make the best possible accommodation, to reallocate essential job functions, to create new positions, or to provide personal use items (*i.e.*, eyeglasses, hearing aids, wheelchairs, protective clothing, boots, etc.). Rather, the ADA only requires reasonable accommodation.

Pregnancy, Child-Bearing, and Adoption Policy

The NSMAD prohibits and does not tolerate discrimination against anyone based on pregnancy, childbirth (including adoption), or medical or common conditions related to pregnancy or childbirth. The NSMAD is also committed to providing reasonable accommodation for an applicant or employee with any medical or common condition related to pregnancy or childbirth, provided that such an accommodation does not constitute an undue hardship on the NSMAD.

The NSMAD will treat all applicants and employees who are pregnant, affected by childbirth or adoption, or experiencing any medical or common conditions related to pregnancy or childbirth in the same manner as any other applicants or employees regarding all employment decisions, job-

related functions, benefits, opportunities, and purposes. No person or employee, no matter his or her title or position, has the authority, whether express, actual, apparent, or implied, to discriminate against an applicant or employee based on pregnancy, childbirth (or adoption), or medical or common conditions related to pregnancy or childbirth. The NSMAD will not deny or remove an employee from a position based on pregnancy, childbirth (or adoption), or medical or common conditions related to pregnancy or childbirth. All decisions by the NSMAD regarding the placement in or continuation of a job of an employee who is pregnant, considering pregnancy, affected by childbirth (or adoption), or experiencing any medical or common conditions related to pregnancy or childbirth will be based on the same consideration that governs all employment decisions—the employee’s ability to satisfactorily perform the essential duties of the job in question with or without reasonable accommodation.

Employees and applicants who have a medical or common condition related to pregnancy or childbirth have the legal right to: 1) ask for reasonable accommodation including, but not limited to, more frequent bathroom breaks, assistance with heavy work, a private space for expressing milk, time off to recover from the pregnancy, or leave necessitated by pregnancy, childbirth (or adoption) or medical or common conditions resulting from pregnancy or childbirth; and 2) continue to work if a reasonable accommodation is available which would allow the employee to continue performing her job. Employees and applicants affected by pregnancy, childbirth (or adoption), or medical or common conditions related to pregnancy or childbirth also have the right to reject an accommodation offered by the NSMAD that the employee does not desire.

If you have a question, complaint, or problem related to pregnancy discrimination, you should relay such question, complaint, or problem to the Executive Director.

Code of Ethics

All employees have an obligation to maintain the highest standards of professionalism. It shall be the duty and role of each employee to strive to:

- a. Effectively administer and implement the policies and procedures as established by the Board of Trustees or the Executive Director.
- b. Provide the highest level of service to the public in an impartial and efficient manner.
- c. Interact with the public in a polite and cooperative manner in order to provide a positive image of NSMAD.
- d. Maintain a spirit of cooperation and teamwork between fellow employees to effectively carry out the goals of NSMAD.
- e. Maintain the highest level of honesty and integrity in all dealings with the public, outside parties and other employees.

Employment

- a. The Board of Trustees hires all full time employees and determines salaries.
- b. The North Shore Mosquito Abatement District hires employees at will; employment with NSMAD does not constitute an employment contract.
- c. Employees may be suspended or discharged by either a vote of the Board of Trustees and/or the direction of the District Executive Director in accordance with State and Federal Labor Law.
- d. All employees are subject to a six month probation period upon employment and are subject to termination without cause.
- e. Employees handling public health insecticides must obtain a valid general standards pesticide applicator certification as authorized by the Illinois department of agriculture within sixty (60) days of their first day of employment. An employee may retest for certification two additional times if not successful on the initial test.
- f. Failure to obtain this certification will disqualify the person for employment with NSMAD.

Attendance and Punctuality

- a. District employees work forty (40) hours per week.
- b. All employees work an eight-hour workday each day from Monday through Friday, which includes one hour for lunch. The regular work schedule is 7:30 AM to 3:30 PM.
- c. Two fifteen (15) minute breaks are permitted per day. These breaks are not to be taken consecutively with any other break. Exceptions will be made at the discretion of the Executive Director.
- d. Employees who cannot report for work on time are expected to call the office (847-446-9434) by the start of the workday (7:30 AM).
- e. Attendance is recorded by the employees' timecards. Employees must clock in and out using their individual timecards and by signing the time book.
- f. Employees are entitled to overtime pay for hours worked beyond the regular daily 8 hour work schedule. Employees must clock in and out for overtime hours as is done for regular work hours. Employees must also submit via email a record of overtime hours to the Executive Director for approval. The Executive Director will forward approved overtime hours to the Internal Operations Manager.
- g. Falsification of these records is grounds for termination.

- h. Vacation and personal days must be approved by the Executive Director in advance. Sick leave may be used in the case of emergency or sudden illness without prior scheduling.
- i. Patterns of absenteeism or tardiness may result in discipline even if the employee has not yet exhausted available paid time off.
- j. Not reporting to work and not calling to report the absence is a no-call/no-show and is subject to discipline. The first instance of a no call/no show will result in a final written warning. The second separate offense may result in termination of employment with no additional disciplinary steps. A no call/no show lasting three days may be considered job abandonment and may be deemed an employee's voluntary resignation of employment.

Employee Records

- a. The Internal Operations Manager maintains all employee records.
- b. Employees who have a change of status, such as address, phone, insurance coverage, or person to contact in case of emergency should notify the Internal Operations Manager in writing.

Performance and Salary Review

- a. Performance appraisals are conducted on an annual cycle. Employees will receive a performance review on a scheduled date each year. The performance appraisal will be discussed, and both the employee and Executive Director will sign the performance appraisal form to ensure that all strengths, areas for improvement and job goals for the next review period have been clearly communicated.
- b. The performance appraisal will be provided to the NSMAD Board of Trustees to aid in evaluating the employee's overall performance and salary level relative to his/her position responsibilities and to determine if a salary increase would be warranted.
- c. Performance-based and cost of living salary increases are not guaranteed and are determined annually by the Board of Trustees.
- d. Performance evaluation forms will be retained in the employee's personnel file.

Employee Conduct

- a. Employees are forbidden from engaging in behaviors that are illegal, disruptive, inappropriate or violent, including but not limited to the following:
 - 1. Drinking alcohol during work hours or coming to work while under the influence of the same.
 - 2. Using illegal drugs or coming to work under the influence of the same any drug.

3. Smoking or using e-cigarettes in a “no smoking” environment, which includes the North Shore Mosquito Abatement District Office, lab, garage or vehicles.
 4. Accepting gratuities for services rendered.
 5. Conducting personal business in company vehicles or on company time.
- b. Employees may be suspended or discharged either by the action of the Executive Director or a vote of the Board of Trustees, in accordance with State and Federal Law.

Holidays

- a. Employees are paid for the following 15 holidays:

Holidays	
New Year’s Day	Labor Day
Martin Luther King Day	Columbus Day
Lincoln’s Birthday	Veterans’ Day
President’s Day	Thanksgiving Day and subsequent Friday
Pulaski Day	Christmas Eve
Memorial Day	Christmas Day
Independence Day	One Floating Holiday

NSMAD observes the official court holidays designated in the Cook County Clerk of the Circuit Court’s Calendar.

Vacation Days

- a. NSMAD full time hourly employees accrue vacation as follows:
1. one (1) year of service - ten (10) vacation days per year after completing the first 6 months of service.
 2. three (3) years of service - fifteen (15) vacation days per year
 3. five (5) years of service - twenty (20) vacation days per year
 4. ten (10) years of service - twenty-five (25) vacation days per year
- b. Vacation days are capped at 25 per year for employees hired after 1/1/1981.
- c. Employees hired prior to 1/1/1981 will retain their previously accrued 30 vacation days per year and will accrue no additional vacation days for additional years of service.
- d. All employees must use their vacation days during the calendar year in which they are earned. Vacation days unused by December 31 of the calendar year will be lost unless granted a carry-over into the next calendar year. Vacation carry-over is granted at the discretion of the Executive Director.

- e. Vacation days carried over into a following calendar year must be used before March 1st of that calendar year or they will be forfeited.
- f. One (1) vacation day equals eight (8) hours.
- g. Vacation days may be used in one hour increments.

Vacation Schedules

- a. In general, vacations are to be scheduled between October 1-April 30, in order to ensure full staff during the mosquito season (May 1-September 30).
- b. Vacations are to be scheduled for a maximum of two (2) consecutive weeks.
- c. The Executive Director must approve vacation requests in advance.
- d. Individuals leaving the employ of the District will be paid for unused vacation days accrued during the year, to be pro-rated for the time employed.

Personal Days

- a. All employees will receive three (3) “personal days” on the first day of each calendar year.
- b. Personal Days must be used during the calendar year in which they are accrued. Unused Personal Days will be forfeited on December 31 of that year.
- c. New employees hired at any time during the year will receive three personal days but will not be eligible to use them until completing four-months of employment (earlier at the discretion of the Executive Director).

Requesting Vacation or Personal Days

- a. Employees email the request for vacation time off or personal time off to the Executive Director, specifying the days requested.
- b. The Executive Director will approve or deny the request and reply to the employee, with a copy to the Internal Operations Manager.
- c. The Internal Operations Manager will respond to the employee with an email detailing the employee’s remaining vacation, personal and sick time for the year.

Sick Days

- a. Full-time employees receive twelve (12) sick days on the first day of each calendar year.
- b. New employees must complete 12 months of employment to receive the annual allocation of 12 sick days but may request to use sick days after completing 4 months of continuous employment at NSMAD.

- c. Permission for early use of sick days is at the discretion of the Executive Director.
- d. Unused sick days carry over to subsequent calendar years and are available for employee use or credit towards retirement credit, as described in IMRF policies.
- e. All employees leaving the employment of the District for any reason are not entitled to compensation for unused sick days. Unused sick days may be otherwise eligible for application to IMRF benefits.

Using Sick Days

- a. Employees who are ill should call the office to inform the Executive Director of their inability to attend work by the beginning of the workday (7:30 AM).
- b. Employees that need to take three (3) consecutive sick days or more should return to work with a release from their doctor, authorizing their ability to return.

Sick Day Pool

- a. A “sick day pool” for employee emergency use will be established with an initial ten (10) days provided by the NSMAD Board of Trustees and supplemented with one day donation from each employee’s 12 per-year-allowed sick days to be placed in the pool annually.
- b. Employee participation in the sick day pool is voluntary and the employee can choose to participate in January of each calendar year.
- c. Sick days accumulated in the pool are accessible to NSMAD full time employees who have depleted their personal accumulation of sick days. With the Board’s approval, that employee may draw from the sick day pool.
- d. If the sick day pool is depleted, the Board will “re-seed” the sick day pool with ten (10) days.
- e. Effect of participation in sick day pool:
 - 1. Employees who donate one (1) sick day to the pool but use no sick days in a year will accumulate the full twelve (12) sick days credited toward IMRF retirement but will carry over only eleven (11) sick days to the following year for NSMAD purposes.

Employee Benefits

- a. Illinois Municipal Retirement Fund
 - 1. The NSMAD is an IMRF participating employer and District employees are required to participate in the fund beginning on the first day of full time employment. IMRF contributions will be deducted from the employee’s biweekly paycheck. The IMRF website, imrf.org, provides a detailed description of IMRF

benefits and the administration of those benefits. IMRF members' and employers' rights and obligations are governed by Article 7 of the Illinois Pension Code.

b. Health Insurance – Medical and Dental/Vision

1. The District provides medical and dental/vision insurance to full-time employees, beginning on the first day of employment. The District reevaluates the medical and dental/vision package offered to employees annually.
2. Opt-Out: Opting out of the NSMAD's medical benefits coverage must be explicitly requested and is at the discretion of the Board of Trustees. If an employee chooses to opt-out of certain benefits, he or she may be entitled to a credit as provided by law. For specific questions about opting-out of the medical benefits, you should contact the Executive Director.
3. The Consolidated Omnibus Budget Reconciliation Act (COBRA) may allow an employee to continue to receive medical insurance coverage under the NSMAD's medical insurance plan when a "qualifying event" such as termination of employment or reduction of an employee's hours would normally result in the loss of eligibility for the insurance. Under COBRA, the employee may continue such coverage (with certain exceptions that will be explained if they apply) by paying the full cost of coverage at the NSMAD, plus an administrative fee set by law. The Executive Director can provide you with additional information on your COBRA rights and the costs of continuation coverage.

c. Spouse/Domestic Partner/Children - Health Insurance Reimbursement

1. Medical and Dental/Vision benefits are available to the spouse, domestic partner or children of an employee at the cost of 50% of the difference between the amount of the total amount of insurance, less the amount the District pays to cover the employee. The difference will be deducted from the employee's biweekly paycheck.

d. Group Life Insurance

1. The District provides group life insurance to employees, beginning on the first day of employment.

e. Tuition Reimbursement Plan

1. Employees are eligible to receive tuition reimbursement at any state school for coursework relevant to the NSMAD mission, with the relevancy to be determined by the Executive Director. The level of reimbursement will be 75% of the cost of tuition if the student achieves a grade of B or higher in their coursework. No books, fees or transportation costs will be covered.

2. It shall be the policy of the District, in order to improve job related skills, to encourage full time employees, to enroll in courses or seminars that will benefit the District with approval and discretion of the Executive Director.

f. Parental Leave Policy

1. After the birth of a child, this policy will allow a birth mother six weeks of paid maternity leave. Two weeks of paid parental leave will be allowed for employees who are spouses, domestic partners or civil union partners of the birth mother. Two weeks of paid leave also would be available for employees that adopt a child. This policy document supersedes any other existing policy or policy document governing the handling of leave taken pursuant to the Family and Medical Leave Act of 1993 (“FMLA”). It is intended to conform with the NSMAD’s obligations under 29 C.F.R. §825.300.

g. Other Paid or Unpaid Leave Policy

1. Bereavement, military (*see* (ii) below), religious, victims of certain crimes (*see* (iii) below), school visitation (*see* (iv) below), and any other such personal leave may qualify for Paid or Unpaid Leave on a case-by-case basis, as otherwise provided by law, and with the approval of the Executive Director.
2. The NSMAD will comply with all applicable federal, state and local laws providing military leave and benefit protections to employees. Please direct any questions or requests for leave to the Executive Director.
3. In accordance with the Victim’s Economic Security and Safety Act (820 ILCS 180/1 *et. seq.*), the NSMAD will provide up to twelve (12) weeks of unpaid leave from work to an employee who is a victim of domestic or sexual violence (or who has a family or household member who is a victim of domestic or sexual violence) to address domestic or sexual violence if the employee is:
 - (a) seeking medical attention for, or recovering from, physical or psychological injuries caused by domestic or sexual violence to the employee or the employee's family or household member;
 - (b) obtaining services from a victim services organization for the employee or the employee's family or household member;
 - (c) obtaining psychological or other counseling for the employee or the employee's family or household member;
 - (d) participating in safety planning, temporarily or permanently relocating, or taking other actions to increase the safety of the employee or the employee's family or household member from future domestic or sexual violence or ensure economic security; or

- (e) seeking legal assistance or remedies to ensure the health and safety of the employee or the employee's family or household member, including preparing for or participating in any civil or criminal legal proceeding related to or derived from domestic or sexual violence.
 - (f) For additional requirements and rights, please consult the Victim's Economic Security and Safety Act (820 ILCS 180/1 *et. seq.*). If you have additional questions or concerns, you may also contact the Executive Director.
4. In accordance with the School Visitation Rights Act (820 ILCS 147/1 *et. seq.*), an employee who has worked for the NSMAD for at least six (6) consecutive months may take up to eight (8) hours of unpaid time off during any school year, and no more than four (4) hours in one day to attend school conferences or classroom activities related to the employee's child, provided that the conference or classroom activity cannot be scheduled during non-working hours. Before taking leave pursuant to this policy, an employee must have exhausted all accrued vacation leave, personal leave, compensatory leave and any other leave that may be granted to the employee except for sick leave and disability. Employees who intend to take leave pursuant to this policy are required to provide a written request at least seven (7) days in advance to their supervisor. In emergency circumstances, only twenty-four (24) hours' notice will be required. The employee is required to consult with his or her supervisor to schedule the leave so as not to unduly disrupt operations. Employees who take leave pursuant to this policy will be given a reasonable opportunity to make up the time off taken on a different day or shift as directed by the Executive Director, but in no circumstances shall such make-up hours be scheduled so that they result in overtime pay to the employee. Employees are not required to make up the time, and if they choose not to do so, shall not be compensated for the time off. Employees are required to provide verification of the school visit to their supervisor within two (2) working days. Failure to provide verification may result in disciplinary action.

Jury Duty

- a. The NSMAD recognizes jury duty as a civic responsibility and every reasonable effort will be made to release an employee from his or her job for jury duty. Employees are required to provide the Executive Director with a copy of the court order immediately upon receiving notice of impending jury duty.
- b. While performing jury duty, an employee will be paid at his or her base rate. Employees are expected to refund to the District any compensation received from the court.
- c. Employees are expected to keep the Executive Director up to date concerning continued jury duty and availability to return to work.

- d. To the extent that this policy conflicts with state or local laws, the state or local laws will prevail.

Open Communication

- a. To ensure effective working relations and encourage open communication channels between employees and management, an Open Door atmosphere is maintained by all management. Employees are encouraged to openly discuss situations or differences with their co-worker or the Executive Director on a one-to-one basis to arrive at an amicable solution and take appropriate action.
- b. Should a situation not resolve itself and an employee feels a complaint is in order to reconcile a work-related problem, the following procedure is available:
 - 1. Discussion of the problem with the Executive Director in an attempt to resolve the issue. If, however, a discussion with the Executive Director is inappropriate, such as when the Executive Director is involved with the issue, or if the discussion does not result in action deemed appropriate by the employee, he/she may proceed to the next step.
 - 2. If the problem continues and is not resolved within “a reasonable amount of time”, following the discussion with the Executive Director, the situation should be brought to the attention of the Board of Trustees.
 - 3. Every effort will be made to resolve the complaint within a reasonable period of time.
- c. The District does not tolerate any form of retaliation against employees availing themselves of this procedure. The availability of this procedure should not be construed, however, as preventing, limiting, or delaying NSMAD from taking any disciplinary action with any employee, up to and including termination of employment.

Anti-Harassment and Sexual Harassment

- a. The North Shore Mosquito Abatement District is committed to maintaining a work environment that is free of harassment, where employees at all levels of the District are free to devote their full attention and best efforts to the job. Accordingly, the District has zero tolerance for harassment. The District will not tolerate verbal or physical conduct by any employee that harasses, disrupts or interferes with another employee’s work performance or that creates an intimidating, offensive or hostile environment. This applies to all persons involved in the operation of the District and prohibits unlawful harassment by any employee of the District, including Supervisors and co-workers. Employees who violate this policy will be subject to disciplinary action up to and including termination.
- b. The term “harassment” for all purposes includes, but is not limited to, offensive language, jokes or other verbal communication, graphic or offensive images, or uninvited physical conduct particularly against employees in protected classes. These classes include, but are

not necessarily limited to race, color, religion, sex, age, sexual orientation, national origin or ancestry, disability, medical condition, marital status, veteran status or any other legally protected status.

- c. Sexual harassment deserves special mention. Examples of prohibited behavior include but are not limited to the following:
 - 1. Repeated sexual flirtations, advances or propositions
 - 2. Continued or repeated verbal abuse of a sexual nature
 - 3. Degrading comments about an employee's appearance
 - 4. The display of sexually suggestive objects or pictures, including any that may be obtained through email, the Internet, or computer software programs
 - 5. Any uninvited physical contact or touching
 - 6. Verbal conduct such as derogatory jokes or comments, slurs or unwanted sexual advances, invitations or comments.
 - 7. Threats or demands to submit to sexual requests as a condition of continued employment, or to avoid some other loss, and offers of employment benefits in return for sexual favors.
 - 8. Retaliation for having reported or threatened to report harassment
- d. The District cannot resolve matters that are not brought to its attention. Any employee who has a complaint or who has witnessed harassment in the workplace should immediately bring the matter to the attention of the Executive Director. The Executive Director will thoroughly and promptly investigate all claims of harassment and take appropriate disciplinary action, if warranted. If an investigation confirms that harassment has occurred, the Executive Director and the Board of Trustees will take corrective action, including discipline of the offender up to and including termination of employment, as appropriate. Complaints of harassment will be kept as confidential as possible. Information will be released only on a "need to know" basis and no employee will be subject to retaliation by the District because they have reported what they believe to be an incident of harassment.

Corporate Software

- a. Software programs are only to be installed on NSMAD personal computers and workstations with approval from the Executive Director and must be for business use only.
- b. The purposes of this policy are to:
 - 1. Assure that all applications installed on NSMAD equipment are properly licensed.

2. Protect the NSMAD computers and networks against virus infections.
 3. Prevent conflicts between incompatible applications.
- c. This policy covers all computer applications, software packages, and programs, including screen savers.

Clothing

- a. Employee attire must be appropriate for their job description.
- b. Clothing must be selected to reduce exposure in the event of an insecticide spill.
- c. Shoes must be substantial; hard-soled shoes or boots are recommended (sandals are not acceptable).
- d. Employees must wear socks or stockings.
- e. Employees may not wear shorts or sweatpants.
- f. Employees must wear proper safety equipment when handling insecticides.
- g. Employees who work in the field are given NSMAD shirts, which are to be worn only while working.
- h. The shirts are the property of the employee; the employee is responsible for the cleaning of the shirts.
- i. Only NSMAD issues hats may be worn.
- j. Employees must wear their NSMAD I.D. badge at all times.
- k. Employees will be sent home without pay if they come to work wearing inappropriate clothing.

Operating NSMAD Vehicles

- a. All vehicle operators must have in their possession a valid driver's license and the Department of Agriculture Operator's License.
- b. NSMAD vehicles may only be operated by and carry NSMAD personnel.
- c. Immediately contact the office to report an accident with a District vehicle.
- d. For non-emergency accidents, immediately contact the office first then call the local police department's non-emergency number. For accidents involving injuries and life threatening situations, immediately call 911 and then call the office. Police must be called for all

accidents, no matter how minor the employee perceives it to be. A copy of the police report must be obtained at the scene and returned to the office.

- e. All traffic violations that an employee receives while driving a NSMAD vehicle are the responsibility of the employee.

Communication

- a. NSMAD-provided internet, cell phones and e-mail are to be used in an appropriate, ethical and professional manner.
- b. Cell Phones
 - 1. Each vehicle will be issued a cell phone for office and field contact.
 - 2. Phones are to be kept turned on at all times.
 - 3. Personal use and/or horseplay between phones is prohibited and will be subject to disciplinary action.
 - 4. Phones and tablets should be replaced in charging stations at the end of the workday.
- c. The North Shore Mosquito Abatement Districts' email, internet and voice mail systems are to be used for business purposes only. All email/internet/voice mail messages and records are considered property of the North Shore Mosquito Abatement District and should be transmitted only to individuals who have a business need to receive them.
- d. All NSMAD records, email/internet/voice mail messages and printed records are subject to disclosure to law enforcement or government officials or to other third parties through subpoena or other process. Therefore, employees should assure that the business information contained in email/internet/voice mail messages is accurate, appropriate and lawful. Abuse of email, internet or voice mail systems and records, through personal use, or use in violation of the law or any policies of the North Shore Mosquito Abatement District is prohibited.
- e. The North Shore Mosquito Abatement District reserves the right to review an employee's email/Internet/voice mail records. Employees have no right or expectation of privacy with respect to email, the Internet or voicemail. The NSMAD owns the computers, equipment and software making up the email, internet and voice mail systems and permits employees to use them in performing the duties of their job for the benefit of the NSMAD. The utilization of internet chat rooms or bulletin boards, or subscriptions to on-line services using the North Shore Mosquito Abatement District property are prohibited, unless for NSMAD business.
- f. Log-on and other passwords may not be shared with any third party, nor may they be shared with another employee, unless such password(s) are requested by an authorized management official of the North Shore Mosquito Abatement District.

- g. The following actions are forbidden, including but not limited to: using disparaging, abusive, profane or offensive language; creating, viewing or displaying materials that might adversely or negatively reflect upon NSMAD or be contrary to NSMAD's best interests; and engaging in any illegal activities, including piracy, cracking, extortion, blackmail, copyright infringement, and unauthorized access of any computers and company-provided equipment; harassment by an employee of any type conducted through electronic mail, the internet or voice mail.
- h. Violations of these policies will result in disciplinary action up to and including termination of employment.

Use of Unofficial Email Accounts and Text Messages

a. Unofficial Email Accounts

1. Employees should not use their personal email accounts for work-related communications. Such work-related communications may constitute public records subject to the Freedom of Information Act (5 ILCS 140/).
2. If an employee uses a personal email account for work-related communication (either inadvertently or when it is unavoidable), he or she must ensure that a copy of such email is maintained in official files.
3. This may include, for example, forwarding a copy of each such email immediately to the official's or employee's government email account.
4. This policy applies to all work-related emails sent or received on private accounts, including receipt of unsolicited work-related emails.

b. Text Messages

1. Employees should not use text messaging on an employee's personal phone for work-related communications. Such work-related communications may constitute public records subject to the Freedom of Information Act (5 ILCS 140/).
2. If an employee uses a text message for work-related communication (either inadvertently or when it is unavoidable), he or she must ensure that a copy of such work-related text message sent or received by the employee is maintained in the official files.
3. The retention and disposal of these records is subject to the Local Records Act (50 ILCS 205/).

Insecticide Use

- a. Employees must wear proper safety clothing when handling insecticide.
- b. Full-time employees who apply pesticide must have a current Public Pesticide Applicator License and a Mosquito Control Operators License.
- c. If an insecticide spill occurs, employees should contain the spill according to appropriate usage standards.
- d. Employees should report spills by telephone to the District office as quickly as possible.

Employee Reimbursement Policy

- a. Unless otherwise provided in 820 ILCS 115/9.5, employees will be reimbursed for reasonable expenses incurred in connection with approved travel on behalf of NSMAD.
- b. Travelers seeking reimbursement should incur the lowest reasonable travel expenses and exercise care to avoid the appearance of impropriety. If a circumstance arises that is not specifically covered in the travel policies, the most conservative course of action should be adopted. If possible, consult with the Executive Director for guidance before incurring unplanned travel expenses.
- c. Travel for staff must be authorized in advance. Travelers should verify with the Executive Director that planned travel is eligible for reimbursement before making travel arrangements.
- d. Upon completion of the trip, and within 30 days, the traveler must submit a Travel Reimbursement Form and supporting documentation to obtain reimbursement of expenses.
- e. Reimbursable expenses(receipts required):
 1. Air Transportation
 - (a) Economy fare ticket
 - (b) Baggage fees
 - (c) Airline change fees if approved by Executive Director
 2. Ground transportation
 - (a) Personal vehicle mileage at current IRS Standard Mileage rat

- (b) Rental car
 - (c) Gas for rental car
 - (d) Tolls
 - (e) Parking (including parking at airport "economy lot" or equivalent)
 - (f) Taxi or shared ride shuttle
 - (g) Train, Subway, Bus
3. Lodging Expenses
 4. Meals are reimbursed as a "per-diem" expense based on the current federal meals and incidental expense allowance for the travel destination and excludes meals that are provided through meeting registrations paid by NSMAD. Per Diem may be increased for certain high cost destinations subject to approval by Executive Director.
- f. Employees will be paid their regular salary for regular workdays in which they travel for travel approved by the District.
 - g. The NSMAD may provide reimbursement for other employee expenses as provided in 820 ILCS 115/9.5, and as approved by the Executive Director.

Executive Director Transition Policy

EXECUTIVE DIRECTOR TRANSITION POLICY

This policy shall be invoked by the President of the Board of Trustees in the event the Executive Director cannot perform his duties for an extended period of time.

Upon invoking this policy:

1. The Executive Director's responsibilities will be divided into Administrative and Operational areas:
 - (a) The Administrative duties to be assumed by the Internal Operations Manager including authority to:
 - i. Mark up all invoices with Budget line item number and obtain President's initialing of invoices, payroll reports, and bank statements at the time of signing checks.
 - ii. Approve requested time off by employees.
 - iii. Accept all grievances in writing and submit by email to President of Board of Trustees for determination if full Board action is necessary.

- iv. Prepare preliminary Budget in August and Year-To-Date Expense Report for Board review at September meeting.
 - v. Obtain copies from Communications Manager of weekly Laboratory reports during season.
 - vi. Prepare and deliver an Executive Director's report for Board of Trustees meeting.
 - vii. Make necessary purchases with District Credit Card for purchases under three thousand dollars.
- (b) The Operational duties to be assumed by the Operations Manager including authority to:
- i. Make all product purchases necessary to productive and efficient operations.
 - ii. Make necessary purchases with District Credit Card for purchases under three thousand dollars.
 - iii. Sign all Purchase Orders submitted by employees, retaining one copy and submitting a second copy to Internal Operations Manager.
 - iv. Prepare, or assign to Vector Biologist, reports sent to Illinois Natural History Survey with mosquito samples processed in NSMAD laboratory.
 - v. Take any discipline action necessary for violations of Summer Intern employee policy by part-time employees. Report same to Internal Operations Manager and President of Board of Trustees.
 - vi. Approve requests for fleet repairs.
 - vii. Determine the need for adult mosquito control and schedule same in coordination with the Communications Manager.
 - viii. Determine and approve overtime assignments for full-time staff.
 - ix. Arrange for pesticide license testing of Summer Interns as necessary.
 - x. Perform training for Larvicide Emergency License as necessary.
 - xi. Maintain contact with state, county and local government agencies in coordination with Communications Manager.
 - xii. Approve or deny requests from news media for on-sight interviews.

Whistleblower Policy

- a. The NSMAD requires employees to observe the highest standards of business and personal ethics in conducting their duties on behalf of the NSMAD. Compliance with all applicable federal, state and local laws, rules and regulations is required. All employees are expected to fulfill their duties honestly and with integrity.
- b. Employees are encouraged and expected to report suspected violations of federal, state or local law, rules or regulations or suspected ethical violations.
- c. The NSMAD prohibits retaliation against any employee who, in good faith, reports a suspected ethics violation or suspected unlawful conduct. Anyone who violates this policy against retaliation is subject to disciplinary action, including but not limited to, termination of employment.
- d. The NSMAD has an open-door policy and expects and encourages employees to address questions, concerns and complaints with their supervisor. If an employee is not comfortable speaking with his/her supervisor or is not satisfied with the supervisor's response, he/she may discuss the matter directly with the Executive Director.

Record Retention Policy

- a. This Policy applies to all physical records generated in the course of the NSMAD's operation, including both original documents and reproductions. It also applies to any and all electronic documents described herein. With respect to retention of records, the NSMAD's policy is in preference of paperless, that is, electronic documents.
- b. The NSMAD's records are Public Records that are subject to the Local Records Act (50 ILCS 205) ("LRA"), which prohibits the destruction of public records. Accordingly, any and all such records shall be retained pursuant to the requirements of the LRA.
- c. The NSMAD's records are also Public Records that are subject to the Freedom of Information Act (5 ILCS 140) ("FOIA"), which may require the production of public records. Accordingly, any and all such records shall be retained for purposes of potential production pursuant to the FOIA.
- d. Subject to applicable law and the interpretation of the LRA and the FOIA, emails and text messaging of the NSMAD's business, both on the NSMAD's equipment and personal devices, might be subject to the LRA and the FOIA. Such emails and text messages should therefore be retained.

Political Activity Policy

- a. The NSMAD prohibits employees from engaging in political activity during working time, in any areas where employees are working, or while in a uniform which identifies them as an employee of the NSMAD. The political activity prohibited by this policy shall be

defined in accordance with the definition of “prohibited political activity” in the State Officials and Employees Ethics Act (5 ILCS 430/1-5).

- b. The NSMAD also prohibits employees from requiring other employees to perform prohibited political activities as part of their job duties, as a condition of employment or during any compensated time off from work.
- c. The NSMAD prohibits employees from misappropriating any property or resources owned by NSMAD for the purposes of political activity.
- d. The NSMAD prohibits employees from awarding or promising to award other employees with additional compensation, employment benefits, bonuses, time off, continued employment or any other employment benefit for performing political activity.
- e. The NSMAD supports the right of employees to support candidates and causes of their own choosing, to participate in the political process and to engage in political activities while on their own time, so long as these political activities do not pose a conflict of interest with the employee’s duties on behalf of the NSMAD.
- f. Any employees with questions or concerns regarding this policy should contact the Executive Director.

Firearms Policy

- a. The NSMAD seeks to protect the safety of employees, visitors and citizens of the NSMAD. In recognition of the Illinois Firearm Concealed Carry Act (430 ILCS 66), the NSMAD adopts the following policy.
 - 1. Pursuant to this policy, employees of the NSMAD are prohibited from carrying or possessing firearms in any of the following areas, regardless of any license or permit that an individual may have which would otherwise authorize the individual to carry firearms, and may be subject to discipline up to and including immediate termination for violating this policy:
 - (a) In any building, portion of a building or real property controlled by the NSMAD;
 - (b) At any work location controlled by the NSMAD;
 - (c) At any job site controlled by the NSMAD;
 - (d) In any vehicle owned, leased or under the control of the NSMAD;
 - (e) At any time or in any area other than the employee’s residence that is associated with the employee’s work with the NSMAD;

- (f) At any time, other than when the employee is working from home while the employee is acting within the scope and course of his/her employment with the NSMAD;
 - (g) In any area prohibited by state law;
 - (h) In any area where firearms are prohibited under federal law.
- b. Any employee who does not possess a valid license to carry a concealed firearm is prohibited from bringing a firearm onto a parking lot owned, leased or under the control of the NSMAD.
- c. An employee of the NSMAD with a valid license to carry a concealed weapon who chooses to carry a concealed weapon while driving to and from work and parking in a parking lot owned, leased or under the control of the NSMAD must store his or her firearm or ammunition concealed in a case within a locked vehicle or locked container out of plain view within the vehicle in the parking area. The Illinois Firearm Concealed Carry Act defines “case” to include a glove compartment or console that completely encloses the concealed firearm and ammunition, the trunk of the vehicle, or a firearm carrying box, shipping box or other container. An employee with a valid license to carry a concealed weapon may carry a concealed weapon within a prohibited parking lot area only for the limited purpose of storing or retrieving a firearm within the vehicle’s trunk, provided the licensee ensures the concealed firearm is unloaded prior to exiting the vehicle. An employee with a valid license to carry a concealed firearm must make certain that the firearm is properly stored in accordance with this policy and Illinois law prior to acting in the course and scope of his or her employment.
- d. Any employee who violates this policy is subject to discipline up to and including termination of employment and shall be considered as acting outside the scope and course of his or her duties and/or employment. The NSMAD will not defend or indemnify any employee for an act or omission in violation of this policy.

North Shore Mosquito Abatement District

Employee Handbook

Employee Handbook Acknowledgment and Receipt

I have received my copy of the Full-Time Staff Employee Handbook dated _____.

The employee handbook describes important information about NSMAD, and I understand that I should consult the Executive Director or Internal Operations Manager regarding any questions not answered in the handbook. I have entered into my employment relationship with NSMAD voluntarily and acknowledge that there is no specified length of employment. Accordingly, either I or NSMAD can terminate the relationship at will, with or without cause, at any time, so long as there is not violation of applicable federal or state law.

I understand and agree that, other than the NSMAD Board of Trustees of NSMAD, no manager, Supervisor or representative of NSMAD has any authority to enter into any agreement for employment other than at will; only the Board of Trustees of NSMAD has the authority to make any such agreement and then only in writing signed by the president of the NSMAD Board of Trustees.

This handbook and the policies and procedures contained herein supersede any and all prior practices, oral or written representations, or statements regarding the terms and conditions of my employment with NSMAD. By distributing this handbook, NSMAD expressly revokes any and all previous policies and procedures that are inconsistent with those contained herein.

I understand that, except for employment-at-will status, any and all policies and practices may be changed at any time by NSMAD. All such changes will be communicated through official notices, and I understand that revised information may supersede, modify or eliminate existing policies.

I understand and agree that nothing in the Employee Handbook creates, or is intended to create, a promise or representation of continued employment and that employment at NSMAD is employment at will, which may be terminated at the will of either NSMAD or myself. Furthermore, I acknowledge that this handbook is neither a contract of employment nor a legal document. I understand and agree that employment and compensation may be terminated with or without cause and with or without notice at any time by NSMAD or myself.

I have received the handbook, and I understand that it is my responsibility to read and comply with the policies contained in this handbook and any revisions made to it.

Name (Printed): _____ Signed: _____

Date: _____

TO BE PLACED IN EMPLOYEE'S PERSONNEL FILE

North Shore Mosquito
Abatement District

Seasonal Employee Handbook

Revised: April 2022
Mark Clifton
Executive Director

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FORWARD

NSMAD Seasonal Employee Handbook and Work Policy

We consider the employees of NSMAD to be one of its most valuable resources. Your work each day helps protect the public from mosquito borne illnesses. This handbook has been written to serve as the guide for the employer/employee relationship, to assure a productive work environment and for your safety. The policies and procedures within this handbook provide only general information and guidelines. It is not intended to be comprehensive or to address all the possible applications of, or exceptions to, the general policies and procedures described. For that reason, if you have any questions concerning eligibility for a particular benefit or the applicability of a policy or practice to you, you should address your specific questions to your immediate Supervisor or the Executive Director. This employee manual is the property of the district and is intended for your personal use and reference as an employee of the North Shore Mosquito Abatement District.

This employee manual supersedes previous employee guides, handbooks or manuals issued by the district. The procedures, practices, policies and benefits described here may be modified or discontinued from time to time. We will inform you of any changes as they occur.

This employee manual is not intended to be a contract (explicit or implied), nor is it intended to otherwise create any legally enforceable obligation on the part of the District. Should any policies in this employee manual conflict with federal, state or local law or regulations, such laws shall prevail. Also, should any policies in this employee manual conflict with an executed employment or confidentiality agreement, the agreement provisions will prevail unless prohibited by law.

Nothing contained in this manual should be construed as a guarantee of continued employment, but rather, employment with the district is on an at will basis. This means that during the course of employment, you are free to end your relationship with the district at any time and for any reason, or no reason, and the district reserves a similar right to sever that relationship. Thus, both you and the district will have the right to terminate your employment at any time, with or without advance notice and with or without cause for any reason not expressly prohibited by law.

Employees, who violate any of the policies of the North Shore Mosquito Abatement District, including those described in this manual, may be subject to disciplinary action up to and including termination.

NSMAD is a local government entity, performing the service of mosquito control funded by applicable taxing authority.

The Illinois Department of Public Health and the United States Environmental Protection Agency regulate the insecticides used in our work.

Equal Employment Opportunity Employer

NSMAD provides equal employment opportunities (EEO) to all employees and applicants for employment without regard to race, color, religion, gender, sexual orientation, gender identity, national origin, age, disability, genetic information, marital status, amnesty or status as a covered veteran in accordance with applicable federal, state and local laws. NSMAD complies with applicable state and local laws governing nondiscrimination in employment in every location in which the company has facilities. This policy applies to all terms and conditions of employment,

including hiring, placement, promotion, termination, layoff, recall, transfer, leaves of absence, compensation and training.

NSMAD expressly prohibits any form of unlawful employee harassment based on race, color, religion, gender, sexual orientation, national origin, age, genetic information, disability or veteran status. Improper interference with the ability of NSMAD employees to perform their expected job duties is absolutely not tolerated.

Code of Ethics

All employees have an obligation to maintain the highest standards of professionalism. It shall be the duty and role of each employee to strive to:

- A. Effectively administer and implement the policies and procedures as established by the Board of Trustees or the Executive Director.
- B. Provide the highest level of service to the public in an impartial and efficient manner.
- C. Interact with the public in a polite and cooperative manner in order to provide a positive image of NSMAD.
- D. Maintain a spirit of cooperation and teamwork between fellow employees to effectively carry out the goals of NSMAD.
- E. Maintain the highest level of honesty and integrity in all dealings with the public, outside parties and other employees.

I. Seasonal Employment

- A. Seasonal employees are hired and employed at the will of the Board of Trustees.
- B. Seasonal employees are employed from April 1 through September 30, depending on weather conditions. A seasonal employees start date or end date may be modified with the permission of a supervisor.
- C. Seasonal employees must be at least 17 years old and possess a valid Illinois driver's license.
- E. Seasonal employees must be able to work in the presence of and with public health pesticides.
- F. Seasonal employees must obtain the appropriate pesticide training and certification required by the State of Illinois. Failure to complete training and maintain required certifications results in disqualification as an NSMAD employee.
 - a. Exemption for seasonal employees who apply only pre-packaged solid mosquito larvicides. Those employees do not need to complete general standards pesticide applicator certification but must complete a minimum one (1) hour training program in use of these materials.
 - b. Employees applying other mosquito control larvicides or adulticides must obtain a valid General Standards Pesticide Certification as authorized by the Illinois Department of Agriculture.
 - c. Employees participating in adult mosquito control spraying (i.e., night spraying) must complete additional training by NSMAD staff.
 - d. Training and testing will be arranged by the Executive Director.

II. Attendance and Punctuality

- A. NSMAD seasonal employees work forty (40) hours per week.
 - 1. Working days are Monday through Friday.
 - 2. Working hours are 7:30 a.m.–3:30 p.m.

- B. Seasonal employees work an eight (8) hour workday, which includes a one-hour lunch period to be taken between 11:30 a.m.–1:00 p.m.
- C. This lunch must be taken within the boundaries of the District map assigned to each employee for the day’s work. This does not include any of the area mall food courts. Some maps may not have any places in which food is available, in such case contact a Supervisor to approve other options.
- D. Unless assigned together, no two NSMAD vehicles are to be parked in the same area for lunch.
- E. Employees are permitted two fifteen (15) minute breaks per day. These breaks are not to be taken consecutively with any other break. Exceptions will be made at the discretion of the Executive Director.
- F. Employees are not to be seen sleeping or appear to be sleeping during work hours, on break or otherwise. Employees violating this will be subject to disciplinary action up to and including termination of employment.
- G. Employees are not permitted to go to their homes during working hours.
- H. Attendance is recorded by the employee’s electronic time card. Employees must clock in and out using the ADP Time Tracking app either on their personal phone or District tablet.
- I. Employees who cannot report for work are expected to call the office (847) 446-9434 ext.1005 or 1003 by the start of the workday.
- J. Seasonal employees not reporting for work by 7:45 a.m. will be asked to go home without pay. Only legitimate reasons will be excused at the discretion of the Executive Director.

III. Clothing

- A. Clothing must be appropriate for field work and should be selected to reduce exposure in the event of an insecticide spill.
- B. Shoes must be substantial; hard-soled shoes or boots are recommended (sandals are not acceptable).
- C. Employees must wear socks or stockings.
- D. When label requirements permit, employees may wear khaki shorts while working in the field. Shorts **must** be nearly knee length with an inseam longer than 7 inches.
- E. Employees may not wear sweatpants or leggings while working in the field.
- F. Lab Technicians are not permitted to wear shorts while working in the lab. Full-length pants and closed toe shoes are required for lab work. Lab technicians are permitted to wear sweatpants or leggings in the lab.
- G. Employees must wear proper safety equipment when handling insecticides.
- H. Employees who work in the field and lab are given NSMAD shirts, which are to be worn only while working.
- I. The shirts are the property of the employee; the employee is responsible for the cleaning of the shirts.
- J. Only NSMAD issued hats may be worn.
- K. Employees must wear their NSMAD I.D. badge.
- L. Employees must wear safety vest at all times when they are on or near a roadway. Employees observed working on or near a roadway without wearing their safety vest will be sent home for the remainder of the day without pay.
- M. Employees will be sent home without pay if they come to work wearing inappropriate clothing.

IV. Compensation

- A. Seasonal employees will be paid on the 15th and the last day of each month of employment.
- B. Due to the possibility that work may be called off due to inclement weather after payroll has been submitted, the first 40 hours that a seasonal employee works for the season will be withheld until the employee's last paycheck for the season.
- C. Employees in their first year of employment with NSMAD will receive \$18 per hour. (\$17 an hour is the pay rate for first year employees who have not passed the general standards pesticide applicator certification)
- D. An employee that is rehired with the District will receive a \$1 per hour raise upon their return the next season.
- E. Current or returning seasonal employees that refer a candidate that is hired by the District will receive a \$350 bonus on their next paycheck. The notice of referral to a Supervisor must occur before the offer of employment is extended to the candidate.
- F. When a seasonal employee successfully passes the general standards pesticide applicator 3 year certification they will receive a \$350 bonus on their next paycheck. (For the 2022 Season: Employees will receive a \$350 bonus retroactively for passing the general standards pesticide applicator 3 year certification exam in 2021)
- G. Due to IMRF standards, seasonal employees will not be able to work over 1,000 hours in a calendar year. This includes paid sick days.
- H. Seasonal employees receive five sick days with pay per season. A seasonal employee should not report to work if they are sick. The employee should report to their Supervisor that they are sick and they will be paid for the day.
- I. Seasonal employees do not receive personal or vacation days with pay.
- J. In the event that weather shortens the end of the workday and an employee has worked more than 4 hours, they will be paid for the entire day.
- K. Seasonal employees working nighttime spray operations will be compensated at 1.5 times the hourly rate appropriate for the number of years of prior employment at NSMAD.

V. Holidays

- A. All employees are paid for the following holidays if employed during the pay period that they occur:
 - 1. Memorial Day
 - 2. Juneteenth
 - 2. Independence Day
 - 3. Labor Day

NSMAD observes the official court holidays designated in the Cook County Clerk of the Circuit Court's Calendar.

VI. Employee Conduct

- A. Employees are forbidden from engaging in behaviors that are illegal, disruptive, inappropriate or violent, including but not limited to the following:
 - 1. Drinking alcohol during work hours, or coming to work while under the influence of the same.
 - 2. Using illegal drugs, or coming to work under the influence of the same.
 - 3. Smoking or using e-cigarettes in a "no smoking" environment, which includes the North Shore Mosquito Abatement District Office, lab, garage or vehicles.
 - 4. Accepting gratuities for services rendered.

5. Conducting personal business in company vehicles or on company time.

B. Employees may be suspended or discharged either by the action of the Executive Director or a vote of the Board of Trustees, in accordance with State and Federal Law.

VII. Open Communications

To ensure effective working relations and encourage open communication channels between employees and management, an Open Door atmosphere is maintained by all management. Employees are encouraged to openly discuss situations or differences with their immediate Supervisor on a one-to-one basis to arrive at an amicable solution and take appropriate action.

Should a situation not resolve itself and an employee feels a complaint is in order to reconcile a work-related problem the following procedure is available:

- (1) Discussion of the problem with the immediate Supervisor in an attempt to resolve the issue. If, however, a discussion with the Supervisor is inappropriate, such as when the Supervisor is involved with the issue, or if the discussion does not result in action deemed satisfactory by the employee, he/she may proceed to discuss the situation with the Executive Director.
- (2) If the problem continues and is not resolved within “a reasonable amount of time”, following the discussion with the Supervisor, the situation should be brought to the attention of the Executive Director.
- (3) Every effort will be made to resolve the complaint within a reasonable period of time.

The District does not tolerate any form of retaliation against employees availing themselves of this procedure. The availability of this procedure should not be construed, however, as preventing, limiting, or delaying NSMAD from taking any disciplinary action with any employee, up to and including termination of employment.

VIII. Anti-Harassment and Sexual Harassment

The North Shore Mosquito Abatement District is committed to maintaining a work environment that is free of harassment, where employees at all levels of the District are free to devote their full attention and best efforts to the job. Accordingly, the District has zero tolerance for harassment. The District will not tolerate verbal or physical conduct by any employee that harasses, disrupts or interferes with another worker’s performance or that creates an intimidating, offensive or hostile environment. This applies to all persons involved in the operation of the District and prohibits unlawful harassment by any employee of the District, including Supervisors and co-workers. Employees who violate this policy will be subject to disciplinary action up to and including termination.

The term “harassment” for all purposes includes, but is not limited to, offensive language, jokes or other verbal communication, graphic or offensive images, or uninvited physical conduct particularly against employees in protected classes. These classes include, but are not necessarily limited to race, color, religion, sex, age, sexual orientation, national origin or ancestry, disability, medical condition, marital status, veteran status or any other legally protected status.

Sexual harassment deserves special mention. Examples of prohibited behavior include but are not limited to the following:

- Repeated sexual flirtations, advances or propositions
- Continued or repeated verbal abuse of a sexual nature

- Degrading comments about an employee’s appearance
- The display of sexually suggestive objects or pictures, including any that may be obtained through email, the Internet, or computer software programs
- Any uninvited physical contact or touching
- Verbal conduct such as derogatory jokes, comments, slurs or unwanted sexual advances, invitations or comments-
- Threats or demands to submit to sexual requests as a condition of continued employment, or to avoid some other loss, and offers of employment benefits in return for sexual favors;
- Retaliation for having reported or threatened to report harassment

The District cannot resolve matters that are not brought to its attention. Any employee who has a complaint or who has witnessed harassment in the workplace should immediately bring the matter to the attention of the Executive Director. The Executive Director will thoroughly and promptly investigate all claims of harassment and take appropriate disciplinary action, if warranted. If an investigation confirms that harassment has occurred, the Executive Director and the Board of Trustees will take corrective action, including discipline of the offender up to and including termination of employment, as appropriate. Complaints of harassment will be kept as confidential as possible. Information will be released only on a “need to know” basis and no employee will be subject to retaliation by the District because they have reported what they believe to be an incident of harassment.

Employees will be required to complete the Illinois version of sexual harassment prevention training available on the Safety Source platform on an annual basis.

IX. Methods of Mosquito Control

- A. The NSMAD operates under a permit mandated by the U.S. Clean Water Act. Compliance with the National Pollutant Discharge Elimination System (NPDES) provisions is regulated by the Illinois Environmental Protection Agency. Seasonal employee training for compliance with the requirements of the permit will be provided at the beginning of the season. This training will include detailed instruction in determining an “action threshold” and an appropriate pest management option.
- B. The NSMAD conducts problem identification of public health risk and nuisance mosquitoes found within our District through a fully integrated Pest Management Program. The utilization of adult mosquito monitoring devices and visual larval surveillance are used to determine the best course of action for each unique situation. Control is sought in two mosquito habitats:
 - 1. Urban
 - a. Catch basin and storm drains
 - b. Residential containers
 - c. Unmaintained pools and ponds
 - d. Retention ponds
 - e. Dense vegetation
 - f. Drainage ditches
 - g. Construction sites
 - h. Open fields
 - 2. Forested
 - a. Flooded woodlots
 - b. Roadside ditches
 - c. Bicycle Paths

- C. The NSMAD acts to decrease the probability of mosquito and vector borne diseases and minimize the annoyance of nuisance biting mosquitoes within the District. These actions include various forms of control including source reduction, larval control and adult mosquito control.

X. Daily Procedures for NSMAD Seasonal Employees

- A. At the start of each day, before leaving the building, every employee is responsible to assure that they are properly equipped with the following items:

- 1. Gloves, Rubber Boots, safety vest
- 2. Work Assignment
- 3. Paper Towels
- 4. Necessary Larval Control products
- 5. Communication Systems

- B. Basic Procedure for Treating Breeding Sites:

- 1. Turn on the *Mars Light* – yellow warning light on top of truck.
- 2. Check mirrors for traffic following too close.
- 3. Make sure both sides of the street are treated.
- 4. When site is completed, assure the treatment is recorded in the tablet computer.
- 5. When moving to a new area, turn off your Mars Light.

When treating an off-road breeding site,

- 1. Ring the doorbell of the residence.
- 2. If no one is home, proceed cautiously to the breeding site.
- 3. Leave a door hanger with the date, time, what you treated, and your name written legibly.
- 4. When site is completed, assure the treatment is recorded in the tablet computer.

- C. End of the Day

- 1.. Park NSMAD vehicle in NSMAD garage.
- 2. Clock out and sign out with Supervisor approval.
- 3. Vehicles are to be cleaned and washed every Friday.
- 4. Phones and tablets should be replaced in charging stations.

- D. Inclement Weather

- 1. If it begins to rain, pull over to the side of the road and wait for instructions from a Supervisor.
- 2. If you have not heard from a Supervisor after a half hour (30 minutes) from the time it started raining, call a Supervisor for further instruction.

XI. Communication

- A. NSMAD Office

- 1. Each vehicle will be issued a cell phone for office and field contact.

2. Personal use and/or horseplay between phones are prohibited and will be subject to disciplinary action.
3. Phones are to be kept turned on at all times.

B. Engaging with the Public

1. The primary goal of the NSMAD is providing excellent service to the citizens and taxpayers of Cook County. Employees are obligated not only to perform their responsibilities to the public, but to do so in a respectful manner. Therefore, all members of the public and fellow employees must be afforded courteous treatment.

C. Requests from Identified Members of the Media

1. Employees are prohibited from speaking to the media regard in any matters pertaining to NSMAD during the work day. All NSMAD related media inquiries must be forwarded to the Executive Director or the Communications Director.

XII. Operating NSMAD Vehicles

- A. All NSMAD vehicle operators must be NSMAD employees and have in their possession a valid driver's license.
- B. All NSMAD vehicle operators must complete the driver safety training specified by NSMAD.
- C. Only NSMAD employees are permitted as passengers in an NSMAD vehicle.
- D. When operating NSMAD vehicles, you must obey all Illinois vehicle laws.
 1. Illinois law requires both passenger and driver to wear a seatbelt in a vehicle.
 2. Report any seat belts that are not in working order to a Supervisor and/or the Executive Director.
 3. All traffic violations that an employee receives while driving a NSMAD vehicle are the employee's responsibility.
- E. Vehicle gas tanks are to be filled when the gas gauge indicates that the gas level is between a half and a quarter of a tank.
 1. Each fleet truck has a linked credit card that is stored in the truck, for staff to use to fill the fleet vehicle gas tank.
 2. The credit card can be used at any gas station and are very similar in process to buying gas with your own credit card.
 3. Each credit card has a chip. When inserted at the gas pump, it may or may not register "Voyager" as the name of the card.
 4. The gas pump will then prompt you to enter the odometer reading of the vehicle and press **Enter**. (Just round up to the next mile, do not include decimals.)
 5. The pump will then prompt you for our code. Our code is the Northfield zip code, **60093**.
 6. Then you will fill up the truck normally. Please keep the receipt and give it to your Supervisor or leave it in the bin on the Internal Operations Manager's door.
 7. If a card is lost, please report it to a supervisor as soon as possible.

Note: There are controls on each card to prevent misuse. The cards do not work for anything else other than gas, do not work on the weekends and have various other controls to prevent theft.

- F. Employees are prohibited from operating electronic devices of any kind not issued by the NSMAD while driving. Wearing of stereo headphones while driving is a violation of Illinois law.
- G. NSMAD vehicles must remain within the district boundaries at all times. Locations of NSMAD vehicles are monitored with GPS equipment.

The North Shore Mosquito Abatement District includes the following areas:

- Deerfield – Cook County only
- Evanston
- Glencoe
- Glenview – east of Pflingsten Road and Washington Road
- Golf
- Lincolnwood
- Morton Grove – east of Washington Road
- Skokie
- Winnetka
- Wilmette
- Niles – east of Harlem Avenue
- Northbrook – east of Pflingsten Road

Chicago and Lake County are out of bounds; any summer employee found out of the noted boundaries will be disciplined.

- H. Always remove the keys from a NSMAD vehicle when you leave vehicle in the field.
 - 1. No rider is permitted in NSMAD vehicles unless assigned by a Supervisor at the beginning of the workday.
 - 2. Under no circumstances are employees to carry non-district personnel in assigned NSMAD vehicles.
- I. Any vehicle problems are to be reported to a Supervisor and/or the Executive Director.
- J. NSMAD vehicles are not to be driven off road unless instructed by a Supervisor. If a vehicle gets stuck off road or elsewhere, call a Supervisor immediately.
- K. No riders are permitted in the bed of the truck or on the open tailgate when the vehicle is in motion.

XIII. Traffic Altercations

- A. Always show courtesy to all drivers involved in the accident, no aggressive behavior will be tolerated.
- B. For non-emergency accidents, immediately contact the office first then call the local police department's non-emergency number. For accidents involving injuries and life threatening situations, immediately call 911 and then call the office. Police must be called for all accidents, no matter how minor the employee perceives it to be. A copy of the police report must be obtained at the scene and returned to the office.
- C. A copy of the vehicle registration and insurance is clipped to visor or in the glovebox.
- D. Collect from other driver:
 - License plate number
 - Driver's license: Name, Address, License number, Phone number.
 - Registration: Owner's name, address
 - Name of insurance company, Phone number

- Witness names, if possible
- Provide the same information to the other driver.
- E. Take pictures of the vehicles involved and setting using the NSMAD-provided cell phone, when possible.
- F. All traffic violations that an employee receives while driving a NSMAD vehicle are the responsibility of the employee.

XIV. Insecticide Use

- A. When handling pesticides, you are responsible for your personal protection and for the protection of other people and the area.
- B. All employees must wear proper Personal Protective Equipment (P.P.E.) when handling an insecticide. (Gloves, boots, etc.)
- C. If any person comes in contact with a concentrated insecticide, immediately follow the safety procedures on the label and contact the NSMAD office.
- D. If an insecticide spill occurs in the field,
 - 1. Ensure appropriate personal protection is taken.
 - 2. Utilize the supplied spill kit.
 - 3. Stop spill from spreading.
 - 4. Stop spill at the source.
 - 5. Inform the Operations Manager as to the nature of the incident.

North Shore Mosquito Abatement District

Seasonal Employee Handbook Acknowledgment and Receipt

I have received my copy of the Seasonal Employee Handbook dated _____.

The employee handbook describes important information about NSMAD, and I understand that I should consult the Executive Director, Field Operations Manager, or direct Supervisor regarding any questions not answered in the handbook. I have entered into my employment relationship with NSMAD voluntarily and acknowledge that there is no specified length of employment. Accordingly, either I or NSMAD can terminate the relationship at will, with or without cause, at any time, so long as there is not violation of applicable federal or state law.

I understand and agree that, other than the NSMAD Board of Trustees of NSMAD, no manager, Supervisor or representative of NSMAD has any authority to enter into any agreement for employment other than at will; only the Board of Trustees of NSMAD has the authority to make any such agreement and then only in writing signed by the president of the NSMAD Board of Trustees.

This handbook and the policies and procedures contained herein supersede any and all prior practices, oral or written representations, or statements regarding the terms and conditions of my employment with NSMAD. By distributing this handbook, NSMAD expressly revokes any and all previous policies and procedures that are inconsistent with those contained herein.

I understand that, except for employment-at-will status, any and all policies and practices may be changed at any time by NSMAD. All such changes will be communicated through official notices, and I understand that revised information may supersede, modify or eliminate existing policies.

I understand and agree that nothing in the Employee Handbook creates, or is intended to create, a promise or representation of continued employment and that employment at NSMAD is employment at will, which may be terminated at the will of either NSMAD or myself. Furthermore, I acknowledge that this handbook is neither a contract of employment nor a legal document. I understand and agree that employment and compensation may be terminated with or without cause and with or without notice at any time by NSMAD or myself.

I have received the handbook, and I understand that it is my responsibility to read and comply with the policies contained in this handbook and any revisions made to it.

Name (Printed): _____

Signed: _____

Date: _____

TO BE PLACED IN EMPLOYEE'S PERSONNEL FILE

TITLE: COMMUNICATIONS MANAGER

Qualifications

- Bachelor's degree in public relations, marketing communications or journalism and a minimum of three years experience.
- Good knowledge of: organization, structure, and ethics of electronic and print news media.
- Some knowledge of: audiovisual production, to include video productions, still photography, slide shows or computer-generated graphics related to public information objectives.
- Excellent computer skills including experience with Macintosh and Windows OS, MS Office, Adobe graphics and publishing software and website management tools.
- Experience: planning, developing, and implementing major public information projects; developing and making oral presentations to groups; interpreting and translating technical or specialized material into information usable by the public; producing or editing informational material using electronic word processing; gathering and preparing general interest news or writing a variety of news releases that were published or broadcast in mass media for the general public; developing, writing, and producing informational material for mass distribution and specialized audiences; overseeing contractors/vendors or supervising staff in producing publications.

Responsibilities

1. Program management:
 - a. Establish internal and external information and public relations standards, goals, priorities;
 - b. Assess public reaction to management policy and program decisions;
 - c. Advise management on public information strategies, legislative activities, media presentations and publications.
2. Information/public relations:

- a. Direct staff in wide range of information/public relations activities;
- b. Develop communication programs/activities to address critical issues facing NSMAD;
- c. Manage relations with news media through news releases, press conferences, briefings, interviews, media appearances, correspondence and reports;
- d. Write or edit material for the news media and the public at request of the Director or Board Of Trustees;
- e. Serve as media spokesperson;
- f. Guide and train staff at all levels in developing written or oral presentations;
- g. Handle emergency communications involving a crisis or unforeseen circumstances requiring research, writing, editing and speaking;
- h. Edit brochures, publications, correspondence and other materials for accuracy, clarity and compliance with District standards and policies;
- i. Develop and approve advertising and PSAs;
- j. Coordinate and direct special projects such as public and legislative forums and special-issue campaigns; plans, works with staff to write and produce annual reports;
- k. Represent the District in interagency efforts and public-private partnerships requiring public information and education;
- l. Monitor legislative activity for the District or the Board and advise appropriate staff to ensure effective coverage and response;
- m. Manage website content, video conferencing equipment and social media platforms for the District as well as;

- n. Maintain brand identity standards for the District including logos and images used by staff;
- o. Work with staff to create additional images and graphic design as needed;
- p. Represent the District at public events, presentations and other outreach activities.

3. Other duties as assigned.

SALARY: Determined by the Board of Trustees

Job Description 10/25/2018

North Shore Mosquito Abatement District

TITLE: EXECUTIVE DIRECTOR

QUALIFICATIONS:

- ❑ Bachelor's degree
- ❑ Experience in pesticide applications.
- ❑ Have or be able to obtain Illinois Dept. of Agriculture pesticide license for both applicators and operators.
- ❑ A record of successfully supervising and motivating others.
- ❑ Local or County government administrative experience a plus.

RESPONSIBILITIES:

1. Manage and supervise all full time and part time employees.
2. Overall management of laboratory operations, mosquito surveillance, and fleet maintenance.
3. Oversee administrative and budgetary issues including preparation of preliminary annual budget for Trustee consideration at the September meeting.
4. Attend all Board of Trustees meetings and present District, Office, and laboratory reports.
5. Administer District policies and maintain Policy Manuals for full time and part time employees.
6. Initial and identify budget line item for all invoices before payment.
7. Manage progressive discipline procedures, including verbal and written warning, suspensions, terminations and other consequences as necessary.
8. Maintain records and notify Board of accidents or injuries involving District employees and/or residents.
9. Represent NSMAD at conventions and professional events as well as media requests for onsite interviews.
10. Complete performance appraisals and conduct performance appraisal interviews.
11. Make recommendations to the Board regarding salary increases and promotions.
12. Approve all overtime assignments.
13. Train employees and counsel as necessary.
14. Ensure appropriate staff coverage at all times.
15. Approve expenditures of up to \$5,000 and make recommendations to the Board for expenditures exceeding \$5,000.
16. Hire, discipline, and dismiss part time employees.

SALARY: Determined by the Board of Trustees

Job Description 2015 North Shore Mosquito Abatement District

TITLE: FULL-TIME FIELD AND SHOP TECHNICIAN

Qualifications:

- Associate's (A.A. or A.S.) degree required. Bachelor's degree (B.A. or B.S.) preferred. A high school diploma and equivalent mosquito control experience may be substituted for educational requirements on a year for year basis.
- Ability to pass the Illinois Applicator and Operator licensing exam for mosquito control within 90 days of hire.
- Possess a valid Illinois driver's license with no moving violations within the past year.
- Ability to maintain Illinois Applicator and Operator license.
- Knowledge of applicable state and federal pesticide regulations.
- Basic knowledge of mosquito biology.
- Basic computer skills (email, word processing, spreadsheets, data entry).
- Excellent communication/customer service skills.
- Able to pass a NSMAD-specified defensive driving course.
- Ability to lift and carry 60 pounds.
- Ability to carry backpack blower through forested areas and uneven terrain.
- Ability to work nights (paid overtime) as needed during the summer mosquito season.
- Ability to work independently.
- Ability to safely operate motor vehicles, light machinery, and other application equipment as required.
- Ability to follow Federal Insecticide Fungicide Rodenticide Act (FIFRA) label instructions and comply with personal protection equipment requirements.
- Ability to communicate NSMAD policies and procedures to the general public.
- Ability to obtain and maintain B/C operator license for onsite gas tank and maintain compliance with State Fire Marshall regulations.
- Ability to keep detailed records of inventories and inspections.

Responsibilities:

1. Conduct regular surveys of entire district to identify and validate

new and existing mosquito production sites.

2. Conduct regular validation surveys and update catch-basin maps.
3. Conduct regular inspections of floodwater and catch-basin larval habitats and record observations in a tablet computer using FieldSeeker GIS.
4. Apply larval control treatments by hand, with backpack granular and liquid application equipment, as well as, truck-based granular and liquid application equipment to catch basins and floodwater mosquito production sites.
5. Maintain the Catch Basin Quality Control program in coordination with the Operations Manager and Field Supervisor, including scheduling of inspections using CB control program matrix, daily observation of samples from IGR-treated basins, data entry and management, graphic report development.
6. Monitor and survey flood conditions in the district that influence mosquito production.
7. Provide guidance, leadership and training to Seasonal Field Technicians as required.
8. Conduct nighttime ULV adult mosquito control operations as needed (paid overtime).
9. Conduct barrier treatments for adult mosquito control as needed.
10. Respond to resident complaints of mosquitoes and conduct domestic inspections.
11. Assist in the maintenance of all surveillance and application equipment that is issued by the District for field use.
12. Assist in the maintenance and cleaning of District shop facilities including storeroom and garage.
13. Assist the GIS Manager in the maintenance of physical mosquito control material inventory and shop inventory.
14. Maintain records of annual fire extinguisher/fire suppression system inspections.
15. Assist with public outreach program as needed.
16. Assist with organizing and facilitating the recycling of collected tires.
16. Perform additional duties as assigned.

SALARY: Determined by the Board of Trustees

Job Description 10/20/2022

North Shore Mosquito Abatement District

TITLE: GIS MANAGER

QUALIFICATIONS:

- Possess and maintain state Applicator and Operator licensing for mosquito control.
- Knowledge of applicable state and federal pesticide regulations
- Familiarity with mosquito control practices including ULV adulticide application and various larvicide formulation application.
- Supervisory experience.
- ArcGIS and FieldSeeker GIS skills.
- Excellent communication skills, particularly as related to training subordinates.

RESPONSIBILITIES:

1. Manage District's overall ArcGIS data management program:
 - A. Maintain internal and external web-based GIS applications.
 - i. "Areas We Serve".
 - ii. CB treatment progress and staff assignment.
 - iii. "Service Request" web form.
 - iv. Other web-apps as necessary.
 - B. Maintain internal and external web-based GIS informational dashboards.
 - i. "Real-time Treatment Info".
 - ii. Main operational dashboard.
 - iii. Operational planning dashboard/Staff assignments.
 - iv. Annual CB product rotation treatment map.
 - v. Cook County FPD shared dashboard.
 - vi. Other informational dashboards as necessary.
 - C. Maintain, audit, and edit District boundaries.
 - i. District boundaries and operational treatment maps.
 - ii. Restricted Areas.
 - iii. IDNR preserves.
 - iv. Endangered Species exclusion areas.
 - v. Do-Not-Spray properties.
 - vi. Other GIS maps as necessary.

- D. Keep Director, Operations Manager and other NSMAD staff informed of changes and new developments to internal and external District boundaries.
 - E. Develop new GIS capabilities as necessary to support the website, operational decision-making, or data reporting in coordination with the Communications Manager, Executive Director and Operations Manager.
2. Manage all FieldSeeker GIS and Windows ULV treatment maps, databases, feature tables, layers, and features.
- A. Maintain FieldSeeker and Windows ULV treatment maps, as well as all GIS features, layers, feature tables, and associated treatment databases.
 - B. Edit all maps, layers, features, feature tables and databases as necessary to ensure accuracy and useability.
 - C. Manage periodic audits and ground-truthing of all maps in coordination with the Operations Manager and other field staff.
 - D. Coordinate with Frontier Precision and ESRI as required to ensure any updates or changes to operational software are implemented to maintain reliability of data infrastructure.
 - E. Produce maps and reports as needed.
3. Manage communications equipment, licenses, and accounts.
- A. Ensure all necessary updates are installed to all field tablets, Windows ULV tablets, field phones, office phones, GPS units as required to maintain operational reliability.
 - B. Manage all technology and telecommunications accounts (office phones, mobile phones, mobile tablets, wireless data, wired data, GPS tracking of vehicles etc.) related to operational field work.
 - C. Maintain employee lists, cell phone and tablet user lists and other equipment assignments as necessary.
 - D. Manage all product licenses, user accounts, and data usage requirements with various service providers.
 - E. Maintain the physical condition of tablets, phones, GPS transponders, GPS guidance and other field equipment to ensure that adequate equipment is available for field staff.
 - F. Monitor the status of all equipment and recommend updates, changes, and replacements as necessary.

- G. Maintain an inventory database of all equipment.
4. Manage insecticide inventory
 - A. Ensure the accuracy of truck and warehouse inventories.
 - B. Ensure the accuracy of FieldSeeker treatment databases.
 - C. Maintain Safety Data Sheets (SDS) for operational materials in trucks and NSMAD facilities.
 5. Serve as the main training and troubleshooting lead for District mobile technologies.
 - A. Maintain a seasonal program of tablet, GPS, phone, and FieldSeeker training for field staff.
 - B. Ensure field staff receive adequate training each season and be available to provide additional instruction as required.
 - C. Provide GIS and mobile tablet troubleshooting and other assistance as necessary to field staff to minimize down-time and interruptions.
 - D. Update and maintain FieldSeeker training manual as necessary.
 - E. Serve as a backup to the Operations Manager in providing daily assignments to field staff if necessary.
 6. Perform additional duties as assigned by the Executive Director or Operations Manager.

SALARY: Determined by the Board of Trustees

Job Description 09/27/2022
North Shore Mosquito Abatement District

TITLE: INTERNAL OPERATIONS MANAGER

Qualifications:

- ❑ A Bachelor's degree (MS preferred) from an accredited four-year college or university in public or business administration or closely related field; and
- ❑ 5 years of professional level office management experience particularly as related to municipal agencies
- ❑ Experience with QuickBooks and Microsoft Office software
- ❑ Experience with payroll systems

Responsibilities:

- ❑ Maintain District records that include insurance, payroll, taxes and individual personnel.
- ❑ Attend monthly Board meetings to take direction from the Board of Trustees and offer information on the day to day operations of the District.
- ❑ Prepare all correspondence and minutes for Board of Trustee meetings.
- ❑ Provide office accounting services, including Accounts Payable and Accounts Receivable, using QuickBooks software. Also includes preparation of audit materials in advance to shorten audit process.
- ❑ Provide clerical services as requested by Director and Board of Trustees.
- ❑ Maintain adult mosquito control notification and shut off lists. Provide notification and information to residents on the day of adult mosquito control.
- ❑ Interact with the public on the main information line and write up requests for the field staff.
- ❑ Maintain current certification as the FOIA and OMA administrator for the District and Notary Public.
- ❑ Attend seminars to update the District on FOIA, OMA, and changes to financial reporting enacted by the State Comptroller's Office.
- ❑ Have a full understanding of fiscal budgeting issues in order to assist the Director and Board of Trustees with appropriation ordinances, fund restriction, budgeting and other long term fiscal planning issues.
- ❑ Evaluate contracts and service agreements to reduce costs.
- ❑ Order (and in some cases pick-up) supplies for the shop, lunchroom and office.
- ❑ Maintain a high level of performance in expected duties while assisting the Director in larger scale projects and initiatives. This includes planning,

identifying possible grant requirements, executing the bid process and supervision of these projects.

- ❑ Have a high level of understanding of every aspect of how the District functions.
- ❑ Maintain confidentiality.
- ❑ Assist Executive Director as needed in HR policy reference and implementation.
- ❑ Administration and maintenance of records for yearly state required HR courses and acknowledgment of rights and protections for employees.
- ❑ Maintain time clock database, records, and assist full time and seasonal staff with logins and technical issues.
- ❑ Obtain yearly records disposal certificates from the State of Illinois for proper record retention and destruction.
- ❑ Maintain secure gas card system for District fleet trucks.
- ❑ Perform additional duties as assigned.

SALARY: Determined by the Board of Trustees

Job Description 10/20/2022

North Shore Mosquito Abatement District

TITLE: OPERATIONS MANAGER

QUALIFICATIONS:

- ❑ Possess and maintain state Applicator and Operator licensing for mosquito control.
- ❑ Knowledge of applicable state and federal pesticide regulations
- ❑ Familiarity with mosquito control practices including ULV adulticide application and various larvicide formulation application.
- ❑ Experience in and knowledge of all aspects of operational integrated mosquito management programs.
- ❑ Knowledge of mosquito biology, mosquito transmitted diseases, mosquito surveillance.
- ❑ Basic pesticide knowledge and specific knowledge about formulations for mosquito control.
- ❑ Supervisory – personnel management experience
- ❑ Experience in laboratory policies and procedures as related to mosquito and West Nile virus surveillance.
- ❑ Bachelor's degree or experience indicating extensive expertise in appropriate areas.

RESPONSIBILITIES:

1. Manage all NSMAD operations related to:
 - a. Surveillance of larval production sites, adult mosquito abundance, and West Nile virus activity
 - b. In consultation with the Director, determine, implement and evaluate all control operations.
 - i. Source reduction
 - ii. Larvicide application
 - iii. Adulticide application
2. Recruit, supervise, train, and evaluate technicians for seasonal field operations.
 - a. Develop and deliver annual training for seasonal staff.
 - b. Assure all seasonal staff are appropriately licensed to conduct pesticide application.
 - c. Manage staff scheduling to assure adequate coverage for all essential functions during the mosquito season.

3. Coordinate all full-time and seasonal employee assignments for larviciding, adulticiding, and surveillance.
4. Conduct field operations (e.g., inspections, site visits larval and adult surveillance, larval control, adult control) as needed.
5. In consultation with the Director, manage pesticide inventory, including determination of which formulations to use, ordering, and appropriate storage.
6. Use Sentinel GIS system and other electronic data management tools to maintain control operations records and pesticide use records. Provide regular updates to the Director.
7. With the Director, review quality control program results generated by the Chief Inspector. Modify QC and control operations as needed.
8. Participate in the design and implementation of NSMAD operational research programs.
9. Provide timely responses to resident inquiries.
10. Perform additional duties as assigned.

SALARY:

Determined by the Board of Trustees

Job Description 10/25/2018
North Shore Mosquito Abatement District

TITLE: VECTOR BIOLOGIST AND LABORATORY MANAGER

QUALIFICATIONS:

- ❑ Bachelor's degree in a biological science such as medical entomology, parasitology, biology, zoology, or equivalent experience.
- ❑ Background in entomology with knowledge of mosquito biology, mosquito-transmitted diseases.
- ❑ Knowledge of integrated mosquito control practices.
- ❑ Knowledge of arbovirus surveillance practices.
- ❑ Possess and maintain state Applicator and Operator licensing for pesticide applications and mosquito control.
- ❑ Excellent laboratory skills related to identification of mosquitoes and protocols for WNV testing.
- ❑ Experience in data management using Microsoft Excel and related computer software.
- ❑ Excellent communication skills.

RESPONSIBILITIES:

1. Manage NSMAD mosquito and arbovirus surveillance programs as directed by Executive Director.
 - a. Conduct mosquito surveillance program using a variety of trap types appropriate for the surveillance objectives.
 - b. Identify and test mosquitoes, enter results into appropriate spreadsheets and other data management tools, provide timely reports to Director and Operations Manager.
 - c. Maintain electronic files of historical surveillance data.
 - d. Prepare technical reports for weekly surveillance updates during the mosquito season and for end of year reports.
2. Maintain appropriate BSL-2 level laboratory practices.
3. Maintain a regular program of insecticide resistance monitoring.
4. Maintain a regular program of tick surveillance.
5. Recruit, supervise, train, evaluate and provide daily supervision to seasonal staff hired by NSMAD or interns provided by collaborators to support the NSMAD surveillance program.
6. Assist in conducting special research/surveillance projects as needed. Prepare appropriate reports of results.
7. Participate in public education and outreach programs as needed.

8. Other duties as assigned.

SALARY: Determined by the Board of Trustees

Job Description 10/25/2018

North Shore Mosquito Abatement District

Seasonal Field Technician

Rate

\$15.00/hr

Employment status

Full Time, Seasonal, up to 1,000 hours in a calendar year

A resume and completed NSMAD application must be submitted

General Description

This position executes all field inspections, pesticide applications, and related work as directed by the Executive Director, Operations Manager or Field Supervisor. Operates and/or directs the maintenance and operations of District issued equipment. Performs inspections and applications within a specific geographic territory as assigned. Maintains electronic data logs utilizing mobile FieldSeeker software and hard copy data records. Interacts with property owners and the general public to provide information regarding mosquito control activities.

Essential Functions:

1. Collect mosquito-focused field data utilizing handheld tablet computer and GIS-based software applications; maintain hand-written data records.
2. Conduct inspections of known mosquito breeding sites and inspections to locate and establish baseline data on previously unknown mosquito breeding sites.
3. Conduct pesticide applications to mosquito breeding sites utilizing proper and legal application techniques.
4. Maintain all surveillance and application equipment that is issued by the District for field use, and the cleaning and maintenance of District facilities as directed by Supervisor.
5. Prepare proper documentation for all inspections, applications, chemical use, and work orders issued by the District for reporting purposes.
6. Operation and upkeep of a service vehicle.
7. Handle constituent concerns at the point of contact in the field for the purpose of explaining the District's program and soliciting the cooperation of property owners in vector control.
8. Attend and participate in weekly accountability meetings with NSMAD supervisory staff.
9. Perform other related duties as assigned by the Operations Manager or Field Supervisor.

Minimum Qualifications

1. Minimum 18 years of age.
2. Possess a valid Illinois driver's license with no moving violations within the past year.

Knowledge, Skills, and Abilities

1. Able to pass an NSMAD-specified defensive driving course.
2. Able to pass the Illinois Department of Agriculture Pesticide Operator General Standards examination.
3. Ability to lift and carry 60 pounds.

Special Working Conditions

The physical demands described are those that must be met by the employee to successfully perform the essential functions of this job. The District provides reasonable accommodations to enable individuals with disabilities to perform the essential functions.

Medium Work – Incumbent(s) must have complete and normal mobility of arms to reach and dexterity of hands to grasp and manipulate small objects; be able to stand, stoop, reach and bend, feel, talk, hear, see;

and walk on uneven terrain such as fields, dirt banks, natural and improved stream and river or drainage beds, and shallow ponds.

Mobility – Incumbent(s) must be able to perform the essential functions of this position with or without accommodation to include the ability to bend at the knees and waist, perform repetitive motions associated with computer use; and occasionally reach overhead.

Other Conditions – Incumbent(s) may be exposed to potentially hazardous substances; may be available on call for evening and weekend emergencies, as assigned; travel within and out of county; work, when necessary, in extreme weather without effective protection from heat, cold, and rain; work in neighborhoods with potential exposure to uncooperative persons and/or dog (animal) bites.

Environmental Conditions – More than half of the work may be performed under adverse or unusual conditions such as, but not limited to, cold, hot, wet, dark, dusty, noisy and cramped surroundings, in all weather conditions and may include the requirement that heavy protective gear and equipment be carried. The employee may be exposed to hazards, which include insect bites, chemicals, fumes and dust.

Shifts are eight hours in duration (7:30 a.m. to 3:30 p.m.), 40 hours weekly, but may be extended or altered in the event of emergency. Position has "on-call" responsibilities and may be required to work, with paid overtime compensation, to conduct nighttime ULV adult mosquito control operations as needed on short notice.

Selection Process

Applications will be screened in relation to the criteria outlined in the job bulletin. Candidates with qualifications and experience that best relate to the position will be invited to participate in the selection process. Possession of the minimum qualifications *does not* ensure continuing in the recruitment process. Reasonable accommodations for applicants with disabilities may be requested by calling the NSMAD Office at least three (3) business days in advance of the scheduled examination/interview date. District employment is contingent upon successful appointment by the NSMAD Board of Trustees. The successful candidate will be required to provide identification and employment eligibility as outlined in the Immigration Reform and Control Act. The provisions of this bulletin do not constitute an expressed or implied contract. Any provision contained in this announcement may be modified or revoked without notice. *The North Shore Mosquito Abatement District, in compliance with all applicable Federal and State laws, does not discriminate on the basis of age (40 or older), disability, equal pay/compensation, genetic information, harassment, national origin, pregnancy, race/color, religion, retaliation, sex and sexual harassment in its employment actions, policies, procedures, or practices.*

Job Description 1/21/2020

North Shore Mosquito Abatement District

Seasonal Field Technician

Rate

\$15.00/hr

\$22.50/hr for Night-Spray Operator Duties

Employment status

Full Time, Seasonal, up to 1,000 hours in a calendar year

A resume and completed NSMAD application must be submitted

General Description

This position executes all field inspections, pesticide applications, and related work as directed by the Executive Director, Operations Manager or Field Supervisor. Operates and/or directs the maintenance and operations of District issued equipment. Performs inspections and applications within a specific geographic territory as assigned. Maintains electronic data logs utilizing mobile FieldSeeker software and hard copy data records. Interacts with property owners and the general public to provide information regarding mosquito control activities. Must be available for nighttime ULV adult mosquito control operations as conditions warrant (8:00 PM and 12:00 AM).

Essential Functions:

1. Collect mosquito-focused field data utilizing handheld tablet computer and specialized software applications; maintain hand-written data records.
2. Conduct inspections of known mosquito breeding sites and inspections to locate and establish baseline data on previously unknown mosquito breeding sites.
3. Conduct pesticide applications to mosquito breeding sites utilizing proper and legal application techniques.
4. Maintain all surveillance and application equipment that is issued by the District for field use, and the cleaning and maintenance of District facilities as directed by Supervisor.
5. Prepare proper documentation for all inspections, applications, chemical use, and work orders issued by the District for reporting purposes.
6. Operation and upkeep of a District service vehicle.
7. Handle constituent concerns at the point of contact in the field for the purpose of explaining the District's program and soliciting the cooperation of property owners in vector control.
8. Attend and participate in weekly accountability meetings with NSMAD supervisory staff.
9. Perform other related duties as assigned by the Operations Manager or Field

Supervisor.

10. Attend and participate in planning meetings with NSMAD supervisory staff the evening of spray operations.
11. Operate a handheld tablet computer and mobile software applications associated with spray equipment and operations.
12. Drive a District spray truck in assigned areas and apply pesticides according to label requirements and supervisor instructions.
13. Safe operation and upkeep of a District service vehicle during night-driving conditions.

Minimum Qualifications

1. Minimum 18 years of age.
2. Possess a valid Illinois driver's license with no moving violations within the past year.
3. Prior experience and training in performing nighttime spray operations, or successful completion of on-the-job training at NSMAD.

Knowledge, Skills, and Abilities

1. Able to pass an NSMAD-specified defensive driving course.
2. Able to pass the Illinois Department of Agriculture Pesticide Operator General Standards examination.
3. Ability to lift and carry 60 pounds.

Special Working Conditions

The physical demands described are those that must be met by the employee to successfully perform the essential functions of this job. The District provides reasonable accommodations to enable individuals with disabilities to perform the essential functions.

Medium Work – Incumbent(s) must have complete and normal mobility of arms to reach and dexterity of hands to grasp and manipulate small objects; be able to stand, stoop, reach and bend, feel, talk, hear, see; and walk on uneven terrain such as fields, dirt banks, natural and improved stream and river or drainage beds, and shallow ponds.

Mobility – Incumbent(s) must be able to perform the essential functions of this position with or without accommodation to include the ability to bend at the knees and waist, perform repetitive motions associated with computer use; and occasionally reach overhead.

Other Conditions – Incumbent(s) may be exposed to potentially hazardous substances; may be available on call for evening and weekend emergencies, as

assigned; travel within and out of county; work, when necessary, in extreme weather without effective protection from heat, cold, and rain; work in neighborhoods with potential exposure to uncooperative persons and/or dog (animal) bites.

Environmental Conditions – More than half of the work may be performed under adverse or unusual conditions such as, but not limited to, cold, hot, wet, dark, dusty, noisy and cramped surroundings, in all weather conditions and may include the requirement that heavy protective gear and equipment be carried. The employee may be exposed to hazards, which include insect bites, chemicals, fumes and dust.

Shifts are eight hours in duration (7:30 a.m. to 3:30 p.m.), 40 hours weekly, but may be extended or altered in the event of emergency. Position has "on-call" responsibilities and may be required to work, with paid overtime compensation, to conduct nighttime ULV adult mosquito control operations as needed on short notice.

Selection Process

Applications will be screened in relation to the criteria outlined in the job bulletin. Candidates with qualifications and experience that best relate to the position will be invited to participate in the selection process. Possession of the minimum qualifications *does not* ensure continuing in the recruitment process. Reasonable accommodations for applicants with disabilities may be requested by calling the NSMAD Office at least three (3) business days in advance of the scheduled examination/interview date. District employment is contingent upon successful appointment by the NSMAD Board of Trustees. The successful candidate will be required to provide identification and employment eligibility as outlined in the Immigration Reform and Control Act. The provisions of this bulletin do not constitute an expressed or implied contract. Any provision contained in this announcement may be modified or revoked without notice. *The North Shore Mosquito Abatement District, in compliance with all applicable Federal and State laws, does not discriminate on the basis of age (40 or older), disability, equal pay/compensation, genetic information, harassment, national origin, pregnancy, race/color, religion, retaliation, sex and sexual harassment in its employment actions, policies, procedures, or practices.*

Job Description 2/22/2021

North Shore Mosquito Abatement District

Seasonal Laboratory Intern

Rate

\$15.00/hr

Employment status

Full Time, Seasonal, up to 1,000 hours in a calendar year

A resume and completed NSMAD application must be submitted

General Description

Under the supervision of the NSMAD Vector Biologist, supports District mosquito-based surveillance activities to monitor mosquito abundance and activity patterns and to develop indicators of West Nile Virus activity in vector mosquitoes. Collects mosquitoes from regular trap sites, identifies mosquitoes to species, prepares specimens for testing, conducts RAMP and PCR-based tests for WNV detection, and performs data entry tasks. Other responsibilities include collection of mosquito eggs from field sites, rearing of mosquitoes, daily maintenance of mosquito insectary and resistance assays using the CDC bottle bioassay. Participates in special surveillance projects as needed including tick surveillance and other seasonal research projects.

Essential Functions:

1. Conduct field work that may entail extensive walking in hot or rainy conditions.
2. Identify adult mosquito specimens to species.
3. Maintain proper BSL-2 laboratory practices when appropriate for the work being conducted.
4. Collect mosquito-focused field data utilizing handheld tablet computer and GIS-based software applications; maintain hand-written and electronic data records.
5. Conduct inspections of known mosquito breeding sites.
6. Handle pesticides in a laboratory setting for mosquito resistance monitoring.

Minimum Qualifications

1. Minimum 18 years of age.
2. Possess a valid Illinois driver's license with no moving violations within the past year.

Knowledge, Skills, and Abilities

1. Able to pass an NSMAD-specified defensive driving course.
2. Able to pass the Illinois Department of Agriculture Pesticide Operator General Standards examination.
3. Able to pass NSMAD-specified laboratory safety course.
4. Ability to lift and carry 40 pounds.

Special Working Conditions

The physical demands described are those that must be met by the employee to successfully perform the essential functions of this job. The District provides reasonable accommodations to enable individuals with disabilities to perform the essential functions.

Medium Work – Incumbent(s) must have complete and normal mobility of arms to reach and dexterity of hands to grasp and manipulate small objects; be able to stand, stoop, reach and bend,

feel, talk, hear, see; and walk on uneven terrain such as fields, dirt banks, natural and improved stream and river or drainage beds, and shallow ponds.

Mobility – Incumbent(s) must be able to perform the essential functions of this position with or without accommodation to include the ability to bend at the knees and waist, perform repetitive motions associated with computer use; and occasionally reach overhead.

Other Conditions – Incumbent(s) may be exposed to and handle potentially hazardous substances; may be available on call for evening and weekend emergencies, as assigned; travel within and out of county; work, when necessary, in extreme weather without effective protection from heat, cold, and rain; work in neighborhoods with potential exposure to uncooperative persons and/or dog (animal) bites.

Environmental Conditions – More than half of the work may be performed under adverse or unusual conditions such as, but not limited to, cold, hot, wet, dark, dusty, noisy and cramped surroundings, in all weather conditions and may include the requirement that heavy protective gear and equipment be carried. The employee may be exposed to hazards, which include insect bites, chemicals, fumes and dust.

Shifts are eight hours in duration (7:30 a.m. to 3:30 p.m.), 40 hours weekly, but may be extended or altered in the event of emergency. Position has "on-call" responsibilities and may be required to work, with paid overtime compensation, to conduct nighttime ULV adult mosquito control operations as needed on short notice.

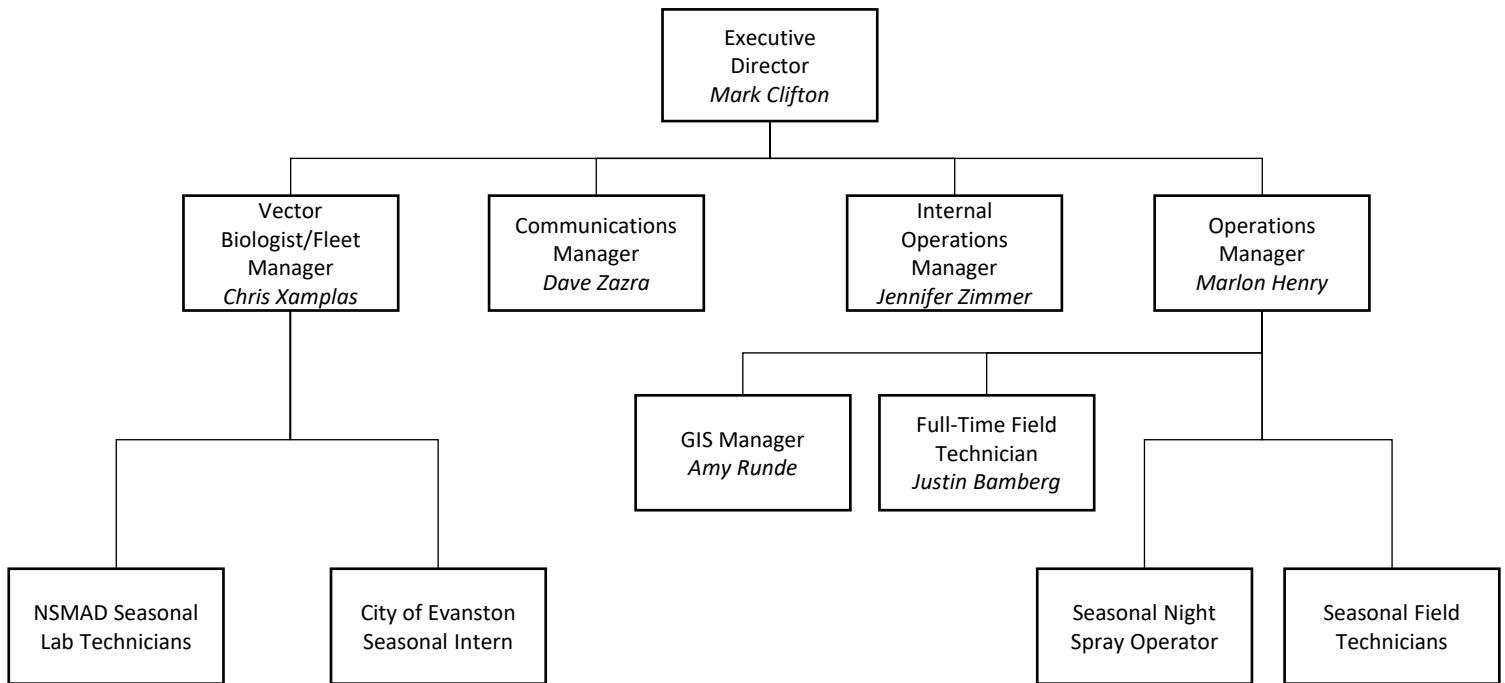
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Job Description 1/21/2020

North Shore Mosquito Abatement District

North Shore Mosquito Abatement District
Organizational Chart



BEST PRACTICES FOR INTEGRATED MOSQUITO MANAGEMENT



November 2021

The 2021 update of the American Mosquito Control Association’s *Best Practices for Integrated Mosquito Management* manual was funded by the Centers for Disease Control and Prevention (CDC). The goal of this update was to include an additional focus on managing populations of *Culex* mosquitoes and reducing the transmission of arboviruses such as West Nile virus and St. Louis encephalitis virus. A consultant was hired to project manage, write, and edit the revised manual. A steering committee of mosquito control and public health professionals was assembled to guide the update, write portions of the text, and review the revised sections. Additional contributors were recruited to compile information during a workshop, write sections of the text, review the newly drafted sections and manual, and design the final layout.

Acknowledgments: Cris Beilstein of Elevation Collaborative was instrumental in the co-facilitation and co-design of the workshop. Cristina Cook co-designed the visual layout of the manual. Dr. Sydney Crawley from North Carolina State University and Megan MacNee from the American Mosquito Control Association reviewed the final copy and layout of the manual.

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Updated November 2021

2021 UPDATE

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BEST MANAGEMENT PRACTICES QUICK REFERENCE GUIDE

I. Mosquitoes, Disease, and Management

- Mosquitoes can spread pathogens when an adult, female mosquito takes a bloodmeal.
- In the U.S., arboviruses spread by mosquitoes cause human disease and death annually.
- There are several arboviruses of concern within the U.S., such as WNV, EEEV, and SLEV, and a continual concern that new arboviruses could be introduced from other areas of the world.
- Many different mosquito species exist in the U.S. and occur in diverse habitats; however, all have an aquatic stage and require water to complete their life cycle.
- *Culex* and *Aedes* are two of the most important mosquito genera in the U.S. and responsible for vectoring different viruses to humans (Table 1).
- Integrated mosquito management (IMM) is the best way to manage mosquitoes and reduce disease transmission.
- The core of IMM includes five critical tactics:
 - Engaging the community regularly
 - Surveillance, mapping, and rational setting of action thresholds
 - Physical control through manipulation of mosquito habitat
 - Larval and adult mosquito management using multiple tools including source reduction, biological control, and the application of targeted insecticides
 - Monitoring for insecticide efficacy and resistance

Table 1. West Nile virus *Culex* vectors by region^a

Region of the U.S. ^b	Species	Importance	General Habitat
Northeast	<i>Culex pipiens</i>	Primary	Suburban and urban; ranging from woodland pools to organically rich waters (ditches); artificial containers; underground man-made larval habitats (catch basins and cisterns)
	<i>Culex restuans</i>		
	<i>Culex salinarius</i>	Secondary	Suburban and urban; coastal areas; saline, brackish, and adjacent fresh waters
Southeast	<i>Culex quinquefasciatus</i>	Primary	Urban and suburban areas; ranging from woodland pools to organically rich waters; artificial containers; backyard containers, exposed septic systems, and other sewage systems
	<i>Culex nigripalpus</i>		Rural and vegetative
	<i>Culex salinarius</i>	Secondary	Suburban and urban; coastal areas; saline, brackish, and adjacent fresh waters
	<i>Culex erraticus</i>		Slow moving ponds with dense root mats; rural and vegetative ^{1, 2}

Table 1. West Nile virus *Culex* vectors by region^a (Continued)

Region of the U.S. ^b	Species	Importance	General Habitat
Northwest	<i>Culex pipiens</i>	Primary	Urban; underground man-made structures, storm drains, catch basins, wastewater systems, gutters, drains, and fountains
	<i>Culex tarsalis</i>		Rural; variety of freshwater habitats, commonly agricultural land, including irrigated pastures; unchlorinated pools, flood channels, and less often artificial containers
	<i>Culex salinarius</i>	Secondary	Suburban and urban; coastal areas; saline, brackish, and adjacent fresh waters
Southwest	<i>Culex quinquefasciatus</i>	Primary	Urban; underground man-made structures, storm drains, catch basins, wastewater systems, gutters, drains, and fountains
	<i>Culex tarsalis</i>		Rural; variety of freshwater habitats, commonly agricultural land; unchlorinated pools, flood channels, and less often artificial containers
	<i>Culex salinarius</i>	Secondary	Suburban and urban; coastal areas; saline, brackish, and adjacent fresh waters
	<i>Culex stigmatosoma</i>		High organic content water sources such as winery waste, sewage, log, and dairy ponds ³
	<i>Culex erythrothorax</i>		Wetland habitats with emergent vegetation ⁴

^a When using this table to determine the *Culex* species of importance, always verify the species is in the specific area. Once verified, research the species in greater detail to better understand preferred hosts, habitats, timing, and pathogens vectored.

^b Unless otherwise indicated, general habitat information came from Rochlin et al., 2019.

II. Community Engagement

- Community engagement is a continual, ever-evolving process where a mosquito control program routinely interacts with the public to create trust, increase knowledge, build relationships, understand citizen perceptions and behaviors, and recruit citizen participation.
- Strategy:
 - Build relationships with the public before a health crisis begins to effectively control mosquitoes and reduce disease transmission.
 - Find trusted messengers and partner with organizations who can serve as a bridge to hard-to-reach communities.
 - Design effective communication and engagement plans that can address
 - misconceptions and facilitate a favorable outcome for all.
- Learn about the audience through activities such as surveys, focus groups, conversations at community events, and listening sessions.
- Develop educational materials with a focused goal in mind that is based on understanding the audience and evaluate the effectiveness of materials to ensure the desired impact was achieved.
- Tips:
 - Ensure that public engagement materials use clear and concise content that incorporates visuals and design elements that all members of the desired audience can interpret regardless of language, economic, or literacy barriers.
 - Evaluating a community engagement

- program before, during, and after implementation establishes a baseline for comparison and allows campaigns to be modified and improved.
- o Many resources to engage the public on different mosquito activities already exist and can be utilized immediately.
- o Engaging the public and creating educational materials in the appropriate context ensures program goals are well received, understood, meaningful, and impactful.
- o Creativity in podcasts, comics, and web videos may increase interest and memorability.
- o Example channels to engage the public include (but are not limited to): social media, local media, school events, community activities, and live events.

III. Mosquito Surveillance

- Surveillance for native and exotic species must be part of a mosquito control program regardless of the threat of disease outbreaks. Surveillance should be developed proactively to justify mosquito control funding requirements and risk for arboviral disease transmission. Action thresholds should be specified ahead of surveillance, and data collected from surveillance programs should be used in conjunction with action thresholds to determine the appropriate response.
- Mosquito species composition, when possible, should be identified at the mosquito control program level.
- Identification of problem species is a first step toward defining and developing control efforts.
- Profiling an area and maintaining a larval habitat database should be another early step in surveillance programs.
- Any surveillance is better than no surveillance (Table 2).
- Egg and immature surveillance:
 - o Methods will vary based on the genus and species targeted.
 - o Oviposition cups use a variety of substrates placed in an artificial container, usually a small black plastic cup or jar, to collect container *Aedes* eggs. In urban environments, *Culex quinquefasciatus* egg rafts can be found in these cups or other containers with highly organic water.
 - o Sampling for non-container-inhabiting larval mosquitoes such as *Culex*, *Psorophora*, *Anopheles*, *Culiseta*, and *Aedes* involves the use of dippers, nets, aquatic light traps, and suction methods.
 - Dippers are the primary method for collecting larvae.
 - Train personnel and standardize techniques to improve inter-sample reliability.
- Adult surveillance:
 - o Adult surveillance uses traps, service calls, capturing resting mosquitoes, and landing catch rates.
 - o In general, traps are the primary tool used for surveillance and can broadly be categorized as light traps (with and without bait attractants), non-attractant traps, gravid/oviposition traps, resting traps, and emergence traps.
 - o Traps may be more efficient at collecting mosquitoes in different physiological states such as host-seeking vs. gravid.
 - o Individual mosquito species and species composition vary based on region and habitat.
 - o Using multiple trap types in a given area can provide more accurate measures of mosquito abundance, physiological status, and species composition.

Table 2. Common traps and techniques to measure adult mosquito abundance and species composition^a

Method ^b	How It Works	Mosquitoes Most Efficiently Collected	Special Considerations ^c	Pros	Cons
New Jersey Light Trap⁵	Light at the top of the traps draws mosquitoes to the trap and suction force created by a fan draws mosquitoes into the trap; uses a kill jar for collection as opposed to a net.	<i>Anopheles</i> , <i>Culex</i> spp.; collects many kinds of mosquitoes; captures non-target insects	Inefficient for container <i>Aedes</i> and <i>Cx. quinquefasciatus</i> ; place traps in areas/habitats where you expect to find targeted mosquitoes; keep away from smoke and other chemical repellents	Easy to use; very general collection; historical standard; can operate continuously every day of the season for detailed trends in mosquito activity	Requires AC power sources; light is the primary attractant; captures non-target insects; mosquitoes may be difficult to identify due to damage; collection jars require killing agent such as alcohol and naphthalene
CDC Light Trap⁶	Light attracts mosquitoes. As mosquitoes get closer, suction force created by a fan draws mosquitoes into the trap. May be supplemented with CO ₂ for more efficacy.	<i>Aedes</i> , <i>Psorophora</i> , <i>Culex</i> spp.; collects many kinds of mosquitoes; good for host-seeking mosquitoes	Place where you expect mosquitoes; add dry ice to catch <i>Culex</i> spp.	Portable; easy to use; uses carbon dioxide and light as attractants; collects live mosquitoes suitable for arbovirus testing	Can be labor intensive; may be challenging to access dry ice/ carbon dioxide tanks
BG Sentinel Trap⁷	Collapsible container with a suction device and collection bag in the middle. Mosquitoes are lured to trap using multiple methods: visual cues, chemical cues, and convection currents.	<i>Ae. aegypti</i> , <i>Ae. albopictus</i> , <i>Cx. quinquefasciatus</i> ; good for host seeking mosquitoes	Adding carbon dioxide creates a very effective trap capturing many additional species	Collects live mosquitoes for arbovirus testing, very efficient for urban <i>Ae. aegypti</i> and <i>Ae. albopictus</i>	Octenol and BG lure not as effective at luring <i>Culex</i> ; relatively expensive
CDC Gravid Trap⁸	A bucket or washbasin filled with attractive water emulsion attracts mosquitoes seeking oviposition habitat. Trap placed on top of bucket or washbasin with suction from above draws mosquitoes into trap.	<i>Culex</i> spp.; good for blood fed mosquitoes; other species depends on oviflure (water emulsion)	Place on ground near vegetation; good from disease surveillance standpoint; use consistent water emulsion recipe	Relatively inexpensive; great for egg laying mosquitoes	Baited water is very smelly; not as effective for <i>Cx. tarsalis</i>
Gravid <i>Aedes</i> Trap (GAT)⁹	Small black cup mimics habitat for container breeding mosquitoes. Cup filled with water and different substrates line the cup. Mosquitoes collected on a sticky surface.	<i>Ae. aegypti</i> , <i>Ae. albopictus</i> , <i>Cx. quinquefasciatus</i> ; good for blood fed mosquitoes	Must be checked and water changed weekly to avoid becoming breeding sites	Inexpensive; can be distributed easily to the community	Not efficient for many mosquito species; sticky trap collections can damage specimens
Landing Catch Rates	Human test subject wearing appropriate PPE stands in a location, and the number of mosquitoes that land on the person in a specified time frame (often 1 minute) are counted. ¹⁰	Host-seeking mosquitoes; mosquitoes that feed on humans	Variables that affect data: human test subject, weather, time of day, location, duration of observation, and body part observed; create one protocol and avoid altering it	Inexpensive; common method	Personnel at risk of bites and contracting virus during times of outbreaks; not good for ornithophilic <i>Culex</i> spp.; labor intensive; sight identification required, sometimes impossible to identify

^a Any surveillance is better than no surveillance even if the ideal trap is unavailable.

^b All traps have the potential to catch many different mosquito species; however, traps will be more efficient for some species over others. Thus, the mosquito target influences trap choice. Use 2 to 3 traps simultaneously to effectively sample species distribution and abundance of mosquitoes in an area.

^c Mosquitoes collected for arbovirus testing should be collected alive and stored using a cold chain. Verify mosquito handling requirements with arbovirus testing group.

- o Once a trap type and location have been chosen and proven effective, consistent sampling is key to generating data that can be compared across time and space.
- Landing rates can be an important surveillance tool, especially during emergency response; however, they can be labor-intensive and may be associated with potential health risks to field staff in areas with known arbovirus transmission. Proper handling and identification of specimens and record keeping are vital to a successful program.

IV. Arbovirus Surveillance

- Preventing the transmission of disease-causing pathogens from mosquitoes to humans is the goal of public health focused mosquito control programs.
- Arbovirus surveillance provides valuable information to determine when and what interventions are appropriate; however, preventing every mosquito-borne outbreak every time is impossible because disease transmission is complex.
- Mosquito control programs wanting to

incorporate arbovirus surveillance are encouraged to start by reaching out to their local or state health departments.

- Arbovirus surveillance should occur in several locations to determine when and where arbovirus presence occurs.
- Communication between mosquito control personnel and other public health professionals facilitates the flow of information and allows inter-agency collaboration to better serve the public.
- Arbovirus surveillance begins with collecting samples and then testing for the presence of virus.
- Surveillance methods conducted by mosquito control include testing sentinel bird flocks, wild birds, dead birds, and/or mosquitoes.

V. Mapping

- Mapping data collected regarding weather, mosquito and arbovirus surveillance, non-chemical control measures, insecticide applications, insecticide resistance, and more allows mosquito control professionals

to visualize the entire mosquito management environment and interpret data to make evidence-based decisions.

- Utilize appropriate map scale to visualize mosquito habitats, adult populations, control efforts, and insecticide resistance activity to uncover trends or hot spots.
- Record surveillance and control data at the finest spatiotemporal level that is operationally feasible.
- Ensure that all data are linked to spatial information (latitude/longitude) for use in geographic information systems (Table 3).
- When possible, quantify mosquito population sizes using standardized methods that allow comparisons among locations.
- Use statistical methods only when supported by observed data; estimates based on modeling should convey the amount of uncertainty.

VI. Setting Action Thresholds

- Field data/information that is collected should be used to make management

Table 3. Examples of common geographic information systems (GIS) software

Name ^a	Functionality	Provider	Website
ArcGIS	Full-featured GIS (desktop or online)	Environmental Systems Research Institute (ESRI)	http://www.esri.com/software/arcgis
QGIS	Full-featured GIS (desktop or online)	QGIS Development Community (open- source)	http://qgis.org/
GRASS GIS	Full-featured GIS (desktop)	GRASS Development Team (open-source)	https://grass.osgeo.org/
PostGIS	Spatial database management system	PostGIS Development Community (open- source)	http://www.postgis.net/
MapInfo Pro	Full-featured GIS (desktop)	Precisely	https://www.precisely.com/product/precisely-mapinfo/mapinfo-pro
Scribble Maps	Full-featured GIS (online)	Scribble Maps	https://www.scribblemaps.com/

^a This table is not meant to be comprehensive but provide a sample of different resources at the time of this publication. Additional software may be available. New software may be developed in the future, and information in this table will change accordingly.

- decisions on best response plans.
- Proactively determine threshold values that necessitate control measures.
 - o Action thresholds should remain flexible to adapt to future changes in nuisance levels and potential public health risks.
- Decisions to initiate control measures are based on analyses of data (Table 4) including immature and adult surveillance, arbovirus surveillance, climatic conditions, and other information.
 - o The use of baseline information gathered from historical surveillance data is advisable to establish action thresholds.
- The method used to determine if and when control measures are instituted vary based on species and type of surveillance:
 - o Mosquito Surveillance Data: Adult abundance and species composition data, and/or number and pattern of service requests can be used for *Culex*, container *Aedes*, and other vectors. For immature mosquitoes, the standard surveillance method is the number of larvae and pupae observed in a standard “dip count.”
 - o Arbovirus Surveillance Data: Minimum field infection rates, maximum likelihood

Table 4. CDC recommendations for a phased response to WNV surveillance data¹¹

Risk Category	Probability of Human outbreak	Definition	Recommended Activities and Responses
0	None	<ul style="list-style-type: none"> • No adult mosquito biting activity (vector species). 	<ul style="list-style-type: none"> • Develop and review WNV response plan. • Review mosquito control program. • Maintain source reduction projects. • Secure surveillance and control resources necessary to enable emergency response. • Review and update community outreach and public education programs. • Establish communication with other public health professionals such as department of agriculture, veterinarians, public health departments, etc.
1	Low	<ul style="list-style-type: none"> • Biting adult mosquitoes active (vector species). -or- • Epizootic activity expected based on onset of transmission in prior years. -or- • Limited or sporadic epizootic activity in birds or mosquitoes. 	<ul style="list-style-type: none"> • Response as in category 0, plus: • Conduct Integrated Mosquito Management program to monitor and reduce vector mosquito abundance. • Conduct environmental surveillance to monitor virus activity (mosquitoes, sentinel chickens, avian mortality, etc.). • Initiate community outreach and public education programs focused on personal protection and residential source reduction.
2	High	<ul style="list-style-type: none"> • Sustained transmission activity in mosquitoes or birds. -or- • Horse cases reported. -or- • Human case or viremic blood donor reported. 	<ul style="list-style-type: none"> • Response as in category 1 plus: • Intensify and expand adult mosquito control in areas using ground and/or aerial applications where surveillance indicates human risk. • Intensify visible activities in community to increase attention to WNV transmission risk and personal protection measures. • Work with collaborators, elected officials, community leaders, etc. to address high risk populations. • Intensify and expand surveillance for human cases.
3	Outbreak in progress	<ul style="list-style-type: none"> • Conditions favor continued transmission to humans (i.e., persistent high infection rate in mosquitoes, continued avian mortality, seasonal mosquito population decreases not anticipated for weeks). -or- • Multiple confirmed human cases or viremic blood donors. 	<ul style="list-style-type: none"> • Response as in category 2 plus: • Intensify emergency adult mosquito control program repeating applications as necessary to achieve adequate control. • Monitor effectiveness of vector control efforts. • Emphasize urgency of personal protection, including use of repellents, through community leaders and media.

estimates, vector index, seroconversion in sentinel chickens, dead bird infection, equine infection, and human case data can be used for *Culex* and other mosquito vectors.

- Vector index uses both mosquito abundance and infection rate data and better predicts the risk of human disease than either alone.
- o *Ae. aegypti* and *Ae. albopictus*: In addition to vector and arbovirus surveillance data, larval abundance data from dip counts or container indices (may not correlate closely with adult catches) can be used to establish action thresholds for *Ae. aegypti* and *Ae. albopictus*.
- The decision to apply larvicides and adulticides **must be** based on data and not solely on weather patterns and/or temporal frequency intervals (i.e., “spraying every Wednesday”). Thresholds for adulticiding may consider more than just larval or adult mosquito numbers and may also include arboviral activity.

VII. Larval Source Reduction

- Source reduction is the single most effective means of mosquito control.
- Source reduction begins with a detailed larval survey, including key container types and geographic characteristics (uneven ground, ditches, etc.) that serve as sources for larval mosquito development (Table 5).
- Efforts should be made to prevent and eliminate stagnant bodies of water. For example, using rip rap at culverts that reduce water energetics and prevent scouring of soil, removing depressions in the ground that cause pooling, introducing a current into bodies of water, and/or eliminating the overflow of water can prevent the development of a potential

mosquito breeding habitat.

- Empty all containers of standing water. Even a cap full of water can be used as a mosquito breeding source.
- Consider both natural and manufactured containers when making efforts to control container-inhabiting mosquitoes.
- Removal of conspicuous open containers may “push” *Ae. albopictus* females to lay eggs in cryptic habitats; therefore, locating and assessing all potential container sources is critical, including those that may be more difficult to identify, access, and treat with larvicides.
- Community engagement and partnership to develop land management plans is essential for successful habitat modification and eventual source reduction practices.

VIII. Biological Control

- Large aquatic predators such as *Gambusia* spp. fish may control mosquito larvae to some extent in permanent or semi-permanent bodies of water but will not control adult mosquitoes fully.
- Small aquatic predators (e.g., *Toxorhynchites* spp. mosquitoes) may reduce the number of mosquitoes in an area; however, using these organisms present challenges such as: cost of rearing and implementation and susceptibility to other mosquito control methods.
- Implementing biological control programs require significant resources, thus, the cost of implementation may be prohibitive.
- Proper agencies must be consulted, and the potential environmental impact must be assessed before releasing any biological control agent.
- Bats, birds, and dragonfly nymphs are not an effective component of a mosquito control program.

Table 5. Example *Ae. aegypti*, *Ae. albopictus*, and *Culex spp. habitats*^a

<i>Ae. aegypti</i> and <i>Ae. albopictus</i>	Urban <i>Culex</i>	Suburban/ Rural <i>Culex</i>
Birdbaths	Catch basins	Kids play equipment
Cemetery urns	Road-side ditches	Waste lagoons
Unmaintained swimming pools	Curbside gutters	Federal properties
Pet bowls	Abandoned swimming pools	Sewage treatment plants
Septic ditches	Ornamental pods	Snow melt
Lawn swales	Junkyards	Retention & detention basins
Street catch basins	Retention basins	Agricultural fields
Depressions in tarp covers	Illegal dump sites	Illegal dump sites
Tires, new & used	Tires	Rice fields
Broken appliances	Abandoned buildings	Tire piles
Vegetation	Neglected septic	Tree holes
Open water storage tanks	Storm sewer systems	Forest pools (woodland pools)
Bottle caps	Sewage treatment facilities	Animal watering troughs
Buckets	Damaged water treatment sites	Floodwater habitats
Scrap yards with pools in junk	Kids play equipment	Over-irrigated landscaping
Fast-food containers & cups	Poorly designed rain gardens	Conservancy areas
Roadside ditches	Underground storm systems	Duck clubs
Houseplant containers & trivets	Dumpsters	Septic ditches
Garbage bins & cans	Backyard buckets & tarps	
Bromeliads	Septic ditches	
Fountains	Uncovered garbage bins	
Coolers	Non-functional water treatment sites	
Gutters & drains with standing water		
Rainwater corrugated extension spouts		

^a Any container or area that can hold water for 5-7 days. Mosquito habitats can overlap; however, specific species may vary based on habitat and location. When possible, identify mosquitoes to species to discern level of public health threat.

IX. Larvicides, Pupicides, and Adulticides

- Always read and follow product labels.
- Avoid stockpiling insecticides by only purchasing enough product for one season.
- Always store and transport pesticides according to label requirements.
- Using both larvicides and adulticides in a mosquito control program best manages populations of mosquitoes by killing

Table 6. Larvicide/pupicide mode of action, active ingredients, target specificity, and resistance potential^a

Insecticide Class ^b	Mode of Action	Active Ingredient ^c	Susceptible Organisms	Resistance Potential
Bacterial	Midgut disruptor	<i>Bacillus thuringiensis</i> (Bti)	Diptera (Suborder: Nematocera) - Mosquitoes and black flies are highly susceptible relative to other nematocerans	Very Low ^{12, 13}
		<i>Lysinibacillus sphaericus</i>	Mosquito - species dependent. <i>Aedes (Stegomyia) spp.</i> not susceptible	Moderate (very low in combinations with Bti) ^{14, 15}
Insect Growth Regulator	Prevents immature insects from reaching maturity	S-methoprene	May impact some other arthropods	Moderate (very low in combinations with Bti) ^{15, 16}
		Pyriproxifen	May impact some other arthropods	Presumed Low ^{15, 16}
Spinosyns	Nicotinic-AChE modulator	Spinosad	Insects and some other arthropods	Moderate ^{15, 16}
Oils/Monomolecular Films	Suffocate larvae and pupae	Mineral oil	Invertebrates using surface tension at air/water interface	Presumed Low

^a Not every active ingredient, class, or product may be available in every state. Always follow local, state, and tribal laws before using any larvicide.

^b Based on IRAC classification. The AMCA does not endorse the use of any specific product. Any mention of a product name or active ingredient is not a recommendation or statement of efficacy.

^c For information on larvicide formulations, see [Table 7](#). Always read and follow label instructions before applying any pesticide.

- existing adults and preventing new adults from emerging.
- Immature mosquito control:
 - o Choices of larvicides and pupicides (Table 6) are based on the individual needs of mosquito control programs.
 - o Factors to consider when choosing appropriate products include species of concern, efficacy, potential for resistance, cost, target specificity, regulatory requirements, and environmental compatibility.
 - o Application of larvicides and pupicides should be considered in the context of an IMM program to control mosquitoes.
 - o Selection of formulation (Table 7) and application method should be based on the larval habitat and species.
 - o Granules and pellets may be applied by hand, rotary disk spreaders, power backpack blowers and sling seeders; or by using aircraft and vehicle-mounted spreaders.
 - o Briquettes, water-soluble pouches, tablets, or dunks may be directly applied by hand or with specialized dispensing equipment.
 - o Conventional liquid larvicide applications targeted to discrete habitats should be made with medium to very-coarse size droplet spectra (ASABE S572.1 Droplet Size Classification).
 - o Low-volume (LV) liquid larvicide applications for wide-area control should be made using target-specific larvicides, appropriate equipment, and very-fine (VF) to fine (F) droplet sizes (ASABE S572.1 Droplet Size Classification) during periods of favorable atmospheric conditions. Conventional ultra-low volume (ULV) equipment is generally not appropriate for these applications.
 - o Hot spot treatments such as backpack LV sprays for container mosquito control reduce the time and effort needed for door-to-door campaigns in large areas.

Table 7. Larvicide formulations and usages

Formulation Type	Designations	Application	Habitat and Use Pattern
Granule	G, GS, GR, XR-G	Spreading by hand, manual/power equipment, or aerial application	Floodwaters, vegetated swamps, flooded crops, wetlands
Pellet	P, S-PT	Spreading by hand, manual/power equipment, or aerial application	Residual or pre-treatment of floodwaters, vegetated swamps, flooded crops, wetlands
Direct Application Tablet	DT	Direct container placement	Residual control of container mosquitoes
Extended-Release Briquettes/Tablets	B, XR, XRT	Direct placement to habitat	Residual or pre-treatment of catch basins and other small or remote habitats
Water Soluble Pouch	WSP, XRP	Direct placement to habitat	Residual or pre-treatment in catch basins and other small or remote habitats
Water Dispersible Granule/Dry Flowable	WDG, DF	Spraying suspended in water or measured placement	Area-wide low-volume application and general aqueous spray application; residual treatment of container mosquitoes
Aqueous Suspension	AS, SC, SR	Spraying diluted in water or undiluted	General aqueous spray application and area-wide low-volume application
Emulsifiable Concentrate	EC	Spraying diluted in water	General aqueous spray application

- Adult mosquito control:
 - Adulticiding should be used when deemed necessary, according to data gathered in surveillance activities or in response to public health needs.
 - Efforts must be made to focus adulticide applications within intended target areas and avoid non-target organism impacts.
 - Visit the U.S. Fish and Wildlife Service (USFWS) Endangered Species website to obtain a list of endangered species that may be in a treatment area before application and/or coordinate activities with local USFWS office.
 - Communicating with the public before an adulticide application ensures people can take precautions if they choose.
 - ULV applications are the only effective means of rapidly reducing transmission risk during arboviral disease outbreaks.
 - ULV applications can be effective in reducing populations of adult container *Aedes* in peridomestic environments, even when applied at night.
 - Both ground and aerial ULV applications of EPA registered public health pesticides are effective at reducing populations of WNV and other mosquito-borne disease vectors (Table 8).
 - Barrier and residual sprays can provide long-lasting control of adult mosquito populations and should be focused on structures when possible to avoid non-target effects.

Table 8. *Adulticide mode of action, active ingredients, application use, and target specificity^d*

Insecticide Class ^a	Mode of Action	Active Ingredients ^b	Application Type	Target Specificity
Organophosphate	Acetylcholinesterase (AChE) inhibitors	Naled, malathion	ULV	Designed to target mosquitoes when applied at the correct time, with properly calibrated equipment, and at label rate
Pyrethroid ^c	Sodium ion channel inhibitors	Sumithrin, pyrethrins, etopfenprox, permethrin, tau-fluvalinate; prallethrin; esfenvalerate; bifenthrin; beta-cyfluthrin, deltamethrin	ULV	Designed to target mosquitoes when applied at the correct time, with properly calibrated equipment, and at label rate
			Barrier	Broad range of susceptible insects and non-target organisms

^a AMCA does not endorse the use of any specific product. Any mention of a product name or active ingredient is not a recommendation or statement of efficacy.

^b This list is not meant to be comprehensive. Adulticide formulations include ready-to-use, water dilutables, and oil dilutables. Always read and follow label instructions before applying any pesticide.

^c Piperonyl butoxide (PBO) is a synergist commonly paired with pyrethroids to enhance efficacy.

- o Additional adult mosquito control methods may exist and could be incorporated into a control program.

- A quick resistance assessment should be conducted prior to emergency adulticiding.
- Test results should be reported to appropriate groups.

X. Monitoring Insecticide Resistance

- The American Mosquito Control Association recommends following the procedures for pesticide resistance testing outlined by the U.S. CDC to prolong the life of currently available products, compare results through time and region, and assess trends.
- Annual resistance testing should be a routine component of all integrated mosquito management programs and occur prior to the start of each mosquito season.
- Resistance testing should be conducted before a product is first used.
- Resistance testing should follow published protocols to provide standardized results.

XI. Record Keeping

- Record keeping procedures and requirements are determined by the lead regulatory agency for the location, which could be a state, federal, or tribal authority.
- Surveillance reports for all mosquito species should be maintained for the evaluation of interventions; factors that should be recorded include:
 - o Results from mosquito egg, larval, and adult surveys
 - o Records of surveillance locations and mosquito collection data
 - o Records of virus testing results

- o Results of resistance monitoring of local mosquito populations
- Operators/applicators must follow the record keeping and retention requirements of the lead regulatory authority. At minimum, application records should contain:
 - o Applicator's name, address, and pesticide applicator certification number (if applicable)
 - o Application date, time of day, and weather conditions
 - o Product name and Environmental Protection Agency registration number
 - o Location of application and approximate size of area treated (spray tracks, as recorded by an appropriate GPS system, are desirable)
 - o Rate of material applied and total amount applied
- Records also must be maintained on the certification and recertification of all personnel licensed to apply pesticides.
- Records should be kept on the calibration and maintenance of application equipment.
- Integrated mosquito management programs should also include provisions for:
 - o Logging/tracking citizen complaints and service requests
 - o Maintaining records of non-chemical interventions, including community education, door-to-door outreach efforts, waste tire removals, and container elimination campaigns



INTRODUCTION

The concept of integrated mosquito management (IMM) is central to the goal of mosquito prevention and control. The principles underlying IMM were first outlined in 1871, but a full realization of the complexity of its components has only come about since the mid-twentieth century. The term “Integrated Mosquito Management” is derived from integrated pest management, which has been defined as a synergistic, ecosystem-based strategy that focuses on long-term suppression of pests and/or their damage through a combination of techniques, including biological control, trapping, habitat manipulation, and chemical control.¹⁷ Similarly, IMM is a comprehensive, surveillance-based mosquito prevention and control strategy that utilizes all available mosquito control methods, either singly or in combination, to reduce the number of mosquitoes while maintaining a quality environment.

The core of IMM includes five critical tactics:

1. Engaging the community regularly
2. Surveillance, mapping, and rational setting of action thresholds
3. Physical control through manipulation of mosquito habitat
4. Larval and adult mosquito management using multiple tools including source reduction, biological control, and the application of targeted insecticides
5. Monitoring for insecticide efficacy and resistance

IMM places an emphasis on surveillance, flexibility, and adaptability; applying any

mosquito control measure on a predetermined schedule without a documented need is not an acceptable practice. Instead, appropriately designed IMM programs are highly responsive to the local situation and driven by a demonstrated need. All actions are based on surveillance data, precise mapping of the habitat, and results in rational action thresholds that determine appropriate responses by management staff. If required, insecticides are iteratively and actively monitored for efficacy and resistance.

Both the U.S. CDC and the Environmental Protection Agency (EPA) recognize the need for chemical control measures for mosquitoes. IMM programs utilize public health pesticides in a targeted manner after surveillance results provide objective evidence that they are required according to established intervention thresholds, and only after the potential public health benefits have been evaluated. In this paradigm, treatments are made with the primary goal of removing only the target mosquito species. The intervention methods are identified and used in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment while effectively managing mosquito populations.

In addition to causing considerable public nuisance and discomfort, mosquitoes are vectors for arboviral diseases in the U.S., highlighted by Zika virus (ZIKV) infections in the U.S. and its territories.¹⁸ The mosquito species *Aedes aegypti* and *Ae. albopictus* are the principal vectors for chikungunya, dengue, yellow fever, and ZIKV.¹⁹ Both species vary considerably

in behavior from most native *Aedes* species, particularly with regard to feeding behavior, degree of adaptation to urban and suburban areas, and choice of habitat for oviposition (using natural and artificial water-holding containers [e.g., used tires, plastic containers, gutters, and other containers abundant in the peridomestic environment] rather than permanent or transitory groundwater sources). At present, the prevention or reduction of transmission of these viruses, except for yellow fever, is entirely dependent on the control of mosquito vectors and limiting mosquito-to-person contact.

Along with the human health problems posed by *Ae. aegypti* and *Ae. albopictus*, various *Culex* species, including but not limited to *Cx. pipiens*, *Cx. tarsalis*, and *Cx. quinquefasciatus*, are vectors of varying competence for several viruses in the U.S. such as West Nile virus (WNV) and St. Louis encephalitis virus (SLEV).²⁰ These and other species of mosquitoes capable of vectoring several viral encephalitides and parasitic worms can be successfully addressed with conventional IMM.

This document represents an update to the 2009 and 2017 versions of the American Mosquito Control Association (AMCA) *Best Practices for Integrated Mosquito Management* manual. The 2017 update was necessitated by the increasing importance of container-inhabiting *Ae. aegypti* and *Ae. albopictus* mosquitoes as vectors of human disease-causing agents. The goal of

the 2021 update was to include additional information specific to managing different species of *Culex* mosquitoes and interrupting virus transmission cycles that may result in human disease. Whereas this document focuses on *Ae. aegypti*, *Ae. albopictus*, and *Culex* spp., the conventional IMM approaches discussed in this document also address salt-marsh and freshwater mosquitoes in the U.S. In accordance with best practices, this document is based—where possible—on an analysis of the mosquito control literature. This evidence-based structure provides a rational foundation for recommendations. With that said, this document also leverages the practical experience and best practices from vector control professionals.

The recommendations summarized here are intended to be broad guidelines for IMM. While all mosquito control programs should strive to employ the full range of IMM techniques, the AMCA recognizes that its full implementation requires a significant expenditure of resources that may be beyond the capabilities of many mosquito control programs, which are generally subject to budget and personnel constraints. The extent and manner to which control agencies meet or exceed these best management practices should be ultimately based on the best professional judgment of mosquito control program personnel, often undertaken in consultation with local health and government authorities, in addition to available resources.



MOSQUITOES, DISEASE, AND MANAGEMENT

Summary

- Mosquitoes can spread pathogens when an adult, female mosquito takes a bloodmeal.
- In the U.S., arboviruses spread by mosquitoes cause human disease and death annually.
- There are several arboviruses of concern within the U.S., such as WNV, EEEV, and SLEV, and a continual concern that new arboviruses could be introduced from other areas of the world.
- Many different mosquito species exist in the U.S. and occur in diverse habitats; however, all have an aquatic stage and require water to complete their life cycle.
- *Culex* and *Aedes* are two of the most important mosquito genera in the U.S. and responsible for vectoring different viruses to humans.
- Integrated mosquito management (IMM) is the best way to manage mosquitoes and reduce disease transmission.
- The core of IMM includes five critical tactics:
 - Engaging the community regularly
 - Surveillance, mapping, and rational setting of action thresholds
 - Physical control through manipulation of mosquito habitat
 - Larval and adult mosquito management using multiple tools including source reduction, biological control, and the application of targeted insecticides
 - Monitoring for insecticide efficacy and resistance

Mosquito-Borne Diseases

Mosquitoes are the world's deadliest animal²¹ and harm humans by transmitting pathogens through their saliva or causing secondary infections when a person scratches a bite.²² Globally, there are three groups of pathogens spread by mosquitoes that cause disease in humans: malaria protozoans, filarial worms, and viruses. In the U.S., arboviruses are the primary group of human disease-causing organisms transmitted by mosquitoes; however, mosquitoes can transmit other pathogens to non-humans, such as dog heartworm. Occasionally, infected

people entering the U.S. after spending time in another country contribute to the spread of other types of pathogens,²³ but transmission of these pathogens generally does not become sustained.

An arbovirus, or arthropod-borne virus, is spread by an arthropod, and in the U.S., they are primarily spread by mosquitoes and ticks.²⁴ Some arboviruses naturally persist in the environment, regularly causing disease in people (endemic), and an outbreak occurs when more cases are reported during a time period compared to normal. However, novel arboviruses can also be introduced and cause new, emerging disease.

Examples of arboviruses in the U.S. include (but not limited to): West Nile virus (WNV), St. Louis encephalitis virus (SLEV), Eastern equine encephalitis virus (EEEV), western equine encephalitis virus (WEEV), Jamestown Canyon virus (JCV), and La Crosse encephalitis virus (LACV).²²

Outbreaks of less common and emerging diseases occur periodically as well. In 2015, the Zika virus (ZIKV) emerged in the U.S., and by 2016, an epidemic occurred resulting in 5,168 symptomatic cases that year.²⁵ Case numbers have since dwindled, but ZIKV highlights that exotic arboviruses can be introduced into the U.S. and reach epidemic status. Other arboviruses that have the potential to become introduced include dengue virus, chikungunya virus, and yellow fever virus. For these four viruses, an infected person returning to the U.S. with virus in their blood stream could lead to an outbreak because, unlike WNV and SLEV, all four of these viruses can be transmitted from human to mosquito to human. Still, perhaps the most concerning scenario is the introduction of a completely novel disease-causing, mosquito-borne arbovirus.

Mosquito Biology

There are approximately 3,500 species of mosquitoes worldwide, and 176 can be found in the U.S.^{22, 26} These mosquitoes occupy diverse habitats ranging from man-made to natural in rural, suburban, and urban environments. In general, adult male and female mosquitoes require liquid sugar sources for basic metabolic needs and often feed on plant nectar or honeydew.²² There are some possible exceptions, such as *Aedes aegypti* females, which may obtain enough energy for metabolism through their bloodmeals.^{27, 28} Additionally, most female mosquitoes need to consume protein to produce eggs. Often, this protein is obtained

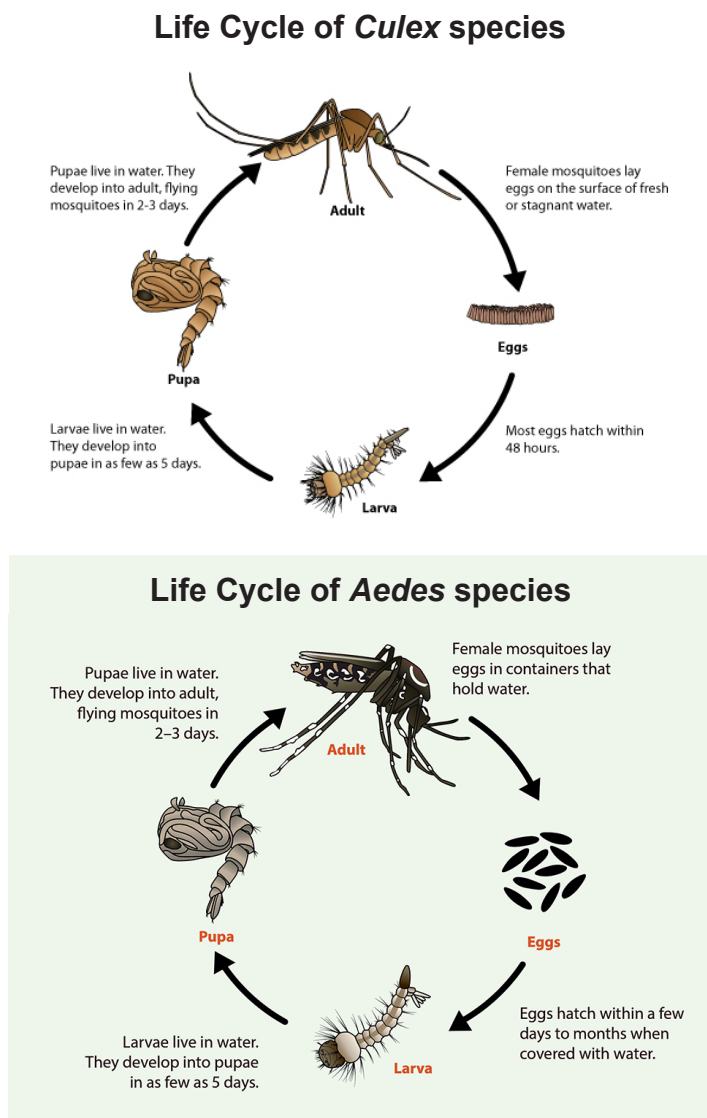
through taking a blood meal from a vertebrate host; however, one genus of mosquitoes, *Toxorhynchites*, obtains protein for egg production as a larva by consuming arthropods, including other mosquito larvae.

All mosquitoes have four distinct life stages (egg, larvae, pupae, and adult) and need a source of standing water to complete their life cycle ([Figure 1](#)). Mosquito eggs may be laid singly or glued together in egg rafts; however, all hatch in water. The resultant larvae and eventual pupae are entirely aquatic until emerging as adults. Suitable water needs to have relatively little to no flow (stagnant), so adult mosquitoes can lay eggs on or near the surface and immature mosquitoes can successfully breathe and complete development. These aquatic habitats can vary dramatically and range from manufactured containers, edges of ponds, pitcher plants, bromeliads, gutters, sewers, rice fields, over irrigated land, waste management plants, ditches, and any place that can hold stagnating water.

Mosquito larvae, known as wrigglers due to their “wiggling” bodies, have thin, threadlike soft bodies. The heads are hardened and have chewing mouthparts. The thorax is slightly swollen, and the abdomen is elongated and extends behind the thorax. Depending on the species, many larvae have a hardened siphon at the opposite end of the head used for piercing the water surface and breathing. Pupae are known as tumblers and resemble an enlarged “comma.” They have a pair of structures called trumpets on the top of their bodies used for breathing.

Once mosquitoes have completed the egg, larval, and pupal stages in the water, they emerge as adults and live on land. Adult mosquitoes have one pair of wings, and some are considered weak fliers. They have three pairs of long, thin legs attached to the thorax. In general, they

Figure 1. Life cycles of *Culex* and *Aedes* mosquitoes



Source: Centers for Disease Control and Prevention, USA

have long, straight, needlelike mouthparts that males and females use to take sugar meals and females use to take blood meals from their hosts. Female mosquitoes have threadlike antennae, and males have relatively “fuzzy” antennae closely resembling those of moths. Individual species range in color, size, shape, and

physical characteristics. Regardless of life stage, identifying a mosquito to species requires special training, may require a microscope, and the most up-to-date identification keys should be used.

Common Disease Vectors in the U.S.

Several genera of mosquitoes contain species that transmit arboviruses to humans in the U.S., but two of the most important are *Culex* and *Aedes*.²² The most prevalent human disease-causing arbovirus in the U.S., WNV, is predominantly spread by several species of *Culex* (Table 1). The species responsible for amplifying the virus in bird populations and spreading the virus from birds to humans vary depending on location and time. For a mosquito to transmit WNV to humans, it must have four characteristics²⁹:

1. Feed on both birds and mammals
2. Be able to transmit WNV (not all mosquitoes exposed to WNV can spread the arbovirus to another organism)
3. Survive long enough to transmit WNV
4. Be relatively abundant

The different species of *Culex* that spread WNV to humans may prefer either birds or mammals but will feed on both, subsequently spreading the virus from bird to mosquito to human. The three most important WNV vectors in the U.S. are *Cx. pipiens*, *Cx. tarsalis*, and *Cx. quinquefasciatus*.^{11, 29} However, several other species are considered secondarily important including: *Cx. nigripalpus*, *Cx. salinarius*, *Cx. restuans*, *Cx. erraticus*, *Cx. stigmatosoma*, and *Cx. erythrothorax*. As highlighted in Table 1, different geographies and habitats in the U.S. have different WNV vectors, and even within a single area, the vector may be different between rural, suburban, and urban settings. Mosquito control programs should identify the *Culex* species in their area capable of WNV transmission and learn about those species’

Table 1. West Nile virus *Culex* vectors by region^a

Region of the U.S. ^b	Species	Importance	General Habitat
Northeast	<i>Culex pipiens</i>	Primary	Suburban and urban; ranging from woodland pools to organically rich waters (ditches); artificial containers; underground man-made larval habitats (catch basins and cisterns)
	<i>Culex restuans</i>		
	<i>Culex salinarius</i>	Secondary	Suburban and urban; coastal areas; saline, brackish, and adjacent fresh waters
Southeast	<i>Culex quinquefasciatus</i>	Primary	Urban and suburban areas; ranging from woodland pools to organically rich waters; artificial containers; backyard containers, exposed septic systems, and other sewage systems
	<i>Culex nigripalpus</i>		Rural and vegetative
	<i>Culex salinarius</i>	Secondary	Suburban and urban; coastal areas; saline, brackish, and adjacent fresh waters
	<i>Culex erraticus</i>		Slow moving ponds with dense root mats; rural and vegetative ^{1, 2}
Northwest	<i>Culex pipiens</i>	Primary	Urban; underground man-made structures, storm drains, catch basins, wastewater systems, gutters, drains, and fountains
	<i>Culex tarsalis</i>		Rural; variety of freshwater habitats, commonly agricultural land, including irrigated pastures; unchlorinated pools, flood channels, and less often artificial containers
	<i>Culex salinarius</i>	Secondary	Suburban and urban; coastal areas; saline, brackish, and adjacent fresh waters
Southwest	<i>Culex quinquefasciatus</i>	Primary	Urban; underground man-made structures, storm drains, catch basins, wastewater systems, gutters, drains, and fountains
	<i>Culex tarsalis</i>		Rural; variety of freshwater habitats, commonly agricultural land; unchlorinated pools, flood channels, and less often artificial containers
	<i>Culex salinarius</i>	Secondary	Suburban and urban; coastal areas; saline, brackish, and adjacent fresh waters
	<i>Culex stigmatosoma</i>		High organic content water sources such as winery waste, sewage, log, and dairy ponds ³
	<i>Culex erythrothorax</i>		Wetland habitats with emergent vegetation ⁴

^a When using this table to determine the *Culex* species of importance, always verify the species is in the specific area. Once verified, research the species in greater detail to better understand preferred hosts, habitats, timing, and pathogens vectored.

^b Unless otherwise indicated, general habitat information came from Rochlin et al., 2019.

life histories (e.g., preferred habitats, preferred hosts, time of the year adult mosquitoes begin emerging, how long they live, etc.). Information gathered about the mosquitoes should inform the control program (e.g., where to place traps, where to surveil for immature mosquitoes, when to start surveillance, etc.). Most human cases occur in counties that have historical high incidence of

WNV and metropolitan areas with moderate to high human populations.¹¹

Mosquitoes in the genus *Aedes* are also responsible for arbovirus transmission to humans in the U.S. Both native and invasive *Aedes* species spread arboviruses; however, two invasive species in particular, *Ae. aegypti* and *Ae.*

albopictus, can spread several viruses including ZIKV, chikungunya virus, and dengue viruses, and have been responsible for small, localized outbreaks. Unfortunately, both species pose significant risk of future arbovirus outbreaks,^{30, 31} thus, mosquito control programs targeting these mosquitoes may help protect the public from unpredictable, future outbreaks.

The yellow fever mosquito, *Ae. aegypti*, originated from Africa, but has since spread throughout the world, including colonial America, most likely entering on ships from early European explorers.²² The Asian tiger mosquito, *Ae. albopictus*, originated from Asia but spread to the U.S. in 1985.²² Both mosquitoes are container mosquitoes associated with human environments and resemble one another (brightly colored, striped mosquitoes that can be easily distinguished by a trained professional). The geographic range of these mosquitoes may overlap and both can be found in the southeastern parts of the U.S. from the Atlantic coast to Texas.³² However, in areas where both mosquitoes exist, *Ae. albopictus* may outcompete and displace *Ae. aegypti*.³³ More cold tolerant than *Ae. aegypti*, *Ae. albopictus* extends further north

into the upper Midwest and New England. On the other hand, *Ae. aegypti* is more tropical and extends west of Texas to the Pacific coast.

Reducing the Risk of Disease Transmission through IMM

Integrated mosquito management (IMM) is the best way to prevent arbovirus transmission and disease cases.¹¹ Successful IMM relies on monitoring mosquito populations and arboviral activity to make data driven decisions. Utilizing multiple management tactics ensures populations of mosquitoes are sustainably managed and the public is protected with minimal impacts on the environment and non-target organisms. Routinely evaluating the efficacy of control programs allows programs to be flexible and adapt to changing conditions. Finally, community engagement calls for the public's participation and helps ensure everyone understands what is being done to protect them and how they can help. Each of these steps can be quite complex, and the different chapters in this manual provide best management practices to successfully create and execute an IMM program.



COMMUNITY ENGAGEMENT

Summary

- Community engagement is a continual, ever-evolving process where a mosquito control program routinely interacts with the public to create trust, increase knowledge, build relationships, understand citizen perceptions and behaviors, and recruit citizen participation.
- Strategy:
 - Build relationships with the public before a health crisis begins to effectively control mosquitoes and reduce disease transmission.
 - Find trusted messengers and partner with organizations who can serve as a bridge to hard-to-reach communities.
 - Design effective communication and engagement plans that can address misconceptions and facilitate a favorable outcome for all.
 - Learn about the audience through activities such as surveys, focus groups, conversations at community events, and listening sessions.
 - Develop educational materials with a focused goal in mind that is based on understanding the audience and evaluate the effectiveness of materials to ensure the desired impact was achieved.
- Tips:
 - Ensure that public engagement materials use clear and concise content that incorporates visuals and design elements that all members of the desired audience can interpret regardless of language, economic, or literacy barriers.
 - Evaluating a community engagement program before, during, and after implementation establishes a baseline for comparison and allows campaigns to be modified and improved.
 - Many resources to engage the public on different mosquito activities already exist and can be utilized immediately.
 - Engaging the public and creating educational materials in the appropriate context ensures program goals are well received, understood, meaningful, and impactful.
 - Creativity in podcasts, comics, and web videos may increase interest and memorability.
 - Example channels to engage the public include (but are not limited to): social media, local media, school events, community activities, and live events.

Introduction to Community Engagement and Effective Communication

An engaged community allows for improved control of mosquitoes and disrupts disease transmission cycles making community engagement a critical component of any IMM program. Community engagement is a long-term process that takes time to establish and cultivate the trust required to effectively recruit community participation.³⁴ Central to trust-building is the listening aspect of community engagement: for instance, learning about various audiences and what factors might be impeding mosquito control. This section offers guidance to create a successful community engagement program by developing a communication strategy, offering tips for working with hard-to-reach audiences, building trust, and connecting with the audience through creative ideas.

A successful communication program starts with revisiting how “community” is defined to be more strategic. Community is a broad and sometimes misleading term. Usually there is no single community. From a strategic standpoint, understanding the potential differences within audiences will help in connecting to each of their interests. “Community” can include many different groups of people, including: residents, tourists, politicians, teachers, school nurses, parents, children, beekeepers, students, camp counselors, landowners, businesses, healthcare providers, and anyone else in a target area.

There are many goals a mosquito control program can achieve by engaging the community including (but not limited to): identifying potential mosquito larval habitats on private property and having residents remove these areas, encouraging the public to report mosquito problems, locating hot spots in an area from service request calls, addressing and responding

to citizen concerns about adulticiding, identifying champions and trusted messengers, combating misinformation, and recruiting people to wear personal repellents during times of arboviral outbreaks. Regardless of the goal, effective community engagement is rarely easy and involves understanding who the target audience is and how best to reach them.

Practicing cultural humility is important when engaging with the community and creating educational materials. Cultural humility “involves entering a relationship with another person with the intention of honoring their beliefs, customs, and values.”³⁵ The idea behind cultural humility is recognizing that every person is different and even in a group of similar people there will be differences. Effective outreach programs involve listening and being curious all while being aware of one’s own potential biases and engaging a community in a non-judgmental way.

Effective community engagement occurs when a community trusts mosquito control personnel, perceives a personal benefit from their efforts, and actively works with officials to achieve the same goal. Effective engagement also requires personnel to understand and respond to questions and concerns of the various communities, and tailor responses and strategies as needed. Engagement with the community begins with communication, which can influence a multitude of attributes such as awareness, beliefs, knowledge, trust, and many more.³⁶

Communicating with a community can occur via one-way or two-way communication. In one-way communication, a mosquito control program provides educational materials to the community and the communication stops there. Examples of one-way communication include pamphlets, leaflets, public service announcements,

billboards, and similar materials. Two-way communication involves delivering a message and receiving feedback from that community. Examples of two-way communication include townhall meetings, booths at health fairs, working directly with community leaders, implementing user engaging content on social media, and welcoming questions/concerns from a hotline or Q&A session on the radio.

One-way, or passive, communication may not be as effective at engaging the public in control efforts.³⁷ Challenges include materials that: do not reach the audience, are not accepted or understood by the audience, do not address critical barriers, and do not foster the motivation needed for change. Alternatively, two-way, or active, communication may provide better results. While more resource intensive, the improved results may ultimately prove a better use of time and budget,^{37,38} as one-way communication still requires resources.

The Importance of Community Engagement

Community engagement is a critical component of any IMM program because effective mosquito control and reduction of disease requires public participation, ideally before a public health crisis begins. Communities are engaged when members are involved and collaborating with mosquito control.³⁹ Additionally, favorable public opinion may be required to take appropriate, evidence-based actions. A proactive approach to addressing questions and responding to concerns can help build support.

Community engagement is especially critical to reach those groups that are the most impacted but may be the least engaged. Marginalized groups such as racial or ethnic minorities, rural populations, people in lower socio-economic brackets, single parents, English

language learners, renters, and people located within specific high-risk geographies (e.g., flood prone or poor-drainage areas) are often disproportionately impacted by public health threats. In fact, gender, age, and socioeconomic status may be risk factors for arboviral disease transmission⁴⁰ because this can influence who is most often exposed due to factors such as neighborhood stability or daily habits (e.g., being outside, who is responsible for child care, or outside chores). For this reason, programs targeting these groups are critical to protect a community's most vulnerable members.

Proactively and frequently engaging a community ahead of a public health threat empowers mosquito control personnel to combat misinformation by hearing what is being said and getting a sense for community sentiment on a topic. For instance, understanding a community's feelings on insecticides before aerial application of adulticides allows a mosquito control program to craft messaging to address specific concerns in preparation before or after an application. Even better, creating good relationships within a community and frequently asking for feedback may dispel misinformation regarding a topic entirely and prevent negative emotions due to an incorrect perception. Finally, and perhaps most importantly, developing one-on-one relationships with respected community members from groups or areas not currently associated with mosquito control and then recruiting them to deliver messaging may be the most effective way to influence change within a target audience, build trust, address misinformation, and advance mosquito control efforts.

One example where public education and participation are particularly important is the problem posed by mosquitoes associated with containers. Completely eliminating or reducing container habitats require public engagement and

appropriate education. For these reasons, public education campaigns may be highly effective as part of an IMM program if community participation and “ownership” can be achieved. Education and outreach are critical steps in any IMM program, not just against container-inhabiting species.

Understanding Context to Maximize Effectiveness

Creating information and messaging in a context that the audience can understand and associate with will determine the effectiveness of a material. Illiteracy in the U.S. affects between 14-20% of the population and half of adults cannot read a book written at the eighth-grade level.³⁶ ⁴¹ A person is considered functionally illiterate when they cannot use materials where literacy is required or use written language or math to develop their community.^{36, 42, 43} Understanding the low level of literacy is important to remember when creating educational materials and highlights the importance of visuals. Visuals that convey a message and use minimum words are effective tools to communicate with people who are illiterate or speak a language other than what is written on the material.

The outlet to receive materials must be considered as well. Digital materials may be useful to reach some groups; however, other groups may not have access to internet, smartphones, or a computer. Additionally, some people may have access to computers at libraries or with family but are unable to use the keyboard and mouse or know how to access web browsers or files/folders. Creating digital and print versions of a resource avoid missing these people and helps reach all members in a community.

Delivering messages using a trusted messenger may be the most critical consideration when

BREAKOUT BOX:

Specific ways community engagement impacts mosquito control:

- Establishes and maintains credibility and public trust by providing timely, accurate, and actionable information about what is known and what is not known
- Communicates a benefit to motivate audience
- Addresses barriers to desired behavior
- Models social acceptability and normalizes a behavior
- Provides adequate information to dispel rumors and misinformation
- Increases access and knowledge of accurate information about arboviral diseases among populations and community members at risk
- Motivates action by community leaders and organizations to protect at-risk populations from arboviral diseases
- Increases knowledge of and support for vector control activities in communities
- Increases the capacity of health care providers to share accurate health information about arboviral disease prevention to at-risk populations

effectively communicating with the public, especially with the goal of changing behavior. Currently, science is not trusted by some in the U.S. for a variety of reasons including historic and present-day ethical concerns, communication approaches, misunderstanding, and misinformation. As a result, a trusted messenger may be required to recruit and engage a community. A trusted messenger is someone many members of a community look to for

guidance because they trust this person based on familiarity, identity (i.e., political, religious, gender, racial) or other cues of trustworthiness that may or may not be related to scientific expertise.⁴⁴ This person is not necessarily formally affiliated with the mosquito control agency but is someone who champions the best practices of the program.

The idea behind a trusted messenger is that this person can get in front of an audience to talk with them about an issue. Because of the trusted status, the audience might be more willing to at least consider what the messenger has to say and not reject the person and/or the message outright. These trusted messenger approaches have been successful in many domains including climate change, childhood vaccination, and COVID-19.^{45, 46} Unfortunately, a recent poll showed that most Americans exhibited some level of distrust toward state and local public health departments⁴⁷; thus, finding an advocate not associated with mosquito control may be required to effectively engage with members of the community.

Creating a Community Engagement Strategy

The easiest way to design an effective community engagement program is to create a strategy that clearly defines the goal, components, and steps required to achieve the mission of the mosquito control program. Additionally, outlining a strategy ahead of implementing a program allows mosquito control personnel time for feedback, clarity to stay on target, and room to adjust as necessary.

Timing

As with most activities, the more time to create a strategy the better; however, even spending just a few hours or a day preparing can make the

process easier and achieve better results. There is no one best way to engage a community, but there are guiding principles and questions that can be used to create effective strategies based on the target audience and specific goals.

Workshop and Strategy Creation Team

The first step to creating a strategy is gathering a group of key people together and writing out the strategy. This team ideally includes those who will be involved in implementing the strategy and those who know the audiences well. Collaboration outside of one's organization can be an excellent way to gain from existing experience. Consider various professional contacts who may have insight to share. This can include reviewing existing community engagement strategies, even if outside the scope of mosquito control. There are approaches for other topics that are translatable.

An effective strategy does not require long wordy text, bullets and main points are fine and even preferable, but it does require strategic thinking. Holding a workshop to clearly define the strategy by answering the following questions should create a solid foundation and implementable strategy:

1. **What is the problem that this strategy is trying to solve?** What is a sample scenario that the strategy seeks to target? What are the program priorities? For example, protecting people using recreational areas, such as parks, from being bitten by *Culex* mosquitoes.
2. **Who is your priority audience?** The needs of the audience will determine how a message is crafted and the context in which it is delivered. Stakeholders include persons, groups, or institutions that can affect or be

affected by a course of action and include residents, agencies (health departments), local and regional officials, local fire and police departments, leaders of community organizations, and the media, among others.

2.1. What are the barriers to reaching your target audience? Some common barriers can include language, literacy, education, culture, and social economics. Focus groups and one-on-one interviews with community members or leaders help identify barriers.

2.2. Do existing communication materials meet these barriers? There are different programs available online to help evaluate current materials⁴⁸ such as the CDC Clear Communication Index (<https://www.cdc.gov/ccindex/index.html>). A list of other resources can be found on the Harvard Health Literacy Studies website (<https://www.hsph.harvard.edu/healthliteracy/assessing-and-developing-materials/>).

2.3. Does everyone have the same barriers or does the audience contain sub-groups that may require a different approach? For instance, in a large urban center, there may be several different ethnic groups living in one geographic area that would require different materials/approaches.

2.4. What is your existing relationship with the audience? The answer to this question will determine the best messenger for your programs (e.g., mosquito control personnel vs. a trusted messenger).

2.5. Why should the audience care about the message? What motivates the audience to become engaged?

3. **What gaps exist in the current message, outreach, or programs/services?**

4. **What is the goal of the outreach based on the assessment of the audience and existing efforts?** Many types of goals are valid: an increase in perceived benefits, greater understanding of effectiveness of different repellents, increase in youth participation in X event, increasing an action by X percent in the next five years. For example, increase public knowledge about activities performed by mosquito control preceding aerial application of insecticides. Using a SMART (Specific, Measurable, Achievable, Realistic, and Timely) framework may be useful when defining objectives. Looking into monitoring and evaluation resources can help you define different types of objectives.

5. **What are the best ways/channels to reach and serve the audience? Where is your target audience likely to see or hear the message? Make sure to consider language needs to maximize effectiveness.** Obvious channels for outreach are schools, clubs, churches, and other organizations.

Also consider the following:

5.1. Organizations and Groups:

Organizations and groups may be the target audience, but they can also be recruited to help communicate a message. These groups may be useful channels as well as the target audience: municipal departments (public works, sanitation, trash removal,

and building inspection), “green” organizations (focused on healthy environment and self-reliance), youth organizations (Girl Scouts and Boy Scouts), social organizations (Habitat for Humanity), intern programs (social workers, medical personnel, biologists, etc.), public health organizations (community health clinics, medical reserve corps), extension programs, citizen scientists.

5.2. Live Events ([Figure 2](#)): What events might attract your desired audience? Sporting events? Health fairs? Community festival? Farmer’s market? Food pantry distribution? Parent events at school? Consider where a presence may be beneficial (and who should be there, keeping the trusted messenger in mind). Additionally, ensure a translator is on-site, if needed. There is also opportunity to memorialize the event, promote, and spread the message after the event via recordings or pictures posted to social media; however, this should be discussed with your site host in terms of privacy and expectations. Recordings of such events may be leveraged as part of public service announcements.

5.3. Social Media: Create user-engaging content through various websites, blogs, and social media outlets to maximize reach at low costs: Facebook, Twitter, Instagram, LinkedIn, etc.

5.4. Mass media: Consider involving local influencers such newspapers, local radio/TV station personalities that do periodic stories or provide

Figure 2. Community event with local mosquito control booth



Source: Chris Fredregill/Harris County Public Health Mosquito and Vector Control Division

30-second reminders and public service announcements.

5.5. Additionally, research organizations or media outlets that already exist and have an established following to leverage as allies. Build link relationships with those sites, so your website can be easily accessed by a simple click. Simply having information on your website is not enough unless it is also being promoted.

6. What activities does the budget allow?

Are advertising dollars available to have search engines promote content? Can you partner with an art school to make a brief animated video (or use one of the many free tools online)? If the budget is limited, can you partner with groups to have them promote your materials for free in exchange for something of value to them? Can you offer incentives to community members or leaders? Are student groups (including from

universities) or other volunteers or service organizations available who are interested in community service? Is a local business or radio able to sponsor the event or provide advertising for free?

Creating Impactful Materials and Tools

A range of tools exist to best reach an audience. Short videos, comics, and infographics will likely work better than text only documents.

BREAKOUT BOX:

Listed below are several engagement channels/opportunities used by mosquito control programs across the U.S.:

Social Media

- Blogs, Twitter, Facebook, Instagram, TikTok, LinkedIn: Share information with established blogs and other social media. Include links to your, or other relevant, websites.
- Competitions: Announce and conduct contests and neighborhood challenges to clean up potential mosquito habitats.
- Videos: Begin a “Submit Your Video” campaign to broadcast and recognize specific activities and efforts of community groups or individuals.

Other Communication/Sharing Channels

- Legislation days: Engage politicians and other policy makers with one-on-one meetings with staffers, letters to congressmen, and other advocacy activities.
- Town hall meetings: Discuss in community centers and libraries.
- PSAs: Share up-to-date information and reminders via newspapers, TV radio, etc.
- Localized blasts: Leverage municipal phone alert systems during high-risk times.
- Inserts included in utility bills.
- Welcome wagon programs: Partner with local Welcome Wagon organizations to add information about property maintenance and responsibility, community resources, etc. to their packages.
- Target tourists: Tourist information centers, airport and cruise terminals, travel clinics.

Live Events/Activities

- Learning sessions or health fairs:
 - o For private citizens: Invite community members to a learning session that will provide education.
 - o For third-party communicators: Hold short educational forums with health care providers, school employees, library employees, and other public intermediaries who can help spread your message. Conduct these during lunch and break times and entice people to attend with free snacks or beverages.

BREAKOUT BOX (Continued):

- Community events:
 - o Use scheduled events such as fairs, parades, picnics, marathons, and sports events to make a public appearance; distribute mosquito repellent (if permitted within local guidelines); encourage people to clean up trash and turn over containers.
 - o Approach local businesses about participating in the event.
 - o Interactive displays: Plan visual demonstrations or games to attract and engage citizens.
 - o Neighborhood clean-up followed by a community party to play games, listen to music, and share food to celebrate the accomplishment (partner with Keep America Beautiful).
 - o Train citizen scientists and hobbyists, such as members of garden clubs and naturalists.
- Neighborhood calls to action:
 - o Work with organizations such as AmeriCorps to go into neighborhoods and drill holes in trashcans to drain water, clean up areas that are potential risks.
- Partner with high schools to organize “clean up” days for student credit for volunteer or community service programs.
 - o “Go Green” synergy: Partner with “green” organizations to meld your messages and events with their ongoing efforts (clean up trash, tire disposal areas).

Key points on creating impactful materials:

1. Development of high-quality information that is accessible to different groups takes **skill and time**. Build this into your timeline and expectations.
2. When crafting a community engagement item remember to **grab attention through visuals, a compelling point, and a clear benefit**. **If something does not grab attention, it is more likely to be ignored or forgotten**. Consider exploring options beyond fliers and pamphlets.
3. The **main point** of the material **should be at the beginning** and impactful. People need to know right away what this material is about.
4. **Less is more** with educational materials. If a material has too much text or tries to express too many ideas at once, the overall impact will be less. It becomes overwhelming for the reader
5. **Make sure there is a clear call to action**. After a person consumes the material, what is the goal behavior or change desired?
6. **Make the message positive**. Research has shown that positive messages are better received than messages that illicit fear or other negative emotions.³⁶ Make sure the material answers the questions, “Why should I do this?” and “How will this help me?”³⁶

7. Design principles matter. Layout and visuals that make finding and understanding information easier will contribute to overall impact and behavior change resulting from the document.⁴⁹ For more information on how to design compelling documents for different formats, The Compass offers resources to create compelling materials that result in social and behavior change (<https://www.thecompassforsbc.org/>).

There are additional logistical considerations to keep in mind when creating educational materials. Know your organization's policies on external communication and factor in any extra time needed to have the document vetted and approved. Ensure you route public messages through any agency Public Information Officer. Investigate if an organization has established brand guidelines and follow them.

Evaluating the Effectiveness of Community Engagement Programs

Evaluating the impact of a communication program can be challenging; however, with a bit of strategic planning and the proper selection of indicators, high quality feedback to guide the program is possible (Figure 3). Using evaluation guides (see end of this section) is a way to design such efforts in-house; more expansive budgets can retain professional firms. Leveraging strengths and learning from mistakes refines and enables a community engagement program to be as impactful as possible, especially in the long run. Further, it helps inform other programs about what did and did not work.⁵⁰ To ensure a program is achieving the desired results, evaluating the effectiveness of any program is necessary. Evaluation may be costly and labor intensive, but when possible, will result in greater community trust and engagement.

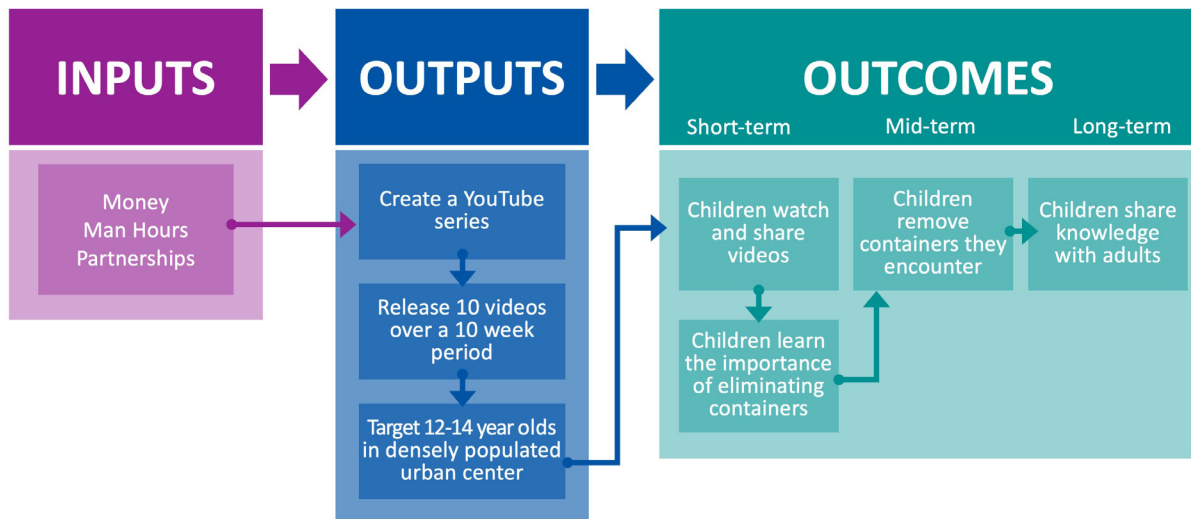
There are different timepoints to evaluate the effectiveness of a program. Programs can be evaluated before, during, or after execution.⁵¹ Evaluating before involves collecting data before a community engagement program has begun. This information can be used to tailor content or establish a baseline to evaluate future success. Evaluation during a program focuses on processes, relevance of the tool, and outcomes achieved as the program is active. This information can be used to adjust a campaign or as a progress report. Finally, evaluating a campaign upon completion collects data to determine the overall effectiveness of the campaign and identify opportunities for improvement in the future.

There are several ways to evaluate a community engagement program and the choice of the evaluation tool will depend on the objectives, goals, and channel. Examples of data that can be measured may include impressions of a digital public service announcement, conducting pre- and post- surveys, number of container habitats before and after, and /or measuring mosquito abundance before and after a campaign. Resources available to help measure the effectiveness of a community engagement program include:

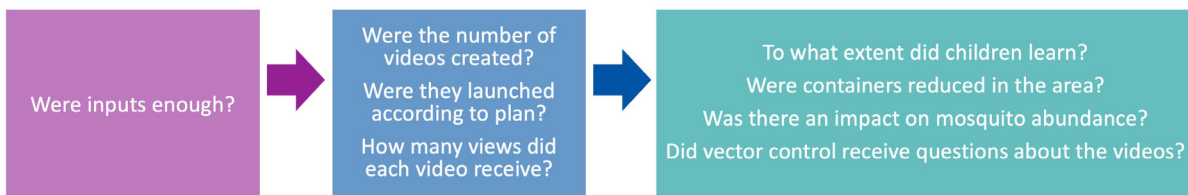
- <https://zeromalaria.africa/monitoring-evaluation>
- https://ec.europa.eu/info/sites/default/files/communication-evaluation-toolkit_en.pdf
- https://www.cdc.gov/phcommunities/resourcekit/evaluate/smart_objectives.html

Whereas these resources may not be specifically customized to a mosquito control community engagement program, they can be modified to serve as effective evaluation tools.

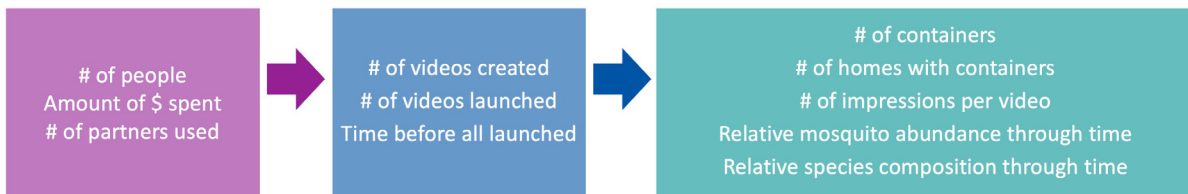
Figure 3. Example community engagement program evaluation process including questions and indicators



Possible Evaluation Questions



Indicators



Source: American Mosquito Control Association/ Figure adapted from MEERA 2021 (<https://meera.snre.umich.edu/step3>)

Resources Focused on Mosquito Control

Providing educational materials does not require creating all documents from scratch. Looking at what has already been done can help inform what you want to do, even if it does not provide an exact template:

1. The **American Mosquito Control Association** provides member resources that can be utilized by communication programs for public relations and community engagement (www.mosquito.org).
2. Resources are available from the **CDC** and other national and international

organizations that can be leveraged locally (e.g., <https://www.cdc.gov/westnile/resourcepages/communication-resources.html>).

3. The CDC also funds five **Regional Centers of Excellence in Vector-Borne Disease** (Western Gulf, Pacific Southwest, Midwest, Southeast Regional and Northeast Regional) that have various outreach and educational materials available (<https://www.cdc.gov/ncezid/dvbd/coevbd/resources.html>).
4. The **Pan American Health Organizations** offers a wide selection of documents. Visiting their documents page (<https://www.paho.org/en/documents>) and searching the term “mosquito” results in almost 70 ready-to-use documents.
5. **Zero Malaria**, a campaign primarily run in Africa, has a series of documents on creating compelling community

engagement campaigns ranging from engaging politicians, planning effective community engagement, and much more (<https://zeromalaria.africa/community-engagement>). Even though these documents are geared toward combating malaria, many of principles discussed can be applied to different mosquito control activities.

Remember to reach out to other professional organizations, contacts, and colleagues for ideas and strategizing. There are many more resources available than those easily discoverable on the web. Such collaborations can save time, allow the gain of a wealth of knowledge from more seasoned or better resourced entities, and be mutually beneficial over time.

Finally, when using any of these materials, always remember to customize them to your organization when possible or accompany them with materials that describe your local situation.

BREAKOUT BOX:**Utilize Existing Resources to Maximize Outreach While Minimizing Cost**

The CDC has made available a broad range of tailored communication materials to use in readiness for local transmission of arboviral disease pathogens. Whereas many of these materials focus on specific arboviruses (such as Zika virus [ZIKV] or West Nile virus [WNV]), most are applicable to a broad range of situations. A selected list of useful materials can be found below; all are available in PDF format for easy printing and distribution. Many of these materials are available in multiple languages.

Aedes management resources (Zika virus)-

<https://www.cdc.gov/zika/comm-resources/toolkits.html>

- Zika: The Basics of the Virus and How to Protect Against It
- Keep Mosquitos Out of Your Septic Tank
- Protect Yourself from Mosquito Bites
- Help Control Mosquitoes that Spread Dengue, Chikungunya, and Zika Viruses
- Build Your Own Prevention Kit for Pregnant Women

Culex management resources (West Nile virus)-

<https://www.cdc.gov/westnile/resourcepages/communication-resources.html>

- Mosquito Bite Prevention
- What You Need to Know about Aerial Spraying
- Mosquito Control During an Outbreak
- What State and Local Mosquito Control Programs Do
- Mosquito Life Cycle



MOSQUITO SURVEILLANCE

Summary

- Surveillance for native and exotic species must be part of a mosquito control program regardless of the threat of disease outbreaks. Surveillance should be developed proactively to justify mosquito control funding requirements and risk for arboviral disease transmission. Action thresholds should be specified ahead of surveillance, and data collected from surveillance programs should be used in conjunction with action thresholds to determine the appropriate response.
- Mosquito species composition, when possible, should be identified at the mosquito control program level.
- Identification of problem species is a first step toward defining and developing control efforts.
- Profiling an area and maintaining a larval habitat database should be another early step in surveillance programs.
- Any surveillance is better than no surveillance.
- Egg and immature surveillance:
 - Methods will vary based on the genus and species targeted.
 - Oviposition cups use a variety of substrates placed in an artificial container, usually a small black plastic cup or jar, to collect container *Aedes* eggs. In urban environments, *Culex quinquefasciatus* egg rafts can be found in these cups or other containers with highly organic water.
 - Sampling for non-container-inhabiting larval mosquitoes such as *Culex*, *Psorophora*, *Anopheles*, *Culiseta*, and *Aedes* involves the use of dippers, nets, aquatic light traps, and suction methods.
 - Dippers are the primary method for collecting larvae.
 - Train personnel and standardize techniques to improve inter-sample reliability.
- Adult surveillance:
 - Adult surveillance uses traps, service calls, capturing resting mosquitoes, and landing catch rates.
 - In general, traps are the primary tool used for surveillance and can broadly be categorized as light traps (with and without bait attractants), non-attractant traps, gravid/oviposition traps, resting traps, and emergence traps.
 - Traps may be more efficient at collecting mosquitoes in different physiological states such as host-seeking vs. gravid.
 - Individual mosquito species and species composition vary based on region and habitat.

- o Using multiple trap types in a given area can provide more accurate measures of mosquito abundance, physiological status, and species composition.
- o Once a trap type and location have been chosen and proven effective, consistent sampling is key to generating data that can be compared across time and space.
- Landing rates can be an important surveillance tool, especially during emergency response; however, they can be labor-intensive and may be associated with potential health risks to field staff in areas with known arbovirus transmission.
- Proper handling and identification of specimens and record keeping are vital to a successful program.

Introduction

A scientifically driven surveillance program should be the backbone of every mosquito control operation. The primary purpose of mosquito surveillance is to determine the species composition, abundance, and spatial-temporal distribution within the geographic area of interest through collection of eggs, larvae/pupae, and adult mosquitoes ([Figure 4](#)). Surveillance is valuable for⁵²:

- Requesting appropriate resources as part of a needs assessment
- Determining changes in the geographic distribution and abundance of mosquito species
- Evaluating control efforts by comparing pre- and post-surveillance data
- Obtaining relative measurements of the vector populations over time and accumulating a historical database
- Facilitating appropriate and timely decisions regarding interventions (i.e., determining when an action threshold has been met and what action should be performed)

In addition, mosquito surveillance programs should, when feasible, include an ongoing component of monitoring environmental factors

that can influence mosquito populations. These factors include, but are not limited to: rainfall levels, ground water levels, temperature, relative humidity, wind direction and velocity, tidal changes, lunar cycles, storm water/wastewater management, and land use patterns.⁵³

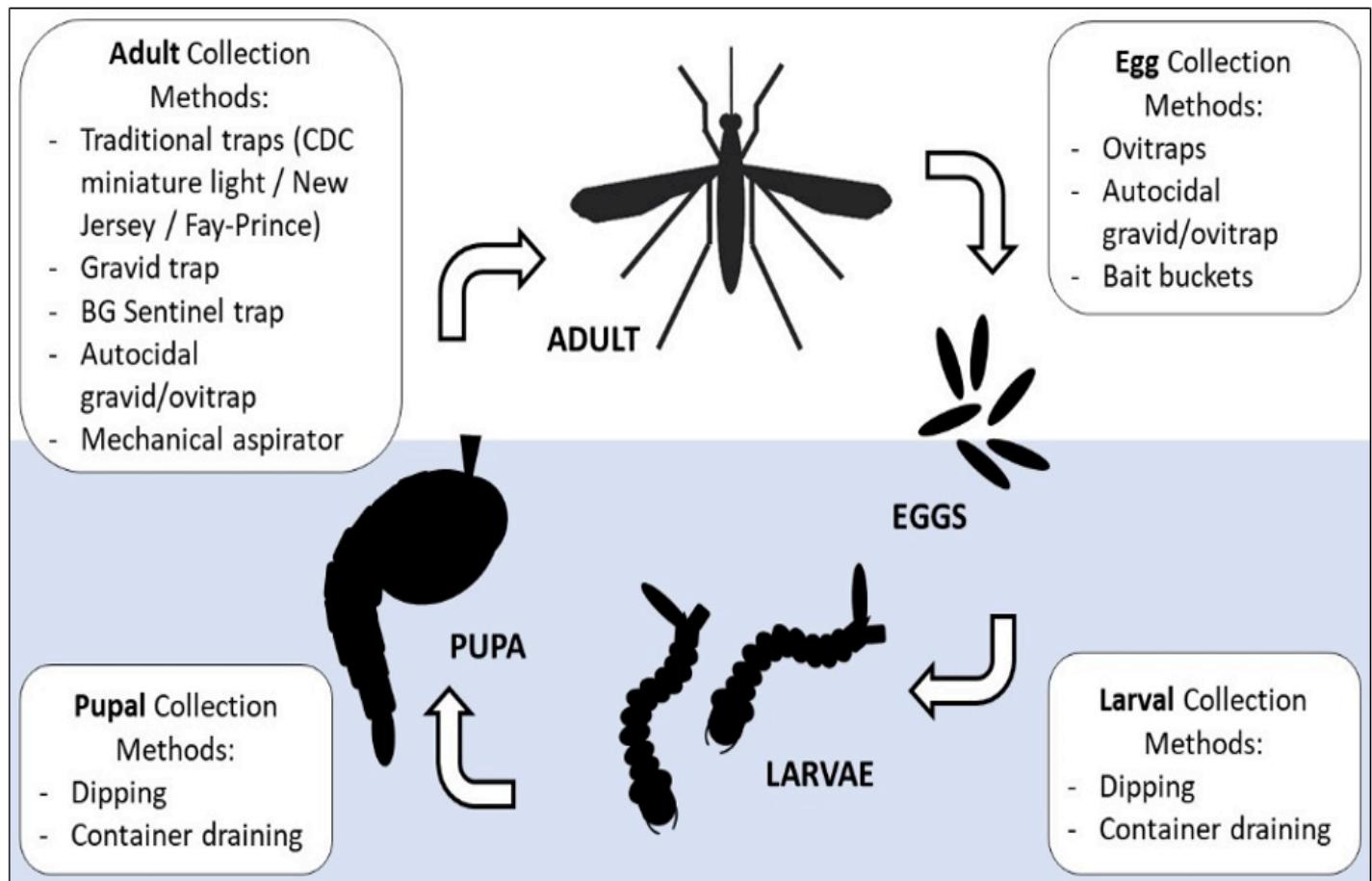
Necessity for Proactive Needs Assessment

Ideally, a proactive needs assessment should be developed and reviewed at least annually to support funding decisions at the local level. The needs of local mosquito control agencies, which can be clearly defined based on data derived from surveillance efforts, should drive the structure, budget, and implementation of integrated mosquito surveillance programs.⁵³ In actual practice, budget often drives structure and implementation, with the result that mosquito control programs are funded at levels inadequate to provide comprehensive surveillance or control. Ultimately, such an approach may decrease the effectiveness of interventions and increase long-term costs.

Defining the Problem

Identification of problem species is the first step toward defining and developing control efforts.⁵³

Figure 4. Collection methods for each mosquito life stage



Source: Melissa Nolan and Sarah Gunter

Control efforts are required when a mosquito population becomes a nuisance as defined by local action thresholds, or an economic or health-related pest or vector.⁵³ Action thresholds should be clearly defined ahead of surveillance efforts to determine when a threshold has been met and what intervention should be performed. See the section of this manual on [Setting Action Thresholds](#) for more information.

- Nuisance mosquitoes are bothersome in residential or recreational areas. Mosquitoes can have a large economic impact by reducing property values, slowing economic

development of an area, reducing tourism, affecting livestock and poultry production, or causing secondary infections.⁵⁴

- Health-related mosquito problems refer to the ability of mosquitoes to transmit pathogens, such as West Nile virus (WNV), St. Louis encephalitis virus (SLEV), dengue viruses (DENV), chikungunya virus (CHIKV), eastern equine encephalitis virus (EEEV), western equine encephalitis virus (WEEV), and Zika virus (ZIKV), that cause disease in humans and animals.

Routine monitoring of selected areas to determine the abundance of adult and larval mosquitoes is critical for determining the primary target species of a control program.⁵³ Egg, larval, pupal, and adult surveys should be conducted throughout the active mosquito season; however, the precise methods may vary seasonally (e.g., larval surveillance is most important in the early spring and adult surveillance during peak season). The data generated from these efforts are used to determine both the abundance and seasonal distribution of problem species.⁵³

Considerations for Choosing a Surveillance Method

Mosquito traps will be more efficient for some mosquitoes than others (Figure 4) based on various factors such as: species, life stage, habitat, employee experience, season, physiological state of the mosquito (e.g., male vs. female, virgin vs. mated, host-seeking vs. blood fed), and weather conditions, to name just a few.⁵³ Careful consideration of the overall goal of the program should influence trap choice in addition to the factors listed above. For instance, programs focusing on eliminating nuisance mosquitoes may choose traps that give an accurate representation of host-seeking mosquitoes, since these species can be aggressive and make outdoor spaces unenjoyable. Traps designed to collect host-seeking mosquitoes are normally baited with carbon dioxide (CO₂), known as the universal mosquito attractant,⁵⁵ a common chemical cue produced by animals used by mosquitoes to find a host. Alternatively, public health focused programs may want to capture mosquitoes that have fed on blood because these mosquitoes are more likely to have encountered arboviruses.⁵⁶ Traps that collect female mosquitoes seeking to lay eggs are useful for these programs (i.e., gravid traps).

Egg Surveillance

There are several reasons why mosquito control programs collect eggs, including: estimating spatial and temporal distribution,⁵⁷ collecting enough mosquitoes of the same age for insecticide resistance monitoring, and surveilling for the establishment of a species in an area. For these reasons, the target species will determine if egg surveillance provides useful information for the intended purpose. For instance, oviposition cups can provide important information for estimating spatial and temporal distributions of container *Aedes* mosquitoes,⁵⁷ but egg surveillance techniques are uncommon for other species of mosquitoes due to the difficulty of finding eggs/creating suitable oviposition traps that outcompete natural habitats and relative ease of collecting and identifying adults.

Many techniques are available to sample container *Aedes* eggs.⁵⁷⁻⁵⁹ Oviposition cups are small, generally dark-colored containers that contain water and a partially submerged substrate on which female mosquitoes lay their eggs.^{19, 60} Water with organic infusions (hay, grass, or leaves) is, in many cases, more effective than tap water alone.^{60, 61} Oviposition cups are inexpensive and easily deployed, but adequate sampling requires routine trapping at sites representative of the habitats in the community. Lethal and non-lethal oviposition cups are available.⁶² Non-lethal oviposition cups should not be left unmaintained (infusion and substrate changed and reset) for more than a week at a time due to the risk of producing adult mosquitoes.¹⁹ Additionally, *Cx. quinquefasciatus* egg rafts may be collected in these cups.

Larval and Pupal Surveillance

Mosquito larvae and pupae can be collected with dippers (Figure 5), nets, aquatic light

traps, suction devices, and container-evacuation methods, and are measured in terms of number of larvae per collection.⁵³ Collectors must account for differences in the capture environment, mosquito submerging behavior, and life stage (i.e., larva vs. pupa), among other factors.⁵³ Thus, training, practice, and experience are critical for control programs that use larval density routinely to determine control measures. However, some best practices for dipping include⁶³:

- The same make and model of the dipper should be used every time by every employee to standardize collection data and compare results between sites and throughout time.
- Approach water with soft steps and only move vegetation as necessary to avoid disturbing larvae resting on the water surface.
- Face the sun to prevent casting a shadow over the water and triggering larvae to dive from the surface.
- Mosquitoes in the genera *Culex*, *Aedes*, and *Anopheles* are generally found near the surface of the water.
- Sample multiple areas around a large body of water because different mosquitoes prefer different microhabitats.
- Avoid sampling in the rain because rain drops disturb mosquitoes resting on the surface.
- On windy days, sample on the windward side where larvae and pupae will be more abundant.

There are several techniques for using a dipper to sample water and collect immature mosquitoes. The choice of dipping method will depend on the target species, habitat, and weather. Briefly, the six different methods include: shallow skim, complete submersion, partial submersion, flow-in, scraping, simple scoop, and background.⁶³ For

Figure 5. Person dipping for mosquito larvae at the end of a drain



Source: Patrick Irwin

more information on dipping techniques, The Rutgers Center for Vector Biology has reprinted a Wing Beats article on dipping that can be found at <http://vectorbio.rutgers.edu/outreach/dipping.htm>.

Larval surveillance programs should maintain a larval habitat inventory. A larval habitat inventory is a database of known habitat descriptions, along with GIS maps of the sites, occurring in an area that can be used to guide larval surveillance efforts. Information from this inventory can be used to establish action thresholds and forecast the need for different intervention efforts. The habitat inventory can also be used to investigate the association between changing mosquito population densities and land use patterns over time.

Vector monitoring for container-inhabiting *Aedes* has traditionally relied on sampling of immature stages, such as larvae or pupae⁶⁴; however, these species can present challenges for immature-

stage surveys.¹⁹ Because water-holding containers come in a wide variety of types, sizes, and shapes, standard dipping equipment is often unwieldy and ineffective. However, a dipper can still be used for deep containers (such as recycling bins), and a suction device (such as a turkey baster) can be used for slender containers (such as hollow fence posts and narrow tires).

Indices that have been used to quantitate container-inhabiting *Aedes* include:

- The House Index (the percentage of houses that are positive for larvae)
- The Container Index (the percentage of water-holding containers that are positive for larvae)
- The Breteau Index (the number of mosquito-positive containers per 100 houses).

Immature container indices have failed to correlate well with adult catches in BG-Sentinel traps, nor do they appear to correlate with instances of adult mosquitoes triggering nuisance action thresholds.⁶⁵ However, even though basic larval indices did not correlate with local adult abundance, a significant correlation was observed when only key positive containers were used for calculation of indices.⁶⁵

Adult Mosquito Surveillance

General Trap Considerations

Adult mosquito monitoring is a necessary component of surveillance activities and is directed toward identifying where adults are most abundant. This information drives response to service requests and helps determine whether interventions (e.g., source reduction, larviciding, and/or adulticiding) are effective.⁵³ Traps are an integral part of a comprehensive mosquito monitoring program.⁶⁶ In general,

adult surveillance traps and techniques can be categorized as light traps (baited and unbaited), non-attractant traps, gravid/oviposition traps, resting traps, emergence traps, and landing rates.⁵³ Different traps and techniques may utilize multiple features simultaneously (e.g., a CDC light trap uses light in conjunction with CO₂; [Figure 6](#)). Landing catch rates and community nuisance complaints are also useful for surveillance when mosquito trap surveillance is not available or possible.

There are several useful traps for monitoring mosquito populations available; however, some traps are more commonly used than others ([Table 2](#)). Traps used by mosquito control programs

Figure 6. CDC Light Trap baited with carbon dioxide being placed into sewer



Source: Chris Fredregill/Harris County Public Health Mosquito and Vector Control Division

Table 2. Common traps and techniques to measure adult mosquito abundance and species composition^a

Method ^b	How It Works	Mosquitoes Most Efficiently Collected	Special Considerations ^c	Pros	Cons
New Jersey Light Trap⁵	Light at the top of the traps draws mosquitoes to the trap and suction force created by a fan draws mosquitoes into the trap; uses a kill jar for collection as opposed to a net.	<i>Anopheles</i> , <i>Culex</i> spp.; collects many kinds of mosquitoes; captures non-target insects	Inefficient for container <i>Aedes</i> and <i>Cx. quinquefasciatus</i> ; place traps in areas/habitats where you expect to find targeted mosquitoes; keep away from smoke and other chemical repellents	Easy to use; very general collection; historical standard; can operate continuously every day of the season for detailed trends in mosquito activity	Requires AC power sources; light is the primary attractant; captures non-target insects; mosquitoes may be difficult to identify due to damage; collection jars require killing agent such as alcohol and naphthalene
CDC Light Trap⁶	Light attracts mosquitoes. As mosquitoes get closer, suction force created by a fan draws mosquitoes into the net. May be supplemented with CO ₂ for more efficacy.	<i>Aedes</i> , <i>Psorophora</i> , <i>Culex</i> spp.; collects many kinds of mosquitoes; good for host-seeking mosquitoes	Place where you expect mosquitoes; add dry ice to catch <i>Culex</i> spp.	Portable; easy to use; uses carbon dioxide and light as attractants; collects live mosquitoes suitable for arbovirus testing	Can be labor intensive; may be challenging to access dry ice/ carbon dioxide tanks
BG Sentinel Trap⁷	Collapsible container with a suction device and collection bag in the middle. Mosquitoes are lured to trap using multiple methods: visual cues, chemical cues, and convection currents.	<i>Ae. aegypti</i> , <i>Ae. albopictus</i> , <i>Cx. quinquefasciatus</i> ; good for host seeking mosquitoes	Adding carbon dioxide creates a very effective trap capturing many additional species	Collects live mosquitoes for arbovirus testing, very efficient for urban <i>Ae. aegypti</i> and <i>Ae. albopictus</i>	Octenol and BG lure not as effective at luring <i>Culex</i> ; relatively expensive
CDC Gravid Trap⁸	A bucket or washbasin filled with attractive water emulsion attracts mosquitoes seeking oviposition habitat. Trap placed on top of bucket or washbasin with suction from above draws mosquitoes into trap.	<i>Culex</i> spp.; good for blood fed mosquitoes; other species depends on ovilure (water emulsion)	Place on ground near vegetation; good from disease surveillance standpoint; use consistent water emulsion recipe	Relatively inexpensive; great for egg laying mosquitoes	Baited water is very smelly; not as effective for <i>Cx. tarsalis</i>
Gravid <i>Aedes</i> Trap (GAT)⁹	Small black cup mimics habitat for container breeding mosquitoes. Cup filled with water and different substrates line the cup. Mosquitoes collected on a sticky surface.	<i>Ae. aegypti</i> , <i>Ae. albopictus</i> , <i>Cx. quinquefasciatus</i> ; good for blood fed mosquitoes	Must be checked and water changed weekly to avoid becoming breeding sites	Inexpensive; can be distributed easily to the community	Not efficient for many mosquito species; sticky trap collections can damage specimens
Landing Catch Rates	Human test subject wearing appropriate PPE stands in a location, and the number of mosquitoes that land on the person in a specified time frame (often 1 minute) are counted. ¹⁰	Host-seeking mosquitoes; mosquitoes that feed on humans	Variables that affect data: human test subject, weather, time of day, location, duration of observation, and body part observed; create one protocol and avoid altering it	Inexpensive; common method	Personnel at risk of bites and contracting virus during times of outbreaks; not good for ornithophilic <i>Culex</i> spp.; labor intensive; sight identification required, sometimes impossible to identify

^a Any surveillance is better than no surveillance even if the ideal trap is unavailable.

^b All traps have the potential to catch many different mosquito species; however, traps will be more efficient for some species over others. Thus, the mosquito target influences trap choice. Use 2 to 3 traps simultaneously to effectively sample species distribution and abundance of mosquitoes in an area.

^c Mosquitoes collected for arbovirus testing should be collected alive and stored using a cold chain. Verify mosquito handling requirements with arbovirus testing group.

include (but not limited to): the New Jersey light trap (NJLT), portable carbon dioxide encephalitis vector survey trap, CDC light trap, Mosquito Magnet X trap, BG-Sentinel trap, Fay-Prince trap, gravid trap, resting boxes, and pigeon- or chicken-baited sentinel boxes. The NJLT employs light and is useful for measuring the relative abundance of certain mosquito species. However, these traps also collect many insects in addition to mosquitoes, and they require AC power,

which limits placement options.⁵³ CDC light traps, miniature versions of the NJLT, operate on battery power and can be used anywhere. Additionally, BG-Sentinel traps and Mosquito Magnet X traps are often used for adult mosquito surveillance. Mosquito collection numbers may be enhanced with a secondary mosquito attractant, such as carbon dioxide, octenol, or BG-Lure (composed of ammonia, caproic acid, and lactic acid).⁶⁷ Different traps vary in their ability

to collect certain genera, species, or physiological states; however, any trap has the potential to collect several different mosquito species.

Because different traps and techniques will be more efficient at collecting certain mosquito species, mosquito control programs must consider the goal of their program when selecting a trap or surveillance technique. Additionally, placement should be carefully considered, and traps should be located where the target mosquitoes are most likely to occur and out of direct sunlight. For example, a hypothetical program in rural California tasked with reducing WNV transmission will first want to research which *Culex* spp. are in the area and responsible for WNV transmission. Once the *Culex* vector(s) have been identified, understanding the habitat and behavior of those mosquitoes should inform trap choice and location. In this scenario, if *Cx. tarsalis* is the primary vector responsible for WNV transmission, the control program may want to select NJLTs or CDC light traps and place them in areas with dense vegetation where birds are known to nest.⁵⁶

Simultaneously using multiple traps effectively estimates the abundance and species composition of an area. For instance, the Harris County Public Health Mosquito and Vector Control Division in Texas routinely uses gravid traps, CDC light traps, and BG-Sentinel traps as part of their ongoing surveillance program. By using all three of these traps in conjunction, the program collects *Culex* spp., *Aedes* spp., and other mosquito species in different physiological states to obtain an accurate snapshot of the entire mosquito population in the area. However, utilization of multiple trap types may not be an option due to budget constraints and/or other factors. In this situation, selecting a single trap type to collect the most mosquitoes of interest should be the goal. For example, gravid traps collect primarily *Culex*

spp., while CDC light traps, baited with dry ice, collect numerous species from multiple genera.

Different *Culex* vectors vary based on region and habitat, and different species behave differently ([see section on Mosquitoes, Disease, and Management](#)). Traps most useful for programs targeting different *Culex* spp. will also vary based on the region, habitat, targeted species, budget, and other factors. Resources permitting, once a trap type has been chosen and proven effective at sampling *Culex* vectors in an area, remaining consistent with trap and model is key, so data can be compared between sites over time.

A different situation pertains to *Ae. aegypti* and *Ae. albopictus*, which are not efficiently captured by commonly used mosquito traps, such as the CDC light trap or NJLT.¹⁹ Although larval surveys and oviposition cups have been used for monitoring these species, a greater emphasis is now being placed on monitoring adult populations to provide a more direct assessment of the impact of interventions.⁶⁴ At present, BG-Sentinel traps, the Gravid *Aedes* Trap (GAT), and CDC-autocidal gravid ovitrap (CDC-AGO) are the most widely used.^{19, 62, 68}

Specific Trap Considerations

The NJLT has a long history in mosquito control and was developed in the late 1920s through early 1930s.⁵ They work by using a light to draw mosquitoes to the trap and suction from a fan to capture incoming mosquitoes into a metal cylinder and jar containing a killing agent such as alcohol or naphthalene. The traps are effective at recording mosquito abundance and determining the presence of a mosquito species in an area.⁵ This information is valuable to identify trends through time and guide mosquito control activities.⁵ While NJLTs are good at collecting several species of mosquitoes

in different physiological states (e.g., both males and females), they also capture many different non-mosquito species, which can make sorting collections hard. Additionally, mosquitoes collected are often dried out, generally making these mosquitoes unusable for arbovirus surveillance testing. Nightly variations (e.g., moonlight, temperature, humidity, etc.) and trap location can affect trap collection results.⁵

CDC light traps are commonly used by mosquito control surveillance programs^{53, 56} and are considered the gold standard by many in the industry. These traps are similar to the NJLT^{6, 53} except they can collect live mosquitoes in a net, weigh less, use a different power source, are often baited with an attractant such as CO₂, and catch fewer non-mosquitoes. CDC light traps collect several mosquito genera including *Culex*, *Aedes*, *Anopheles*, and *Psorophora*,⁶⁹ and provide data for mosquito abundance and arbovirus surveillance. Programs beginning mosquito surveillance may consider starting with the CDC light trap. Different models can be purchased and often mosquito control programs make their own CDC light traps for less money compared to purchasing from a manufacturer.⁵³ The model choice does not matter as long as a program remains consistent once a model has been chosen.

BG-Sentinel traps are effective at collecting *Ae. aegypti*, *Ae. albopictus*, and *Cx. quinquefasciatus*.^{7, 19, 70-76} They are routinely used to monitor these species and may have applications in control. These collapsible, lightweight traps use visual and chemical lures to enhance collection and have the advantage of collecting adult females across physiological states.^{19, 70, 71, 75} Although effective, BG-Sentinel traps can be expensive, must be properly maintained,⁷⁷ and protected against vandalism or damage from wildlife or pets. Care must be taken to select appropriate sites to optimize collection and protect the trap.

Gravid/oviposition traps such as the CDC gravid trap or GAT use organics in water to capture gravid female mosquitoes, including those that have the potential to transmit arboviruses.^{53, 78} Because females collected by these traps have already blood fed, and thus have a greater probability of being infected, they are useful for ongoing risk assessment and arbovirus surveillance programs.⁵³ The organics used for the water infusion should be tailored to the species of interest (e.g., hay infusion for *Cx. quinquefasciatus*, alfalfa infusion for *Ae. aegypti*, and oak leaf infusion for *Ae. triseriatus*).⁵³ In Puerto Rico, autocidal gravid traps have been used to control and prevent outbreaks of *Ae. aegypti*.^{60, 68} Gravid traps may be considerably less expensive and easier to use than BG-Sentinel traps.⁷⁸ Ideally, GAT and BG-Sentinel traps should be used in a complementary way to monitor both sexes and all physiological stages of container *Aedes*.⁶⁴

Emergence traps are designed to capture mosquitoes as they molt from the pupal to adult life stage, and may be useful tools for collecting *Cx. quinquefasciatus*, *Cx. pipiens*, and *Cx. restuans* from sewers and stormwater catch basins in urban environments. They can be useful at giving a snapshot of the overall mosquito population in a very specific location because they capture both male and female mosquitoes. Often, the traps are used to evaluate the efficacy of larvicides or pinpoint breeding locations for species of interest.

Resting Mosquitoes

Collecting resting mosquitoes gives programs a snapshot of the entire mosquito population in a very specific area since all physiological states will be collected.^{19, 79} However, these traps only collect mosquitoes resting in the area and may not be good to sample species across a broader range. Aspirator devices, such as sweepers,

suction traps, and hand-held battery-operated flashlight aspirators, may be used to collect resting mosquitoes on either natural resting harborage or artificial resting structures.⁵³ Resting box traps can also be used to collect resting mosquitoes. Mosquitoes enter the box traps in the morning, and personnel collect mosquitoes in mid-morning to late afternoon when the mosquitoes are inactive.⁵³ Resting box traps can help monitor populations of mosquitoes (especially *Culiseta melanura*, an important mosquito vector for EEEV), because they seek dark shelters to rest in during the day.⁸⁰

Landing Catch Rates

Although not recommended by the CDC, many mosquito control programs utilize landing catch rates (also referred to as landing rate counts or bite counts) for measuring human-biting, adult mosquito activity.⁵³ This measure simply quantifies the number of mosquitoes that land on a person during a predefined time. Whereas effective for some mosquitoes, this technique is not effective at estimating ornithophilic *Culex* abundance or species composition (i.e.: *Culex* spp. that prefer feeding on birds). Additionally, landing rates are labor-intensive and may be associated with potential health risks to field staff in areas with known arbovirus transmission. For this reason, the CDC does not recommend the landing catch rate technique in areas where mosquito-borne disease transmission is occurring.¹⁹

However, landing rates are accepted by most states' health departments and the Federal Emergency Management Agency (FEMA) when requesting assistance after disasters.^{81, 82} When done correctly using the proper personal protection equipment (PPE), landing rates can be conducted in areas after flood events and hurricanes to quickly gather nuisance population

counts and biting burden, which can guide control measures. The proper PPE for conducting landing rate counts includes long sleeves, long pants, work gloves, and mosquito hat; however, wearing on-skin personal repellents (e.g., those containing active ingredients such as DEET or picaridin) can interfere with mosquito counts. One modification that may lower the risk of bites is using a sweeper net to capture any incoming mosquitoes before they land on the person. To perform this modification, a person should slowly turn in a circle and move the sweeper net in a "figure 8" motion to intercept any mosquitoes drawn to the host.

If landing rates are used, variables to consider include⁵³:

- Time of observations
- Duration of observations
- Portion of subject's body observed for landing mosquitoes
- Number and type of nearby habitats
- Number of subjects used

Landing rate protocols must be standardized to acquire meaningful data. This method is most effective when the same pair of people are used to collect multiple samples at a given site because there is considerable inter-individual variability in attracting and collecting specimens.⁵³ Landing rate count values are conveyed in number of mosquitoes landing per unit of time (i.e., mosquitoes per minute).

Handling of Field-Collected Mosquitoes

Mosquitoes collected during surveillance should be handled in a manner that minimizes damage to them. Identifying a mosquito species sometimes requires seeing very small physical features, and too much damage can eliminate those features. Avoid squeezing nets where

mosquitoes may be resting / have settled to help prevent crushing them. Similarly, place nets in protected locations to prevent heavy items from damaging nets and the collected mosquitoes inside. Anesthetize mosquitoes as soon as possible using cold, CO₂, or other method. Always label collections with location, date, time, and trap information, and make sure to secure labels in place to avoid losing this information. Once back at the laboratory, identify and sort mosquitoes to species based on date, time, and trap location.

Arbovirus surveillance using mosquitoes relies on identifying proteins, RNA, or disease-causing organisms from collected mosquitoes. Depending on the arbovirus detection method, mosquitoes that have died and desiccated may not be usable. As a result, mosquitoes used for arbovirus testing are often collected alive or preserved at temperatures that prevent arbovirus degradation (i.e., using a cold chain).²⁸ For more information regarding arbovirus detection, please refer to the [Arbovirus Surveillance section](#).

Retaining and Using Surveillance Data

Accurate and detailed record keeping is critical for several aspects of IMM including surveillance. Comparing historic data to current data allows mosquito control professionals to make informed decisions, determine when action threshold have been met (see section on [Setting Action Thresholds](#)), and evaluate the effectiveness of a program. More information on recording keeping can be found in the [Record Keeping section](#). Briefly, data regarding mosquito surveillance should be collected at the finest level of detail possible and maintained in a safe location. Digitizing records allows data to be easily accessed and shared while also taking up relatively small physical space. Always follow federal, state, county, and tribal guidance on data collection and record retention policies, and make sure to back-up data in several locations to prevent data from being lost.



ARBOVIRUS SURVEILLANCE

Summary

- Preventing the transmission of disease-causing pathogens from mosquitoes to humans is the goal of public health focused mosquito control programs.
- Arbovirus surveillance provides valuable information to determine when and what interventions are appropriate; however, preventing every mosquito-borne outbreak every time is impossible because disease transmission is complex.
- Mosquito control programs wanting to incorporate arbovirus surveillance are encouraged to start by reaching out to their local or state health departments.
- Arbovirus surveillance should occur in several locations to determine when and where arbovirus presence occurs.
- Communication between mosquito control personnel and other public health professionals facilitates the flow of information and allows interagency collaboration to better serve the public.
- Arbovirus surveillance begins with collecting samples and then testing for the presence of virus.
- Surveillance methods conducted by mosquito control include testing sentinel birds flocks, wild birds, dead birds, and/or mosquitoes.

Reducing Disease Transmission

Mosquito control programs often have two primary focuses: reducing the burden of nuisance mosquitoes on the residents and visitors in their jurisdiction and interrupting mosquito-borne disease transmission cycles *before* human and domestic animal cases. Programs that focus on nuisance mosquitoes may also achieve reduced disease transmission by keeping overall mosquito abundance down. For public health focused programs, sampling the environment for arboviruses may serve as an early warning system to anticipate a possible outbreak and design an intervention plan.

Preventing every mosquito-borne disease outbreak is impossible and should not be the goal of an arbovirus surveillance program because the factors involved in mosquito-to-human disease transmission can be complex and some factors are essentially unpredictable.^{28, 53} However, collecting appropriate data may allow mosquito control professionals to gauge the risk of arbovirus transmission and make evidence-based decisions to help stop or reduce the severity of an outbreak. Examples of predictive conditions include:

- Density and distribution of vectors
- Age and population dynamics of vectors

- Weather conditions such as rain and temperature
 - Affects both vectors and host reservoirs
- Infection status of host reservoirs
- Prevalence of infected mosquitoes
- Virus transmission in sentinel animals

Partnerships between public health and mosquito control officials should be created to facilitate communication and execute coordinated action. Public health professionals such as epidemiologists, veterinarians, medical doctors, and others gather information on human and domestic animal arbovirus cases. Similarly, mosquito control professionals gather information on arbovirus presence in the environment from vector populations and sentinel animals. Only through two-way communication and sharing information can different agencies work together to protect the public from mosquito-borne disease outbreaks.

Sampling Arboviruses in the Environment

Ideally, arbovirus surveillance occurs in multiple locations that remain constant and begins early in the mosquito season to capture changes in infection rates through space and time,¹¹ to inform mosquito control personnel where an outbreak may occur, and plan interventions accordingly.⁵³ However, in small programs with limited budgets, monitoring all locations throughout the year may be difficult. In this instance, monitoring known “hot spot” areas first, and moving broader as the season progresses may help detect arbovirus activity in the environment while using resources wisely.²⁸ Data should be retained for several years and referenced to create baselines that can be used in [Setting Action Thresholds](#).

Arbovirus surveillance is a continuous process consisting of five phases ([Figure 7](#)):

1. Obtain a sample
 - Surveillance methods vary, and samples can come from mosquitoes, domestic animals, live birds, dead bird, or other animals.
 - Novel methods for detecting arbovirus presence in the environment are being developed, and samples could come from additional sources in the future.
2. Test the sample
 - Different tests look for different indicators such as RNA, disease-causing organisms, antibodies, and antigens.
3. Collect results
 - Timing could range from a few days for some molecular tests to a few months for case data.
 - Positive results should be reported to additional agencies. Examples of agencies that compile arbovirus data include public health departments and CDC (ArboNet).
4. Determine intervention
 - Action thresholds should be established before collection of data. See section on [Setting Action Thresholds](#) for more information.
 - Interventions can range from taking no action to community engagement to conducting mosquito control operations.
5. Evaluate effectiveness of intervention
 - Gather information on efficacy of the control strategy and adjust the plan as necessary.

Mosquito control programs wanting to incorporate arbovirus surveillance are encouraged to start by reaching out to their local or state health departments. Health departments may already have the capability and budget to accommodate the cost of testing. Next, programs should obtain a protocol from the testing agency that outlines how to collect mosquitoes for the

specific assays they use, including how to handle and pool (e.g., by collection date, trap location, and species) collected mosquitoes. Depending on the program’s previously established mosquito surveillance methods, this step may require incorporating new traps and techniques. For example, New Jersey Light Traps capture dead, desiccated mosquitoes, which are generally not usable for virus sampling, so investing in traps that capture live mosquitoes, such as the CDC light trap, may be necessary. If new traps are purchased and resources permit, the previous trapping protocol should be continued in addition to incorporating the new traps to

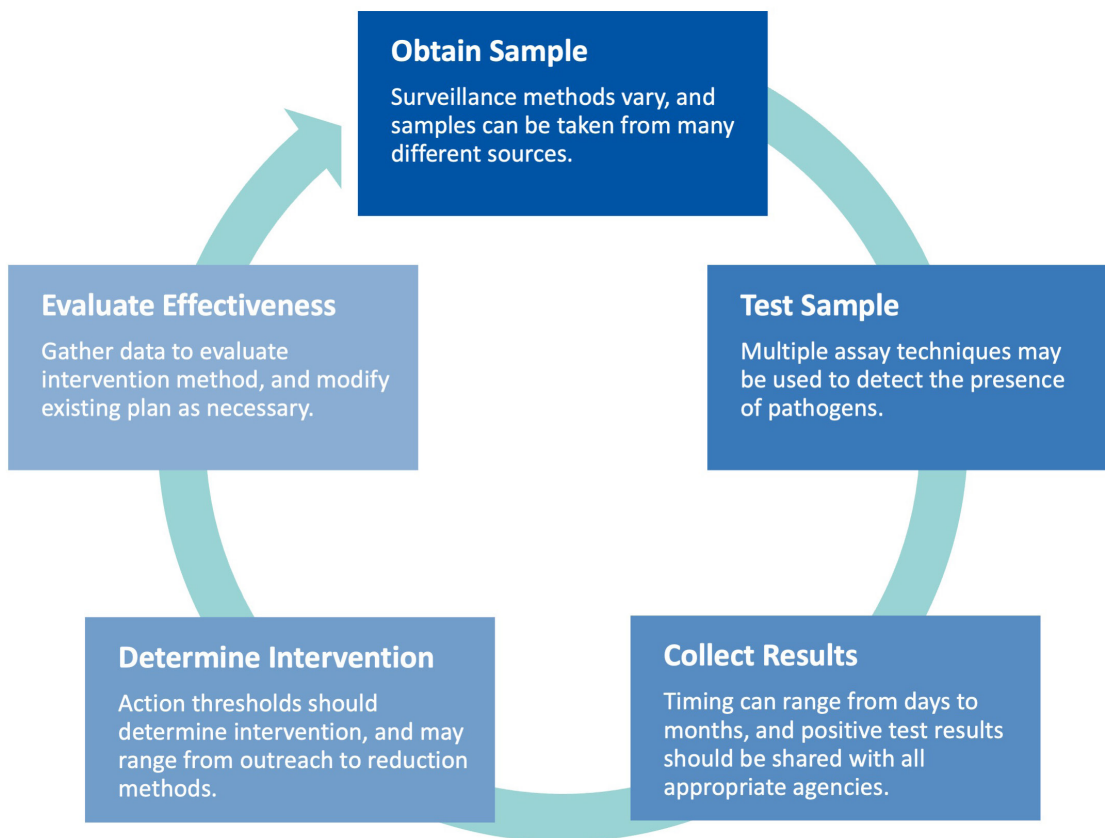
maintain a growing, historic dataset. Remember, mosquito surveillance data should only be compared when collected using an identical protocol. Finally, new arbovirus surveillance programs are encouraged to reach out to larger, more established programs to learn techniques, best practices, and gain hands-on experience.

Environmental Surveillance Methods

Live Bird Surveillance

Mosquitoes that transmit viruses such as West Nile virus (WNV) or St. Louis encephalitis virus

Figure 7. Arbovirus surveillance process



Source: American Mosquito Control Association

(SLEV) often prefer feeding on birds over other animals such as horses or humans. Because of this preference, live birds are used as early indicators of virus activity by sampling blood for evidence of viral infection such as antibodies, antigens, or live virus. Live bird surveillance occurs using two methods: domestic flocks maintained as sentinels or wild birds captured and released. For sentinel surveillance, birds that have no history of arbovirus exposure are maintained as sentinel flocks and placed strategically throughout the region of interest.^{28, 83} Blood samples are taken at regular intervals and tested for the presence of arbovirus. When using sentinel flocks, the area of virus transmission is known because the flocks exist in a stationary location. Sentinel flocks are generally chickens, but can be other birds such as pheasants or quail.²⁸ Whereas sentinel chickens are useful tools in arbovirus surveillance, when operationally feasible, utilizing multiple arbovirus surveillance methods simultaneously is ideal.⁸⁴

Wild bird surveillance involved the capture of birds from locales based on historic presence of arbovirus and targets bird species likely to be infected.¹¹ Young birds may give a better snapshot of arbovirus transmission because they have a lower probability of having contacted an arbovirus previously. Thus, a positive result in a young bird may indicate recent infection.¹¹ Wild birds can travel miles within an area, and migratory birds can travel over states and the entire continent. For these reasons, knowing the precise location and time the bird was infected becomes a challenge.²⁸ Regardless, sampling wild bird populations weekly to biweekly provides mosquito control personnel valuable information to determine when and what interventions are required. When performing wild bird surveillance, obtaining appropriate permissions and permits must occur before any capturing or sampling. Finally, wild bird surveillance may

be labor intensive and require special training (operating a mist net) and/or record keeping (e.g., measuring bird weight, feather length, beak length, etc.).

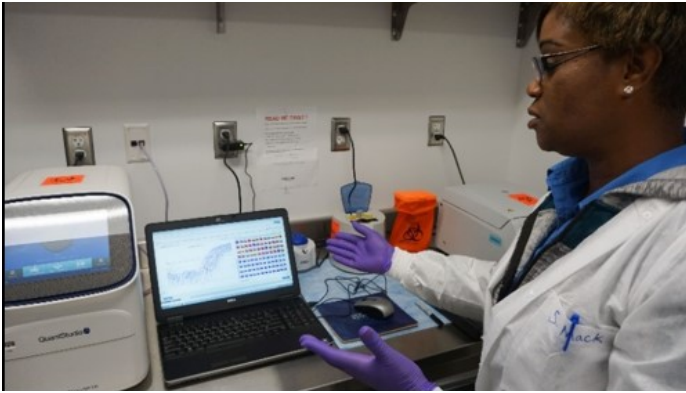
Dead Bird Surveillance

Specific to WNV, collecting and testing dead birds can provide valuable information about arbovirus presence in an area, because birds that have died due to arbovirus infection can occur up to three months before human cases.⁸⁵ Dead bird surveillance begins with finding them. One way involves communicating with health departments, departments of agriculture, and/or wildlife rehabilitation centers.¹¹ Additionally, community engagement programs can encourage citizens to report dead bird sightings to mosquito control. Once the birds have been collected, tissue samples are taken and analyzed for evidence of virus.¹¹ However, even reports of dead birds without any additional testing can be an early indicator of arbovirus activity.¹¹ Finally, mosquito surveillance should occur in these areas to confirm the presence of arbovirus in mosquitoes.

Mosquito Surveillance

Mosquitoes collected during routine trapping programs must be sorted by collection date, trap location, and species. Typically, mosquitoes are tested in pools of fewer than ⁵⁰ mosquitoes, and only females are tested in routine arbovirus screening programs.¹⁹ Testing of mosquito pools can occur in-house or be outsourced. In-house testing requires proper equipment, materials, and significant capital investment. Samples can be outsourced to state public health departments, universities, and contract testing laboratories. Mosquito control programs beginning to test mosquitoes for the presence of arbovirus are encouraged to first reach out to state health departments to better understand current

Figure 8. Mosquito control personnel explains arbovirus surveillance results obtained from laboratory testing



Source: Chris Fredregill/Harris County Public Health Mosquito and Vector Control Division

capabilities. Action thresholds for arbovirus data using minimum infection rates, maximum likelihood estimates, or vector index should be consulted to determine necessary intervention (see section on [Setting Action Thresholds](#)).

A positive mosquito does not necessarily indicate a mosquito capable of transmitting an arbovirus. Positive mosquitoes may be newly exposed or not infected long enough to have virus in the salivary glands. Current molecular testing cannot distinguish between a mosquito infected with a virus versus one capable of transmitting a virus.

Tests performed should be sensitive enough to detect known and emerging viruses.

Testing relies on finding evidence of arboviruses ([Figure 8](#)) in collected mosquitoes through detection of proteins, RNA, or live virus. Ideally, mosquitoes should be handled in a manner that minimizes exposure to conditions that could degrade the virus, such as heat or successive freeze-thaw cycles. The CDC recommends the following steps for mosquito samples intended for testing^{11, 19}:

- A cold chain should be maintained from the time mosquitoes are removed from traps to the time they are delivered to the processing laboratory and through any short-term storage and processing.
 - Depending on the method used, a cold chain may not be necessary to detect viral RNA.^{11, 28} Discuss cold chain requirements with the testing laboratory to ensure an appropriate protocol is followed.
- Mosquitoes should be transported from the field in a cooler with either ice packs or dry ice.
- Mosquitoes should be sorted and identified on a chill table or tray of ice.
- Pooled samples should be stored frozen, optimally at -70°C , but temperatures below freezing may suffice for short-term storage.



MAPPING

Summary

- Mapping data collected regarding weather, mosquito and arbovirus surveillance, non-chemical control measures, insecticide applications, insecticide resistance, and more allows mosquito control professionals to visualize the entire mosquito management environment and interpret data to make evidence-based decisions.
- Utilize appropriate map scale to visualize mosquito habitats, adult populations, control efforts, and insecticide resistance activity to uncover trends or hot spots.
- Record surveillance and control data at the finest spatiotemporal level that is operationally feasible.
- Ensure that all data are linked to spatial information (latitude/longitude) for use in geographic information systems.
- When possible, quantify mosquito population sizes using standardized methods that allow comparisons among locations.
- Use statistical methods only when supported by observed data; estimates based on modeling should convey the amount of uncertainty.

Visualizing Data

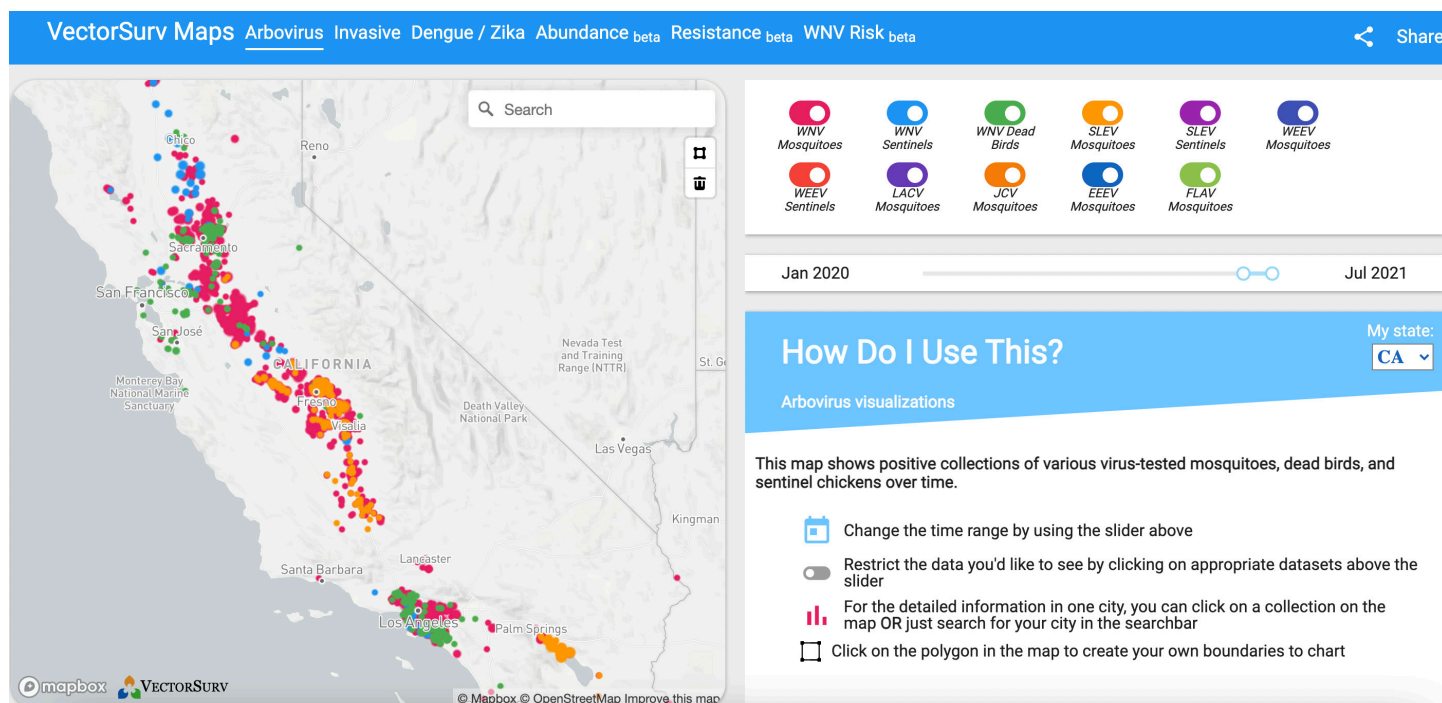
Visualizing data on a map allows users to see the entire mosquito control environment and interpret data to determine what measures are working (or need to be modified), where control efforts need to be focused, and how mosquito populations and viral infection rates have changed over time. Mapping and analysis of spatial data with geographic information systems (GIS) are essential elements of modern mosquito control programs. Decision makers use GIS to capture, manage, display, and analyze large quantities of spatial and temporal data in a geographic context ([Figure 9](#)). Coupled with remote sensing and decision-support system technologies, GIS provides a powerful platform

that can enhance surveillance and direct field operations.⁸⁶ Additionally, GIS can provide evidence to educate the public, government, funding bodies, and other stakeholders.

Using GIS offers many operational advantages for control of invasive, native, nuisance, and disease vectoring mosquitoes such as⁸⁷:

- Documentation of larval and adult mosquito sources
- Documentation of service requests received from the public
- Visualization and analysis of mosquito distributions and abundance
- Documentation of surveillance and control efforts

Figure 9. Vector-borne disease surveillance system



Source: VectorSurv Development Team. 2021. VectorSurv Maps. URL: <https://maps.vectorsurv.org/arbo>. Accessed June 30, 2021.

- Identification of “hot spots” of mosquito activity or pathogen transmission risk
- Prediction of locations and seasons that are most suitable for invasive mosquitoes
- Resolution of insecticide resistance patterns
- Provision of high-quality printed and digital maps for operational use and education
- Generation of resident lists in specific high-risk areas for targeted notifications or door-to-door surveys
- Enhanced collaboration with other agencies to communicate intentions and coordinate actions across jurisdictional boundaries

There are three components involved in the development and application of a GIS⁸⁸:

1. Data acquisition and management
2. Statistical analysis
3. Visual presentation

Numerous GIS software packages are available that make visual presentations of data and perform basic analyses of spatial data (Table 3).⁸⁸ Using these programs can be challenging and requires specialized training and experience. However, some software is easier to use than others. Users can take online training courses to learn and maximize the utility of GIS. If using GIS proves challenging, contract agencies exist that can assist in this service. Additionally, many city governments use GIS for different reasons and may be available to assist vector control services with mapping data.

Table 3. Examples of common geographic information systems (GIS) software

Name ^a	Functionality	Provider	Website
ArcGIS	Full-featured GIS (desktop or online)	Environmental Systems Research Institute (ESRI)	http://www.esri.com/software/arcgis
QGIS	Full-featured GIS (desktop or online)	QGIS Development Community (open- source)	http://qgis.org/
GRASS GIS	Full-featured GIS (desktop)	GRASS Development Team (open-source)	https://grass.osgeo.org/
PostGIS	Spatial database management system	PostGIS Development Community (open- source)	http://www.postgis.net/
MapInfo Pro	Full-featured GIS (desktop)	Precisely	https://www.precisely.com/product/precisely-mapinfo/mapinfo-pro
Scribble Maps	Full-featured GIS (online)	Scribble Maps	https://www.scribblemaps.com/

^a This table is not meant to be comprehensive but provide a sample of different resources at the time of this publication. Additional software may be available. New software may be developed in the future, and information in this table will change accordingly.

Spatial data consists of information recorded by mosquito control programs as well as base map layers that provide context. Such data may be acquired by several means. Existing maps or aerial photographs may be digitized and imported into a spatial database. Additional geographic dataset resources are available, such as public domain maps available on the internet. For example, the U.S. Census Bureau supplies TIGER files that provide detailed information of a geographic area including roads, railroads, lakes, different types of boundaries, etc. These files are available for free and can be used with different software packages (<https://www.census.gov/programs-surveys/geography/guidance/tiger-data-products-guide.html>).

For GIS to be useful for mosquito control, the scale that data are to be recorded, analyzed, and mapped must be considered.⁸⁶ Whenever possible, recording surveillance and control data at the finest resolution possible allows for later analyses that may be unforeseen at the time of data collection (i.e., collecting too much data is better than not collecting enough). Ideally, spatial data should be collected at the level of

individual collection locations, sources of larval or adult mosquitoes, or specific locations where control measures have been implemented. Many locations will be recorded as points (e.g., trap locations or household inspections), whereas others may be more appropriately recorded as lines (e.g., truck-mounted insecticide application routes) or polygons (e.g., aerial treatment areas or large larval sources). How information is recorded in the software will vary between mosquito control programs. Spatial data and derived maps can be useful tools for a program's required state and federal reporting needs, including a Pesticide Discharge Management Plan as required by a National Pollutant Discharge Elimination System (NPDES) permit.

Using maps to visualize spatial patterns is a simple, straightforward approach to data analysis, as spatial patterns may be self-evident when presented on a map using color gradients, differently sized symbols, or contours. Raw data from surveillance or control efforts can be mapped directly in GIS software, which can clarify patterns in trap counts, arbovirus detection, and control efforts rapidly without the

need for intermediate decisions or other analysis. Superimposing layers on base maps with other geographic features is a qualitative but powerful way to provide data to operational personnel or the public. For instance, superimposing *Culex* surveillance data with arbovirus surveillance data allows mosquito control personnel to visualize the relationship between mosquito abundance and distribution with arbovirus presence and make decisions about intervention.

In addition to mapping raw data, performing data analysis that integrates the information from one or more elements of mosquito/ arbovirus surveillance and control programs is often necessary. Spatial tools can provide useful indications to help prioritize mosquito control measures in areas where humans and mosquitoes interact, and the risk of local arbovirus transmission is likely highest. This may include using simple risk models to integrate several surveillance data sets⁵⁶ or spatial analyses that help to clarify the relationship between multiple layers of spatial data. For example, GIS has been employed in many areas to understand local factors associated with *Aedes* and *Culex* distribution and abundance.^{19, 52, 53, 89-94} Additionally, more formal data analysis can be modeled by integrating GIS data with standard statistical or mathematical models that capture the dynamics of mosquito populations or pathogen transmission.^{95, 96}

Operationally, GIS software serves as a spatial toolbox to estimate distances, determine intervention areas based on mosquito flight ranges and surveillance data, or perform spatial queries that combine data from multiple sources. Results of spatial analyses then can be presented in the form of maps indicating areas of high mosquito abundance or pathogen transmission risk as targets for mosquito control. For *Aedes* and *Culex* species, projected habitat suitability and

BREAKOUT BOX: **Web-Based Mapping and Data Sharing**

Online platforms provide powerful opportunities to provide interactive maps to a range of users, from mosquito control professionals to the public, by extending desktop GIS. These systems require back-end GIS expertise to define and maintain the online maps, and ideally, they allow end-users to explore spatial data without the need for specialized GIS training.

As a complement to local use of GIS, centralized data management platforms provide the ability to produce state or national maps of mosquitoes and mosquito-borne disease threats. One such system is the VectorSurv Gateway ([Figure 9](#)), which started as California's official data management system for mosquito and arbovirus surveillance, and, at the time of this update, has expanded to include Utah, New Jersey, Arizona, Hawaii, North Carolina, Tennessee, and the U.S. territory of Guam. Many tools for spatial queries and other calculations are available to registered users, and public-facing online maps provide an overview of *Aedes* and *Culex* surveillance in participating programs (<https://maps.vectorsurv.org/arbo>). Users can click through to local mosquito control agency websites for more information on their city.

risk maps have been developed,⁹⁷⁻¹⁰⁴ and these are useful at broad scales to guide surveillance or to predict arbovirus transmission risk.^{105, 106} Such modeling can be used on a broad scale to predict geographic trends over time, but it also has

utility at finer local scales. For example, in areas permanently colonized by invasive *Aedes* species, identifying potential spatial and temporal hot spots that may be associated with higher nuisance biting and risk for disease transmission to prioritize mosquito control interventions is critical.⁹⁴ Similarly, understanding environmental predictors leading to increased incidence of West Nile virus (WNV) transmission^{97, 107} can allow mosquito control personnel to plan interventions appropriately.

Regardless of the GIS or modeling approach taken, evaluating the local environment and validating predictions with accurate field entomological data must be performed. The diverse and wide-spread habitats of *Aedes*, *Culex*, and other mosquito genera/species require increased accuracy in predictions, so public health agencies can allocate the most rapid and effective control methods within funding and resource limitations.



SETTING ACTION THRESHOLDS

Summary

- Field data/information that is collected should be used to make management decisions on best response plans.
- Proactively determine threshold values that necessitate control measures.
 - Action thresholds should remain flexible to adapt to future changes in nuisance levels and potential public health risks.
- Decisions to initiate control measures are based on analyses of data including immature and adult surveillance, arbovirus surveillance, climatic conditions, and other information.
 - The use of baseline information gathered from historical surveillance data is advisable to establish action thresholds.
- The method used to determine if and when control measures are instituted vary based on species and type of surveillance:
 - Mosquito Surveillance Data: Adult abundance and species composition data, and/or number and pattern of service requests can be used for *Culex*, container *Aedes*, and other vectors. For immature mosquitoes, the standard surveillance method is the number of larvae and pupae observed in a standard “dip count.”
 - Arbovirus Surveillance Data: Minimum field infection rates, maximum likelihood estimates, vector index, seroconversion in sentinel chickens, dead bird infection, equine infection, and human case data can be used for *Culex* and other mosquito vectors.
 - Vector index uses both mosquito abundance and infection rate data and better predicts the risk of human disease than either alone.
 - *Ae. aegypti* and *Ae. albopictus*: In addition to vector and arbovirus surveillance data, larval abundance data from dip counts or container indices (may not correlate closely with adult catches) can be used to establish action thresholds for *Ae. aegypti* and *Ae. albopictus*.
- The decision to apply larvicides and adulticides **must be** based on data and not solely on weather patterns and/or temporal frequency intervals (i.e., “spraying every Wednesday”). Thresholds for adulticiding may consider more than just larval or adult mosquito numbers and may also include arboviral activity.

Data Driven Decisions

The first step in a data driven control program is determining how data collected will be used to establish action thresholds along with appropriate responses. Thresholds to initiate any control measure should be determined proactively and reviewed at least annually. Action threshold values for initiating control measures should remain flexible to adapt to future changes in nuisance levels and potential public health risks.⁵³

At a minimum, intervention decisions (e.g., larviciding, adulticiding, door-to-door campaigns, enhanced surveillance, etc.) should be based on species composition, mosquito abundance, and/or arbovirus surveillance results ([see section on Mosquito Surveillance](#)). Individual mosquito control programs must establish local action thresholds for initiating treatment intervention efforts. Additional factors that can drive treatment decisions for mosquitoes include: local citizen tolerance of nuisance mosquitoes, tourist activity, local acceptance of chemical control methods, geographic proximity to urban and suburban environments, political pressure, climate data, and large events located next to an area with high mosquito activity or positive arbovirus surveillance.^{54, 56, 108, 109}

For adult mosquitoes, thresholds may be set based on the number and pattern of service requests, collection rates, or landing rates. Calculating the vector abundance of a species is another way to analyze mosquito surveillance data and set an action threshold. Vector abundance expresses the relative number of mosquitoes in a region during a specific time period. To calculate vector abundance, the total number of a single species collected is divided by the number of traps used on any given night.¹¹ For immature mosquitoes, the standard

surveillance method is number of larvae and pupae observed in a standard “dip count.”

Emergency response plans, including appropriate action thresholds, are valuable in situations when issues of public health are involved.⁵³ Risk assessments can be developed to provide a way to characterize disease transmission risk and response. An example risk assessment form for West Nile virus (WNV) or St. Louis encephalitis virus (SLEV) can be found in the California Mosquito-Borne Virus Surveillance & Response Plan (https://westnile.ca.gov/download.php?download_id=4602).⁵⁶

Vector and Arbovirus Surveillance Data

Action thresholds targeting *Culex* to reduce arbovirus transmission should use adult surveillance data, not larval. The primary *Culex* vector(s) could be different among regions, and even within a region may vary between rural, suburban, and urban environments. Consequently, action thresholds must be tailored to the specific species and habitat and should be calculated at a scale deemed appropriate by the local mosquito and vector control program.¹¹⁰

Data collected during arbovirus surveillance can also be used to establish an action threshold. Several methods exist to quantify arbovirus data collected from mosquitoes:

- Minimum infection rates
- Maximum likelihood estimates
- Vector index

When setting action thresholds based on arbovirus surveillance data using mosquito pools, minimum infection rates (MIR) may be used when infection rates are low, such as early in the season. To calculate a MIR, use the following equation: ([number of positive

mosquito pools / total number of individual mosquitoes tested] * 1000). When infection rates are high, maximum likelihood estimates (MLE) should be used.¹¹ Calculating MLEs is more complicated and requires the use of a data manipulating software such as Microsoft Excel. Mosquito control programs less familiar with calculating MLEs are encouraged to reach out to experienced mosquito control programs to gain hands on training. Additionally, the CDC provides downloadable spreadsheets that can be found at <https://www.cdc.gov/westnile/resourcepages/mosqSurvSoft.html>. The number of species, trap locations, and trapping cycle data used can affect calculated values. One approach to calculate these values is to only use data collected for one species, from one trap location, and one trapping cycle (e.g., one week). However, different programs may use different datasets.

Alternatively, a vector index (VI) uses both vector abundance and arbovirus data to create action thresholds for a given area. “The VI is calculated by multiplying the average number of mosquitoes collected per trap night by the proportion infected with a pathogen, and is expressed as the average number of infected mosquitoes collected per trap night in the area during the sampling period.”¹¹ When several WNV vector species are present in a single area, a VI is calculated for each species and then added together. By summing the individual values, the total VI accounts for the fact that multiple vectors may be transmitting WNV in the area. As the VI increases, the risk of WNV transmission to humans increases as well. Additionally, studies have demonstrated that the VI better describes WNV risk transmission than vector abundance, MIRs, or MLEs alone.^{11, 111}

Arbovirus surveillance data collected using birds (live wild birds, chicken flocks, and dead

birds), equine cases, and human cases can also be used to establish action thresholds and may be easier to analyze than vector abundance or arbovirus surveillance data using mosquitoes. In these cases, the action threshold is reached once a predetermined number of positive birds/cases has been reached. For instance, one case of human WNV may trigger intervention. However, documented human cases occur after arbovirus transmission to humans has started.¹¹ Thus, human case data are not sensitive enough to be used as the only trigger to perform an intervention because the goal of a public health focused program should be the prevention of human infection. Remember that proactive surveillance is intended to PREVENT human cases of disease. Thus, although this data is valuable and a response should be undertaken when positive human cases occur, public health professionals should not solely rely on this information.

Setting a realistic trigger or action threshold for management decisions is highly specific to each mosquito program and must be tailored according to local administrative codes, public acceptance, and public health threat. The CDC has provided guidance on factors to consider when setting action thresholds for WNV transmission risk ([Table 4](#)).¹¹ The complete CDC response plan for WNV is currently available at <https://www.cdc.gov/westnile/resources/pdfs/wnvGuidelines.pdf>.

Additional Considerations for *Aedes aegypti* and *Ae. albopictus*

There are additional considerations when setting action thresholds for *Ae. aegypti* and *Ae. albopictus*. Surveillance and action thresholds may incorporate measures such as the house, container, and/or Breteau indices, or even an egg (oviposition cup) index ([see section on Mosquito](#)

Table 4. CDC recommendations for a phased response to WNV surveillance data¹¹

Risk Category	Probability of Human outbreak	Definition	Recommended Activities and Responses
0	None	<ul style="list-style-type: none"> No adult mosquito biting activity (vector species). 	<ul style="list-style-type: none"> Develop and review WNV response plan. Review mosquito control program. Maintain source reduction projects. Secure surveillance and control resources necessary to enable emergency response. Review and update community outreach and public education programs. Establish communication with other public health professionals such as department of agriculture, veterinarians, public health departments, etc.
1	Low	<ul style="list-style-type: none"> Biting adult mosquitoes active (vector species). -or- Epizootic activity expected based on onset of transmission in prior years. -or- Limited or sporadic epizootic activity in birds or mosquitoes. 	<ul style="list-style-type: none"> Response as in category 0, plus: Conduct Integrated Mosquito Management program to monitor and reduce vector mosquito abundance. Conduct environmental surveillance to monitor virus activity (mosquitoes, sentinel chickens, avian mortality, etc.). Initiate community outreach and public education programs focused on personal protection and residential source reduction.
2	High	<ul style="list-style-type: none"> Sustained transmission activity in mosquitoes or birds. -or- Horse cases reported. -or- Human case or viremic blood donor reported. 	<ul style="list-style-type: none"> Response as in category 1 plus: Intensify and expand adult mosquito control in areas using ground and/or aerial applications where surveillance indicates human risk. Intensify visible activities in community to increase attention to WNV transmission risk and personal protection measures. Work with collaborators, elected officials, community leaders, etc. to address high risk populations. Intensify and expand surveillance for human cases.
3	Outbreak in progress	<ul style="list-style-type: none"> Conditions favor continued transmission to humans (i.e., persistent high infection rate in mosquitoes, continued avian mortality, seasonal mosquito population decreases not anticipated for weeks). -or- Multiple confirmed human cases or viremic blood donors. 	<ul style="list-style-type: none"> Response as in category 2 plus: Intensify emergency adult mosquito control program repeating applications as necessary to achieve adequate control. Monitor effectiveness of vector control efforts. Emphasize urgency of personal protection, including use of repellents, through community leaders and media.

[Surveillance](#) for more information). Because *Ae. aegypti* has a short flight range, large numbers of adult sampling stations are needed to accurately assess adult populations within a local or regional area, which is often impossible for many mosquito control programs. Further, larval indices do not correlate well with adult catches.⁶⁵

Thus, current entomological indices may not reliably assess biting or disease transmission risks. For this species (in consideration of disease transmission potential, public service requests, and economics of spray decisions), setting action thresholds as low as reasonably possible is recommended.

Case Studies

Field data and information that are collected should be used to make management decisions on best response plans. Described below are three imported Zika cases reported to the Manatee County Mosquito Control District, the field information collected, and subsequent response.

Case 1: A middle-aged woman had returned from a Caribbean Island vacation in July 2016 and complained to her doctor of feeling ill. The local health department determined the illness to be related to a Zika infection, and the local mosquito control program was notified the same day.

The field investigation determined that the patient resided in an affluent, gated neighborhood with a very active homeowners association. No adult *Ae. aegypti* or *Ae. albopictus* larvae were found during an hour-long search over a one-quarter mile radius around the patient's home. No mosquito source containers were located. Since the risk of local disease transmission was very low, no additional control measures were taken.

Case 2: A teenaged boy had returned within his family from a Caribbean vacation, became ill, and was determined to have a Zika infection. Like Case 1, the boy resided in an affluent neighborhood and a field investigation found no adults or larvae within the community. However, the boy was active in extracurricular school activities. An investigation around the high school found numerous *Ae. aegypti* and *Ae. albopictus* breeding habitats, as well as some adults of each species. These larval habitats were quickly eliminated, and the school's maintenance crew was educated. A handheld fogger was used to kill the few adults found around the agricultural club and athletic fields, which harbored tires used for football practice.

Case 3: A 35-year-old woman returned from visiting extended family in Honduras. After returning home, she felt ill but delayed seeking medical attention. After a week of being ill, she presented to a medical clinic where her state department of public health determined that she had been infected with Zika.

Field investigation found this to be a "worst-case scenario." She resided in a high-density community trailer park. Laundry was often done outdoors, and gray water was openly discharged. Garbage and refuse had accumulated throughout the trailer park. Virtually every home had some degree of mosquito activity, with some homes having hundreds of individual sources (containers). Adult *Ae. aegypti* were present in high numbers. Further, the community of 70 trailers included four to five "social" areas where residents would gather after work and into the evening.

In response, the mosquito control program quickly assembled 14 employees, who were divided into four teams, with each team responsible for one section of the community. The

Case Studies (Continued):

response included source reduction of larval habitats, application of chemical larvicides to habitats that could not be eliminated, application of ultra-low volume adulticides via handheld foggers throughout the community and targeted shaded areas, application of long-lasting barrier sprays to hedge rows, shaded areas, and community social gathering sites, and active Zika-prevention education of the residents using bilingual employees and door-hanging leaflets. The area was inspected again one day later and again at days three and seven. No additional larvae or adults were found. Aerial applications of larvicides and adulticides were considered but were not used, given the apparent success using the approach described earlier. In addition to the 70 trailers within the community, a neighboring community of single-family homes was also inspected and treated similarly.



LARVAL SOURCE REDUCTION

Summary

- Source reduction is the single most effective means of mosquito control.
- Source reduction begins with a detailed larval survey, including key container types and geographic characteristics (uneven ground, ditches, etc.) that serve as sources for larval mosquito development.
- Efforts should be made to prevent and eliminate stagnant bodies of water. For example, using rip rap at culverts that reduce water energetics and prevent scouring of soil, removing depressions in the ground that cause pooling, introducing a current into bodies of water, and/or eliminating the overflow of water can prevent the development of a potential mosquito breeding habitat.
- Empty all containers of standing water. Even a cap full of water can be used as a mosquito breeding source.
- Consider both natural and manufactured containers when making efforts to control container-inhabiting mosquitoes.
- Removal of conspicuous open containers may “push” *Ae. albopictus* females to lay eggs in cryptic habitats; therefore, locating and assessing all potential container sources is critical, including those that may be more difficult to identify, access, and treat with larvicides.
- Community engagement and partnership to develop land management plans is essential for successful habitat modification and eventual source reduction practices.

Introduction

All immature mosquitoes develop in water; however, larval habitats can vary greatly between and within genera of mosquitoes. Often, a mosquito species will be adapted to a very specific type of aquatic habitat, such as pools or ponds of fresh or brackish water with characteristic vegetation ([Table 1](#)). Programs targeting specific genera/species need to understand the biology and ecology of the target to ensure control efforts are focused on the appropriate larval habitats to achieve the

intended goal. For more information on this topic, please refer to the [Mosquitoes, Disease, and Management section](#).

To prevent mosquito production, larval source reduction can be the most effective means of vector control.^{52, 112} Larval source management (LSM) involves the removal, modification, and monitoring of aquatic habitats to reduce mosquito breeding and human-vector contact. Interventions for LSM range from simple (e.g., draining aquatic sites or removing water-holding containers capable of producing mosquitoes)

to complex (e.g., implementing Rotational Impoundment Management or Open Marsh Water Management techniques).⁵³

Detailed recommendations on large-scale environmental modification for the control of freshwater and salt-marsh mosquitoes are beyond the scope of these recommendations (a detailed summary of such methods can be found in the Florida Mosquito Control Handbook).⁵³ Briefly, source reduction in freshwater habitats (e.g., floodplains, swamps, and marshes) typically involves constructing and maintaining channels. These channels or ditches can serve the dual functions of dewatering an area before mosquito emergence can occur and as harborage for larvivoracious fish. Large-scale environmental modification requires close cooperation with local, regional, and national government, and must be conducted with a clear understanding of the potential environmental impact on target and non-target species.

Non-Container *Culex*

Different *Culex* mosquitoes can live in very different environments depending on the species and geographic region (Table 1).²⁹ Generally, *Cx. pipiens*, *Cx. quinquefasciatus*, and *Cx. restuans* prefer to lay eggs in organically enriched water bodies. Storm water ditches, storm water catch basins, and other man-made containers can all serve as excellent oviposition sites for these mosquitoes. Mosquito production from storm water/wastewater habitats can be managed by keeping the area free of weeds through an aquatic plant management program and by maintaining water quality that can support larvivoracious fish. Ensure storm water ditches are clear of debris that can impede the flow of water, causing highly organic aquatic habitats to form. If culverts have grates over the front, make sure they remain free of debris. Prevent creating new breeding habitats

by poorly designed ditches, rain gardens, and bioswales. Shallow ditches or culvert areas could be improved to have water infiltrate better through selective plantings by choosing plants and flowers with deep root systems that can tolerate “wet feet” for 2-4 days.

Public outreach campaigns enlisting the aid from different groups within the community can eliminate larval habitats for *Culex* as well. Homeowners should be encouraged to eliminate standing water sources on their property so that water does not sit in low areas for more than 5-7 days to reduce larval habitats. Businesses that store tires on their properties should be encouraged to prevent rainwater accumulation by installing tarps or awnings over tire piles. Developing relationships with public works and city engineers and educating them on the importance of incorporating best mosquito management practices in city planning can eliminate mosquito larval habitat. For instance, use of rip rap at culverts can reduce water energetics and prevent scouring of soil that creates a depression in the ground that can become a water body that does not drain.

Some West Nile virus (WNV) vectors can be found in suburban and rural environments. For instance, *Cx. tarsalis* or *Cx. nigripalpus* tend to prefer more rural and vegetative habitats. Additionally, *Cx. pipiens* and *Cx. restuans* can be found in clear woodland pools (Table 1).²⁹ Additional environments conducive for *Culex* breeding include: residential landscaping, rural land, agricultural sites such as rice fields, and septic holding areas (Table 5). Each of these unique environments has different best management practices, but one commonality is contacting the property manager and developing an overall property management plan that is tailored to the species and geography before any habitat modification occurs. These plans can

Table 5. Example *Ae. aegypti*, *Ae. albopictus*, and *Culex* spp. habitats^a

<i>Ae. aegypti</i> and <i>Ae. albopictus</i>	Urban <i>Culex</i>	Suburban/ Rural <i>Culex</i>
Birdbaths	Catch basins	Kids play equipment
Cemetery urns	Road-side ditches	Waste lagoons
Unmaintained swimming pools	Curbside gutters	Federal properties
Pet bowls	Abandoned swimming pools	Sewage treatment plants
Septic ditches	Ornamental pods	Snow melt
Lawn swales	Junkyards	Retention & detention basins
Street catch basins	Retention basins	Agricultural fields
Depressions in tarp covers	Illegal dump sites	Illegal dump sites
Tires, new & used	Tires	Rice fields
Broken appliances	Abandoned buildings	Tire piles
Vegetation	Neglected septic	Tree holes
Open water storage tanks	Storm sewer systems	Forest pools (woodland pools)
Bottle caps	Sewage treatment facilities	Animal watering troughs
Buckets	Damaged water treatment sites	Floodwater habitats
Scrap yards with pools in junk	Kids play equipment	Over-irrigated landscaping
Fast-food containers & cups	Poorly designed rain gardens	Conservancy areas
Roadside ditches	Underground storm systems	Duck clubs
Houseplant containers & trivets	Dumpsters	Septic ditches
Garbage bins & cans	Backyard buckets & tarps	
Bromeliads	Septic ditches	
Fountains	Uncovered garbage bins	
Coolers	Non-functional water treatment sites	
Gutters & drains with standing water		
Rainwater corrugated extension spouts		

^a Any container or area that can hold water for 5-7 days. Mosquito habitats can overlap; however, specific species may vary based on habitat and location. When possible, identify mosquitoes to species to discern level of public health threat.

include many different methods but may involve eliminating depressions in the ground that can hold water (e.g., laser leveling), introducing water current to dissuade oviposition by gravid females, and/or eliminating the source of excess water (e.g., preventing overirrigating of ornamental plants).

Permanent waterbodies such as ponds, lakes, and rivers are generally not suitable for oviposition due to the presence of natural predators, such as small fish or aquatic insects, and fast-moving currents. Some species of *Culex* larvae may be found in the periphery of these types of water, but careful identification of the species is necessary before eliminating or modifying these habitats because not all *Culex* mosquitoes can transmit arboviruses to humans and control efforts should not target them. For instance, *Cx. territans* larvae may be found in the vegetation of ponds, but adult mosquitoes of this species do not feed on birds or humans and do not warrant any control efforts.

Container *Culex*, *Aedes aegypti*, and *Ae. albopictus*

In urban environments, artificial containers can be significant breeding sites for mosquitoes such as *Cx. quinquefasciatus*, *Ae. aegypti*, and *Ae. albopictus*. Source reduction, if carried out comprehensively, is the most effective control method against container-inhabiting *Aedes* species.¹¹³ However, this method is operationally difficult to implement and sustain. Container removal programs and so-called “tip-and-toss” techniques (overturning containers holding water) are effective in eliminating habitat and may be combined with direct larvicide treatments.¹¹⁴ Given the large number of potential container sources (Table 5) and circumstances where many of these containers are situated on private property, this approach may have

only limited success while being labor-intensive and time-consuming. Successful “tip-and-toss” programs almost always require public education efforts and close cooperation with the community (See section on [Community Engagement](#)). Such programs have met with varied success. In central New Jersey, *Ae. albopictus* populations were suppressed (75% fewer adults) by combining source reduction efforts with ultra-low volume (ULV) adulticiding.⁵⁷

Containers harboring disease vectors can be natural or artificially occurring (Figure 10).¹¹⁵ Examples of natural habitats include tree holes and pitcher plants. Artificial habitats may be containers such as tires, cemetery vases, and illegally dumped trash. Identification and elimination of standing container water sources, even if small, is a critical element for controlling these mosquitoes. In a New Jersey inner-city urban neighborhood, the most abundant containers with *Ae. albopictus* larvae were small trash items and the least abundant were tree holes, suggesting that mosquito control servicing urban environments should focus efforts on artificial containers.⁶⁵ Containers harboring *Cx. quinquefasciatus* and *Aedes* spp. may not be just “trash.” Many of these containers are in use by homeowners (e.g., for recycling or water storage) and, thus, cannot simply be eliminated. Where feasible and acceptable, proactively drilling drainage holes in such containers may be useful.

The variety, abundance, and frequently obscure locations of container breeding larval habitats (Table 5) means total elimination requires a level of control that is not currently possible within most IMM programs. Environmental control and source reduction efforts begin with a detailed larval survey to determine the key container types that serve as sources for local mosquito populations. Notably, removal of conspicuous open containers may “push” *Ae. albopictus*

Figure 10. Various containers collecting water resulting in the creation of mosquito habitats



Source: Ary Faraji



BIOLOGICAL CONTROL

Summary

- Large aquatic predators such as *Gambusia* spp. fish may control mosquito larvae to some extent in permanent or semi-permanent bodies of water but will not control adult mosquitoes fully.
- Small aquatic predators (e.g., *Toxorhynchites* spp. mosquitoes) may reduce the number of mosquitoes in an area; however, using these organisms present challenges such as: cost of rearing and implementation and susceptibility to other mosquito control methods.
- Implementing biological control programs require significant resources, thus, the cost of implementation may be prohibitive.
- Proper agencies must be consulted, and the potential environmental impact must be assessed before releasing any biological control agent.
- Bats, birds, and dragonfly nymphs are not an effective component of a mosquito control program.

Biological control (biocontrol) uses one or multiple organisms to control another organism such as mosquitoes.⁵³ Examples of biological control agents include vertebrates, invertebrates, and microorganisms.¹¹⁶ Mosquitocidal bacteria and insect growth regulators are discussed in depth in the [Larvicides, Pupicides, and Adulticides section](#). However, these larvicides can be categorized as biocontrol, and personnel should refer to their organizations' classification.

Fish are readily available predators that can be used for biocontrol. The mosquitofish, *Gambusia* spp., are small fish native to eastern North America and may be considered an invasive species elsewhere. Typically, *Gambusia* spp. are most effective in permanent habitats where *Culex* and *Anopheles* are the primary species

of concern, mosquito densities are low, and vegetation is relatively sparse.⁵³ Their ability to control mosquitoes varies widely from excellent to none.⁵³ Success has been demonstrated in semi-permanent habitats such as rice fields¹¹⁷ and is recommended for some wetland habitats in California. The fathead minnow, *Pimephales promelas*, has been shown to control *Culex* populations while reducing the need for larvicides and may be an effective biocontrol species in areas where the fish is native.¹¹⁸

Unfortunately, problems exist when using fish in biocontrol programs. *Gambusia* spp. and other fish do poorly in colder climates and may negatively impact native species.¹¹⁹ Additionally, the fluctuating nature of aquatic habitats that support *Culex* mosquitoes present specific

problems for establishing fish populations. If there is significant rain, small fish introduced into ditches may be flushed to permanent water bodies resulting in the need to restock fish. Alternatively, if the ditch dries out, the fish will die. Introducing fish may also introduce diseases into the natural environment.¹²⁰ Agencies wishing to explore the use of biocontrol need to source fish carefully or raise their own. Raising fish requires significant resources including time, money, equipment, and personnel.

Biological control of container-inhabiting mosquitoes poses challenges. Sources of water can be cryptic and ephemeral. Thus, identifying sources then introducing and sustaining biocontrol agents is difficult. For these mosquitoes, simply removing water sources from the environment is generally more effective. However, smaller predators (e.g., *Mesocyclops longisetus* [predacious copepods]) have been used with some success.¹²¹ Mosquito larvae in the genus *Toxorhynchites* are predatory on small aquatic organisms including other mosquitoes (Figure 11)¹²² and have been associated with reduced populations of *Ae. albopictus* when both species coexist in the same habitat.¹²³ Mass rearing *Toxorhynchites* spp. can be challenging and expensive,^{122, 124} and using these mosquitoes in biocontrol programs can be further complicated if chemical intervention occurs after release.¹²⁴ However, releasing *Toxorhynchites* may be a useful control tool in certain situations.¹²⁴

Recently, sterile male technique has been investigated to control populations of invasive *Aedes* in the U.S. using either genetically modified males or males infected with the bacteria *Wolbachia*.⁵³ In short, male mosquitoes that prevent females from laying viable eggs are created in the laboratory. These males are then released, mate with female mosquitoes, and interfere with the normal reproduction of a

Figure 11. *Toxorhynchites rutilus* larva eating mosquito larva



Source: Anita Schiller

wild population.⁵³ Large field trials in the U.S. have investigated two different approaches and have shown promising results.^{53, 125, 126} However, challenges to these techniques include mass rearing enough males, sorting male and female mosquitoes, and negative public perception.¹²⁷

Bats,¹²⁸ birds,¹²⁹ and dragonfly nymphs have been suggested as voracious predators of mosquitoes; however, evidence suggests that this is not true. They are not selective predators of mosquitoes and are not effective at reducing adult mosquito populations.

Before introducing any biological control organisms, keep non-target organism impacts in mind. Additionally, refer to any state or local regulations and obtain necessary permitting.



LARVICIDES, PUPICIDES, AND ADULTICIDES

Summary

- Always read and follow product labels.
- Avoid stockpiling insecticides by only purchasing enough product for one season.
- Always store and transport pesticides according to label requirements.
- Using both larvicides and adulticides in a mosquito control program best manages populations of mosquitoes by killing existing adults and preventing new adults from emerging.
- Immature mosquito control:
 - Choices of larvicides and pupicides are based on the individual needs of mosquito control programs.
 - Factors to consider when choosing appropriate products include species of concern, efficacy, potential for resistance, cost, target specificity, regulatory requirements, and environmental compatibility.
 - Application of larvicides and pupicides should be considered in the context of an IMM program to control mosquitoes.
 - Selection of formulation and application method should be based on the larval habitat and species.
 - Granules and pellets may be applied by hand, rotary disk spreaders, power backpack blowers and sling seeders; or by using aircraft and vehicle-mounted spreaders.
 - Briquettes, water-soluble pouches, tablets, or dunks may be directly applied by hand or with specialized dispensing equipment.
 - Conventional liquid larvicide applications targeted to discrete habitats should be made with medium to very-coarse size droplet spectra (ASABE S572.1 Droplet Size Classification).
 - Low-volume (LV) liquid larvicide applications for wide-area control should be made using target-specific larvicides, appropriate equipment, and very-fine (VF) to fine (F) droplet sizes (ASABE S572.1 Droplet Size Classification) during periods of favorable atmospheric conditions. Conventional ultra-low volume (ULV) equipment is generally not appropriate for these applications.
 - Hot spot treatments such as backpack LV sprays for container mosquito control reduce the time and effort needed for door-to-door campaigns in large areas.
- Adult mosquito control:
 - Adulticiding should be used when deemed necessary, according to data gathered in surveillance activities or in response to public health needs.

- o Efforts must be made to focus adulticide applications within intended target areas and avoid non-target organism impacts.
- o Visit the U.S. Fish and Wildlife Service (USFWS) Endangered Species website to obtain a list of endangered species that may be in a treatment area before application and /or coordinate activities with local USFWS office.
- o Communicating with the public before an adulticide application ensures people can take precautions if they choose.
- o ULV applications are the only effective means of rapidly reducing transmission risk during arboviral disease outbreaks.
- o ULV applications can be effective in reducing populations of adult container *Aedes* in peridomestic environments, even when applied at night.
- o Both ground and aerial ULV applications of EPA registered public health pesticides are effective at reducing populations of WNV and other mosquito-borne disease vectors.
- o Barrier and residual sprays can provide long-lasting control of adult mosquito populations and should be focused on structures when possible to avoid non-target effects.
- o Additional adult mosquito control methods may exist and could be incorporated into a control program.

General Insecticide Considerations

Insecticide applications for immature and adult mosquitoes may be necessary after other management options have been considered, data from surveillance efforts justifies use, or there is a public health need. Decisions to use insecticides should never be based solely on weather patterns or a regular schedule. When feasible, using both larvicides and adulticides in a mosquito control program best manages populations of mosquitoes by killing existing adults and preventing new adults from emerging. Surveillance-based decisions are essential to avoid unnecessary introduction of insecticides into the environment, non-target effects, or selection for insecticide resistance (see section on [Setting Action Thresholds](#)). When possible, habitat modification or biocontrol methods

should be used in conjunction with all insecticide application procedures (see sections on [Larval Source Reduction](#) and [Biological Control](#)).

When purchasing any pesticide, attempts should be made to acquire the amount needed for one season to avoid creating stockpiles. Avoiding stockpiles can save money if future changes to the registration require disposing of excess inventory. Keeping detailed purchasing and usage records help forecast the amount of insecticide needed year to year. If historic data does not exist, reach out to more established / larger mosquito control programs to help anticipate need.

Pesticide product labels must always be read, understood, and followed. Product labels are created by manufacturers and approved by the

Environmental Protection Agency (EPA) with the intent to protect bystanders, application personnel, and the environment, and provide instructions about how to handle and use the product safely.¹³⁰ Additionally, seek-out and follow all federal, state, tribal, and local pesticide licensing and application requirements to avoid breaking the law and incurring penalties. Licensing programs and regulations are similarly created to ensure application personnel are properly trained and to protect people and the environment. Finally, ensure all permits are obtained before applying any pesticide. The EPA National Pollutant Discharge Elimination System program regulates any pesticide coming from a point source that may leave a residue on waters of the U.S. by issuing permits.¹³¹ The agency that issues the permit varies on the location of the pesticide application. More information can be found at <https://www.epa.gov/npdes/pesticide-permitting>.

In the event that stored insecticide products have a cancelled, suspended, or modified product label, consult with federal, state, and tribal laws to ensure use of the product is allowed. For more information on this topic, visit the EPA website at <https://www.epa.gov/pesticide-labels/policy-existing-stocks-pesticide-products>.

Ensure all pesticides are stored, secured, and disposed of appropriately as per label requirements. Pesticide storage cabinets, rooms with sufficient ventilation and locks, and lockboxes on trucks can be used to secure pesticides and prevent unlawful access and use. Pay-for-services exist that will remove and properly dispose of excess pesticides.

Immature Mosquito Control

Larvicides and pupicides are products applied to control immature mosquitoes (larvae and

pupae). Choices of larvicides and pupicides should be based on the individual needs of mosquito control programs, with attention paid to efficacy, cost, potential for insecticide resistance, target specificity, regulatory requirements, and environmental compatibility. Larvicides may be directly placed into water sources such as cemetery vases or catch basins. For small habitats, compressed air sprayers or manual pump backpacks may be used to apply liquid larvicides. Granules or pellets may be applied by hand, rotary disk spreaders, or sling seeders. Larger habitats should be treated using motorized backpacks, vehicle-mounted, or aerial application equipment.

Many different modes of action, active ingredients, and formulated products are commercially available in the U.S. for larviciding (Table 6). Put simply, the mode of action of a pesticide is the way the active ingredient disrupts the normal biological processes of the insect that ultimately results in death. Design of a larvicide strategy that incorporates rotating between different active ingredients is important to mitigate selecting for insecticide resistance. For more information about the mode of action of a pesticide, the Insecticide Resistance Action Committee (IRAC) has resources available online at <https://irac-online.org/>.

Available modes of action for mosquito larviciding in the U.S.: *(Note: Some active ingredients and classes may not be available in every state and use may be restricted. Always follow all local, state, and tribal laws when choosing a larvicide.)*

- Bacterial larvicides – Proteins created by a microbe that disrupt the membrane surrounding an insect’s midgut.
- Insect growth regulators – Hormones that prevent an immature insect from becoming an adult.

Table 6. Larvicide/pupicide mode of action, active ingredients, target specificity, and resistance potential^a

Insecticide Class ^b	Mode of Action	Active Ingredient ^c	Susceptible Organisms	Resistance Potential
Bacterial	Midgut disruptor	<i>Bacillus thuringiensis</i> (Bti)	Diptera (Suborder: Nematocera) - Mosquitoes and black flies are highly susceptible relative to other nematocerans	Very Low ^{12, 13}
		<i>Lysinibacillus sphaericus</i>	Mosquito - species dependent. <i>Aedes (Stegomyia)</i> spp. not susceptible	Moderate (very low in combinations with <i>Bti</i>) ^{14, 15}
Insect Growth Regulator	Prevents immature insects from reaching maturity	S-methoprene	May impact some other arthropods	Moderate (very low in combinations with <i>Bti</i>) ^{15, 16}
		Pyriproxifen	May impact some other arthropods	Presumed Low ^{15, 16}
Spinosyns	Nicotinic-AChE modulator	Spinosad	Insects and some other arthropods	Moderate ^{15, 16}
Oils/Monomolecular Films	Suffocate larvae and pupae	Mineral oil	Invertebrates using surface tension at air/water interface	Presumed Low

^a Not every active ingredient, class, or product may be available in every state. Always follow local, state, and tribal laws before using any larvicide.

^b Based on IRAC classification. The AMCA does not endorse the use of any specific product. Any mention of a product name or active ingredient is not a recommendation or statement of efficacy. .

^c For information on larvicide formulations, see [Table 7](#). Always read and follow label instructions before applying any pesticide

- Chitin synthesis inhibitors – Insecticides that prevent an insect from molting.
- Spinosyns – Toxins obtained from soil bacteria during fermentation that interfere with insect nerve function.
- Film forming surface agents – Oils and fatty acids applied to water surfaces that suffocate pupae and larvae.

As mentioned above, larvicide products should only be applied by trained/licensed personnel in accordance with current EPA label and federal, state, and/or tribal approval. Always read and follow directions on the label.

Larvicides are available in a variety of formulations ([Table 7](#)), including solids such as granules (G, GR, GS), pellet (P, S-PT), direct application tablets (DT), water-dispersible granules (WDG, WG), dry flowable (DF), extended-release briquettes (XR, Ingot), and water-soluble pouches (WSP, XRP). Liquid

formulations include aqueous suspensions (AS, SC), slow-release concentrates (SR), and emulsifiable concentrates (EC). Products are formulated differently to achieve different goals such as easing application, increasing residual activity, improving storage stability, or delivering multiple active ingredients simultaneously.

Choice of formulation should be driven by careful consideration of the target species and habitat. Water dispersible granules, aqueous suspensions, and emulsifiable concentrates are generally sprayed in an aqueous mixture to cover larger open-water sites. Granules and pellets are often necessary for treatment of densely vegetated larval habitats where penetration of liquid sprays is impeded by the canopy. Direct application tablets are also designed for convenient application to container habitats. Water dispersible granules may also be directly applied to containers for residual control. Briquettes and water-soluble pouches

Table 7. Larvicide formulations and usages

Formulation Type	Designations	Application	Habitat and Use Pattern
Granule	G, GS, GR, XR-G	Spreading by hand, manual/power equipment, or aerial application	Floodwaters, vegetated swamps, flooded crops, wetlands
Pellet	P, S-PT	Spreading by hand, manual/power equipment, or aerial application	Residual or pre-treatment of floodwaters, vegetated swamps, flooded crops, wetlands
Direct Application Tablet	DT	Direct container placement	Residual control of container mosquitoes
Extended-Release Briquettes/Tablets	B, XR, XRT	Direct placement to habitat	Residual or pre-treatment of catch basins and other small or remote habitats
Water Soluble Pouch	WSP, XRP	Direct placement to habitat	Residual or pre-treatment in catch basins and other small or remote habitats
Water Dispersible Granule/Dry Flowable	WDG, DF	Spraying suspended in water or measured placement	Area-wide low-volume application and general aqueous spray application; residual treatment of container mosquitoes
Aqueous Suspension	AS, SC, SR	Spraying diluted in water or undiluted	General aqueous spray application and area-wide low-volume application
Emulsifiable Concentrate	EC	Spraying diluted in water	General aqueous spray application

are designed for residual treatment of catch basins and may be used in surface water habitats. Aqueous sprays of water dispersible granules and aqueous suspension formulations are also used in area-wide, low-volume (LV) larvicide applications for cost effective distribution over terrestrial areas for area-wide container mosquito treatments. Film forming surface agents are generally required when a high density of pupae is found in a larval source. Other larvicides are not effective against pupae.

Non-Container Culex

Before managing populations of *Culex* using larvicides, a mosquito control program must know the target species, susceptibility of the target species to the product, target habitat characteristics, treatment history, presence of

non-target species and predators in the treatment area, crop tolerances, phytotoxicity, organic status of agricultural sites (i.e., does the farm grow certified organic produce or not), and available application equipment. Decisions on which product to use and how should be made after carefully considering all the above information. For more information on when and how to use a specific product, contact your pesticide manufacturer or distributor representative.

Knowing the target species and its susceptibility to available products are critical. Susceptibility within populations of mosquitoes can vary widely leading to the selection of insecticide resistance.¹⁵ Local susceptibility profiles and treatment history should be considered in selection of larvicides. Insecticide resistance management strategies can be employed to

delay or prevent the development of insecticide resistance (see section on [Monitoring Insecticide Resistance](#)) and prevent control failures.

Target habitat characteristics are essential to active ingredient and formulation choices. Success in densely vegetated sources will often require granule or pellet formulations as noted above. Organic pollution and water displacement in habitats conducive for *Cx. pipiens* and *Cx. quinquefasciatus* such as septic ditches, sewage lagoons, log ponds, and dairy waste ponds can impact efficacy and the residual profile of larvicides. Additionally, understanding where these waters discharge and making evidence-based treatment decisions should be considered as well.

Extended residual formulations can reduce application labor and are particularly useful for managing *Culex* spp. in storm drains, catch basins, and other urban breeding sites. Careful record keeping and monitoring levels of insecticide resistance are necessary to ensure continued control of populations using these formulations.

Suburban and rural sites such as wetlands, duck clubs, brackish marshes, coastal habitats, and other natural areas can be significant breeding sites for the West Nile virus (WNV) and St. Louis encephalitis virus (SLEV) vectors *Cx. tarsalis*, *Cx. nigripalpus*, and *Cx. salinarius*. Treating these types of sites with larvicides require special care to avoid impacts on non-target species. Follow label directions and communicate with the regional office of the U.S. Fish and Wildlife Service (USFWS; <https://www.fws.gov/endangered/>) and the regional office of the Commerce Department's National Marine Fisheries Service (NMFS; <https://www.fisheries.noaa.gov/contact-directory/regional-offices>). These agencies need to be contacted to determine if there are candidate, threatened,

and/or endangered species in the treatment area. Because these types of sites are used for multiple purposes (i.e., recreation, wildlife refuges, food production, etc.), highly target-specific larvicides should be used when necessary. In agricultural sources, communication with the growers is essential to avoid concerns about crop damage or impacts on organic status of fields. Contact the American Mosquito Control Association for advice on discussions with USFWS and NMFS (<https://www.mosquito.org/page/contact>).

Broadcast application of larvicides will require attention to the type of equipment and calibration. Whether using backpack application, vehicle-mounted sprayers, or aircraft (manned and unmanned), an understanding of the effective treatment swath, downwind displacement, and speed of the applicator or equipment is needed to achieve the proper application rate and on-target deposition. The use of unmanned aerial systems (UAS; also known as drones) in larvicide application is rapidly developing in several mosquito control programs and commercially, especially when habitats cannot be easily reached using other means. Ensure all Federal Aviation Administration (FAA) regulations are followed, and any additional permits are obtained before utilizing UAS.

Container Culex, Ae. aegypti, and Ae. albopictus

For container-inhabiting *Aedes* and *Culex* spp. (such as *Cx. quinquefasciatus*), given the large number of potential larval sites and the fact that many of these containers are located on private property, direct application of larvicides may have only limited success and is labor-intensive, time-consuming, and requires public education efforts and close cooperation with the community (see section on [Community Engagement](#)).¹¹⁴ However, if practical, direct application should be incorporated into an overall IMM approach,

because many of the products available are effective and may have a long-lasting residual effect. Because the larval habitats of these species are containers that tend to hold small volumes of water with little to no outflow, most insecticides that infiltrate those habitats exhibit maximum toxicity and persist for a longer period than if they were applied to open water habitats.¹¹⁴

Area-wide, small-drop, LV larvicide spraying effectively delivers insecticides to broad areas, including container habitats that may be inaccessible for direct application efforts.¹¹⁴
¹³² Area-wide LV larviciding strategies are supported by more than 25 years of research and operational evaluation globally. Like aerosol ultra-low volume (ULV) adulticiding, where the small droplets rely on winds to aid in dispersal, area-wide LV larviciding relies on weather conditions for delivery. The major difference between the two approaches is droplet size. For ULV adulticiding, a droplet size range of 5 to 25 μm is most efficient,¹³³ because this size is most likely to stay aloft and deliver a toxic dose to the adult mosquito on contact.^{133, 134} However, for area-wide LV larviciding, a larger droplet size (30 to 235 μm) is required to create a droplet that is light enough to stay aloft temporarily but heavy enough to settle into containers harboring mosquito larvae.^{135, 136} This approach allows for hundreds of residential parcels to be treated in a single nightly application.⁵⁷

Area-wide LV application of larvicides generally uses aqueous suspensions of WDG formulations of *Bacillus thuringiensis israelensis* (*Bti*) because of affordability, superior efficacy, reduced non-target impact, favorable environmental profile, lack of insecticide resistance, and ease of operational use.⁵⁷ Slow release S-methoprene formulations are also used in some cases. However, not all formulations are labeled for urban and residential area-wide LV application.

Therefore, always consult the product's label to ensure the intended application is permitted. Conventional ULV equipment commonly used in mosquito and vector control programs have insufficient flow rates for area-wide LV application.¹³⁵ When performing area-wide LV applications using backpack and truck mounted sprayers, equipment that generates a volume median diameter (VMD) droplet between 50 to 150 μm is ideal but the entire very fine to fine spectrum can be effective.¹³⁷ Aerial equipment also has been used to apply *Bti* in areas where container mosquitoes are present and risk of arboviruses is high.¹¹⁴

Hot spot treatments rely on ground larval surveillance, aerial photography or imagery, GIS modeling, and adult mosquito or oviposition trap surveillance data to pinpoint hot spots within target communities.¹³⁸ Such an approach may be particularly useful for container-inhabiting mosquitoes because a small number of sites (such as junkyards, tire recycling sites, some residential sites) may be responsible for most of the mosquito production in a given area.^{114, 139} Hot spot treatments reduce the time and effort needed for door-to-door campaigns in large areas and help ease the pressure on mosquito control inspectors. Furthermore, during public health emergencies in response to arboviral disease cases, areas with human cases can be managed quickly and appropriately. Thus, this approach may be used as an effective tool in an IMM program.

Adult Mosquito Control

Adulticides are applied to control adult mosquitoes in flight or at rest.¹¹⁴ Often, the most visible component of a mosquito control program is adulticiding, which can result in a perception that the main activity a mosquito control program performs is adulticiding. However,

Case Studies

Using a Hot Spot Approach to Manage *Aedes albopictus*

In the urban habitats of central New Jersey, a hot spot approach was used for *Ae. albopictus* suppression that leveraged data from adult surveillance traps to determine focal locations of infestation.¹⁴⁰ This approach reduced the use of chemicals and the amount of time spent on source reduction while effectively reducing adult mosquito populations. Notably, targeting hot spots achieved early-season (June to July), area-wide control.

Surveillance was conducted using BGS traps. Trapping locations were selected by overlaying a 175-meter grid over the study sites. These distances were based on the available resources within the county and on knowledge of *Ae. albopictus* flight range. Within the intervention site, 175-meter grid resulted in 16 traps. The authors also sampled the control site to compare *Ae. albopictus* populations within the study site. Grids resulted in 24 BGS traps in the control site. Trapping locations were selected by asking permission from residents located near the center of each fishnet grid.

Sampling was performed once a week for 24 hours using BGS traps that were deployed in the shaded areas of backyards (near vegetation) for each parcel selected. The same trapping location was used every week. A trapping site was identified as a hot spot when five or more *Ae. albopictus* (i.e., intervention threshold) males or females were collected in that one trapping site. After a trapping site was identified as a hot spot, ArcGIS Desktop 9.2 was used to create a 150-meter buffer around that location with three 50-meter increments.

Field crews with maps initiated inspections of selected parcels within the first 50-meter buffer, including front and backyards. After obtaining permission from each owner, control efforts were carried out in as many parcels as possible within each buffer. Field crews were deployed to different parcels to conduct a thorough inspection. Field crews inspected the front and backyards of each parcel, surveying everything that could potentially hold water and produce mosquitoes, such as plant pot saucers, tires, buckets, fence posts, and corrugated extension gutters. After parcels were thoroughly inspected, the alleys were also inspected. During inspections, different control methods (per case) were used, based on the nature of the mosquito infestation. Tires were the only containers removed with the resident's permission. The remaining containers, both with and without water, were treated with a combination of two larvicides and a pupicide based on container type. In addition, overgrown vegetation was managed in abandoned parcels to eliminate mosquito resting areas and detect additional containers hidden under the brush. Barrier spraying was conducted when overgrown vegetation in alleys and abandoned parcels made brush removal unfeasible.

in programs utilizing IMM, the decision to use an adulticide occurs after a pre-established action threshold has been reached and based on mosquito and/or arbovirus surveillance data. Adulticide applications are simply one more tool used in a complete IMM program and often occur only after other control efforts have been exhausted.

In their most basic application, adulticides (Table 8) are applied as a ULV spray, whereby small amounts of insecticide are dispersed by aircraft or truck-mounted equipment. In some jurisdictions, adulticides may also be applied via thermal fogs, utilizing heat to atomize droplets. Adult mosquitoes may also be targeted with “barrier” treatments, which involve application of a residual insecticide to structures (or, when necessary, vegetation) where mosquitoes are

known to rest. For some *Aedes* mosquito species, removal trapping and lethal oviposition traps may be effective. Regardless of where or how an adulticide (or larvicide) is applied, the product label must always be followed.

Efforts must be made to limit exposure of non-target organisms to mosquito control agents and ensure application in target areas. Contact the regional office of the U.S. Fish and Wildlife Service (FWS; <https://www.fws.gov/Endangered/>) and the regional office of the National Marine Fisheries Service (NMFS; <https://www.fisheries.noaa.gov/contact-directory/regional-offices>) to ask if there are candidate, threatened, and/or endangered species in the treatment area. If there are protected species, the FWS and NMFS will provide guidance on local requirements to

Table 8. Adulticide mode of action, active ingredients, application use, and target specificity^a

Insecticide Class ^a	Mode of Action	Active Ingredients ^b	Application Type	Target Specificity
Organophosphate	Acetylcholinesterase (AChE) inhibitors	Naled, malathion	ULV	Designed to target mosquitoes when applied at the correct time, with properly calibrated equipment, and at label rate
Pyrethroid ^c	Sodium ion channel inhibitors	Sumithrin, pyrethrins, etopfenprox, permethrin, tau-fluvalinate; prallethrin; esfenvalerate; bifenthrin; beta-cyfluthrin, deltamethrin	ULV	Designed to target mosquitoes when applied at the correct time, with properly calibrated equipment, and at label rate
			Barrier	Broad range of susceptible insects and non-target organisms

^a AMCA does not endorse the use of any specific product. Any mention of a product name or active ingredient is not a recommendation or statement of efficacy.

^b This list is not meant to be comprehensive. Adulticide formulations include ready-to-use, water dilutables, and oil dilutables. Always read and follow label instructions before applying any pesticide.

^c Piperonyl butoxide (PBO) is a synergist commonly paired with pyrethroids to enhance efficacy.

ensure no imperiled species are impacted. Never apply an adulticide when an endangered species is active. Nighttime applications are most effective to avoid impacting non-target insects and to target flying mosquitoes. Additionally, properly calibrate application equipment each mosquito season to ensure correct droplet size and application rate and to reduce potential non-target impacts. Finally, tracking weather conditions, such as wind and thermal inversions, and using that information to make decisions about application timing helps ensure pesticides do not drift into unintended areas.

Communication with the public about adulticiding activities is critical for maintaining good public perception and relationships, including with elected officials. Notify the public before any adulticiding applications, so they can take any necessary precautions. Additionally, maintaining a list of local beekeepers and organic farmers to be notified prior to any adulticide mission is a common practice for mosquito control programs. Keeping beekeepers and farmers informed allows them to consider measures to protect their hives and crops as deemed necessary. For more information, see the section of this manual on [Community Engagement](#)).

Area-Wide ULV Adulticide Applications

Area-wide adulticide applications rely on atomizing a liquid insecticide to form millions of tiny droplets and dispersing them through the air. These applications are often referred to as ULV, ultra-low volume, applications and are applied with specialized equipment mounted in aircraft, on the back of trucks and ATVs, or by backpack and handheld applicators.⁵³ The products are intended to drift through the target zone, persist in the air, and contact flying mosquitoes. Area-wide ULV applications of

adulticides labeled for public health are short-lived and meant to be effective while airborne. These applications are the only effective means of reducing adult mosquitoes and transmission risk during arboviral disease epidemics.¹⁴¹⁻¹⁴⁴

The primary aim of area-wide ULV adulticide applications is to deliver an effective droplet size using the least amount of insecticide that will control target mosquitoes.¹¹⁴ Droplet sizes ranging from 5 to 25 μm for ground^{133, 145} and 25 to 35 μm volume median diameter for aerial ULV applications are considered optimal¹³³; however, operationally, droplet sizes may be larger, and the product labels should always be followed. Weather conditions and habitat structure must be considered when planning and performing applications.^{133, 145} Most often, adulticide applications are conducted in the evening and before sunrise, when a thermal inversion has occurred, to keep the insecticide from dispersing upward, and in light winds to aid in carrying droplets. Backpack sprayers, aerosols, and other handheld applications are similarly used when smaller areas require treatment.

Some form of adult mosquito control intervention^{146, 147} is suggested if an area is experiencing a WNV outbreak. Vector control activities during WNV outbreaks have been effective in reducing mosquito vector abundance and human WNV case numbers when applied intensively and early in the outbreak.^{143, 144} Proactive IMM has also been able to demonstrate a link between WNV infection rates and effective WNV vector population control. The most effective control has been demonstrated through aerial adulticiding by reducing WNV vector populations of *Cx. tarsalis*, *Cx. pipiens*, and *Cx. nigripalpus*,¹⁴⁸⁻¹⁵⁰ mosquito infection rates,¹⁴² and WNV neuroinvasive disease incidence.¹⁵¹ Ground ULV applications of synthetic pyrethroids have also been effective in reducing WNV vector

populations and reducing human risk to WNV by decreasing the overall abundance of infected *Cx. pipiens* mosquitoes in treated areas.¹⁵² The combination of both ground and aerial ULV applications has demonstrated a reduction in populations of *Cx. tarsalis* and infection rates.¹⁵³ Ground-based adulticiding and larval control are suggested forms of control for *Cx. quinquefasciatus*, an important WNV vector in the Southeastern U.S.

Nighttime ULV adulticiding is proving effective in reducing invasive *Aedes* abundance and may be a critical component of IMM programs during disease epidemics. Historically, ULV applications were thought to be ineffective in controlling diurnally active urban mosquitoes, such as *Ae. aegypti* and *Ae. albopictus*, potentially as a result of structural obstacles that protect gravid or engorged females resting during nighttime ULV applications.¹⁵⁴ However, new evidence suggests that such applications may be effective in reducing these adult mosquito populations.¹⁵⁵ There is growing evidence that container *Aedes* in peridomestic environments may be active at night and that ULV applications within urban and suburban habitats may penetrate into these habitats that were previously believed to be inaccessible.¹⁵⁶ Advances in formulations and technology are driving changes in adulticide applications targeting these container species, leading to use of the minimum effective dose for maximum efficacy, precision, and accountability.

Residual Barrier Adulticides

Residual applications are used when a longer-term effect is required and are often referred to as barrier or surface treatments. Mosquitoes must land on a surface deposit of the insecticide to absorb a toxic dose. Because the treated areas are generally small, handheld devices, such as a backpack blower or hand pump sprayer,

are employed. The insecticide is applied at a sufficient concentration that a mosquito landing on the treated surface will absorb enough of the active ingredient to cause mortality. Barrier treatments can provide control for days or even weeks, depending upon the insecticide formulation and weather. Carefully reading, understanding, and following the product label before applying must occur. Some pesticide product labels restricts where and when the product can be used. In general, these applications are primarily conducted with synthetic pyrethroids and applied to vegetation, unmovable large containers, external walls of homes, sheds, and fences in residential backyards. Although this method of application may be effective against the targeted species, it remains subject to the labor, time, and local property law issues associated with any door-to-door application scheme.¹⁵⁴

When possible, barrier or residual applications should be made to structures to avoid non-target organisms encountering insecticides and when wind speeds are low to avoid drift. If barrier applications must be made to vegetation, ensure adulticides are only applied to non-flowering vegetation to avoid inadvertent contact with bees and other pollinators.

Barrier or residual applications may have widely varying results. However, they are generally most effective when applicators concentrate on a specific area that supports large larval populations or selected resting sites for peridomestic adult mosquitoes. While most barrier application studies have focused on urban container-inhabiting mosquitoes, there have been a number of studies looking at barrier applications on controlling *Culex* populations with mixed results,¹⁵⁷⁻¹⁶⁰ and thus, are generally not recommended. Conversely, studies suggest that barrier spraying of residual insecticides

is effective in reducing biting populations of *Aedes*.^{159, 161}

Removal Trapping

Removal trapping involves the use of traps and attractants to lure and capture enough mosquitoes so that a measurable reduction in the population occurs.⁵³ Few studies have evaluated the use of removal trapping for management of *Culex* and other nuisance mosquitoes, and this method is generally not recommended.

Mixed results have been obtained using traps to manage *Aedes* species.^{162, 163} Traps have been used with success to reduce biting pressure locally from the western treehole mosquito, *Ae. sierrensis*.¹⁶² This species primarily undergoes one or two generations per season and does not fly far from its larval developmental sites, so removing biting adult mosquitoes through trapping is a viable control option.¹⁶² Similarly, *Ae. aegypti* and *Ae. albopictus* do not fly far from larval developmental sites and some studies have shown a reduction in population abundance¹⁶⁴ and human biting rates compared with no intervention.¹⁶⁵

Cost and labor are a major issue in using removal traps of any type for control, because trap density and maintenance requirements are high. Therefore, their utility may be limited, and they are not typically recommended for the reduction

of risk during an ongoing disease outbreak.
Lethal Oviposition Traps

Oviposition traps are simple, inexpensive devices consisting of a small cup that holds water, often mixed with an oviposition lure and provides a substrate on which gravid mosquitoes may lay their eggs.¹¹⁴ Oviposition traps have utility for container *Aedes* because of their predilection to oviposit in artificial containers, but may be useful for other container species such as *Cx. quinquefasciatus*. As outlined above, these devices have been used extensively for conducting surveillance for container *Ae. aegypti* and *Ae. albopictus*.

Lethal (autocidal) oviposition traps, such as the CDC-AGO, combine oviposition stimulants with insecticides or mechanical means of ensuring that the trap does not produce adult mosquitoes. These traps have consistently been shown to be effective in reducing populations of container-inhabiting mosquitoes.^{9, 78, 166-169} Sustained and effective reductions of *Ae. aegypti* populations (80%) have been achieved using CDC-AGO traps (three per home) in more than 85% of houses in neighborhoods from southern Puerto Rico.⁷⁸ Like removal traps, lethal oviposition trapping program have a high labor cost, because trap density and maintenance requirements are high. Therefore, their utility may be limited to small geographies within an IMM program.



MONITORING INSECTICIDE RESISTANCE

Summary

- The American Mosquito Control Association recommends following the procedures for pesticide resistance testing outlined by the U.S. CDC to prolong the life of currently available products, compare results through time and region, and assess trends.
- Annual resistance testing should be a routine component of all integrated mosquito management programs and occur prior to the start of each mosquito season.
- Resistance testing should be conducted before a product is first used.
- Resistance testing should follow published protocols to provide standardized results.
- A quick resistance assessment should be conducted prior to emergency adulticiding.
- Test results should be reported to appropriate groups.

Insecticide resistance can be defined as a genetically heritable trait that may impair control in the field.¹⁷⁰ If enough individuals in a population can survive exposure to an insecticide, failure of that product to control the populations is possible. Because of this, resistance to insecticides is a potential threat to all mosquito control programs. An IMM program places a priority on mitigating insecticide resistance by using insecticides rationally, monitoring pesticide resistance routinely, rotating to different classes of pesticides when available, and managing insecticide-resistant populations through better coordination among mosquito control programs, insecticide manufacturers, state agencies, and other stakeholders.

In the U.S. only two EPA registered classes of insecticides, pyrethroids and organophosphates, are currently available for adult mosquito control and reports of resistance have been documented

for many species including *Aedes* and *Culex* mosquitoes.¹⁷¹⁻¹⁷⁴ Despite these documented cases, the true prevalence of resistance is likely greater, since many programs do not routinely monitor insecticide resistance locally. Further, the data are frequently not reported in a timely manner, or, in some cases, at all. The Arthropod Pesticide Resistance database maintained by the Michigan State University provides reports submitted by programs around the world on insecticide resistance.¹⁷⁵

Mechanisms of Resistance

Mechanisms of insecticide resistance are broadly categorized into four groups: enhanced metabolism, decreased target-site sensitivity, reduced cuticular penetration, and behavioral resistance.^{53, 176, 177} Enhanced metabolism occurs when individuals of resistant populations overproduce enzymes that prevent the active

ingredient from reaching its target site. Decreased target site sensitivity occurs when a mutation of the target site prevents or decreases the active ingredient from disrupting the normal biological processes. Reduced cuticular penetration occurs when changes to the insect exoskeleton slow absorption of the insecticide into the body usually through a thickened wax layer. Finally, behavioral resistance occurs when a behavior by some mosquitoes allows them to avoid encountering an insecticide and survive, thus increasing the frequency of any genetic factors that contribute to the avoidance behavior in the next generation. If this happens enough, over time, the population of mosquitoes will largely exhibit the same behavior and avoid insecticide exposure.

Insecticide Resistance Management

An insecticide resistance management strategy should be developed for all programs using pesticides to prevent the selection of resistance. Different modes of action are important because if a population of mosquitoes begins to exhibit resistance to one mode of action, the first mode of action should be discontinued and a second, different mode of action should be used. In some cases, multiple active ingredients may be combined to overcome the development of resistance.

Classes of insecticides for adult control in the U.S. are limited to organophosphates and pyrethroids resulting in limited options for a rotational program. However, more classes of insecticides are available for larval control ([Table 6](#)) allowing for more sophisticated insecticide resistance management strategies to be implemented. Consequently, when feasible, insecticide resistance should be monitored against larvicides and adulticides to inform decisions about product choice.

Figure 12. Investigating susceptibility to adulticides using the CDC Bottle Bioassay



Source: Chris Fredregill/Harris County Public Health Mosquito and Vector Control Division

BREAK-OUT BOX:
Performing Insecticide Resistance Testing

To prolong the life of currently available products and assess efficacy trends through time, monitoring for insecticide resistance is recommended. Evaluating resistance in adult and immature mosquitoes requires different techniques.

To evaluate resistance in adult populations and ensure standardized data, the AMCA recommends the CDC Bottle Bioassay (see website below; [Figure 12](#)). In short, a known concentration of insecticide is added to a bottle, and allowed to dry. Adult mosquitoes of approximately the same age are placed into the bottle, and mortality is recorded for 2 hours. The resistant status of the population is determined by the percent of the mosquitoes that died during this time frame. In addition, the assay provides insight into the strength of the resistance mechanism(s) and if selection is actively occurring. A more detailed protocol and information on this method can be found on the CDC website at <https://www.cdc.gov/mosquitoes/mosquito-control/professionals/cdc-bottle-bioassay.html>.

Many different protocols exist to evaluate resistance to larvicides; however, no one method has been established as the standard. The most important factors to keep in mind when evaluating larvicide resistance is only comparing data generated using the same protocol and species. Different protocols will expose mosquitoes to the larvicide differently and affect results. Additionally, different species of mosquitoes could have different levels of susceptibility. Due to these and other factors, contacting an established mosquito control program for recommendations on effective larval resistance assays is recommended.

When performing insecticide resistance bioassays, as many variables as possible should be standardized to ensure results collected reflect changes in susceptibility to the insecticide rather than differences caused by other variables such as age. To ensure mosquitoes are all the same age, eggs should be collected in the field and reared in the laboratory. To collect egg rafts of different *Culex* species, gravid buckets without the collection device on top (i.e., bait buckets), containing water infused with grasses such as hay can be used to accumulate egg rafts on the water surface. Similarly, to collect invasive *Aedes* eggs, oviposition cups can be used. These traps should be placed in the shade and out of direct sunlight. Additionally, egg traps should be checked and serviced every 24 to 48 hours to collect viable eggs and prevent the traps from becoming a source of adult mosquito production. Eggs collected can be taken back to the laboratory and allowed to mature to the desired age/life stage. Rearing mosquitoes using this method provides enough individuals from one location of a known age to evaluate the effectiveness of insecticides.



RECORD KEEPING

Summary

- Record keeping procedures and requirements are determined by the lead regulatory agency for the location, which could be a state, federal, or tribal authority.
- Surveillance reports for all mosquito species should be maintained for the evaluation of interventions; factors that should be recorded include:
 - Results from mosquito egg, larval, and adult surveys
 - Records of surveillance locations and mosquito collection data
 - Records of virus testing results
 - Results of resistance monitoring of local mosquito populations
- Operators / applicators must follow the record keeping and retention requirements of the lead regulatory authority. At minimum, application records should contain:
 - Applicator's name, address, and pesticide applicator certification number (if applicable)
 - Application date, time of day, and weather conditions
 - Product name and Environmental Protection Agency registration number
 - Location of application and approximate size of area treated (spray tracks, as recorded by an appropriate GPS system, are desirable)
 - Rate of material applied and total amount applied
- Records also must be maintained on the certification and recertification of all personnel licensed to apply pesticides.
- Records should be kept on the calibration and maintenance of application equipment.
- Integrated mosquito management programs should also include provisions for:
 - Logging / tracking citizen complaints and service requests
 - Maintaining records of non-chemical interventions, including community education, door-to-door outreach efforts, waste tire removals, and container elimination campaigns

Accurate record keeping is essential for a mosquito surveillance and control program. Record keeping procedures and requirements are determined by the lead regulatory agency for the location, which could be a state, federal, or tribal authority. Even if record keeping is not required by a regulatory body, data should be collected

and maintained at the finest resolution possible. At the local level, surveillance data are used to develop accurate distribution and abundance maps, perform statistical analysis to support the decision to initiate control measures ([Setting Action Thresholds](#)), evaluate the impact of control measures, and justify requested resources.

At the state and federal level, surveillance data are used to monitor invasive species and emerging diseases.

Collecting too much data is better than not enough. Additional locations in the surveillance program will increase the likelihood of detecting the presence of a mosquito species. Additionally, negative surveillance results also yield important information.¹⁷⁸ As suggested by the CDC, each collection should be assigned a unique identification number or name. This allows for efficient sample tracking within and between years. The following minimum information should be recorded: life stage targeted, collection method, date, location (city / town and county / parish, address or GPS coordinates), habitat type, and number and type of mosquitoes collected (genus, species, and when possible sex and number). Survey, surveillance, and control data should be collected at the finest possible resolution. *(Note: A survey is a one-time gathering of data, often to detect a species presence or absence, whereas a surveillance program is a continuous process to monitor changes in mosquito populations.)*

If mosquitoes are tested for the presence of arboviruses, the number tested, assay used, and laboratory result should also be recorded. A unique identifier for each sample tested should be used so that each test pool of mosquitoes can be linked back to the original trap night along with full trap details for that location. Additionally, when mosquito populations are collected and tested for the presence of insecticide resistance, the above location information should be collected, as well as number of mosquitoes tested, active ingredient, inhibitor (if used), concentration(s) (μg /bottle), time (between bottle preparation and testing, diagnostic time, and total test time), percent mortality, and, if applicable, time 100% mortality is achieved.

Arbovirus detection data is reported to the CDC through a national arboviral surveillance system, ArboNet (<http://www.cdc.gov/westnile/resourcepages/survresources.html>).

Mosquito control and public health agencies can also use the VectorSurv system through the VectorSurv Gateway (<https://gateway.vectorsurv.org>), which is an online interface for managing and analyzing surveillance and control data related to mosquitoes and arboviruses. The VectorSurv Gateway requires login credentials for each user, who must belong to an identified agency. Each agency maintains all privileges to manage its own data and user accounts, and higher-level aggregate reporting functions are managed by state.

Perhaps most important, pesticide application information should be documented and records maintained as required to comply with federal laws to protect the applicator and the environment. Violations could result in lawsuits, fines, and / or loss of license. Prior to making any applications, contact the lead regulatory authority for the Federal Insecticide, Fungicide, and Rodenticide Act, Clean Water Act, and the Endangered Species Act in your area and document those interactions. In some cases, securing the proper certifications, permits, and authorizations to apply pesticides can take a month or more. Additionally, many applications could require public notification, so plan accordingly.

1. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) compliance - The FIFRA regulated the sale, use, and disposal of pesticides. Federal law mandates record keeping for Restricted Use Pesticides, but the states and territories have the authority to enforce their own requirements on general use products. Contact the lead

regulatory agency for pesticide licensing and record keeping requirements in your state. The Association of American Pesticide Control Officials provides resources to identify the lead agency in every state and can be found at <https://aapco.org/2015/07/28/resources-2/>.

At a minimum, pesticide application records should contain the applicator's name, address, and pesticide applicator certification number (if applicable), date of application, name and EPA registration number of the product applied, rate of material applied, total amount applied, location of application, and approximate size of area treated. Documenting time of day, weather conditions, and spray tracks or blocks, as recorded by an appropriate GPS system, is desirable.

2. The Clean Water Act (CWA) compliance -

The CWA regulates point source pollution to, over, or near the waters of the U.S. Thereby, biological and chemical pesticides that leave residues on waters located in the U.S. are required to comply with the National Pollution Discharge Elimination System (NPDES) requirements.¹³¹ The NPDES pesticide general permit allows for discharges resulting from pesticide applications. The EPA provides a decision making tool to help applicators determine if they need a NPDES Pesticide General Permit (<https://www.epa.gov/npdes/pesticide-permitting-permitting-decision-tool>). Mosquito control entities must either apply for coverage under the EPA's NPDES Pesticide General Permit or obtain coverage under their state's permit. Contact the lead agency in your state for NPDES permitting to obtain the most current version and proper procedures for filing a Notice of Intent within the state. This will typically

be the authority on water quality (<https://www.epa.gov/npdes/npdes-state-program-authority>). Pesticide applications must also still comply with all state pesticide regulations statutes, and FIFRA labeling.

3. The Endangered Species Act (ESA) compliance -The purpose of the ESA is to protect endangered or threatened species and the ecosystems they live in, and is enforced by the U.S. Fish and Wildlife Service (FWS) and the Commerce Department's National Marine Fisheries Service (NMFS).¹⁷⁹ Contact the regional office of the FWS (<https://www.fws.gov/endangered/>) and the regional office of the NMFS (<https://www.fisheries.noaa.gov/contact-directory/regional-offices>) and ask if there are candidate, threatened, and/or endangered species in the treatment area. If there are protected species, the FWS and NMFS will provide guidance on local requirements to ensure there is no take as defined under the ESA. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."¹⁸⁰

Make sure to consult the lead regulatory agency in your state when creating and using any form or datasheet because some jurisdictions may require the use of preapproved datasheets. Datasheet requirements should be covered during the state pesticide licensing process. Spreadsheet and database software are readily available for data entry and management and can be performed simply in programs such as Microsoft Excel. Data can be housed locally or in protected online formats, and procedures should be created for data entry and backup. Extensive external data management support programs are available but are often expensive and unnecessary for smaller programs.



GLOSSARY

Adulticide- Insecticides that kill adult mosquitoes¹⁸¹

Antibody- A protein produced by the immune system, due to the presence of a foreign substance, to protect the host¹⁸²

Antigen- A substance that can stimulate an immune response¹⁸³

Application rate- The amount of pesticide applied to an area¹⁸⁴

Arthropod- An animal that has an exoskeleton, segmented body, and jointed appendages such as insects, spiders, crustaceans, and ticks¹⁸⁵

Biological control- Using one organism to eliminate or control the population of another organism

Broadcast application- Applying a pesticide uniformly to an area¹⁸⁶

Channel- The way a message is sent such as radio announcements, social media, community festivals, schools, clubs, churches, and other organizations

Cold chain- Maintaining a sample at ultra-low temperatures from collection to testing, generally, requires dry ice or liquid nitrogen²⁸

Desiccated- Dried out¹⁸⁵

Diptera- Order of insects containing flies and mosquitoes¹⁸⁵

Direct application- Spot treatment when an insecticide is applied directly to the pest¹⁸⁶

Diurnal- Active during the day¹⁸⁵

Effluent- Waste material discharged into the environment, such as smoke, liquid industrial refuse, or sewage. The material is often a pollutant.¹⁸⁷

Emerging- A disease that has never existed in a population before, or one that has but the number of cases is rapidly increased¹⁸⁸

Endemic- Regular occurrence of a disease or pathogen in a population within an area¹⁸⁹

Endophilic- A mosquito that often lives and/or rests indoors¹⁹⁰

Enzootic- Constant presence and/or usual prevalence of a disease or infectious agent in a population of animals within a geographic area¹⁸⁵

Epidemic- An increase in the number of disease cases in a population in a geographic area¹⁸⁹

Epizootic- An outbreak of disease in a population of animals in which there is an unusually large number of cases¹⁸⁵

Flow rate- The amount of liquid that moves in one direction during a given time period¹⁹¹

Genus (plural Genera)- A group of species with common characteristics¹⁸⁵

Geographic information system (GIS)- Software that creates, manages, analyzes, and maps data¹⁹²

Granules- Dry products similar to dust formulations except that granules are larger and heavier and cannot be applied with a duster¹⁹³

Hot spots- High adult mosquito populations at very specific locations¹⁴⁰

Infective- Capable of causing infection.¹⁹⁴ Not all mosquitoes that test positive for a virus may be able to spread the virus and cause infection.²⁹

Insecticide resistance- A genetically heritable trait that may impair control in the field¹⁷⁰

Larvae- A young insect that has emerged from the egg but differs fundamentally from the adult¹⁸⁵

Larvicide- Insecticide used to kill immature mosquitoes before they can grow into adults¹⁹⁵

Larvivorous fish- Fish that eats immature stages of mosquitoes

Life stage- Any distinct period in the life of an insect (egg, larvae, pupae, or adult)¹⁸⁵

Metamorphosis- The process of an insect passing from the egg to the adult stage¹⁸⁵

Mode of action- The way an active ingredient disrupts the normal biological processes of the insect resulting in death

Nematocera- Suborder of flies (Diptera) sharing similar characteristics¹⁸⁵

Olfactory- Perceiving chemicals in a gaseous state at relatively low concentrations¹⁸⁵

Ornithophilic- Feeds on birds²⁹

Outbreak- An increase, often sudden, in the number of cases of a disease above what is normally expected in that population in a limited geographic area¹⁸⁹

Oviposit- To lay an egg¹⁸⁵

Peridomestic- Living in and around people's homes¹⁹⁶

Pool- A group of mosquitoes, generally between 1-50 individuals, sorted by species, trap location, and date that are tested for the presence of arboviruses¹⁹⁷

Population dynamics- How and why a population changes in size and structure over time¹⁹⁸

Pupicide- A compound that kills a mosquito pupa

Remote sensing- "The process of detecting and monitoring the physical characteristics of an area by measuring its reflected and emitted radiation at a distance (typically from satellite or aircraft)"¹⁹⁹

Reservoir- An animal that harbors a pathogen and remains infected for extended periods of time²⁰⁰

Resolution- The finest level of detail that can be recorded²⁰¹

Scale- "The amount of reduction between the real world and its graphic representation. It is usually expressed as a ratio (e.g., 1:20,000), or equivalence (e.g., 1 mm = 20 m)."²⁰¹

Spatial- Of space, such as a geographic area²⁰²

Spatiotemporal- Of or relating to space and time²⁰³

Target site- The physical location within an organism where the insecticide acts

Thermal inversion- A reversal of the normal behavior of temperature in the region of the atmosphere nearest the Earth's surface, in which a layer of cool air at the surface is overlain by a layer of warmer air. In other words, the opposite of normal conditions where the air temperature usually decreases with height.²⁰⁴

Ultra-low volume- "The application of the minimum effective volume of an undiluted formulation of insecticide."^{133, 145} For more information, see pages [73](#) and [76](#).

Vector- A animal of public health significance (such as an insect, tick, rat, or arthropod) capable of harboring or transmitting a pathogen(s), or capable of causing human suffering²⁰⁵

Volume median diameter (VMD)- The midpoint droplet size of the spray volume where 50% of the droplets are larger and 50% of the droplets are smaller¹⁴⁵



REFERENCES

1. McNelly, J. and W. Crans. (1989). The larval habitat of *Culex erraticus* in Southern New Jersey. *Proceedings of the New Jersey Mosquito Control Association*, 63-64.
2. Coon, B.R., *Field and laboratory studies of Culex erraticus (Diptera: Culicidae) ability to detect hosts, habitat identification and attempts at colonization*. Ph.D. Dissertation. 2006, University of Florida.
3. NCMBD. (2021). Banded foul water mosquito (*Culex stigmatosoma*). Napa County Mosquito Abatement District. Retrieved September 8, 2021 from <https://www.napamosquito.org/banded-foul-water-mosquito-culex-stigmatosoma>
4. Esterly, A., et al. (2020). *Culex erythrothorax*: Insecticide susceptibility and mosquito control. *bioRxiv*.
5. Reinert, W.C. (1989). The New Jersey light trap: an old standard for most mosquito control programs. *Proceedings of the Seventy-Sixth Annual Meeting of the New Jersey Mosquito Control Association*. Atlantic County Mosquito Unit, 17-25.
6. Sudia, W. and R. Chamberlain. (1962). Battery-operated light trap, an improved model. *Mosquito News*, 22(2), 126-129.
7. Biogents. (2021). The BG-Sentinel: Biogents' mosquito trap for researchers. Biogents. Retrieved March 16, 2021 from <https://www.bg-sentinel.com/>
8. Reiter, P. (1983). A portable battery-powered trap for collecting gravid *Culex* mosquitoes. *Mosquito News*, 43(4), 496-498.
9. Eiras, A.E., T.S. Buhagiar, and S.A. Ritchie. (2014). Development of the Gravid *Aedes* Trap for the capture of adult female container-exploiting mosquitoes (Diptera: Culicidae). *Journal of Medical Entomology*, 51(1), 200-209.
10. Schmidt, R. (1989). Landing rates and bite counts for nuisance evaluation. *Proceedings of the New Jersey Mosquito Control Association*, 76, 34-38.
11. Nasci, R.S., et al. (2013). West Nile virus in the United States: Guidelines for surveillance, prevention, and control. Centers for Disease Control and Prevention: Division of Vector-Borne Diseases. Retrieved April 15, 2021 from <https://www.cdc.gov/westnile/resources/pdfs/wnvGuidelines.pdf>
12. Becker, N. and M. Ludwig. (1993). Investigations on possible resistance in *Aedes vexans* field populations after a 10-year application of *Bacillus thuringiensis israelensis*. *Journal of the American Mosquito Control Association*, 9(2), 221-224.
13. Lacey, L.A. (2007). *Bacillus thuringiensis* serovariety *israelensis* and *Bacillus sphaericus* for mosquito control. *Journal of the American Mosquito Control Association*, 23(sp2), 133-163.
14. Zahiri, N.S. and M.S. Mulla. (2003). Susceptibility profile of *Culex quinquefasciatus* (Diptera: Culicidae) to *Bacillus sphaericus* on selection with rotation and mixture of *B. sphaericus* and *B. thuringiensis israelensis*. *Journal of Medical Entomology*, 40(5), 672-677.
15. Su, T. (2016). Resistance and its management to microbial and insect growth regulator larvicides in mosquitoes. *Insecticides resistance*. InTech Europe, Rijeka,

- Croatia, 135-154.
16. Su, T., et al. (2019). Susceptibility profile of *Aedes aegypti* L.(Diptera: Culicidae) from Montclair, California, to commonly used pesticides, with note on resistance to pyriproxyfen. *Journal of Medical Entomology*, 56(4), 1047-1054.
 17. UCANR. (2017). Definition of integrated pest management. University of California Agriculture and Natural Resources Statewide Integrated Pest Management Program. Retrieved January 12, 2017 from <http://www.plagscan.com/highlight?doc=9872882&source=18>
 18. CDC. (2021). Zika virus: Statistics and map. Centers for Disease Control and Prevention. Retrieved August 31, 2021 from <https://www.cdc.gov/zika/reporting/index.html>
 19. CDC. (2017). Surveillance and control of *Aedes aegypti* and *Aedes albopictus* in the United States. Centers for Disease Control and Prevention. Retrieved November 12, 2016 from <https://www.cdc.gov/chikungunya/pdfs/surveillance-and-control-of-aedes-aegypti-and-aedes-albopictus-us.pdf>
 20. Hayes, E.B., et al. (2005). Epidemiology and transmission dynamics of West Nile virus disease. *Emerging Infectious Diseases*, 11(8), 1167.
 21. Gates, B. (2014). The deadliest animal in the world. GatesNotes. Retrieved August 7, 2021 from <https://www.gatesnotes.com/health/most-lethal-animal-mosquito-week>
 22. Foster, W.A. and E.D. Walker, *Mosquitoes (Culicidae)*, in *Medical and Veterinary Entomology*. 2019, Elsevier. p. 261-325.
 23. Dye-Braumuller, K.C. and M. Kanyangarara. (2021). Malaria in the USA: How vulnerable are we to future outbreaks? *Current Tropical Medicine Reports*, 1-9.
 24. McDonald, E., et al. (2019). West Nile virus and other domestic nationally notifiable arboviral diseases — United States, 2018. *American Journal of Transplantation*, 19(10), 2949-2954. <https://doi.org/10.1111/ajt.15589>
 25. CDC. (2019). Zika virus. 2016 Case counts in the US. Centers for Disease Control and Prevention. Retrieved July 27, 2021 from <https://www.cdc.gov/zika/reporting/2016-case-counts.html>
 26. AMCA. (2021). Mosquito info. American Mosquito Control Association. Retrieved July 21, 2021 from <https://www.mosquito.org/general/custom.asp?page=mosquitoinfo>
 27. Edman, J.D., et al. (1992). Female *Aedes aegypti* (Diptera: Culicidae) in Thailand rarely feed on sugar. *Journal of Medical Entomology*, 29(6), 1035-1038.
 28. Ramírez, A.L., et al. (2018). Searching for the proverbial needle in a haystack: advances in mosquito-borne arbovirus surveillance. *Parasites & Vectors*, 11(1), 1-12.
 29. Rochlin, I., et al. (2019). West Nile virus mosquito vectors in North America. *Journal of Medical Entomology*, 56(6), 1475-1490. <https://doi.org/10.1093/jme/tjz146>
 30. Manore, C.A., et al. (2017). Defining the risk of Zika and chikungunya virus transmission in human population centers of the eastern United States. *PLoS Neglected Tropical Diseases*, 11(1), e0005255.
 31. Lwande, O.W., et al. (2020). Globe-trotting *Aedes aegypti* and *Aedes albopictus*: risk factors for arbovirus pandemics. *Vector-Borne and Zoonotic Diseases*, 20(2), 71-81.
 32. CDC. (2020). Mosquitoes: Potential range of *Aedes aegypti* and *Aedes albopictus* in the United States, 2017. Centers for Disease Control and Prevention. Retrieved July 26, 2021 from <https://www.cdc.gov/mosquitoes/mosquito-control/professionals/range.html>.
 33. Paupy, C., et al. (2009). *Aedes albopictus*, an

- arbovirus vector: from the darkness to the light. *Microbes and infection*, 11(14-15), 1177-1185.
34. PSCAS. (2021). What is community engagement? Penn State College of Agricultural Sciences. Retrieved June 28, 2021 from <https://aese.psu.edu/research/centers/cecd/engagement-toolbox/engagement/what-is-community-engagement>
 35. Stubbe, D.E. (2020). Practicing cultural competence and cultural humility in the care of diverse patients. *Focus*, 18(1), 49-51.
 36. Greiner Safi, A. (2021). Strategic public health communication for vector borne disease prevention session, 2021, March 24. Northeast Regional Center for Excellence in Vector Borne Disease. Cornell University.
 37. Bartlett-Healy, K., et al. (2011). Source reduction behavior as an independent measurement of the impact of a public health education campaign in an integrated vector management program for the Asian tiger mosquito. *International Journal of Environmental Research and Public Health*, 8(5), 1358-1367.
 38. Healy, K., et al. (2014). Integrating the public in mosquito management: active education by community peers can lead to significant reduction in peridomestic container mosquito habitats. *PLoS One*, 9(9), e108504.
 39. WHO. (2021). Community engagement: Module B5. World Health Organization. Retrieved August 7, 2021 from <https://www.who.int/risk-communication/training/Module-B5.pdf>
 40. Rothman, S.E., et al. (2021). Higher West Nile Virus infection in *Aedes albopictus* (Diptera: Culicidae) and *Culex* (Diptera: Culicidae) mosquitoes from lower income neighborhoods in urban Baltimore, MD. *Journal of Medical Entomology*, 58(3), 1424-1428.
 41. Strauss, V. (2016). Hiding in plain sight: The adult literacy crisis. The Washington Post. Retrieved June 28, 2021 from <https://www.washingtonpost.com/news/answer-sheet/wp/2016/11/01/hiding-in-plain-sight-the-adult-literacy-crisis/>
 42. Vágvölgyi, R., et al. (2016). A review about functional illiteracy: Definition, cognitive, linguistic, and numerical aspects. *Frontiers in Psychology*, 7, 1617.
 43. Rea, A. (2020). How Serious is America's Literacy Problem? Retrieved August 15, 2021 from <https://www.libraryjournal.com/?detailStory=How-Serious-Is-Americas-Literacy-Problem>
 44. Robinson, S.F. (2019). Climate communications 101: The trusted Messenger. Institute for Sustainable Energy Blog. Retrieved August 15, 2021 from <https://www.bu.edu/ise/2019/04/16/trusted-messenger/>
 45. AAN. (2020). Allergy & Asthma Network announces national trusted messengers project to address health inequities. Allergy & Asthma Network. Retrieved from <https://allergyasthmanetwork.org/press-page/allergy-asthma-network-announces-national-trusted-messengers-project-to-address-health-inequities/>
 46. King, N. (2021). Local 'trusted messengers' key to boosting COVID vaccinations, surgeon general says. NPR. Retrieved August 15, 2021 from <https://www.npr.org/sections/coronavirus-live-updates/2021/05/05/993754369/administration-plan-will-make-it-easier-to-get-access-to-vaccines>
 47. Simmons-Duffin, S. (2021). Poll finds public health has a trust problem. NPR. Retrieved July 12, 2021 from <https://www.npr.org/2021/05/13/996331692/poll-finds-public-health-has-a-trust-problem>

48. Greiner Safi, A. (2021). Strategic public health communication for vector borne disease prevention. Session 2: Using Theory to Understand Your Audience and Develop Strategy, 2021, April 7. Northeast Regional Center for Excellence in Vector Borne Disease. Cornell University.
49. C-Change. (2012). Visual and web design for audiences with lower literacy skills. Communication for Change. Retrieved June 29, 2021 from https://www.thecompassforsbc.org/sites/default/files/strengthening_tools/6-%20Visual%20and%20Web%20Design%20for%20Audiences%20with%20Lower%20Literacy%20Skills.pdf
50. Potter, A., et al. (2019). Evaluation of a health communication campaign to improve mosquito awareness and prevention practices in western Australia. *Frontiers in Public Health*, 7, 54.
51. EUC. (2017). Toolkit for the evaluation of the communication activities. European Commission. Retrieved June 29, 2021 from https://ec.europa.eu/info/sites/default/files/communication-evaluation-toolkit_en.pdf
52. WHO. (1997). Dengue haemorrhagic fever: diagnosis, treatment, prevention and control. World Health Organization.
53. Lloyd, A.M., C.R. Connelly, and D.B. Carlson. (2018). Florida mosquito control: The state of the mission as defined by mosquito controllers, regulators, and environmental managers. University of Florida, Institute of Food and Agricultural Sciences, Florida Medical Entomology Laboratory.
54. Fred, N. (2019). Public health pest control: Applicator training manual. Florida Department of Agriculture and Consumer Services.
55. Gillies, M. (1980). The role of carbon dioxide in host-finding by mosquitoes (Diptera: Culicidae): a review. *Bulletin of Entomological Research*, 70(4), 525-532.
56. CDPH and MVCAC. (2021). California mosquito-borne virus surveillance & response plan. California Department of Public Health and Mosquito & Vector Control Association of California. Retrieved August 8, 2021 from https://westnile.ca.gov/download.php?download_id=2376
57. Fonseca, D.M., et al. (2013). Area-wide management of *Aedes albopictus*. Part 2: Gauging the efficacy of traditional integrated pest control measures against urban container mosquitoes. *Pest Management Science*, 69(12), 1351-1361.
58. Suter, T.T., et al. (2016). Surveillance and control of *Aedes albopictus* in the Swiss-Italian border region: differences in egg densities between intervention and non-intervention areas. *PLoS Neglected Tropical Diseases*, 10(1), e0004315.
59. Strickman, D. and P. Kittayapong. (2003). Dengue and its vectors in Thailand: calculated transmission risk from total pupal counts of *Aedes aegypti* and association of wing-length measurements with aspects of the larval habitat. *The American Journal of Tropical Medicine and Hygiene*, 68(2), 209-217.
60. Reiter, P. and M. Colon. (1991). Enhancement of the CDC ovitrap with hay infusions for daily monitoring of *Aedes aegypti* populations. *Journal of the American Mosquito Control Association*, 7(1), 52-55.
61. Gopalakrishnan, R., et al. (2012). Studies on the ovitraps baited with hay and leaf infusions for the surveillance of dengue vector, *Aedes albopictus* in northeastern India. *Trop Biomed*, 29(4), 598-604.
62. Mackay, A.J., M. Amador, and R. Barrera. (2013). An improved autocidal gravid ovitrap for the control and surveillance of *Aedes aegypti*. *Parasites & Vectors*, 6(1), 1-13.

63. O'Malley, C. (1995). Seven ways to a successful dipping career. *Wing Beats*, 6, 23-24.
64. Johnson, B.J., et al. (2017). Field comparisons of the Gravid *Aedes* Trap (GAT) and BG-Sentinel trap for monitoring *Aedes albopictus* (Diptera: Culicidae) populations and notes on indoor GAT collections in Vietnam. *Journal of Medical Entomology*, 54(2), 340-348.
65. Unlu, I., et al. (2013). Crouching tiger, hidden trouble: Urban sources of *Aedes albopictus* (Diptera: Culicidae) refractory to source-reduction. *PLoS One*, 8(10), e77999.
66. Kline, D. (2006). Mosquito population surveillance techniques. *Technical Bulletin of the Florida Mosquito Control Association*, 6, 2-8.
67. Li, C.-X., et al. (2015). Field evaluation of three new mosquito light traps against two standard light traps to collect mosquitoes (Diptera: Culicidae) and non-target insects in northeast Florida. *Florida Entomologist*, 114-117.
68. Barrera, R., et al. (2014). Sustained, area-wide control of *Aedes aegypti* using CDC autocidal gravid ovitraps. *The American Journal of Tropical Medicine and Hygiene*, 91(6), 1269.
69. Newhouse, V.F., et al. (1966). Use of dry ice to increase mosquito catches of the CDC miniature light trap. *Mosquito News*, 26(1), 30-35.
70. Maciel-de-Freitas, R., Á.E. Eiras, and R. Lourenço-de-Oliveira. (2006). Field evaluation of effectiveness of the BG-Sentinel, a new trap for capturing adult *Aedes aegypti* (Diptera: Culicidae). *Memórias do Instituto Oswaldo Cruz*, 101, 321-325.
71. Williams, C.R., et al. (2006). Field efficacy of the BG-sentinel compared with CDC backpack aspirators and CO₂-baited EVS traps for collection of adult *Aedes aegypti* in Cairns, Queensland, Australia. *Journal of the American Mosquito Control Association*, 22(2), 296-300.
72. Meeraus, W.H., J.S. Armistead, and J.R. Arias. (2008). Field comparison of novel and gold standard traps for collecting *Aedes albopictus* in northern Virginia. *Journal of the American Mosquito Control Association*, 24(2), 244-248.
73. Bhalala, H. and J.R. Arias. (2009). The Zumba™ mosquito trap and BG-Sentinel™ trap: novel surveillance tools for host-seeking mosquitoes. *Journal of the American Mosquito Control Association*, 25(2), 134-139.
74. Farajollahi, A., et al. (2009). Field efficacy of BG-Sentinel and industry-standard traps for *Aedes albopictus* (Diptera: Culicidae) and West Nile virus surveillance. *Journal of Medical Entomology*, 46(4), 919-925.
75. Ball, T.S. and S.R. Ritchie. (2010). Evaluation of BG-Sentinel trap trapping efficacy for *Aedes aegypti* (Diptera: Culicidae) in a visually competitive environment. *Journal of Medical Entomology*, 47(4), 657-663.
76. Obenauer, P., S. Allan, and P. Kaufman. (2010). *Aedes albopictus* (Diptera: Culicidae) oviposition response to organic infusions from common flora of suburban Florida. *Journal of Vector Ecology*, 35(2), 301-306.
77. Unlu, I. and A. Farajollahi. (2012). To catch a tiger in a concrete jungle: operational challenges for trapping *Aedes albopictus* in an urban environment. *Journal of the American Mosquito Control Association*, 28(4), 334-337.
78. Barrera, R., et al. (2014). Use of the CDC autocidal gravid ovitrap to control and prevent outbreaks of *Aedes aegypti* (Diptera: Culicidae). *Journal of Medical Entomology*, 51(1), 145-154.
79. Service, M. (1992). Importance of ecology in *Aedes aegypti* control. *The Southeast Asian journal of tropical medicine and public health*, 23(4), 681-690.

80. Howard, J.J., J. Oliver, and L.D. Kramer. (2011). Assessing the use of diurnal resting shelters by *Culiseta melanura* (Diptera: Culicidae). *Journal of Medical Entomology*, 48(4), 909-913.
81. TXDSHS. (2019). Technical guidance: Mosquito abatement post weather incident. Texas Department of State Health Service. Retrieved August 8, 2021 from [https://www.dshs.state.tx.us/uploadedFiles/Content/Prevention and Preparedness/commprep/response/Tech_Mosquito_Abatment_Post_Weather_%20Incident_2_25_19%20\(2\).pdf](https://www.dshs.state.tx.us/uploadedFiles/Content/Prevention and Preparedness/commprep/response/Tech_Mosquito_Abatment_Post_Weather_%20Incident_2_25_19%20(2).pdf)
82. FEMA. (2020). Public assistance program and policy guide. Federal Emergency Management Agency. Retrieved August 8, 2021 from https://www.fema.gov/sites/default/files/documents/fema_pappg-v4-updated-links_policy_6-1-2020.pdf
83. Cherry, B., et al. (2001). Sentinel chickens as a surveillance tool for West Nile virus in New York City, 2000. *Annals of the New York Academy of Sciences*, 951(1), 343-346.
84. Unlu, I., et al. (2009). Evaluation of surveillance methods for detection of West Nile virus activity in East Baton Rouge Parish, Louisiana, 2004–2006. *Journal of the American Mosquito Control Association*, 25(2), 126-133.
85. Eidson, M., et al. (2001). Dead bird surveillance as an early warning system for West Nile virus. *Emerging Infectious Diseases*, 7(4), 631.
86. Eisen, L. and R.J. Eisen. (2011). Using geographic information systems and decision support system for the prediction, prevention, and control of vector-borne diseases. *Annual Review of Entomology*, 56(1), 41-61. <https://doi.org/10.1146/annurev-ento-120709-144847>
87. Ghilarducci, E. and S. Schultz. (2011). Using a geographic information system (GIS) as an important component of a comprehensive integrated vector control program. *Proc Papers Mosquito Vector Control Association California*, 77, 175-176.
88. Gimnig, J.E., A.W. Hightower, and W.A. Hawley. (2005). Application of geographic information systems to the study of the ecology of mosquitoes and mosquito-borne diseases. *Frontis*, 27-39.
89. Barker, C.M., et al. (2003). Habitat preferences and phenology of *Ochlerotatus triseriatus* and *Aedes albopictus* (Diptera: Culicidae) in southwestern Virginia. *Journal of Medical Entomology*, 40(4), 403-410.
90. Barker, C.M., C.C. Brewster, and S.L. Paulson. (2003). Spatiotemporal oviposition and habitat preferences of *Ochlerotatus triseriatus* and *Aedes albopictus* in an emerging focus of La Crosse virus. *Journal of the American Mosquito Control Association*, 19(4), 382-391.
91. Ferwerda, C. (2009). Characterizing the relationship between Asian tiger mosquito abundance and habitat in urban New Jersey. Rutgers The State University of New Jersey-New Brunswick.
92. Dowling, Z., et al. (2013). Socioeconomic status affects mosquito (Diptera: Culicidae) larval habitat type availability and infestation level. *Journal of Medical Entomology*, 50(4), 764-772.
93. Schurich, J.A., et al. (2014). Modeling *Culex tarsalis* abundance on the northern Colorado front range using a landscape-level approach. *Journal of the American Mosquito Control Association*, 30(1), 7-20.
94. Manica, M., et al. (2016). Spatial and temporal hot spots of *Aedes albopictus* abundance inside and outside a south European metropolitan area. *PLoS Neglected Tropical Diseases*, 10(6), e0004758.
95. Reiner Jr, R.C., et al. (2013). A systematic review of mathematical models of mosquito-

- borne pathogen transmission: 1970–2010. *Journal of The Royal Society Interface*, 10(81), 20120921.
96. Smith, D.L., et al. (2014). Recasting the theory of mosquito-borne pathogen transmission dynamics and control. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 108(4), 185-197.
 97. Rochlin, I., et al. (2011). Predictive mapping of human risk for West Nile virus (WNV) based on environmental and socioeconomic factors. *PloS One*, 6(8), e23280.
 98. Roiz, D., et al. (2011). Climatic factors driving invasion of the tiger mosquito (*Aedes albopictus*) into new areas of Trentino, northern Italy. *PloS One*, 6(4), e14800.
 99. Caminade, C., et al. (2012). Suitability of European climate for the Asian tiger mosquito *Aedes albopictus*: recent trends and future scenarios. *Journal of the Royal Society Interface*, 9(75), 2708-2717.
 100. Neteler, M., et al. (2013). Is Switzerland suitable for the invasion of *Aedes albopictus*? *PLoS One*, 8(12), e82090.
 101. Kraemer, M.U., et al. (2015). The global distribution of the arbovirus vectors *Aedes aegypti* and *Ae. albopictus*. *elife*, 4, e08347.
 102. Donnelly, M.A.P., et al. (2016). Mapping past, present, and future climatic suitability for invasive *Aedes aegypti* and *Aedes albopictus* in the United States: a process-based modeling approach using CMIP5 downscaled climate scenarios. In *AGU Fall Meeting Abstracts*,
 103. Monaghan, A.J., et al. (2016). On the seasonal occurrence and abundance of the Zika virus vector mosquito *Aedes aegypti* in the contiguous United States. *PLoS Currents*, 8.
 104. Sallam, M.F., et al. (2017). Spatio-temporal distribution of vector-host contact (VHC) ratios and ecological niche modeling of the West Nile virus mosquito vector, *Culex quinquefasciatus*, in the City of New Orleans, LA, USA. *International Journal of Environmental Research and Public Health*, 14(8), 892.
 105. Cardoso-Leite, R., et al. (2014). Recent and future environmental suitability to dengue fever in Brazil using species distribution model. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 108(2), 99-104.
 106. Rogers, D.J., J.E. Suk, and J.C. Semenza. (2014). Using global maps to predict the risk of dengue in Europe. *Acta Tropica*, 129, 1-14.
 107. Kala, A.K., et al. (2017). A comparison of least squares regression and geographically weighted regression modeling of West Nile virus risk based on environmental parameters. *PeerJ*, 5, e3070.
 108. CDPH. (2008). Best management practices for mosquito control on California state properties. California Department of Public Health. Retrieved May 4, 2021 from https://westnile.ca.gov/download.php?download_id=996
 109. Hill, C.A., F. Whitford, and J.F. MacDonald. (2009). Assessing and responding to public health entomology needs in Indiana. *American Entomologist*, 55(2), 114-121.
 110. CDC. (2021). West Nile virus: Mosquito surveillance software. Centers for Disease Control and Prevention. Retrieved May 4, 2021 from <https://www.cdc.gov/westnile/resourcepages/mosqSurvSoft.html>
 111. Bolling, B.G., et al. (2009). Seasonal patterns for entomological measures of risk for exposure to *Culex* vectors and West Nile virus in relation to human disease cases in northeastern Colorado. *Journal of Medical Entomology*, 46(6), 1519-1531.
 112. WHO. (2013). Larval source management: a supplementary malaria vector control measure: an operational manual. World Health Organization.

113. Hawley, W.A. (1988). The biology of *Aedes albopictus*. *Journal of the American Mosquito Control Association. Supplement*, 1, 1-39.
114. Faraji, A. and I. Unlu. (2016). The eye of the tiger, the thrill of the fight: effective larval and adult control measures against the Asian tiger mosquito, *Aedes albopictus* (Diptera: Culicidae), in North America. *Journal of Medical Entomology*, 53(5), 1029-1047.
115. Skiff, J. and D. Yee. (2014). Behavioral differences among four co-occurring species of container mosquito larvae: effects of depth and resource environments. *Journal of Medical Entomology*, 51(2), 375-381.
116. Floore, T.G. (2007). Biorational control of mosquitoes. American Mosquito Control Assoc.
117. Kramer, V., R. Garcia, and A. Colwell. (1988). An evaluation of *Gambusia affinis* and *Bacillus thuringiensis* var. *israelensis* as mosquito control agents in California wild rice fields. *Journal of the American Mosquito Control Association*, 4(4), 470-478.
118. Irwin, P. and S. Paskewitz. (2009). Investigation of fathead minnows (*Pimephales promelas*) as a biological control agent of *Culex* mosquitoes under laboratory and field conditions. *Journal of the American Mosquito Control Association*, 25(3), 301-309.
119. Segev, O., M. Mangel, and L. Blaustein. (2009). Deleterious effects by mosquitofish (*Gambusia affinis*) on the endangered fire salamander (*Salamandra infraimmaculata*). *Animal Conservation*, 12(1), 29-37.
120. CFSPH. (2009). Viral hemorrhagic septicemia: Egtved disease. The Center for Food Security & Public Health. Retrieved August 8, 2021 from https://www.cfsph.iastate.edu/FastFacts/pdfs/viral_hemorrhagic_septicemia_F.pdf
121. Schreiber, E.T., et al. (1996). Effects of *Mesocyclops longisetus* (Copepoda: Cyclopidae) on mosquitoes that inhabit tires: influence of litter type, quality, and quantity. *Journal of the American Mosquito Control Association*, 12(4), 688-694.
122. Schiller, A., et al. (2019). Updated methods for the production of *Toxorhynchites rutilus septentrionalis* (Diptera, Culicidae) for use as biocontrol agent against container breeding pest mosquitoes in Harris County, Texas. *Journal of Insect Science*, 19(2), 8.
123. Nyamah, M., S. Sulaiman, and B. Omar. (2011). Field observation on the efficacy of *Toxorhynchites splendens* (Wiedemann) as a biocontrol agent against *Aedes albopictus* (Skuse) larvae in a cemetery. *Trop Biomed*, 28(2), 312-319.
124. Focks, D.A. (2007). *Toxorhynchites* as biocontrol agents. *Journal of the American Mosquito Control Association*, 23(sp2), 118-127.
125. Mains, J.W., et al. (2016). Female adult *Aedes albopictus* suppression by *Wolbachia*-infected male mosquitoes. *Scientific Reports*, 6(1), 1-7.
126. Mains, J.W., et al. (2019). Localized control of *Aedes aegypti* (Diptera: Culicidae) in Miami, FL, via inundative releases of *Wolbachia*-infected male mosquitoes. *Journal of Medical Entomology*, 56(5), 1296-1303.
127. Schairer, C.E., et al. (2021). Oxitec and MosquitoMate in the United States: Lessons for the future of gene drive mosquito control. *Pathogens and Global Health*, 1-12.
128. Gonsalves, L., et al. (2013). Mosquito consumption by insectivorous bats: does size matter? *PloS one*, 8(10), e77183.
129. Kale, H.W. (1968). The relationship of Purple Martins to mosquito control. *The Auk*, 85(4), 654-661.
130. EPA. (2021). Pesticide registration: Labeling requirements. Environmental Protection Agency. Retrieved July 8, 2021

- from <https://www.epa.gov/pesticide-registration/labeling-requirements>
131. EPA. (2021). National Pollutant Discharge Elimination System: Pesticide permitting. Environmental Protection Agency. Retrieved July 2, 2021 from <https://www.epa.gov/npdes/pesticide-permitting>
 132. Harris, A.F., et al. (2021). An evaluation of *Bacillus thuringiensis israelensis* (AM6552) treatment for the control of *Aedes aegypti* using vehicle mounted WALS® application in a densely populated urban area of Puerto Rico. *Pest Management Science*, 77(4), 1981-1989.
 133. Bonds, J. (2012). Ultra low volume space sprays in mosquito control: a critical review. *Medical and Veterinary Entomology*, 26(2), 121-130.
 134. Haile, D., et al. (1982). Effect of droplet size of malathion aerosols on kill cage adult mosquitoes.
 135. Williams, G.M., et al. (2014). Area-wide ground applications of *Bacillus thuringiensis* var. *israelensis* for the control of *Aedes albopictus* in residential neighborhoods: from optimization to operation. *PLoS One*, 9(10), e110035.
 136. VBC. (2021). WALS. Valent Biosciences. Retrieved July 8, 2021 from <https://www.valentbiosciences.com/publichealth/application-strategies/wals/>
 137. VBC. (2021). Zika, dengue and chikungunya vector control. Valent Biosciences Standard Operating Procedure. Retrieved July 8, 2021 from <http://www.valentbiosciences.com/publichealth/wp-content/uploads/sites/4/2017/02/VBac-WG-backpack SOP-2016 Final USA.pdf>
 138. Suman, D.S., et al. (2014). Point-source and area-wide field studies of pyriproxyfen autodissemination against urban container-inhabiting mosquitoes. *Acta Tropica*, 135, 96-103.
 139. Unlu, I., et al. (2011). Area wide management of *Aedes albopictus*: choice of study sites based on geospatial characteristics, socioeconomic factors and mosquito populations. *Pest Management Science*, 67(8), 965-974.
 140. Unlu, I., et al. (2016). Suppression of *Aedes albopictus*, the Asian tiger mosquito, using a 'hot spot' approach. *Pest Management Science*, 72(7), 1427-1432.
 141. Palmisano, C.T., et al. (2005). Impact of West Nile virus outbreak upon St. Tammany Parish mosquito abatement district. *Journal of the American Mosquito Control Association*, 21(1), 33-38.
 142. Carney, R.M., et al. (2008). Efficacy of aerial spraying of mosquito adulticide in reducing incidence of West Nile virus, California, 2005. *Emerging Infectious Diseases*, 14(5), 747-754. <https://doi.org/10.3201/eid1405.071347>
 143. Chung, W.M., et al. (2013). The 2012 West Nile encephalitis epidemic in Dallas, Texas. *Jama*, 310(3), 297-307.
 144. Nasci, R.S. and J.-P. Mutebi. (2019). Reducing West Nile virus risk through vector management. *Journal of Medical Entomology*, 56(6), 1516-1521.
 145. Mount, G.A., T. Biery, and D. Haile. (1996). A review of ultralow-volume aerial sprays of insecticide for mosquito control. *Journal of the American Mosquito Control Association*, 12(4), 601-618.
 146. Andis, M., et al. (1987). Strategies for the emergency control of arboviral epidemics in New Orleans. *Journal of the American Mosquito Control Association*, 3(2), 125-130.
 147. Simpson, J.E. (2006). Emergency mosquito aerial spray response to the 2004 Florida hurricanes Charley, Frances, Ivan, and Jeanne: an overview of control results. *Journal of the American Mosquito Control Association*, 22(3), 457-463.

148. Elnaiem, D.-E.A., et al. (2008). Impact of aerial spraying of pyrethrin insecticide on *Culex pipiens* and *Culex tarsalis* (Diptera: Culicidae) abundance and West Nile virus infection rates in an urban/suburban area of Sacramento County, California. *Journal of Medical Entomology*, 45(4), 751-757.
149. Macedo, P.A., et al. (2010). Evaluation of efficacy and human health risk of aerial ultra-low volume applications of pyrethrins and piperonyl butoxide for adult mosquito management in response to West Nile virus activity in Sacramento County, California. *Journal of the American Mosquito Control Association*, 26(1), 57-66.
150. Goddard, J. and W.C. Varnado. (2020). Disaster vector control in Mississippi after Hurricane Katrina: Lessons learned. *Journal of the American Mosquito Control Association*, 36(2s), 56-60.
151. Ruktanonchai, D.J., et al. (2014). Effect of aerial insecticide spraying on West Nile virus disease—north-central Texas, 2012. *The American Journal of Tropical Medicine and Hygiene*, 91(2), 240-245. <https://doi.org/10.4269/ajtmh.14-0072>
152. Mutebi, J.-P., et al. (2011). The impact of adulticide applications on mosquito density in Chicago, 2005. *Journal of the American Mosquito Control Association*, 27(1), 69-76.
153. Lothrop, H.D., et al. (2008). Intensive early season adulticide applications decrease arbovirus transmission throughout the Coachella Valley, Riverside County, California. *Vector-Borne and Zoonotic Diseases*, 8(4), 475-490.
154. Faraji, A., et al. (2016). Droplet characterization and penetration of an ultra-low volume mosquito adulticide spray targeting the Asian tiger mosquito, *Aedes albopictus*, within urban and suburban environments of Northeastern USA. *PLoS One*, 11(4), e0152069.
155. Likos, A., et al. (2016). Local mosquito-borne transmission of Zika virus—Miami-Dade and Broward Counties, Florida, June–August 2016. *Morbidity and Mortality Weekly Report*, 65(38), 1032-1038.
156. Farajollahi, A., et al. (2012). Effectiveness of ultra-low volume nighttime applications of an adulticide against diurnal *Aedes albopictus*, a critical vector of dengue and chikungunya viruses. *PLoS One*, 7(11), e49181.
157. Cilek, J. and C. Hallmon. (2006). Residual effectiveness of pyrethroid-treated foliage against adult *Aedes albopictus* and *Culex quinquefasciatus* in screened field cages. *Journal of the American Mosquito Control Association*, 22(4), 725-731.
158. Amoo, A., et al. (2008). Residual efficacy of field-applied permethrin, d-phenothrin, and resmethrin on plant foliage against adult mosquitoes. *Journal of the American Mosquito Control Association*, 24(4), 543-549.
159. Cilek, J. (2008). Application of insecticides to vegetation as barriers against host-seeking mosquitoes. *Journal of the American Mosquito Control Association*, 24(1), 172-176.
160. Britch, S.C., et al. (2009). Evaluation of barrier treatments on native vegetation in a southern California desert habitat. *Journal of the American Mosquito Control Association*, 25(2), 184-193.
161. Trout, R., et al. (2007). Efficacy of two pyrethroid insecticides applied as barrier treatments for managing mosquito (Diptera: Culicidae) populations in suburban residential properties. *Journal of Medical Entomology*, 44(3), 470-477.
162. Kline, D.L. (2006). Traps and trapping techniques for adult mosquito control. *Journal of the American Mosquito Control Association*, 22(3), 490-496.
163. Jackson, M.J., et al. (2012). An evaluation of the effectiveness of a commercial

- mechanical trap to reduce abundance of adult nuisance mosquito populations. *Journal of the American Mosquito Control Association*, 28(4), 292-300.
164. Degener, C., et al. (2014). Evaluation of the effectiveness of mass trapping with BG-sentinel traps for dengue vector control: a cluster randomized controlled trial in Manaus, Brazil. *Journal of Medical Entomology*, 51(2), 408-420.
165. Englbrecht, C., et al. (2015). Evaluation of BG-Sentinel trap as a management tool to reduce *Aedes albopictus* nuisance in an urban environment in Italy. *Journal of the American Mosquito Control Association*, 31(1), 16-25.
166. Perich, M., et al. (2003). Field evaluation of a lethal ovitrap against dengue vectors in Brazil. *Medical and Veterinary Entomology*, 17(2), 205-210.
167. Ritchie, S.A., et al. (2003). An adulticidal sticky ovitrap for sampling container-breeding mosquitoes. *Journal of the American Mosquito Control Association*, 19(3), 235-242.
168. Facchinelli, L., et al. (2007). Development of a novel sticky trap for container breeding mosquitoes and evaluation of its sampling properties to monitor urban populations of *Aedes albopictus*. *Medical and Veterinary Entomology*, 21(2), 183-195.
169. Rapley, L., et al. (2009). A lethal ovitrap based mass trapping scheme for dengue control in Australia: II. Impact on populations of the mosquito *Aedes aegypti*. *Medical and Veterinary Entomology*, 23(4), 303-316.
170. Scott, M.L., et al. (2021). Characterization of pyrethroid resistance mechanisms in *Aedes aegypti* from the Florida Keys. *The American Journal of Tropical Medicine and Hygiene*, 104(3), 1111.
171. Gordon, J.R. and J. Ottea. (2012). Association of esterases with insecticide resistance in *Culex quinquefasciatus* (Diptera: Culicidae). *Journal of Economic Entomology*, 105(3), 971-978.
172. Smith, L.B., S. Kasai, and J.G. Scott. (2016). Pyrethroid resistance in *Aedes aegypti* and *Aedes albopictus*: Important mosquito vectors of human diseases. *Pesticide Biochemistry and Physiology*, 133, 1-12.
173. Richards, S.L., et al. (2017). Baseline insecticide susceptibility screening against six active ingredients for *Culex* and *Aedes* (Diptera: Culicidae) mosquitoes in the United States. *Journal of Medical Entomology*, 54(3), 682-695.
174. Estep, A.S., et al. (2018). Quantification of permethrin resistance and kdr alleles in Florida strains of *Aedes aegypti* (L.) and *Aedes albopictus* (Skuse). *PLoS Neglected Tropical Diseases*, 12(10), e0006544.
175. APRD. (2021). Arthropod pesticide resistance database. Arthropod Pesticide Resistance Database. Retrieved June 16, 2021 from <https://www.pesticideresistance.org/>
176. WHO. (2018). Test procedures for insecticide resistance monitoring in malaria vector mosquitoes. World Health Organization. Retrieved April 15, 2021 from <https://apps.who.int/iris/bitstream/handle/10665/250677/9789241511575-eng.pdf>
177. Balabanidou, V., et al. (2019). Mosquitoes cloak their legs to resist insecticides. *Proceedings of the Royal Society B*, 286(1907), 20191091.
178. CDC. (2016). Guidelines for *Aedes aegypti* and *Aedes albopictus* surveillance and insecticide resistance testing in the United States. Centers for Disease Control and Prevention. Retrieved December 20, 2016 from <https://www.cdc.gov/chikungunya/pdfs/surveillance-and-control-of-aedes-aegypti-and-aedes-albopictus-us.pdf>
179. FWS. (2021). Endangered species. Endangered Species Act. U.S. Fish & Wildlife Service. Retrieved July 2, 2021 from

- <https://www.fws.gov/endangered/laws-policies/>
180. NOAA. (2021). What does take mean under the Endangered Species Act and what is incidental take? National Oceanic and Atmosphere Administration. Retrieved July 2, 2021 from <https://www.fisheries.noaa.gov/node/8051>
 181. CDC. (2020). Adulticides. Centers for Disease Control and Prevention. Retrieved July 27, 2021 from <https://www.cdc.gov/mosquitoes/mosquito-control/community/adulticides.html>
 182. Britannica. (2021). Antibody. Britannica. Retrieved July 27, 2021 from <https://www.britannica.com/science/antibody>
 183. Britannica. (2021). Antigen. Britannica. Retrieved July 27, 2021 from <https://www.britannica.com/science/antigen>
 184. Taylor, M.D., *Pesticide rate and dosage calculations*, in *Georgia Pest Management Handbook—2020 Commercial Edition*. 2020, UGA Extension.
 185. Nichols, S.W. (1989). Torre-Bueno glossary of entomology. New York Entomological Society.
 186. Popenoa, J. *Pesticide application methods*. 2018. November 2018: 20-23.
 187. Merriam-Webster. (2021). Effluent. Merriam-Webster. Retrieved July 27, 2021 from <https://www.merriam-webster.com/dictionary/effluent>
 188. EPA. (2021). What is an emerging viral pathogen claim?. Environmental Protection Agency. Retrieved August 15, 2021 from <https://www.epa.gov/coronavirus/what-emerging-viral-pathogen-claim>
 189. CDC. (2012). Lesson 1: Introduction to epidemiology. Centers for Disease Control and Prevention. Retrieved July 27, 2021 from <https://www.cdc.gov/csels/dsepd/ss1978/lesson1/section11.html>
 190. CDC. (2018). Glossary. Centers for Disease Control and Prevention. Retrieved July 27, 2021 from <https://www.cdc.gov/malaria/glossary.html>
 191. Vocabulary.com. (2021). Flow Rate. Vocabulary.com. Retrieved July 27, 2021 from <https://www.vocabulary.com/dictionary/flow%20rate>
 192. ESRI. (2021). What is GIS? Environmental Systems Research Institute. Retrieved July 27, 2021 from <https://www.esri.com/en-us/what-is-gis/overview>
 193. Kraft, S. and L. Pinto [*Technician Training*] *Granular pesticides*. 2015.
 194. Merriam-Webster. (2021). Infective. Merriam-Webster. Retrieved July 27, 2021 from <https://www.merriam-webster.com/dictionary/infective>
 195. CDC. (2020). Larvicides. Centers for Disease Control and Prevention. Retrieved July 27, 2021 from <https://www.cdc.gov/mosquitoes/mosquito-control/community/larvicides.html>
 196. Yourdictionary.com. (2021). Peridomestic. Yourdictionary.com. Retrieved July 27, 2021 from <https://www.yourdictionary.com/peridomestic>
 197. VTDH. (2018). Final arbovirus surveillance report. Vermont Department of Health. Retrieved July 27, 2021 from https://www.healthvermont.gov/sites/default/files/documents/pdf/HS_ID_ArbovirusSurveillanceReport_2018Final.pdf
 198. Nature.com. (2021). Population dynamics. Nature.com. Retrieved July 27, 2021 from <https://www.nature.com/subjects/population-dynamics>
 199. USGS. (2021). What is remote sensing and what is it used for? . United States Geological Survey. Retrieved July 27, 2021 from https://www.usgs.gov/faqs/what-remote-sensing-and-what-it-used?qt-news_science_products=0#qt-news_science_products

200. Hill, C. and J. MacDonald. (2008). Glossary. Retrieved July 27, 2021 from <https://extension.entm.purdue.edu/publichealth/glossary.html#reservoir>
201. Klinkenberg, K. (2021). Scale, accuracy, and resolution in a GIS. The University of British Columbia. Retrieved July 27, 2021 from <https://ibis.geog.ubc.ca/~brian/Course.Notes/gisscale.html>
202. Merriam-Webster. (2021). Spatial. Merriam-Webster. Retrieved July 27, 2021 from <https://www.merriam-webster.com/dictionary/spatial>
203. Merriam-Webster. (2021). Spatiotemporal. Merriam-Webster. Retrieved July 27, 2021 from <https://www.merriam-webster.com/dictionary/spatiotemporal>
204. Britannica. (2021). Temperature Inversion. Britannica. Retrieved July 27, 2021 from <https://www.britannica.com/science/temperature-inversion>
205. OCMVCD. (2021). What is a vector? Orange County Mosquito and Vector Control District Retrieved July 27, 2021 from <https://www.ocvector.org/what-is-a-vector>



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COMPTROLLER

SUSANA A. MENDOZA

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FY 2021 Annual Financial Report
Special Purpose Long Form

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Unit Name : North Shore Mosquito Abatement District County : Cook Unit Code : 016/020/11

I attest that, to the best of my knowledge, this report represents a complete and accurate statement of the financial position, the Contact Information, the TIF status, the FEIN status, the Total Appropriations, and the Legal Debt Limitation of North Shore Mosquito Abatement District as of the end of this fiscal year.

Written signature of government official
Mark Clifton, Director

Please Sign : 

Date : 8/17/2022

Unit Name : North Shore Mosquito Abatement District

Unit Code : 016/020/11

Please be sure to fill out this section accurately. The information you provide below is (1) our primary way of contacting your government, (2) the information we supply to external agencies, and (3) is the name and title we will list on our website. This section should NOT contain ANY of your Accounting Professional's information.

STEP 1: ENTER CONTACT INFORMATION

Is the following information correct and complete? Yes No

A. Contact Person (elected or appointed official responsible for filling out this form.)		B. Chief Executive Officer (Enter your name here ONLY if you are the elected or appointed official <u>responsible</u> for the EXECUTIVE ADMINISTRATION, i.e. mayor, supervisor, or chairman. Your name will be listed with this responsibility on our website.)		C. Chief Financial Officer (Enter your name here ONLY if you are the elected or appointed official <u>responsible</u> for MAINTAINING THE GOVERNMENT'S FINANCIAL RECORDS. Your name will be listed with this responsibility on our website.)	
Mark	Clifton	John	Zbesko	William	Zimmer
Director		President		Treasurer	
117 Northfield Rd		117 Northfield Rd		117 Northfield Rd	
Northfield		Northfield		Northfield	
IL 60093		IL 60093		IL 60093	
Phone: (847) 446-9434 Ext.		Phone: (847) 446-9434 Ext.		Phone: (847) 446-9434 Ext.	
Fax: (847) 446-0248		Fax: (847) 446-0248		Fax: (847) 446-0248	
E-Mail: mclifton@nsmad.com		E-Mail: johnzbesko@nsmad.com		E-Mail: wzimmer@nsmad.com	
D. Purchasing Agent (Enter the Purchasing Agent or if there is no Purchasing Agent, the name of the person responsible for oversight of all competitively bid contracts should be listed.)		E. FOIA Officer (Enter the FOIA Officer or if there is no FOIA Officer, the name of the person responsible for oversight of all FOIA requests should be listed.)			
Mark	Clifton	Mark	Clifton		
Director		Director			
117 Northfield Road		117 Northfield Road			
Northfield		Northfield			
IL 60093		IL 60093			
Phone: (847) 446-9434 Ext.		Phone: (847) 446-9434 Ext.			
Fax: (847) 446-0248		Fax: (847) 446-0248			
E-Mail: mclifton@nsmad.com		E-Mail: mclifton@nsmad.com			

If the Chief Executive Officer and the Chief Financial Officer are the same person as the Contact Person, please check this box and skip to Step 2.

Unit Name : North Shore Mosquito Abatement District

Unit Code : , 016/020/11

STEP 4: POPULATION, EAV AND EMPLOYEES

What is the total population of North Shore Mosquito Abatement District?^	312,678
What is the total EAV of North Shore Mosquito Abatement District?	\$18,565,033,350
How many full time employees are paid?*	7
How many part time employees are paid?*	12
What is the total salary paid to all employees?	\$714,543

^ Or provide estimated population.

* Do not include contractual employees.

STEPS 5 AND 6: COMPONENT UNITS AND APPROPRIATIONS

Provide the appropriation for the primary government listed in the first row of the table below.

In the remaining rows, provide the names of all component units along with their appropriations. Indicate if the component units are blended or discretely presented, its fiscal year end date and if the component unit was funded with governmental fund types or enterprise fund types. If the component units are already indicated, that data is based on forms submitted last year. If you have more component units than the rows provided below, please indicate them on an attachment.

If you need assistance with the terms indicated below, refer to the *Chart of Accounts and Definitions* and the *How to Fill Out An AFR* documents.

Name of Unit/Component	Appropriation^	Type of Component Unit (Blended or Discretely Presented)	Fiscal Year End	Enterprise Fund Type or Governmental Fund Type
FUNDS SHOULD NOT BE LISTED HERE*				
North Shore Mosquito Abatement District	\$2,000,000		12/31	
Total Appropriations	\$2,000,000			

* Do not enter funds such as Joint Bridge, Permanent Road, Town Fund, Equipment, Water & Sewer, General Assistance, etc. These funds should be included in Step 8.

^ If the Primary Government or Component Unit does NOT budget or levy taxes, please enter the unit's TOTAL EXPENDITURES.

Jnit Name : North Shore Mosquito Abatement District

Jnit Code : .016/020/11

STEP 7: OTHER GOVERNMENTS

Indicate any payments North Shore Mosquito Abatement District made to other governments for services or programs (include programs performed on a reimbursement, cost-sharing basis or federal payroll taxes).

Intergovernmental agreements - indicate how much was paid	\$0
Federal government payroll taxes	\$54,663
All other intergovernmental payments	\$0

STEP 8: FUND LISTING & ACCOUNT GROUPS

A. List all funds and how much was spent in FY 2021 for each fund. Also, indicate the Fund Type (Fund Types are at the top of each column beginning on page F1). If any fund names appear below, the data is based on forms submitted last year. Please make all necessary corrections. If you have more fund names than the rows provided below, please indicate them on an attachment.

Fund Name	Expenditure	Fund Type	FY End
Capital Improvements	\$677,043	Capital Projects Fund	12/31
General Fund	\$1,169,969	General Fund	12/31
Total Expenditures	\$1,847,012		

B. Does North Shore Mosquito Abatement District have assets or liabilities that should be recorded as a part of Account Groups? See [Chart of Accounts and Definitions](#) and the [How to Fill Out An AFR](#) documents for more information about Account Groups.

Yes No

Unit Name : North Shore Mosquito Abatement District

Unit Code : 016/020/11

STEP 9: GOVERNMENTAL ENTITIES

List of governmental entities that are part of or related to the primary government. Exclude component units detailed in Steps 5 & 6. Most small governments do not have governmental entities.

Entity Name	Relationship

STEP 10: REPORTING

Check any state or local entity where financial reports are filed.

STATE AGENCIES	
<input type="checkbox"/> - Board of Education	<input type="checkbox"/> - Board of Higher Education
<input type="checkbox"/> - DCEO	<input type="checkbox"/> - Department of Insurance
OTHER STATE OR LOCAL OFFICES	
<input checked="" type="checkbox"/> - Illinois Comptroller	<input type="checkbox"/> - Secretary of State
<input type="checkbox"/> - General Assembly - House	<input type="checkbox"/> - General Assembly - Senate
<input checked="" type="checkbox"/> - County Clerk	<input type="checkbox"/> - Circuit Clerk
<input type="checkbox"/> - Governor's Office	<input type="checkbox"/> - Other - _____

Assets

Code	Enter All Amounts in Whole Numbers	Governmental Activity	Business-Like Activity	Fiduciary	Discretely Presented Component Units
Current Assets					
101t	Cash and Cash Equivalent	\$1,282,572	\$0	\$0	\$0
102t	Investments	\$442,941	\$0	\$0	\$0
115t	Receivables	\$1,541,127	\$0	\$0	\$0
109t	Inventories	\$110,627	\$0	\$0	\$0
112t	Other Assets (Explain)	\$930,021	\$0	\$0	\$0
Non-Current Assets					
116t	Capital Assets/Net of Accumulated Depreciation	\$1,804,393	\$0	\$0	\$0
117t	Other Capital Assets (Explain)	\$0	\$0	\$0	\$0
120t	Total Assets	\$6,111,681	\$0	\$0	\$0
150t	Deferred Outflow of Resources	\$393,932	\$0	\$0	\$0

Liabilities

Code	Enter All Amounts in Whole Numbers	Governmental Activity	Business-Like Activity	Fiduciary	Discretely Presented Component Units
Current Liabilities					
122t	All Payables	\$35,381	\$0	\$0	\$0
132t	Deferred Revenues	\$0	\$0	\$0	\$0
128t	Other Liabilities (Explain)	\$0	\$0	\$0	\$0
Non-Current/Long Term Liabilities					
129t	Due Within One Year	\$0	\$0	\$0	\$0
130t	Due Beyond One Year	\$0	\$0	\$0	\$0
131t	Other Non-Current/Long Term Liabilities (Explain)	\$28,519	\$0	\$0	\$0
135t	Total Liabilities	\$63,900	\$0	\$0	\$0
155t	Deferred Inflow of Resources	\$2,266,411	\$0	\$0	\$0

Net Position

Code	Enter All Amounts in Whole Numbers	Governmental Activity	Business-Like Activity	Fiduciary	Discretely Presented Component Units
143t	Investments in Capital Assets/Net of Related Debt	\$1,775,080	\$0	\$0	\$0
148t	Net Position - Restricted	\$0	\$0	\$0	\$0
149t	Net Position - Unrestricted	\$2,400,222	\$0	\$0	\$0
146t	Total Net Position	\$4,175,302	\$0	\$0	\$0

Revenues and Receipts

Code	Enter All Amounts in Whole Numbers	General	Special Revenue	Capital Projects	Debt Service	Enterprise	Internal Service	Fiduciary	Discretely Presented Component Units
Local Taxes		Report In Whole Numbers							
201t	Property Tax	\$1,622,877	\$0	\$0	\$0	\$0	\$0	\$0	\$0
203t	Utilities Tax	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
204t	Other Taxes (Explain)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Intergovernmental Receipts & Grants									
212t	State Sales Tax	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
213t	State Motor Fuel Tax	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
214t	State Replacement Tax	\$101,976	\$0	\$0	\$0	\$0	\$0	\$0	\$0
205t	State Gaming Tax(es)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
215t	Other State Sources (Explain)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
225t	Federal Sources	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
226t	Other Intergovernmental Sources (Explain)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Local Sources									
231t	Licenses and Permits	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
233t	Fines and Forfeitures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
234t	Charges for Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
235t	Interest	\$507	\$0	\$132	\$0	\$0	\$0	\$0	\$0
236t	Miscellaneous (Explain)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
240t	Total Receipts and Revenue	\$1,725,360	\$0	\$132	\$0	\$0	\$0	\$0	\$0

Disbursements, Expenditures and Expenses

Code	Enter All Amounts in Whole Numbers	General	Special Revenue	Capital Projects	Debt Service	Enterprise	Internal Service	Fiduciary	Discretely Presented Component Units
Report In Whole Numbers									
251t	General Government	\$1,169,969	\$0	\$0	\$0	\$0	\$0	\$0	\$0
252t	Public Safety	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
254t	Judiciary and Legal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
255t	Transportation and Public Works	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
256t	Social Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
257t	Culture and Recreation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
258t	Housing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
275t	Environment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
259t	Debt	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
271t	Public Utility Company	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
272t	Depreciation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
280t	Capital Outlay	\$0	\$0	\$677,043	\$0	\$0	\$0	\$0	\$0
260t	Other Expenditures/Expenses (Explain)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
270t	Total Expenditures/Expense	\$1,169,969	\$0	\$677,043	\$0	\$0	\$0	\$0	\$0

Fund Balances and Other Financing Sources (Uses)

Code	Enter All Amounts in Whole Numbers	General	Special Revenue	Capital Projects	Debt Service	Enterprise	Internal Service	Fiduciary	Discretely Presented Component Units
Report In Whole Numbers									
301t	Excess of receipts/revenues over (under) expenditures/expenses (240t-270t)	\$555,391	\$0	(\$676,911)	\$0	\$0	\$0	\$0	\$0
302t	Operating transfers in	\$0	\$0	\$500,000	\$0	\$0	\$0	\$0	\$0
303t	Operating transfers out	(\$500,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
304t	Bond proceeds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
305t	Other long term debt (Explain)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
306t	Net increase (decrease) in fund balance (301t + 302t - 303t + 304t + 305t)	\$55,391	\$0	(\$176,911)	\$0	\$0	\$0	\$0	\$0
307t	Previous year fund balance	\$1,794,949	\$0	\$232,448	\$0	\$0	\$0	\$0	\$0
308t	Other (Explain)	(\$1)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
310t	Current Year Ending Fund Balance (306t + 307t + 308t)	\$1,850,339	\$0	\$55,537	\$0	\$0	\$0	\$0	\$0

Statement of Indebtedness (Governmental & Proprietary combined)

Debt Instruments for All Funds	Code	Outstanding Beginning of Year	Code	Issued Current Fiscal Year	Code	Retired Current Fiscal Year	Code	Outstanding End of Year	Original Issue Amount	Final Maturity Date	Interest Rate Ranges-Lowest	Interest Rate Ranges-Highest
Report In Whole Numbers												
General Obligation Bonds	400	\$0	406	\$0	412	\$0	418	\$0	\$0		0.00%	0.00%
Revenue Bonds	401	\$0	407	\$0	413	\$0	419	\$0	\$0		0.00%	0.00%
Alternate Revenue Bonds	402	\$0	408	\$0	414	\$0	420	\$0	\$0		0.00%	0.00%
Contractual Commitments	403	\$0	409	\$0	415	\$0	421	\$0	\$0		0.00%	0.00%
Other (Explain)	404	\$0	410	\$0	416	\$0	422	\$0	\$0		0.00%	0.00%
Total Debt	405	\$0	411	\$0	417	\$0	423	\$0				

Debt Limitations and Future Debt

___ I certify that North Shore Mosquito Abatement District does not have Legal Debt Limitation

___ Based on Statute

___ Based on Other

Total Legal Debt Limitation: \$532,019,709

Total Debt Applicable to the limit: \$0

Legal Debt Margin: \$532,019,709

Legal Debt Margin (%): 100.00%

Future Debt Service Requirements for Bonded Debt listed above			
Year Ending	Principal	Interest	Total
2022	\$0	\$0	\$0
2023	\$0	\$0	\$0
2024	\$0	\$0	\$0
2025	\$0	\$0	\$0
2026	\$0	\$0	\$0
2027-2031	\$0	\$0	\$0
2032-2036	\$0	\$0	\$0
2037-2041	\$0	\$0	\$0
TOTAL	\$ 0	\$ 0	\$ 0

Please provide a summary of the authorized debt limitations, including any statutory references.

50 ILCS 405/Local Gov't Debt Limitation Act

Pension Funds / Retirement Benefits

Code	Enter All Amounts in Whole Numbers	IMRF			Police Pension			Fire Pension		
		2019	2020	2021	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
500	Actuarial Valuation Date (VD)	12/31/2019	12/31/2020	12/31/2021						
500a	Reporting Date (RD)	12/31/2019	12/31/2020	12/31/2021						
500b	Measurement Date (MD)	12/31/2019	12/31/2020	12/31/2021						
501	Total Pension Liability (TPL)	\$2,528,617	\$2,891,393	\$3,006,743	\$0	\$0	\$0	\$0	\$0	\$0
502	Plan Fiduciary Net Position (FNP)	\$2,769,733	\$3,257,525	\$3,742,020	\$0	\$0	\$0	\$0	\$0	\$0
503	Net Pension Liability (NPL)	(\$241,116)	(\$366,132)	(\$735,277)	\$0	\$0	\$0	\$0	\$0	\$0
504	Plan Fiduciary Net Position as a Percentage of Total Pension Liability	109.53%	112.66%	124.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
505	Net Pension Obligation/ Net OPEB Obligation	(\$241,116)	(\$366,132)	(\$735,277)	\$0	\$0	\$0	\$0	\$0	\$0

Enter All Amounts in Whole Numbers

Code		SLEP			Other Pension			OPEB (Net)		
		Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	2019	2020	2021
500	Actuarial Valuation Date (VD)							12/31/2019	12/31/2020	12/31/2021
500a	Reporting Date (RD)							12/31/2019	12/31/2020	12/31/2021
500b	Measurement Date (MD)							12/31/2019	12/31/2020	12/31/2021
501	Total Pension Liability (TPL)	\$0	\$0	\$0	\$0	\$0	\$0	\$29,514	\$34,377	\$28,519
502	Plan Fiduciary Net Position (FNP)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
503	Net Pension Liability (NPL)	\$0	\$0	\$0	\$0	\$0	\$0	\$29,514	\$34,377	\$28,519
504	Plan Fiduciary Net Position as a Percentage of Total Pension Liability	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
505	Net Pension Obligation / Net OPEB Obligation	\$0	\$0	\$0	\$0	\$0	\$0	\$29,514	\$34,377	\$28,519

Capital Outlay*

Code	Function	These are not funds	
		Construction	Land, Structures, and Equipment
601t	General Government	\$0	\$633,040
602t	Law Enforcement	\$0	\$0
603t	Corrections	\$0	\$0
604t	Fire	\$0	\$0
605t	Sewerage	\$0	\$0
606t	Sanitation and Wastewater	\$0	\$0
607t	Parks and Recreation	\$0	\$0
608t	Housing and Community Development	\$0	\$0
609t	Highways, Roads and Bridges	\$0	\$0
610t	Parking Facilities	\$0	\$0
611t	Welfare	\$0	\$0
612t	Hospital	\$0	\$0
613t	Water	\$0	\$0
614t	Nursing Homes	\$0	\$0
615t	Conservation and Natural Resources	\$0	\$0
616t	Libraries	\$0	\$0
617t	Other	\$0	\$0

*This page should only be filled out if you have spent funds for capital projects or development.

*The Capital Outlay page is requested by the U.S. Census Bureau and is considered optional by the State Comptroller.

*If you complete this page you WILL NOT have to complete the Survey of Government Finances from the U.S. Census Bureau.

*If you do NOT complete this page the U.S. Census Bureau will contact you for further information.

Explanation or Comments

<u>Type</u>	<u>Explanation</u>
112t	Prepaid Insurance - \$194,744 Net Pension Asset - \$735,277
131t	Compensated Absences - \$28,519
308t	Rounding - \$(1)
AuthDebtLimit	50 ILCS 405/Local Gov't Debt Limitation Act
Gen	Pension Funds/Retirement Funds - OPEB - Zero Plan Fiduciary Net Position

Office of the Comptroller, Susana A. Mendoza
FY 2021 AFR
Special Purpose Form

CPA Information

According to the Governmental Account Audit Act [50 ILCS 310], an Annual Audit submitted to the IL Office of the Comptroller shall be performed by a licensed public accountant, with a valid certificate as a public accountant under the Illinois Public Accounting Act [225 ILCS 450]. Please access the website of the Illinois General Assembly (www.ilga.gov/legislation/ilcs/ilcs.asp) to view these Acts. **If your government is required to submit an Annual Audit, please complete the following:**

Is the Licensed Certified Public Accountant performing your audit working as an individual licensed in Illinois, or are they working in association with a Public Accounting Firm or a Professional Service Corporation licensed in Illinois, or are they licensed in another state? Please use a checkmark to select one choice:

Individual Licensed Certified Public Accountant
 Public Accounting Firm (IL License)
 Professional Service Corporation (IL License)

Out-of-State (Individual / Public Accounting Firm / Professional Service Corporation)

Is the Licensed Certified Public Accountant performing your audit working as an individual licensed in Illinois, or are they working in association with a Public Accounting Firm or a Professional Service Corporation licensed in Illinois, or are they licensed in another state? Please use a checkmark to select one choice:

Enter the active 9-digit License#:	<u>066005338</u>	License Status:	<u>ACTIVE</u>
Business Name:	<u>ATA Group, LLP</u>		
Address:	<u>1650 N Arlington Heights Road</u>	Address 2:	_____
City:	<u>Arlington Heights</u>	State:	<u>IL</u> ZIP: <u>60004</u>
Phone:	<u>847-870-0380</u>	Ext. _____	Fax: <u>847-870-0435</u> E-Mail: <u>contact@atagroupcpa.com</u>
Last Name:	<u>McClure</u>	First Name: <u>Christian Norman</u>	Title: <u>Partner</u>
Phone:	<u>847-870-0380</u>	Ext. _____	E-Mail: <u>chris@atagroupcpa.com</u>

Non-Critical

Population Greater Than 200,000

Pension Errors!

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

117 Northfield Road

Northfield, IL 60093

847-446-9434

www.nsmad.com

Integrated Pest Management Plan

Problem Identification

The NSMAD controls public health risk and nuisance mosquitoes found within our District, through a fully Integrated Pest Management Program. The utilization of adult mosquito monitoring devices and visual larval surveillance are used to determine the best course of action for each particular situation. Our larval and adult mosquito control consists of the two following habitats.

A. Urban

- Catch basins and Storm drains
- Residential containers
- Unmaintained pools and ponds
- Retention ponds
- Dense vegetation
- Drainage ditches
- Construction sites
- Open Fields

B. Forested

- Flooded woodlots
- Roadside ditches
- Bicycle Paths

Action Threshold(s)

Pest Problem Description:

Mosquitoes are the pests of concern and can be categorized in two main groups, nuisance mosquitoes and public health risk mosquitoes. Of the 30-plus species of mosquitoes found in the North Shore Mosquito Abatement District, those of main concern include the West Nile Virus (WNV) and Saint Louis Encephalitis (SLE) vectors *Cx. pipiens* and *Cx. restuans*, the LaCrosse Virus (LACV) vector *Ae. triseriatus* and the floodwater nuisance species *Ae. vexans* and *Ae. trivittatus*. These mosquitoes are most commonly found in traps throughout the district and are the main cause of public health risk and quality of life issues to residents of the district.

Action threshold summary

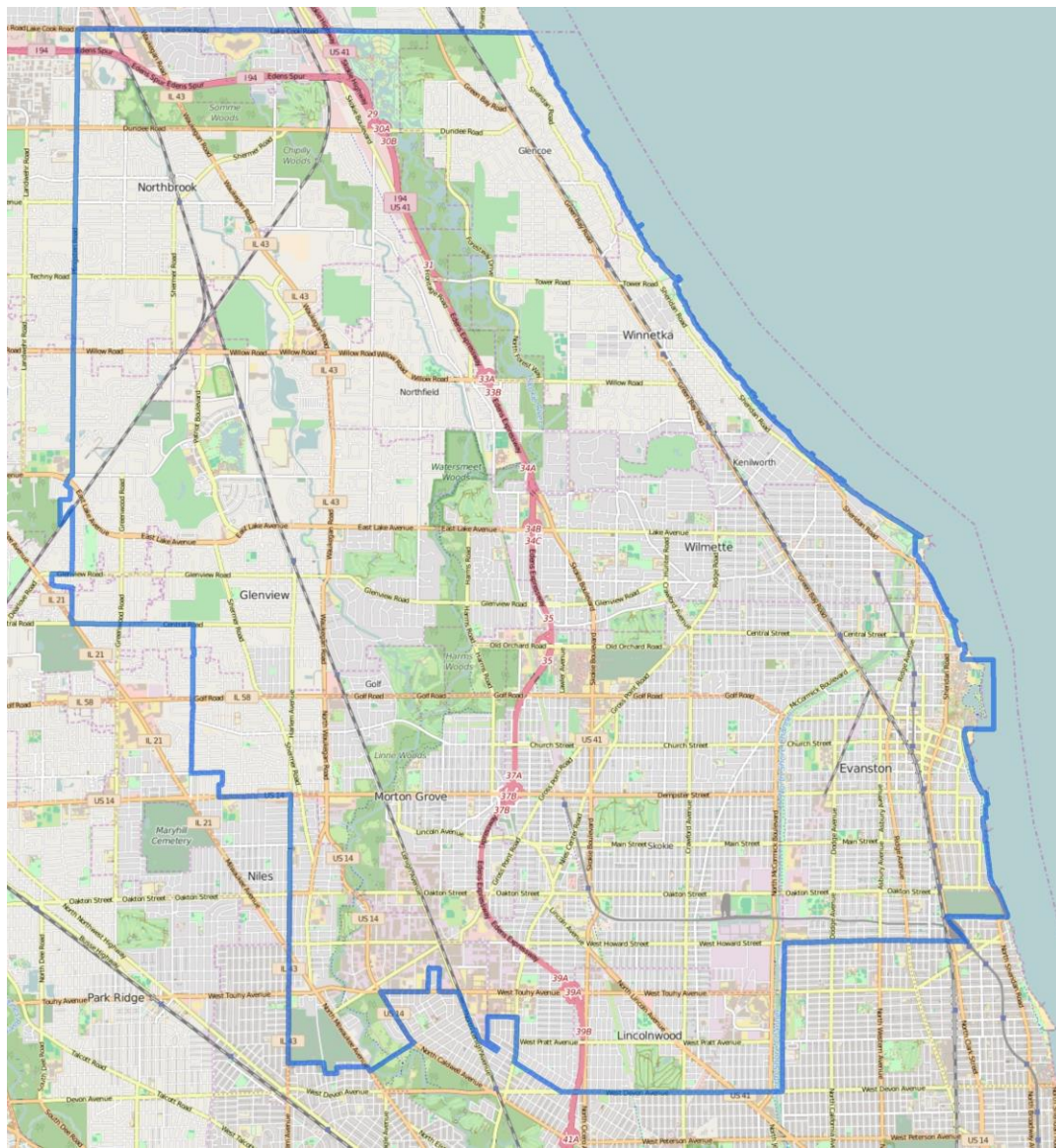
In order to decrease the probability of mosquito and vector borne diseases and minimize the impact on the quality of life from nuisance mosquitoes, the NSMAD works to reduce and manage the mosquito population within the district through various forms of control including source reduction, larval control and adult mosquito control.

Action thresholds for larval control are based on institutional knowledge and experience, weather conditions and larval surveillance in known mosquito habitats. If average counts of 1-5 larvae are seen in a dip sample, a larvicide application is warranted. Other factors taken into consideration include temperature, short and long term weather conditions and whether the breeding source can be immediately removed or reduced. Seasonal temperature and precipitation patterns are used to determine the beginning of larval control in catch basins and off-road sites.

Action thresholds for adult mosquito control are based on quantifying mosquito abundance and the WNV infection rate in mosquitoes to estimate the potential health risk to the public. Monitoring adult mosquito population density is accomplished by examining specimens collected in a network of traps placed throughout the district. Two types of traps are used. Gravid traps operate 24/7 at 16 locations throughout the district and are collected three times per week. All mosquitoes collected are identified and counted. These counts indicate the population density of WNV vector mosquitoes in the area. The *Culex* mosquitoes found in the gravid traps are tested for the presence of WNV via RAMP and/or PCR-based testing at the NSMAD lab. New Jersey light traps that collect mosquitoes actively seeking hosts are located at 9 sites throughout the district. The traps are run 24 hours a day, 5 days per week. The collections are retrieved once weekly and the mosquitoes are identified and counted. The light traps provide a measure of the population density of important nuisance mosquitoes such as *Ae. vexans*, that can occur in large numbers early in the season and following heavy rains. In addition to the standardized collecting, identifying and testing of mosquitoes from our surveillance program, resident reports of local biting mosquito problems are taken into consideration and provide a valuable complement to the other parameters evaluated as action thresholds for adult mosquito control.

General Location Map

Waterways located within the treatment area are: North Branch of Chicago River, Skokie River and Skokie Lagoons.



Pest Management Options Evaluation

Prior to first pesticide application in each area (Townships) evaluate considering impacts to water quality, non-target organisms, feasibility, and cost effectiveness.

Options (one or in combination):

1. No action
2. Prevention
3. Mechanical or physical methods
4. Cultural methods
5. Pesticides
 - a. Larvicides
 - b. Adulticides

Pest Management Options (PMO)	Surveillance / Threshold	Application Method
No Action (Larval)	<ul style="list-style-type: none"> • Dip sample shows no signs of larvae present • Larvae predators present in habitat • Adverse weather is forecast 	N/A
No Action (Adult)	<ul style="list-style-type: none"> • Adverse weather is forecast • Environmental conditions • Mosquito population below threshold 	N/A
Pesticide Application (Larval)	<ul style="list-style-type: none"> • Weather or environmental conditions • Rainfall producing standing water in forested areas • Larval surveillance conducted by dip samples of standing water and containers holding water containing 1-5 larvae per dip on average • Seasonal temperature and precipitation changes warrant the beginning of larval control in catch basins and off road sites • Inspecting catch basins and other sources of stagnant water for breeding and larval activity • Institutional knowledge and experience • Inspecting known mosquito breeding habitats 	Hand or broadcast spreader application of either granular or briquet product using the application rates stipulated on the product labels. Broadcast application of liquid larvicide product via Buffalo Turbine or ULV spray equipment as stipulated on product label.
Source Reduction - Urban	<ul style="list-style-type: none"> • Property checks for mosquito breeding and larvae in pools, ponds, fountains and any other container with the ability to hold water • Larval dip counts looking for presence of mosquito larvae in containers. 	Removing and or emptying containers that hold water.
Source Reduction - Forested	<ul style="list-style-type: none"> • Weather conditions • Environmental conditions • Rainfall producing standing water in forested areas 	Flood prevention, removing and or emptying containers that hold water, ditch

	<ul style="list-style-type: none"> • Institutional knowledge and experience • Inspecting known mosquito breeding habitats 	clearing, debris removal, increasing flow of water.
Pesticide Application ULV (Adult Control)	<ul style="list-style-type: none"> • WNV positive mosquito pool found via RAMP or PCR test resulting in an infection rate $\geq 5/1000$ • WNV, SLE, EEE, or other vector /mosquito borne virus positive human, bird or other animal reported within the district or its border • High count or significant increase of public health risk mosquitoes (<i>Cx. pipiens</i>) in trap collection (daily average greater than 45 mosquitoes per trap for ≥ 2 weeks) • Resident complaints of mosquitoes. • High count or significant increase of nuisance mosquitoes in trap collection (daily average greater than 25 mosquitoes per trap) • Combination of precipitation and temperature per institutional knowledge and experience 	Ultra Low Volume (ULV) application of insecticide via hand or truck mounted spray equipment applied as stipulated on the product labels.
Pesticide Application Barrier (Adult Control)	<ul style="list-style-type: none"> • Resident complaints of mosquitoes • Public gatherings and events • Any combination of light trap counts, gravid counts, WNV or other positive pools of mosquitoes, dip samples or environmental and weather conditions • Areas inaccessible to truck ULV 	Insecticide applied to vegetation using a handheld or backpack sprayer as stipulated on the product labels.
Public Relations and Education	<ul style="list-style-type: none"> • Continual 	<ul style="list-style-type: none"> • Media Relations • Public Information Booth/Events • Website • Intergovernmental Agency Relations • Community Outreach • Social media • Email and SMS messaging

Response Procedures

Spill Response procedures

The following are the procedures for spill response management (adapted from Illinois Pesticide Applicator Training Manual SP39) .

1. Ensure appropriate personal protection is taken
2. Utilize supplied spill kit
3. Stop spill from spreading
4. Stop spill at the source
5. Inform Operations Manager as to nature of incident
6. Operations Manager will document all info regarding incident
7. Conclusions as to whether spill is of the size where further notification/remediation is required will be determined

Adverse Incident Response Procedures

An adverse incident is defined by the ILEPA as an unusual or unexpected incident in which an applicator has observed, discovered upon inspection or otherwise become aware in which:

1. There is evidence that a person or non-target organism has likely been exposed to a pesticide residue, and
2. The person or non-target organism suffered a toxic or adverse effect.

If an incident is determined to be adverse in nature, the NSMAD will, within 24 hours of the adverse incident, inform the IEMA and USEPA Region 5 Pesticide Program. An IEPA Adverse Incident Report will be filled out by NSMAD, and submitted as per NPDES Permit ILG87 guidelines.

NSMAD Schedule of Compliance

January

- IDPH Annual Report Due
- EcoCat IDNR Consultation (Biannual)

February

- National Pollution Discharge Management System Annual Report Due
- FOIA/OMA Designated Officer Training

March

- Review and approve Evanston IGA

April

- IDPH West Nile Grant Q2 Report Due

May

- Required annual equipment calibrations (EPA, IL EPA)
- Weekly IDPH reporting of infected mosquitoes
- Statement of Economic Interest

June

- Weekly IDPH reporting of infected mosquitoes
- State of IL Annual Financial Report

July

- IDPH West Nile Grant Q3 Report Due
- Weekly IDPH reporting of infected mosquitoes
- Sexual Harassment Prevention Training
- Whistleblower Protection Policy Acknowledgement

August

- Weekly IDPH reporting of infected mosquitoes

September

- IDPH West Nile Grant Q4 Report Due
- Weekly IDPH reporting of infected mosquitoes

October

- Employee Performance Evaluations
- Publish Proposed Tax Levy for Next Fiscal Year
- Contract Review for Legal and Audit Services

November

- Approval of Tax Levy Ordinance for Next Fiscal Year
- Approval of Draft Budget and Appropriation Ordinances for Next Fiscal Year

December

- IDPH West Nile Grant Q1 Report Due
- Renew Consultancy Agreement
- Board Meeting Dates Published for Next Year
- Cook County Debt Disclosure Report
- Approval of Budget and Appropriation Ordinances for Next Fiscal Year

Information maintained by the Legislative Reference Bureau

Updating the database of the Illinois Compiled Statutes (ILCS) is an ongoing process. Recent laws may not yet be included in the ILCS database, but they are found on this site as [Public Acts](#) soon after they become law. For information concerning the relationship between statutes and Public Acts, refer to the [Guide](#).

Because the statute database is maintained primarily for legislative drafting purposes, statutory changes are sometimes included in the statute database before they take effect. If the source note at the end of a Section of the statutes includes a Public Act that has not yet taken effect, the version of the law that is currently in effect may have already been removed from the database and you should refer to that Public Act to see the changes made to the current law.

**SPECIAL DISTRICTS
(70 ILCS 1005/) Mosquito Abatement District Act.**

(70 ILCS 1005/0.01) (from Ch. 111 1/2, par. 73.990)

Sec. 0.01. Short title. This Act may be cited as the Mosquito Abatement District Act.
(Source: P.A. 86-1324.)

(70 ILCS 1005/1) (from Ch. 111 1/2, par. 74)

Sec. 1. Any contiguous territory having a population of not less than 300 inhabitants and no part of which is already included in a mosquito abatement district may be organized as a mosquito abatement district in the following manner:

Any 5% of the legal voters within the limits of the proposed mosquito abatement district may petition the circuit court for the county in which such territory lies, to order the question whether such territory shall be organized as a mosquito abatement district under this Act to be submitted to the legal voters of such territory, but every petition shall be signed by at least 25 legal voters residing within the territory proposed to be organized as a mosquito abatement district, and in case such territory includes more than one city, village or incorporated town, or any portions thereof, or includes one or more cities, villages or incorporated towns, or any portion thereof and territory not a part of any city, village or incorporated town, then such petition must be signed by at least 5% of the legal voters residing in each of the said cities, villages, or incorporated towns, or portions thereof, and by at least 5% of the legal voters residing in the territory not a part of any city, village or incorporated town. Such petition addressed to the court shall contain a definite description of the boundaries of the territory proposed to be organized as a mosquito abatement district, and shall set forth the name of the proposed district, which name shall be The.... Mosquito Abatement District.

(Source: P.A. 81-1489.)

(70 ILCS 1005/2) (from Ch. 111 1/2, par. 75)

Sec. 2. Upon the filing of such a petition in the office of the circuit clerk the court to whom the petition is addressed shall give notice of the time and place of a hearing on the question of the necessity for the organization of such a district and of the boundaries of such district. The notice shall be published at least once each week for 2 weeks in one or more newspapers of general circulation in the proposed district, and a copy of the notice shall be posted in at least 10 of the most public places in the district at least 10 days before the hearing. The hearing shall be held within 20 days after the petition is filed with the circuit clerk.

The court shall preside at the hearing, and all persons resident within the territory proposed to be organized as a mosquito abatement district shall be given an opportunity to be heard touching the necessity of the organization of such a

district and to make suggestions regarding the boundaries of the district. After hearing the statements, evidence and suggestions if the court determines that considerations of public health and welfare make the organization of such a district necessary it shall fix the boundaries of the proposed mosquito abatement district and for that purpose and to that extent it may alter and amend the petition. In case the boundaries as fixed by the court include any territory not included in the boundaries as described in the original petition, the court shall cause a notice to be inserted at least twice in some newspaper of general circulation in the additional territory, which notice shall state the time and place at which a hearing will be held to permit the owners of the land in the additional territory to appear and be heard on the question of including the additional territory. The notice shall be published at least 10 days before the hearing, and the hearing shall be held within 3 weeks after the court first fixes the boundaries. At the hearing the boundaries of the proposed district shall be finally fixed by the court.

(Source: P.A. 76-1373.)

(70 ILCS 1005/3) (from Ch. 111 1/2, par. 76)

Sec. 3. The determination of the court as to the necessity for the organization of the proposed mosquito abatement district, together with the description of the boundaries of such district as fixed by such court, shall be entered of record in the court. Thereupon the court shall certify the question of the organization of the territory included within the boundaries fixed by it as a mosquito abatement district to the proper election officials who shall submit the question to the legal voters resident within such territory at an election to be held in the district. Notice of such referendum shall be given and the referendum conducted in the manner provided by the general election law. The notice of such election shall state the purpose of the referendum, describe the territory proposed to be organized as a mosquito abatement district, and state the time of such election.

The proposition shall be in substantially the following form:

```

-----
      Shall this territory (describing          YES
it) be organized as The ..... -----
Mosquito Abatement District?                NO
-----

```

The court shall cause a statement of the result to be entered of record in the court.

(Source: P.A. 90-655, eff. 7-30-98.)

(70 ILCS 1005/4) (from Ch. 111 1/2, par. 77)

Sec. 4. If a majority of the votes cast on the question are in favor of the organization of the territory as a mosquito abatement district such territory shall thenceforth be deemed an organized mosquito abatement district under this Act. The district so organized shall have the name set forth in the petition and by such name may transact all corporate business. Such district shall constitute a body corporate and politic and exercise the powers herein prescribed. All courts of this State shall take judicial notice of the organization of the said mosquito abatement district.

(Source: Laws 1927, p. 694.)

(70 ILCS 1005/5) (from Ch. 111 1/2, par. 78)

Sec. 5. Within 60 days after the organization of any mosquito abatement district under the provisions of this Act a

board of trustees, consisting of 5 members, for the government and control of the affairs and business of such mosquito abatement district shall be appointed in the following manner:

(1) If the district lies wholly within a single township, the board of trustees of that township shall appoint the trustees for the district but no township official is eligible for such appointment;

(2) If the district is not contained wholly within a single township, but is located wholly within a single county, the trustees for the district shall be appointed by the presiding officer of the county board with the advice and consent of the county board;

(3) If the district lies wholly within a municipality, the governing body of the municipality shall appoint trustees for the district;

(4) If the district does not conform to any of the foregoing classifications, the trustees for the district shall be from each county in the district in numbers proportionate, as nearly as practicable, to the number of residents of the district who reside in each county in relation to the total population of the district. Trustees shall be appointed by the county board of their respective counties, or in the case of a home rule county as defined by Article VII, Section 6 of the Illinois Constitution, by the chief executive officer of that county with the advice and consent of the county board.

Upon the expiration of the term of a trustee who is in office on the effective date of this amendatory Act of 1975 or at the time of the publication of each decennial Federal census of population, the successor shall be a resident of whichever county is entitled to such representation in order to bring about the proportional representation required herein, and he shall be appointed by the appointing authority of that county. Thereafter, each trustee shall be succeeded by a resident of the same county who shall be appointed by the same appointing authority. Of the trustees thus appointed 3 shall hold office until the second Monday in December after the next succeeding general election for members of the General Assembly and 2 shall hold office until the second Monday in December, 2 years after the next succeeding general election for members of the General Assembly, and until their successors are appointed and qualified. Thereafter the trustees of the district shall be appointed in every year in which the term of any of the trustees expires and shall hold office for 4 years and until their successors are appointed and qualified. Each trustee shall be a legal voter in the district, and such trustees shall serve without compensation.

Whenever a vacancy occurs in the board of trustees the appropriate appointing authority shall appoint some person to fill the remainder of the unexpired term.

(Source: P.A. 82-783.)

(70 ILCS 1005/6) (from Ch. 111 1/2, par. 79)

Sec. 6. The trustees appointed in accordance with the foregoing provisions shall constitute a board of trustees for the mosquito abatement district for which they are appointed, and such board of trustees is declared to be the corporate authority of said district and shall exercise all of the powers and control all of the affairs and property of such district. Such board of trustees may provide and adopt a corporate seal. Immediately after their appointment and at their first meeting in December of each year thereafter the board of trustees shall elect one of their number as president, one as secretary, and one as treasurer, and shall elect such other officers as may be necessary. The board of trustees shall provide for the time and

place of holding its regular meetings, and may establish rules for its proceedings. Special meetings may be called by the president of the board or by any three trustees, but each member of the board shall be given notice of such special meeting at least three hours prior thereto. All of the meetings of such board, whether regular or special, shall be open to the public. A majority of the board of trustees shall constitute a quorum but a smaller number may adjourn from day to day. Said board shall keep a regular book of records of all of the proceedings of said board, which book shall be open to the inspection of any person residing in said district at all reasonable and proper times.

(Source: Laws 1927, p. 694.)

(70 ILCS 1005/7) (from Ch. 111 1/2, par. 80)

Sec. 7. The board of trustees of such district shall have power to take all necessary or proper steps for the extermination of mosquitoes, flies or other insects within the district, and, subject to the paramount control of the municipal or other public authorities, to abate as nuisances all stagnant pools of water and other breeding places for mosquitoes, flies or other insects within the district; to purchase such supplies and materials and to employ such labor and assistants as may be necessary or proper in furtherance of the objects of this Act, and if necessary or proper, in the furtherance of the same, to build, construct and thereafter to repair and maintain necessary levees, cuts, canals or channels upon any land within the district, and to acquire by purchase, condemnation or other lawful means, in the name of the district, any necessary lands, rights of way, easements, property or material requisite or necessary for any such purpose; to make contracts to indemnify or compensate any owner of land or other property for any injury or damage necessarily caused by the exercise of the powers of this Act conferred or arising out of the use, taking or damage of such property for any such purposes, and generally to do any and all things necessary or incident to the powers hereby granted and to carry out the objects specified herein.

(Source: Laws 1927, p. 694.)

(70 ILCS 1005/7.1) (from Ch. 111 1/2, par. 80.1)

Sec. 7.1. Sale of personal property.

Whenever any mosquito abatement district owns any personal property which in the opinion of three-fourths of the members of the board of trustees is no longer necessary or useful to, or for the best interests of the district, such a majority of the board of trustees then holding office, at any regular meeting or at any special meeting called for that purpose, by ordinance may authorize the sale of that personal property in such manner as they may designate, with or without advertising the sale.

(Source: P.A. 76-619.)

(70 ILCS 1005/7.2) (from Ch. 111 1/2, par. 80.2)

Sec. 7.2. Sale of real estate.

Any mosquito abatement district which acquires or holds any real estate for any purpose whatsoever has the power to convey the real estate when, in the opinion of three-fourths of the members of the board of trustees, the real estate is no longer necessary, appropriate, required for the use of, profitable to, or for the best interests of the mosquito abatement district. This power shall be exercised by an ordinance passed by such majority of the board of trustees then holding office, at any regular meeting or at any special meeting called for that purpose.

(Source: P.A. 76-619.)

(70 ILCS 1005/7.3) (from Ch. 111 1/2, par. 80.3)

Sec. 7.3. Ordinance directing sale-Publication-Bids-Deed of Conveyance.

An ordinance directing a sale of real estate shall specify the location of the real estate, the use thereof, and such conditions with respect to further use of the real estate as the board of trustees may deem necessary and desirable to the public interest. Before the board of trustees makes a sale, by virtue of such an ordinance, notice of the proposal to sell shall be published once each week for three successive weeks in a daily or weekly paper published in any county in which the mosquito abatement district is located. The first publication shall be not less than 30 days before the day provided in the notice for the opening of bids for the real estate. The notice shall contain an accurate description of the property, state the purpose for which it is used, the consideration which is acceptable for the sale, and the date of the regular or special meeting the bids will be considered and opened, and shall advertise for bids therefor. The board of trustees may accept the highest responsible bid by a vote of three-fourths of the members of the board of trustees then holding office, or by such majority vote of those holding office, they may reject any and all bids. If consideration other than money is offered for the sale of such real estate, the monetary value of that consideration must be determined by an appropriate, independent appraiser, and the appraisal must accompany the bid. Before accepting a bid of consideration other than money, the board of trustees must obtain a second, independent appraisal of such consideration in order to verify the appraisal which accompanied the bid.

If a bid is accepted by the board of trustees and the ordinance has been adopted and the consideration paid or secured, the chairman of the board of trustees shall convey the real estate and transfer it by proper deed of conveyance, stating therein the consideration therefor.

(Source: P.A. 76-619.)

(70 ILCS 1005/7.4) (from Ch. 111 1/2, par. 80.4)

Sec. 7.4. Purchases made pursuant to this Act shall be made in compliance with the "Local Government Prompt Payment Act", approved by the Eighty-fourth General Assembly.

(Source: P.A. 84-731.)

(70 ILCS 1005/7.5)

Sec. 7.5. Eminent domain. Notwithstanding any other provision of this Act, any power granted under this Act to acquire property by condemnation or eminent domain is subject to, and shall be exercised in accordance with, the Eminent Domain Act.

(Source: P.A. 94-1055, eff. 1-1-07.)

(70 ILCS 1005/8) (from Ch. 111 1/2, par. 81)

Sec. 8. The board of trustees of any mosquito abatement district shall, in its work, advise and cooperate with the Department of Public Health of the State, and the board of trustees of such district shall submit to such Department, on or before January 1st of each year, a report of the work done and results obtained by the district during the preceding year.

The board of trustees of any mosquito abatement district, or its designee, shall conduct routine surveillance of mosquitoes to detect the presence of mosquito-borne diseases of public health significance. The surveillance shall be conducted in accordance with mosquito abatement and control guidelines as set

forth by the U.S. Centers for Disease Control and Prevention. Areas reporting disease in humans shall be included in the surveillance activities. Mosquito abatement districts shall report to the local certified public health department the results of any positive mosquito samples infected with any arboviral infections, including, but not limited to: West Nile Virus, St. Louis Encephalitis, and Eastern Equine Encephalitis. Reports shall be made to the local certified public health department's director of environmental health, or a designee of the department, within 24 hours after receiving a positive report. The report shall include the type of infection, the number of mosquitoes collected in the trapping device, the type of trapping device used, and the type of laboratory testing used to confirm the infection. Any trustee of a mosquito abatement district, or designee of the board of trustees of a mosquito abatement district, that fails to comply with the requirements of this Act is guilty of a Class A Misdemeanor.

(Source: P.A. 93-734, eff. 7-14-04.)

(70 ILCS 1005/9) (from Ch. 111 1/2, par. 82)

Sec. 9. Any mosquito abatement district organized under the provisions of this Act may levy and collect a general tax on the property situated in such district, but the aggregate amount of taxes levied for any one year shall not exceed the rate of .025%, or the limitation in effect on July 1, 1967, whichever is greater, of value, as equalized or assessed by the Department of Revenue. The board of trustees shall determine and certify the amount to be levied and shall return the same to the county clerk. The county clerk in reducing the tax levies under Section 2 of "An Act concerning the levy and extension of taxes", approved May 9, 1901, as amended, shall not include the tax authorized by this Act in the limitation of one per cent of the assessed valuation upon which taxes are required to be extended. The foregoing limitations upon tax rates may be increased or decreased under the referendum provisions of the General Revenue Law of Illinois.

In case the district is located in more than one county the board of trustees shall determine and certify the amount to be levied upon the taxable property lying in each county and return the same to the respective county clerks of the counties in which the amount is to be levied. In order to determine the amount to be levied upon the taxable property of that part of the district lying in each county the board shall ascertain from the county clerk of the respective counties in which the district lies, the last ascertained equalized value of the taxable property of such district lying in their respective counties, then shall ascertain the rate per cent required and shall, accordingly, apportion the whole amount to be raised between the several parts of the district so lying in the different counties. The tax provided for in this Section shall be levied at the same time and in the same manner as nearly as practicable as taxes are now levied for city and village purposes under the laws of this State.

All such general taxes when collected shall be paid over to the treasurer of the board of trustees, who is authorized to receive and receipt for the same.

(Source: P.A. 81-1509.)

(70 ILCS 1005/9.1) (from Ch. 111 1/2, par. 82.1)

Sec. 9.1. Any mosquito abatement district organized under the provisions of this Act in the preparation of its annual budget and appropriation ordinance may provide that an amount equal to not more than one-half of one percent of the total equalized assessed value of real property situated in the

district shall be allocated to and accumulated in a Capital Improvement, Repair or Replacement Fund for the purposes of specific capital improvements, repairs or replacements of specific types of district equipment or other real or personal property. Expenditures from the Capital Improvement, Repair or Replacement Fund shall be budgeted and appropriated for the fiscal year in which the capital improvement, repair or replacement will occur. Upon completion or abandonment of any object or purpose for which a Capital Improvement, Repair or Replacement Fund has been initiated, monies remaining in such fund shall be transferred into the general corporate fund of the district on the first day of the fiscal year following such abandonment or completion resulting in such surplus monies in such fund.

(Source: P.A. 83-171.)

(70 ILCS 1005/9.5)

Sec. 9.5. Levy and collection of taxes by municipalities and districts for mosquito abatement services. If a municipality budgets for and provides mosquito abatement services and levies, within its general tax levy, a tax to fund those services, and if the municipality lies wholly or partially within a district that also levies a district tax upon territory that lies in both the affected municipality and the district, then:

(1) The affected municipality shall pay to the district the amount collected by the municipality from its levy upon territory that lies within the affected district that is also levying a district tax on the territory for the same type and quantity of services.

(2) Whenever a district receives any payment from any municipality, as provided for in this Section, the district shall reduce and abate the taxes levied by the district on the territory that is subject to taxation for the same type and quantity of mosquito abatement purposes by both the affected municipality and the district, at a rate that would reduce the taxes by an amount equal to the amount received by the district.

(Source: P.A. 90-431, eff. 8-16-97.)

(70 ILCS 1005/10) (from Ch. 111 1/2, par. 83)

Sec. 10. Any territory lying adjacent and contiguous to a mosquito abatement district, and not part of another mosquito abatement district, may be annexed to such district in the following manner:

(a) Upon petition in writing, describing the territory proposed to be annexed and signed by a majority of the legal voters in such territory and by the owners of more than half of the taxable property in such territory as shown by the last ascertained equalized value of the taxable property in such territory, being filed with the trustees of such mosquito abatement district, such trustees may annex such territory by a resolution which shall be published at least once in a newspaper having a general circulation in the territory and shall include a notice of (1) the specific number of voters required to sign a petition requesting that the question of the adoption of the resolution be submitted to the electors of the territory; (2) the time in which the petition must be filed; and (3) the date of the prospective referendum. The county clerk of the county in which the territory is situated shall provide a petition form to any individual requesting one. The resolution shall be effective 30 days from the date of publication and is subject to a referendum, if such referendum is requested, prior to the effective date of the resolution, by the voters in the district equal to 10% or more of the registered voters in the district.

Such trustees may also order the question of the annexation of such territory to be submitted to the legal voters of such district at a regular election therein by certifying the question to the proper election officials. Notice of such election shall be given and the election conducted in the manner provided by the general election law. The proposition shall be stated, "Shall the territory (describing it) be annexed to The.... Mosquito Abatement District?" If the majority of all the votes cast on the question is in favor of such annexation, the board of trustees shall so certify to the county clerk, and within ten days of such election the trustees by an order duly entered upon their records shall annex such territory to the district and shall file a map of the annexed territory in the office of the county clerk of the county where the annexed territory is situated. Thereupon such territory shall be deemed annexed to and shall be a part of such mosquito abatement district.

(b) Whenever a mosquito abatement district contains over 90% of territory of a specific city or village, the mosquito abatement district may annex additional adjacent and contiguous territory within that city or village, but not incorporated within a mosquito abatement district, by the passage of an ordinance to that effect.

The ordinance authorizing the annexation shall be published within 10 days after the ordinance has been adopted, in one or more newspapers having a general circulation within the territory. The publication of the ordinance shall be accompanied by a notice of (1) the specific number of voters required to sign a petition requesting the question of annexation; (2) the time within which the petition must be filed; and (3) the date of the prospective referendum. The county clerk of the county in which the territory is situated shall provide a petition form to any individual requesting one.

The ordinance shall take effect 30 days after the date of publication unless a referendum is requested prior to the effective date of the ordinance by 10% or more of the registered voters in the territory. The question of the annexation of the territory may be submitted to the legal voters of the territory at a regular election by certifying the question to the proper election officials. Notice of the election shall be given and the election conducted in the manner provided by the general election law. The proposition shall be stated, "Shall the territory (describing it) be annexed to The.... Mosquito Abatement District?" If the majority of all the votes cast on the question is in favor of the annexation, the territory shall be deemed annexed to and shall be a part of the mosquito abatement district.

No territory may be annexed under this subsection (i) more than one year after it has first been included in that city or village unless the territory so annexed is 50 acres or less or (ii) if the annexation would expand the mosquito abatement district's boundaries outside of a county unless the district already contains territory in that county.

(Source: P.A. 95-664, eff. 10-11-07.)

(70 ILCS 1005/11) (from Ch. 111 1/2, par. 84)

Sec. 11. Any mosquito abatement district organized under the provisions of this Act may be dissolved and discontinued upon like petition, hearing and election as is provided in this Act for the organization of such district. If a majority of the votes cast on the question at such election are in favor of such dissolution, the court shall enter an order of record in the court dissolving such district. The trustees of such mosquito abatement district shall immediately proceed to wind up the

affairs of such district and shall have the same powers as before dissolution to levy taxes for the purpose of paying the debts, obligations and liabilities of such mosquito abatement district outstanding on the date of such dissolution and the necessary expenses of closing up the affairs of such district. All property of such district shall be sold and in case any excess remains after all liabilities of such district are paid such excess shall be paid to the various common school districts located in such mosquito abatement district ratably in the proportion that the taxable value of all the property in each of the school districts bears to the taxable value of all the property in the mosquito abatement district.
(Source: P.A. 83-343.)

(70 ILCS 1005/11.5)

Sec. 11.5. Cessation of district organization. Notwithstanding any other provision of law, if a majority vote of the board of trustees of a mosquito abatement district is in favor of a proposition to annex the district to another mosquito abatement district whose boundaries are contiguous, consolidate the district into a municipality whose boundaries are coterminous or substantially coterminous with the district, consolidate the district into the township in which the district sits, or consolidate the district into the county in which the district sits, and if the governing authorities of the governmental unit assuming the functions of the former district agree by resolution to accept the functions (and jurisdiction over the territory, if applicable) of the consolidated or annexed district, then the district shall cease. On the effective date of the annexation or consolidation, all the rights, powers, duties, assets, property, liabilities, indebtedness, obligations, bonding authority, taxing authority, and responsibilities of the district shall vest in and be assumed by the governmental unit assuming the functions of the former district.

The employees of the former district shall be transferred to the governmental unit assuming the functions of the former district. The governmental unit assuming the functions of the former district shall exercise the rights and responsibilities of the former district with respect to those employees. The status and rights of the employees of the former district under any applicable contracts or collective bargaining agreements, historical representation rights under the Illinois Public Labor Relations Act, or under any pension, retirement, or annuity plan shall not be affected by this amendatory Act of the 100th General Assembly.

(Source: P.A. 100-793, eff. 1-1-19.)

(70 ILCS 1005/12) (from Ch. 111 1/2, par. 85)

Sec. 12. The invalidity of any part or portion of this act shall not affect the validity of the remaining part thereof.
(Source: Laws 1927, p. 694.)

(70 ILCS 1005/12a) (from Ch. 111 1/2, par. 85.1)

Sec. 12a. Any mosquito abatement district organized under the provisions of this Act which lies wholly within a county having fewer than 1,000,000 inhabitants which levies a tax for mosquito abatement pursuant to Section 25.05-4 of "An Act in relation to counties", approved March 31, 1874, as heretofore or hereafter amended, shall be dissolved and discontinued upon the action by such county board which levies such tax.

The trustees of such mosquito abatement district shall immediately proceed to wind up the affairs of such district and shall have the same powers as before dissolution to levy taxes

for the purpose of paying the debts, obligations and liabilities of such mosquito abatement district outstanding on the date of such dissolution and the necessary expenses of closing up the affairs of such district. All property of such district shall be sold and in case any excess remains after all liabilities of such district are paid such excess shall be paid to the various common school districts located in such mosquito abatement district ratably in the proportion that the taxable value of all the property in each of the school districts bears to the taxable value of all the property in the mosquito abatement district.

(Source: Laws 1963, p. 3019.)

(70 ILCS 1005/13) (from Ch. 111 1/2, par. 85a)

Sec. 13. The owner or owners of record of any area of land consisting of one or more tracts lying within the corporate limits of any mosquito abatement district may have the area disconnected from the mosquito abatement district in the following manner:

The owner or owners of record of any such tract or tracts of land shall file a petition in the Circuit Court of the county in which the district was organized alleging facts in support of disconnection, including the following:

(1) That the tract or tracts involved are located upon the border of the district;

(2) That disconnection will not result in the isolation of any part of the district from the remainder of the district;

(3) That disconnection will not destroy, or impair the effectiveness of the mosquito abatement district in the performance of its lawful functions of controlling and exterminating mosquitoes, flies and other insects within the district;

(4) That disconnection will not jeopardize the financial position of the district;

(5) And that disconnection will not adversely affect the public health and welfare.

The mosquito abatement district from which disconnection is sought shall be made a defendant, and it or any taxpayer residing in the district may appear and defend against the petition.

The court shall set the petition for hearing on a date not less than 30 days after the filing of the petition, and copy of the petition shall be mailed to the Department of Public Health of the State of Illinois and to the Illinois State Natural History Survey by the clerk of the court, such copies to be furnished by the petitioners. The court shall not proceed to final hearing of the petition without a joint written report from the Department of Public Health and the Illinois State Natural History Survey as to the probable effect upon the public health and welfare and upon the effectiveness of the mosquito abatement district in the performance of its lawful duties if disconnection were granted as prayed. A copy of such report shall also be mailed to the petitioners or their attorneys of record. The court shall upon request grant to any party the right to examine witnesses from such state agencies as may have investigated the facts incorporated in any such reports.

If the court finds that the allegations of the petition are true and that the area of land is entitled to disconnection, it shall order the specified land disconnected from the mosquito abatement district and thereupon said land shall cease to be a part of such district. Said land shall not, however, be relieved from any bonded indebtedness of the district previously created as to its proportionate share thereof.

The decision of the court is appealable as in other civil

cases.

The provisions of this section 13 shall not apply to districts incorporated in counties of over 500,000 population. (Source: Laws 1967, p. 3973.)

(70 ILCS 1005/13a) (from Ch. 111 1/2, par. 85b)

Sec. 13a. Any territory which lies within a mosquito abatement district and which lies within a county which levies a tax for mosquito abatement pursuant to Section 25.05-4 of "An Act in relation to counties", approved March 31, 1874, as heretofore or hereafter amended, shall be disconnected from such mosquito abatement district upon the action by the county board of such county which levies such tax and shall cease to be a part of such district. Such land shall not, however, be relieved from any bonded indebtedness of the district previously created as to its proportionate share thereof. (Source: Laws 1963, p. 3019.)



Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Used and/or Waste Tire Activity Notification and Registration

Pursuant to Sections 55(c) and 55(d)(1) of the Environmental Protection Act, any person who sells new or used tires at retail or operates a tire storage site or a tire disposal site that contains more than 50 used or waste tires must give notice to the Illinois EPA.

Note: If you have used and/or waste tires at other locations, complete a separate form for each location.

This form can be completed online, and a copy of it saved locally on your computer, printed and signed, or the form may be printed and completed manually (please print legibly), before it is sent along with payment (if applicable), to:

Illinois Environmental Protection Agency
Used Tire Unit
1021 North Grand Avenue East, P.O. Box 19276
Springfield, IL 62794-9276

Part A

Calendar Year: 2022		Site Number (assigned by Illinois EPA): _____	
Facility Name: <u>North Shore Mosquito Abatement District</u>		Owner: _____	
Street Address: <u>117 Northfield rd.</u>		Street Address: _____	
P.O. Box: _____	City: <u>Northfield</u>	P.O. Box: _____	City: _____
State: <u>IL</u>	Zip: <u>60093</u>	County: <u>Cook</u>	State: _____ Zip: _____
Contact: <u>Mark Clifton</u>	Phone #: <u>(847) 510-3416</u>	Contact: _____	Phone #: _____
Email: <u>mclifton@nsmad.com</u>		Email: _____	

The following information is required:

What is the largest number of used or waste tires present at this location at any one time? (# of tires)

Do you sell new and/or used tires at retail at this location? (Please select either yes or no) Yes No

Please check the appropriate box(es) for your type of operation:

<p align="center">Used Tire Storage-Exempt Site</p> <p>If tires are stored in a building or stored so they are prevented from accumulating water, AND if any of the boxes below are checked, skip Part B (no fee is required) and complete Part C</p> <p align="center">Check all that apply:</p> <p><input checked="" type="checkbox"/> Used tires are separated from the vehicle wheel rim at this time and not more than 250 used tires are kept at any one time</p> <p><input type="checkbox"/> Used tires are accepted in trade as part of a sale of new tires and not more than 250 used tires are kept at any one time</p> <p><input type="checkbox"/> This site sells tires at retail in the regular course of business and not more than 250 used tires are kept at any one time.</p> <p><input type="checkbox"/> This site sells tires at retail and maintains less than 1,300 recyclable tires, 1,300 tire carcasses, and 1,300 used tires on site.</p>	<p><u>OR</u></p> <p>The site must be either Storage-Exempt or Storage.</p> <p>Do not check boxes in both sections.</p>	<p align="center">Used Tire Storage Site</p> <p>If any of the boxes below are checked, complete Parts B and C.</p> <p align="center">Check one box:</p> <p><input type="checkbox"/> This site is a tire retailer and exceeds the accumulation limits identified under Storage Exempt status.</p> <p><input type="checkbox"/> This site is not a tire retailer and maintains more than 50 used tires at one time.</p>
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The Agency is authorized to require this information under Section 55(c) [415 ILCS 5/55(c)]. Disclosure of this information is required. Failure to do so may result in a civil penalty of not to exceed \$50,000 and an additional civil penalty of not to exceed \$10,000 for each day during which the violation occurs. In addition, it is a Class A misdemeanor to submit false information under Section 44 of the Illinois Environmental Protection Act [415 ILCS 5/44].

- Used Tire Processing Site:** Used tires are altered (e.g., shredded), converted (e.g., manufactured into a commodity other than a tire), or reprocessed (e.g., recapped, retreaded, regrooved) at this site.
- Used Tire Disposal Site:** This site disposed used tires (except combustion) at this location.
- Used Tire Combustion Site:** This site combusts used tires on site.

List all registered used tire transporters (and corresponding Illinois EPA registration numbers) used by this facility.

Transporter Name	Registration Number
Tristate Disposal	8942

Part B

1. How are vectors controlled at this site? Mark all boxes that apply:

- Drained of water on day of generation or receipt and stored inside under cover.
- Drained of water on day of generation or receipt and processed or altered within 14 days so as not to hold water.

2. In the space provided below, describe the actions taken to handle and process the tires at this site:

- a. How often are the tires removed from your site (e.g., weekly, monthly)? _____
- b. Where are the tires that are removed from your site sent for processing/disposal? _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Email Address: _____

3. Pay to the Agency an annual fee of \$100.

Amount Enclosed: _____

Make the check payable to:

Check #: _____

Environmental Protection Permit and Inspection Fund (EPPIF)

Part C

I certify that the above listed site complies with all applicable requirements of Section 55 of the Illinois Environmental Protection Act (415 ILCS 5/1 et. seq) and 35 Ill. Adm. Code 848 and that the information submitted is, to the best of my knowledge, true, correct and complete.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))



 Signature



 Date

Mark E Clifton

 Printed Name

**AN INTERGOVERNMENTAL AGREEMENT BETWEEN THE NORTH SHORE
MOSQUITO ABATEMENT DISTRICT AND THE CITY OF EVANSTON FOR THE
COMPLETION OF THE WEST NILE VIRUS SURVEILLANCE**

This Intergovernmental Agreement (“this Agreement”) is made and entered into by and between the North Shore Mosquito Abatement District (“NSMAD”), an Illinois municipal corporation and the City of Evanston, Health and Human Services Department (“Evanston DHHS”), an Illinois municipal corporation, (collectively, NSMAD and Evanston DHHS may, for convenience purposes only, be referred to as the “Parties” and each individually as a “Party”).

WHEREAS, Article VII, Section 10 of the Illinois Constitution of 1970 provides that units of local government may contract or otherwise associate among themselves to obtain or share services and to exercise, combine or transfer any power or function in any manner not prohibited by law or by ordinance and may use their credit, revenues, and other resources to pay costs related to intergovernmental activities; and

WHEREAS, the Illinois Intergovernmental Cooperation Act, 5 ILCS 220/1 *et seq* further authorizes the intergovernmental cooperation; and

WHEREAS, based on the foregoing, the Parties have concluded that it is in the best interests of the Parties to enter into this Agreement for the purpose of achieving the various aims and objectives relating to West Nile Virus Surveillance (“the Project”).

NOW THEREFORE, in consideration of the foregoing as well as the mutual covenants and agreements hereinafter set forth, NSMAD and Evanston DHHS agree as follows:

A. Recitals.

The foregoing recitals are fully incorporated herein as substantive portions hereof.

B. Purpose.

The purpose of this Agreement is to clearly identify the roles and responsibilities of each party as they relate to the Project collaboration between NSMAD and Evanston DHHS.

C. Obligations of the Parties.

The Parties acknowledge that no contractual relationship is created between them by this Agreement, but agree to work together in true spirit of partnership to ensure that there is a united visible and responsive leadership of the Project and to demonstrate financial, administrative and managerial commitment to the Project by means of the following individual services.

D. Cooperation.

The activities and services for the Project shall include, but are not limited to:

a. Services to be rendered by NSMAD include:

- Assist in selection of Evanston DHHS intern supported by the Illinois Department of Health (“IDPH”) West Nile Virus Surveillance grant.
- Train and supervise Evanston DHHS intern in mosquito identification and testing procedures.
- Identify, pool and test mosquitoes at the NSMAD facility.
- Tabulate results of testing and submit to IDPH portal, with the results attributed to Evanston specific trap sites.
- Incorporate data into overall estimates of the NSMAD’s West Nile Virus Risk assessment.
- Distribute weekly data summaries and annual summaries to Evanston DHHS and other appropriate partners.
- Assist Intern in completing the IDPH quarterly surveillance reports.

b. Services to be rendered by Evanston DHHS include:

- Draft and submit grant proposal for the Project to IDPH.

- Hire intern and assign intern to work on the Project activities.

E. Resources.

The Parties will endeavor to have final approval and secure any financing necessary to fulfill their individual financial contributions at the start of the planning for the development of the Project.

- a. NSMAD agrees to provide the following financial, material and labor resources in respect of the Project:
 - Supervision and training for the Intern.
 - Laboratory facilities (space and equipment) required to identify and process mosquito samples.
 - Data recording, evaluation and reporting as required by IDPH.
- b. Evanston DHHS hereby agrees to provide the following financial, material and labor resources in respect of the Project:
 - Payment to Intern via IDPH grant.
 - Gravid traps for each of the four (4) Evanston DHHS collection sites.
 - Intern assigned to work on the Project up to (5) days per week (to include picking up traps, delivery to NSMAD, identify mosquitoes and test under NSMAD supervision).
 - Two (2) boxes of 250 QIAamp Viral RNA Mini Kit Part Number #52906 USD \$1382.00 (provided “in-kind”) based on each trap site producing an average of 75 pools of mosquitoes to be tested each season.

F. Liability.

No liability will arise or be assumed between Parties as a result of this Agreement.

G. Communication Strategy.

Any media or other public relations contact should always be consistent with the aims of the Project and only undertaken with the express agreement of both Parties. Where it does not breach any confidentiality protocols, a spirit of open and transparent communication should be

adhered to. Coordinated communications should be made with external organizations to elicit their support and further aims of the Project.

H. Term.

The arrangements made by the Parties by this Agreement shall remain in place from April 1, 2024 until October 1, 2024. The term can be extended only by agreement of both of the Parties.

I. Notice.

Any notice or communication required or permitted under this Agreement shall be sufficiently given if delivered in person, by certified mail (return receipt requested) or email (read receipt requested), to the address set forth in the opening paragraph or to such other address as one party may be furnished to the other in writing.

J. Governing Law.

This Agreement shall be construed in accordance with the laws and Constitution of the State of Illinois.

K. Assignment.

Neither party may assign or transfer the responsibilities or agreement made herein without the prior written consent of the non-assigning party, which approval shall not be unreasonably withheld.

L. Amendment.

This Agreement may be amended or supplemented in writing, if the writing is signed by both of the Parties.

M. Prior Agreement.

This Agreement constitutes the entire agreement between the Parties relating to this subject matter and supersedes all prior or simultaneous representations, discussions, negotiations, and agreements, whether written or oral.

N. Severability.

This Agreement must be approved in total, and, if any provision herein is not approved, then the entire agreement shall be null and void.

O. Counterparts.

This Agreement may be executed in counterparts, which, when taken together shall constitute on document.

P. Understanding.

It is mutually agreed upon and understood by and among the Parties of this Agreement that:

- a. Each Partner will work together in a coordinated fashion for the fulfillment of the Project.
- b. In no way does this Agreement restrict involved Parties from participating in similar agreements with other public or private agencies, organizations and individuals.
- c. To the extent possible, each Partner will participate in the development of the Project.
- d. Nothing in this Agreement shall obligate any Partner to the transfer of funds. Any endeavor involving reimbursement or contribution of funds between the Parties of this Agreement will be handled in accordance with applicable laws, regulations and procedures. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the Parties involved and shall be independently authorized by appropriate statutory authority. This Agreement does not provide such authority.
- e. This Agreement is not limited to and does not create any right, benefit, or trust responsibility.
- f. This Agreement will be effective upon the signature of both Parties.

Q. Termination.

This Agreement shall be terminable by either party upon written notice to the other party at thirty (30) days prior to the date said cancellation is to take effect.

The following Parties support the goals and objectives of the West Nile Virus Surveillance:

APPROVED AND ACCEPTED this ____ day of _____, 2021.

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

By: _____
Mark E. Clifton, PhD

CITY OF EVANSTON, HEALTH AND HUMAN SERVICES DEPARTMENT

By: _____
Greg Olsen, MPH

ATTEST:

ATTEST:

Interrelationships with other units of local government

Government	Description of relationship
Northwest Mosquito Abatement District	Applied research collaboration; field efficacy evaluations; Operational coordination
Des Plaines Valley Mosquito Abatement District	Applied research collaboration; field efficacy evaluations
South Cook MAD	Applied research collaboration; field efficacy evaluations
Evanston DPH	Conduct arboviral testing and mosquito monitoring
Skokie DPH	Conduct arboviral testing and mosquito monitoring
Cook County DPH	Report arboviral results and mosquito monitoring data
Village of Northfield	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Glencoe	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Glenview	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Northfield	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Winnetka	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Kenilworth	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Golf	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Wilmette	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
City of Evanston	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
City of Skokie	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Morton Grove	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Lincolnwood	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.

Village of Niles	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Village of Deerfield	Local stakeholder; public health communications; respond to village-initiated complaints; Part of service territory.
Cook County Forest Preserve District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Northbrook Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes; Outreach and education events
Glencoe Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Glenview Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes; Outreach and education events
Northfield Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes; Outreach and education events
Winnetka Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Kenilworth Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Wilmette Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Ridgeville Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Lighthouse Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Niles Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Morton Grove Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
Skokie Park District	Local Stakeholder; Part of service territory; Treat properties for mosquitoes; Outreach and education events
Chicago Botanical Garden	Local Stakeholder; Part of service territory; Treat properties for mosquitoes
New Trier Township	Outreach and education events
Niles Township	Outreach and education events
Skokie Police Department	Outreach and education events
Northbrook Police Department	Outreach and education events
Glencoe Public Works	Outreach and education events
Glenview Public Works	Outreach and education events

Interrelationships with State Government

Government	Description of relationship
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Illinois DPH	Report operational activities; arboviral testing results; mosquito surveillance data; resistance testing results
Statewide Lyme Disease Taskforce	Appointed as resident member of committee.
Illinois Nature Preserves Commission	Local Stakeholder; Part of service territory; Monitor arboviral disease and mosquito abundance.
Illinois Department of Agriculture	Licensing of staff for pesticide application
Illinois Environmental Protection Agency	Report operational activities and product use
Illinois Department of Natural Resources	Endangered species consultations
University of Illinois	Research collaboration; Field site for students and researchers

Interrelationships with Federal Government

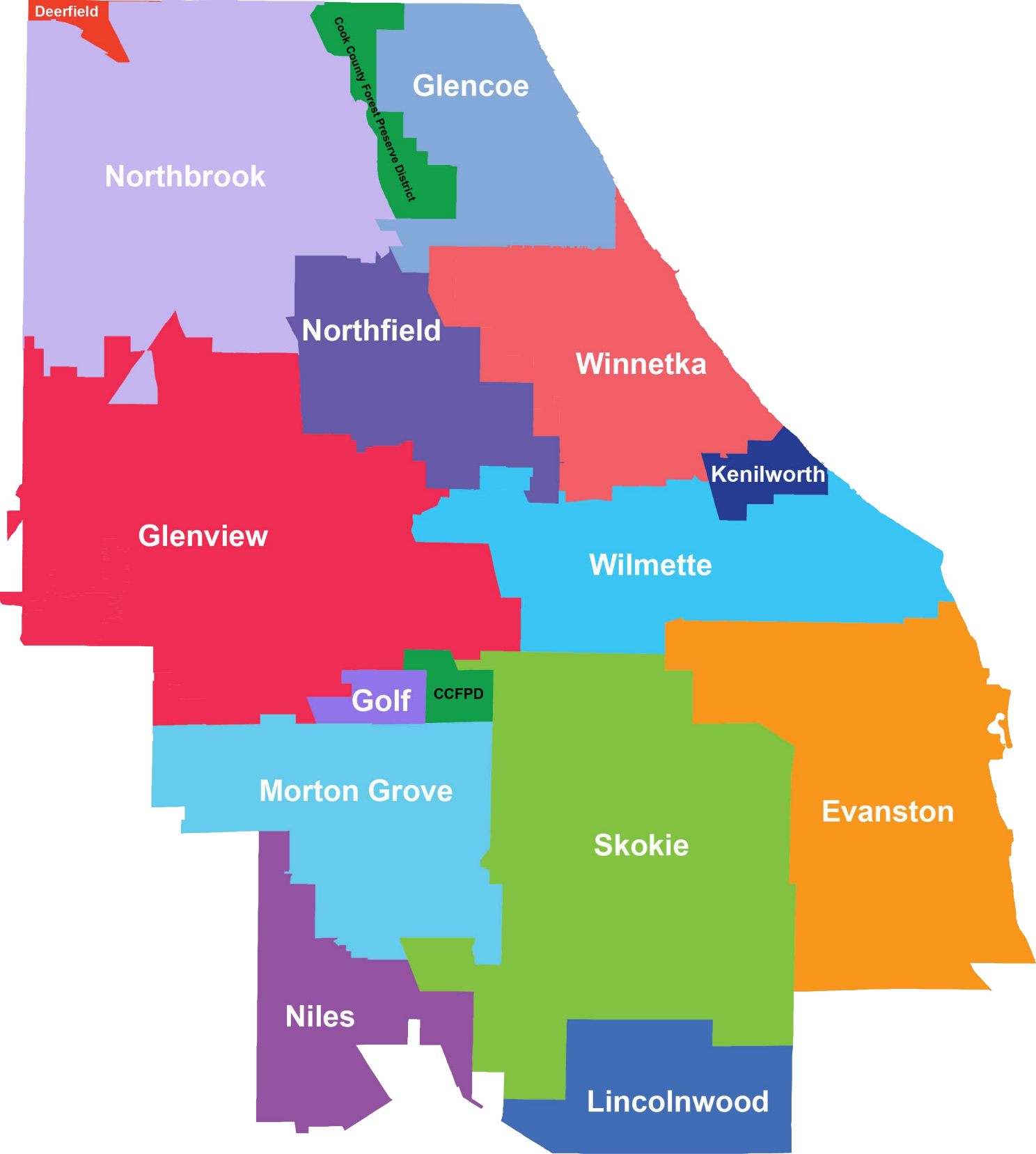
Government	Description of relationship
Centers for Disease Control	Applied research; reporting of arboviral surveillance, mosquito surveillance, resistance testing results
US Fish and Wildlife Service	Endangered Species Letters of Technical Assistance

Interrelationships with other governments

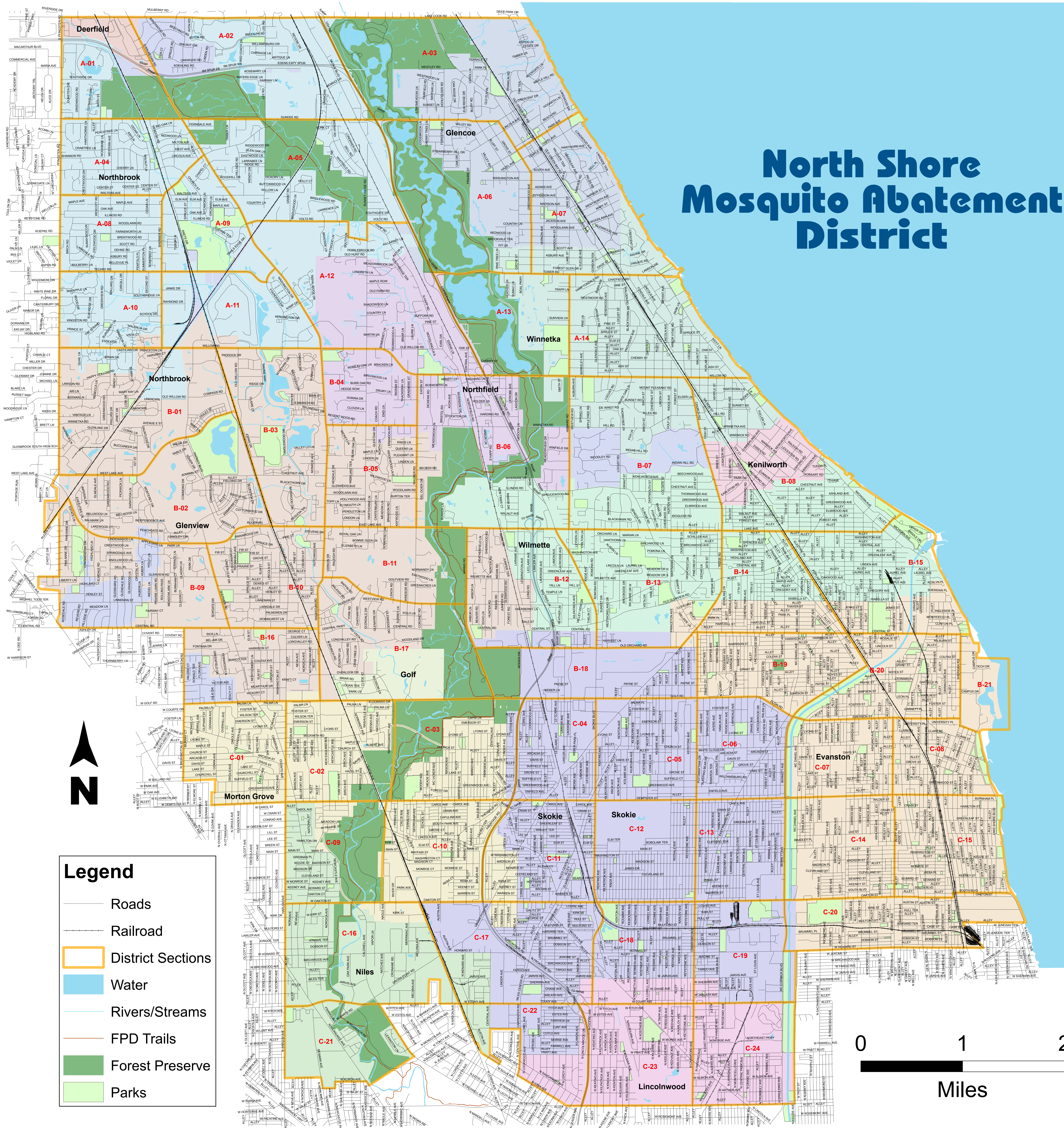
Government	Description of relationship
Salt Lake City Mosquito Abatement	Applied research and product evaluation collaborations

Interrelationships with Non-governmental organizations


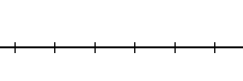





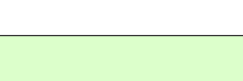
Entity	Description of relationship
American Mosquito Control Association	Organizational membership
Pan-African Mosquito Control Association	International exchange and education
Go Green Wilmette	Outreach and education events
Go Green Winnetka	Outreach and education events
Go Green Northfield	Outreach and education events
North Shore Senior Center	Outreach and education events
Rotary Club of Winnetka-Northfield	Outreach and education events
Glenview/Glencoe League of Women Voters	Outreach and education events
Natural Habitat Evanston	Outreach and education events
Midwest Center of Excellence in Vector--Borne Disease	Scientific collaborator; serve as field site for center students and scientists.

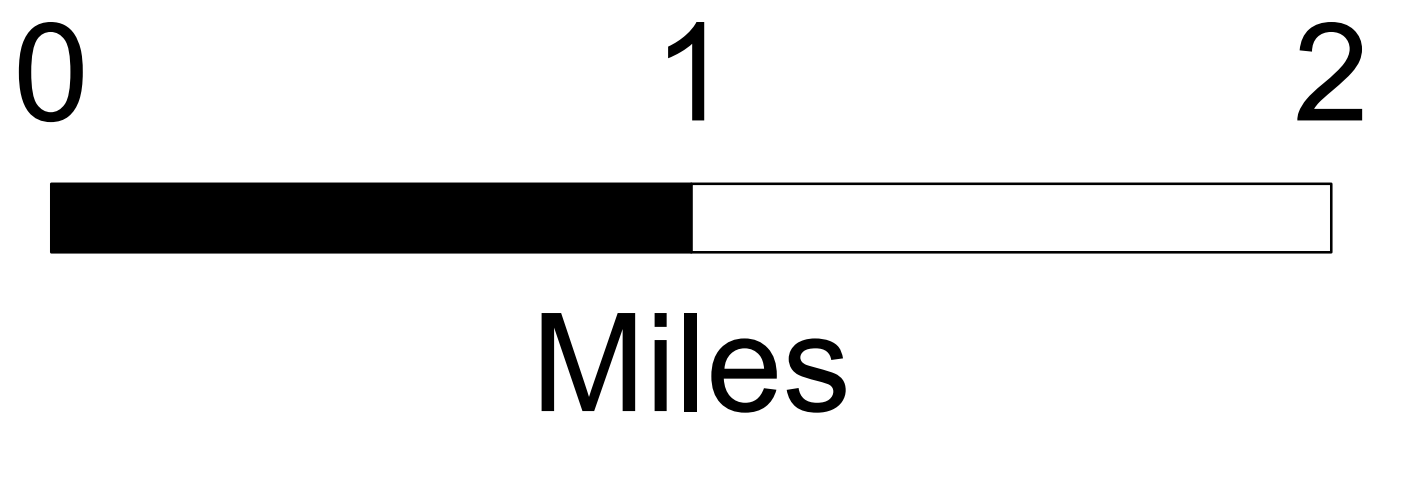


North Shore Mosquito Abatement District



Legend

-  Roads
-  Railroad
-  District Sections
-  Water
-  Rivers/Streams
-  FPD Trails
-  Forest Preserve
-  Parks





December 21, 2020

Members of the Board of Trustees
North Shore Mosquito Abatement District
117 Northfield Road
Northfield, Illinois 60093

We are pleased to confirm our acceptance and understanding of the services we will provide for the North Shore Mosquito Abatement District for the fiscal years ending December 31, 2020 through December 31, 2023. It is our understanding that Lauterbach & Amen, LLP will prepare the GASB 74/75 Actuarial Valuation, under the Alternative Measurement Method, for the District.

You agree to assume all management responsibilities for the actuarial services we provide; you will oversee the services by designating an individual, preferably from senior management, with suitable skill, knowledge, or experience; you will evaluate the adequacy and results of the services and will accept responsibility for them.

Lauterbach & Amen, LLP does not assume any management responsibilities for the District. These services cannot be relied upon to detect errors, irregularities, or illegal acts that may exist. However, we will inform you of any such matters that may come to our attention.

Costs for our services are as follows:

	Fiscal Year Ended 12/31/2020	Fiscal Year Ended 12/31/2021	Fiscal Year Ended 12/31/2022	Fiscal Year Ended 12/31/2023
Annual Actuarial Reports				
• Preparation of GASB 74/75 Actuarial Valuation*	\$2,070	\$900	\$2,190	\$950
• Preparation of Audit Friendly Exhibits	Included	Included	Included	Included
• Attendance at Meeting to Present Results	Included	Included	Included	Included
Total Annual Actuarial Reports	\$2,070	\$900	\$2,190	\$950

*All GASB 74/75 reporting will follow a biennial reporting cycle and for all fiscal year ends where a full-valuation is not required, we will prepare financial statement entries based on a limited actuarial report. The limited actuarial report will not require updating of participant or medical information but will be run at the most recently available discount rate required by the GASB 74/75 standards. If, for any reason, the District or auditors require a full-valuation vs. the limited actuarial report, updating of all participant and medical information will be required and the fee for a full valuation will be charged.

Either party may terminate all or a portion of the services contemplated by this engagement at any time for any reason upon 30 days written notice to the other. Subcontracting is prohibited without the express written approval of the District's Board of Trustees. This agreement shall be governed by and construed in accordance with the laws of the State of Illinois.

We appreciate the opportunity to be of service to the North Shore Mosquito Abatement District and believe this letter accurately summarizes the significant terms of our engagement. If you have any questions, please let us know. If you agree with the terms of our engagement as described in this letter, please indicate your acceptance by signing below and returning it to us.

Cordially,

Lauterbach & Amen, LLP

Lauterbach & Amen, LLP

RESPONSE:

This letter correctly sets forth the understanding of the North Shore Mosquito Abatement District:

Accepted by: _____

Title: _____

October 16, 2023

Board of Trustees and Management
C/o Mr. Mark Clifton, Executive Director
North Shore Mosquito Abatement District
117 Northfield Road
Northfield, IL 60093

Dear Board Members and Management:

We are pleased to confirm our understanding of the services we are to provide North Shore Mosquito Abatement District for the year ended December 31, 2023.

Audit Scope and Objectives

We will audit the financial statements of the governmental activities, and each major fund, including the related notes to the financial statements, which collectively comprise the basic financial statements of the North Shore Mosquito Abatement District as of and for the year ended December 31, 2023. Accounting standards generally accepted in the United States of America (GAAP) provide for certain required supplementary information (RSI), such as management's discussion and analysis (MD&A) and budget information, to supplement North Shore Mosquito Abatement District's basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. As part of our engagement, we will apply certain limited procedures to North Shore Mosquito Abatement District's RSI in accordance with auditing standards generally accepted in the United States of America (GAAS). These limited procedures will consist of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We will not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

The following RSI is required by generally accepted accounting principles and will be subjected to the certain limited procedures, but will not be audited:

1. Management's Discussion and Analysis
2. Schedule of Revenues and Expenditures – Estimated Receipts and Appropriations
Compared to Actual – General Fund
3. Schedule of Changes in the Net Pension (Asset) Liability and Related Ratios
4. Schedule of Employer Pension Contributions

5. Schedule of Changes in Net OPEB Liability and Related Ratios
6. Schedule of Employer OPEB Contributions

The objectives of our audit are to obtain reasonable assurance as to whether the financial statements as a whole are free from material misstatement, whether due to fraud or error; issue an auditor's report that includes our opinion about whether your financial statements are fairly presented, in all material respects, in conformity with GAAP. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. Misstatements, including omissions, can arise from fraud or error and are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment of a reasonable user made based on the financial statements.

Auditor's Responsibilities for the Audit of the Financial Statements

We will conduct our audit in accordance with GAAS and will include tests of your accounting records and other procedures we consider necessary to enable us to express such opinions. As part of an audit in accordance with GAAS, we exercise professional judgment and maintain professional skepticism throughout the audit.

We will evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management. We will also evaluate the overall presentation of the financial statements, including the disclosures, and determine whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation. We will plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether from (1) errors, (2) fraudulent financial reporting, (3) misappropriation of assets, or (4) violations of laws or governmental regulations that are attributable to the government or to acts by management or employees acting on behalf of the government.

Because of the inherent limitations of an audit, combined with the inherent limitations of internal control, and because we will not perform a detailed examination of all transactions, there is an unavoidable risk that some material misstatements may not be detected by us, even though the audit is properly planned and performed in accordance with GAAS. In addition, an audit is not designed to detect immaterial misstatements or violations of laws or governmental regulations that do not have a direct and material effect on the financial statements. However, we will inform the appropriate level of management of any material errors, fraudulent financial reporting, or misappropriation of assets that comes to our attention. We will also inform the appropriate level of management of any violations of laws or governmental regulations that come to our attention, unless clearly inconsequential. Our responsibility as auditors is limited to the period covered by our audit and does not extend to any later periods for which we are not engaged as auditors.

We will also conclude, based on the audit evidence obtained, whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the government's ability to continue as a going concern for a reasonable period of time.

Our procedures will include tests of documentary evidence supporting the transactions recorded in the accounts, tests of the physical existence of inventories, and direct confirmation of receivables and certain assets and liabilities by correspondence with selected customers, creditors, and financial institutions. We will also request written representations from your attorneys as part of the engagement.

Our audit of the financial statements does not relieve you of your responsibilities.

Audit Procedures - Internal Control

We will obtain an understanding of the government and its environment, including internal control relevant to the audit, sufficient to identify and assess the risks of material misstatement of the financial statements, whether due to error or fraud, and to design and perform audit procedures responsive to those risks and obtain evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentation, or the override of internal control. An audit is not designed to provide assurance on internal control or to identify deficiencies in internal control. Accordingly, we will express no such opinion. However, during the audit, we will communicate to management and those charged with governance internal control related matters that are required to be communicated under AICPA professional standards

We have identified the following significant risks of material misstatement as part of our audit planning:

According to Generally Accepted Auditing Standards (GAAS), significant risks include management override of controls, and GAAS presumes that revenue recognition is a significant risk. Accordingly, we have considered these as significant risks.

Audit Procedures - Compliance

As part of obtaining reasonable assurance about whether the financial statement are free of material misstatement, we will perform tests of North Shore Mosquito Abatement District's compliance with the provisions of applicable laws, regulations, and the provisions of contracts and agreements. However, the objective of our audit will not be to provide an opinion on overall compliance and we will not express such an opinion.

Other Services

We will update your capital asset and depreciation schedules for you and propose various accrual entries and ask you to review and approve them prior to finalizing the audit. We will also prepare the financial statements of North Shore Mosquito Abatement District in conformity with accounting principles generally accepted in the United States of America based on information provided by you. As part of our engagement, we will also prepare the Annual Financial Report

required to be filed with the Office of the Comptroller of the State of Illinois for the year ended December 31, 2023.

We will perform the services in accordance with professional standards. The other services are limited to the services previously defined. We, in our sole professional judgment, reserve the right to refuse to perform any procedures or take any action that could be construed as assuming management responsibilities.

You agree to assume all management responsibilities for the financial statement preparation services, AFR, depreciation schedules and any other nonattest services we provide; oversee the services by designating an individual, preferably from senior management, with suitable skill, knowledge, or experience; evaluate the adequacy and results of the services; and accept responsibility for them.

Responsibilities of Management for the Financial Statements

Our audit will be conducted on the basis that you acknowledge and understand your responsibility for designing, implementing, and maintaining internal controls relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error, including monitoring ongoing activities; for the selection and application of accounting principles; and for the preparation and fair presentation of the financial statements in conformity with accounting principles generally accepted in the United States of America with the oversight of those charged with governance.

Management is responsible for making drafts of financial statements, all financial records, and related information available to us and for the accuracy and completeness of that information (including information from outside of the general and subsidiary ledgers). You are also responsible for providing us with (1) access to all information of which you are aware that is relevant to the preparation and fair presentation of the financial statements, such as records, documentation, identification of all related parties and all related-party relationships and transactions, and other matters; (2) additional information that we may request for the purpose of the audit; and (3) unrestricted access to persons within the government from whom we determine it necessary to obtain audit evidence. At the conclusion of our audit, we will require certain written representations from you about the financial statements and related matters.

Your responsibilities include adjusting the financial statements to correct material misstatements and confirming to us in the management representation letter that the effects of any uncorrected misstatements aggregated by us during the current engagement and pertaining to the latest period presented are immaterial, both individually and in the aggregate, to the financial statements of each opinion unit taken as a whole.

You are responsible for the design and implementation of programs and controls to prevent and detect fraud, and for informing us about all known or suspected fraud affecting the government involving (1) management, (2) employees who have significant roles in internal control, and (3) others where the fraud could have a material effect on the financial statements. Your responsibilities include informing us of your knowledge of any allegations of fraud or suspected

fraud affecting the government received in communications from employees, former employees, grantors, regulators, or others. In addition, you are responsible for identifying and ensuring that the government complies with applicable laws and regulations.

Engagement Administration, Fees, and Other

We understand that your employees will prepare all cash or other confirmations we request and will locate any documents selected by us for testing.

The fee estimate is based on the premise that your personnel will be instructed to provide us with assistance in the preparation of various schedules, which we will request prior to our arrival. This will enable us to spend a minimum amount of time performing clerical tasks and thus concentrate strictly on audit functions. You recognize that and acknowledge that the failure of District personnel to provide such information on a timely basis will delay our completion of the engagement and increase our fees and costs to you.

We expect to perform our fieldwork in February and finalize the audit in April, or as soon thereafter as is practical, based on the availability of certain reports. The timing is dependent upon when your organization can be ready for us, when various reports are provided to us by outside agencies and what our busy season schedule allows. Chris McClure is the engagement partner and is responsible for supervising the engagement and signing the report or authorizing another individual to sign it.

Our fees for these services will be based on actual hours spent at our standard hourly rates plus travel and other out-of-pocket costs such as report production, typing, postage, etc. Our standard hourly rates vary according to the degree of responsibility involved and the experience level of the personnel assigned to your audit. Our invoices for these fees will be rendered each month as work progresses and are payable on presentation. Based on our estimates, the fee will be \$13,900 for the audit, report preparation, maintenance of depreciation schedules and completion of your State of Illinois Annual Financial Report. This fee includes the work required related to GASB 75, Accounting and Financial Reporting for Postemployment Benefits other than Pensions (OPEB). These estimates are based on anticipated cooperation from your personnel and the assumption that unexpected circumstances will not be encountered during the audit. If significant additional time is necessary, we will discuss it with you prior to billing.

Reporting

We will issue a written report upon completion of our audit of North Shore Mosquito Abatement District's financial statements. Our report will be addressed to the board of trustees of North Shore Mosquito Abatement District. Circumstances may arise in which our report may differ from its expected form and content based on the results of our audit. Depending on the nature of these circumstances, it may be necessary for us to modify our opinions, add a separate section, or add an emphasis-of-matter or other-matter paragraph to our auditor's report, or if necessary, withdraw from this engagement. If our opinions are other than unmodified, we will discuss the reasons with you in advance. If, for any reason, we are unable to complete the audit or are unable to form or have not formed opinions, we may decline to express opinions or withdraw from this engagement.

Board of Trustees and Management

October 16, 2023

Page 6 of 6

We appreciate the opportunity to be of service to North Shore Mosquito Abatement District and believe this letter accurately summarizes the significant terms of our engagement. If you have any questions, please let us know. If you agree with the terms of our engagement as described in this letter, please sign below and return it to us.

Sincerely,

ATA Group, LLP

ATA Group, LLP

RESPONSE:

This letter correctly sets forth the understanding of North Shore Mosquito Abatement District.

By: _____ Title: _____ Date: _____



Corporate Offices
 1000 Alfred Nobel Drive
 Hercules California 94547
 (510) 724-7000

www.biorad.com

Mark Clifton
 NORTH SHORE MOSQUITO ABATEMENT DIST
 117 Northfield Rd
 Northfield
 IL 60093
 (847) 446-9434 ext. 1004
 mclifton@nsmad.com

Price Quotation # SC-03992146
 Date: 5/1/2023
 Quote Valid: 5/31/2023
 Terms: Net 30
 Sales Rep: Lillian Jaeger

lillian_jaeger@bio-rad.com

Details

Quoted Item(s)	Description	Qty	List Price	Discount	Net Amount
CSP10045	Real-Time PCR System, 1 yr FULL ON-SITE Complete Support Plan. Unlimited repair inclusive of travel, parts and labor. Computer not covered. Includes thermal cycler and optical reaction module. PM not included	1	USD 4862.00		USD 4862.00
	1855195-8004191748-000010-1 - CFX96 Touch Real-Time PCR Detection Sys				
	CT035176 - C1000 TOUCH THERMAL CYCLER CHASSIS				
	785BR19055 - CFX96 OPTICAL REACTION MODULE				
	Current Coverage Expiration 6/20/2023				
	Renewal Period: 6/21/2023 - 6/20/2024				

Total: USD 4862.00

Notes

Full on-site service agreements offer unlimited on-site repair visits, including parts, labor and travel expenses, during the service agreement coverage period. This agreement does not cover user required care and maintenance of the instrument, if any, and it does not cover consumable items Please see the user manual for further details. In the event a PC is connected to the instrument, PC coverage is not included. For PC service, please contact the original equipment manufacturer. In the event of PC service, if required, re-installation of Bio-Rad provided software and PC re-configuration is covered by this agreement. Please see Service Agreement Terms for additional details.

Avoid a billable re-certification by placing your order prior to: 6/20/2023

Thank you for the opportunity to submit this quotation. Please contact me if you have any additional questions.

Lillian Jaeger

Phone:

Email: lillian_jaeger@bio-rad.com

To place an order:

Phone: 1-800-4BIORAD

Fax: 1-800-879-2289

Email: LSG_Service_Orders@bio-rad.com

Mail: Bio-Rad Laboratories, Inc

2000 Alfred Nobel Drive

Hercules, CA 94547

Service Plans Terms and Conditions of Sale

1. PERIOD OF COVERAGE:

The dates determining the Period of Coverage are outlined in the quotation for Service Plans including repair services. Bio-Rad shall have no obligation to provide service outside of the stated period. If the quoted Service Plan is for a pre-paid Service, period of coverage is deemed to be from the purchase date to the date by which all pre-paid services have been provided.

2. COVERED EQUIPMENT:

Maintenance Service will be provided only to those instruments referenced in the quotation. Bio-Rad shall have no obligation to service other products under the quoted Service Plan. Refer also to computer coverage contained in paragraph 12.

The Customer is not to make or participate in any modification, adjustment, relocation or repair of the Covered Equipment without the prior consent of the Authorized Bio-Rad Representative.

3. COVERED LOCATION:

Except as otherwise provided herein, on-site Maintenance Service shall be provided only at the location address indicated on the quotation. Service Center (mail-in) Service Plans are limited to the location for which the plan has been purchased as specified on the quotation.

4. ACCESS TO COVERED EQUIPMENT AND ENVIRONMENT:

- The Customer shall make available to Bio-Rad software programs and documentation available to the Customer which, in Bio-Rad's sole discretion, are relevant to the maintenance of the Covered Equipment.
- The Customer shall give authorized Bio-Rad employees or representatives such full and free access to all Covered Equipment and any other equipment and facilities associated with the Covered Equipment and under the control of the Customer as may be appropriate to provide Maintenance Service hereunder, subject to the Customer's reasonable safety and security regulations of which Bio-Rad is notified.
- The customer shall provide adequate working space, heat, light, ventilation, air conditioning, electric current and outlets for the use of Bio-Rad's employees. These facilities shall be within a reasonable distance from the equipment to be serviced and shall be provided at no charge to Bio-Rad. The Customer shall maintain site environmental conditions throughout the term of this Agreement in accordance with the specifications established by Bio-Rad for the equipment being maintained.
- BSL facilities - Usage of covered products in biological safety level containment facilities greater than BSL-2 is not permitted under the standard service agreement. Customer is responsible for advising Bio-Rad if covered equipment will be used in or moved to a BSL-3 or BSL-4 environment, failure to do so may result in cancellation of Service Plan.

5. DEFINITION OF MAINTENANCE SERVICE:

- Repair Service is defined as Covered Equipment requiring service as a result of the equipment not performing to factory specifications. Repair Service assistance may be provided by Bio-Rad via telephone, via Remote Diagnostics (if so equipped), at a Bio-Rad service center, or by an on-site visit by a Bio-Rad Field Service Engineer, at Bio-Rad's sole discretion to resolve instrument malfunctions.
- On-site Service Plans provide a typical response time of 3-5 business days (for most locations) after Bio-Rad's Technical Support Center receives notice of the malfunction from the Customer and determines an engineer dispatch is required.
- Service Center Plans provide for a typical turn around time of 5-7 business days from the time of instrument receipt at our Service Center.
- Scheduled Preventative Maintenance service may be provided with some Service Plans (refer to quotation to confirm inclusion and number of visits). Where included, "Preventative Maintenance" means use of procedures during which Bio-Rad Field Service Engineers will carry out defined maintenance procedures as outlined in our Service documentation as well as perform a complete system checkout to ensure continuing optimum performance. Maintenance procedures may include replacement of wear and tear parts where applicable, cleaning, mechanical inspections, adjustments and lubrication as required. System checkout includes following a comprehensive list of instrument checks to ensure an instrument is functioning to factory specifications.

6. NOTICE OF MALFUNCTIONING COVERED EQUIPMENT:

The Customer shall immediately notify Bio-Rad of malfunctioning Covered Equipment. Bio-Rad shall not be obligated to furnish Maintenance Service under this Agreement until such notice is received from the Customer.

7. REPLACEMENT PARTS:

Replacement parts furnished as part of Maintenance Service may be new or reconditioned, at Bio-Rad's sole discretion. Replaced parts removed from Covered Equipment in the course of Maintenance Service shall become the exclusive property of Bio-Rad.

8. EXCLUSIONS:

The following are specifically excluded from any Maintenance Service:

- Consumable supplies for Covered Equipment, including but not limited to reagents, assays, buffer, printer supplies, sample plates/trays/slides.
- Software or programs furnished by Bio-Rad for use on any Covered Equipment.
- Electrical work external to Covered Equipment.
- Painting, refinishing or other solely cosmetic alterations of Covered Equipment.
- Repair service required as a result of damage due to; delay of notice of malfunction, fire, water, theft, accident, abuse, neglect, misuse, power failure, fluctuation in the power supply, improper air conditioning or humidity control or any cause not attributable to ordinary wear and tear including use of the Covered Equipment for other than the purposes for which it was designed.
- Service which is impractical for Bio-Rad to render because of alterations in the Covered Equipment or its connection by mechanical or electrical means to another machine or device.
- If the Customer requests Bio-Rad's service without good reason as determined at Bio-Rad's sole discretion, the Customer may be liable to pay to Bio-Rad in accordance with Bio-Rad's then prevailing rates for such call, such charges being in addition to any other moneys due under this or any other agreement between Bio-Rad and the Customer.

9. HOURS OF SERVICE:

All Maintenance Service shall be furnished between the hours of 8:30 A.M. and 5:30 P.M., Monday through Friday, excluding locally observed and Bio-Rad observed holidays ("Regular Business Days"). Bio-Rad shall have no obligation to furnish Maintenance Service at other times. Service provided during other than Regular Business Days shall be billed to the Customer at Bio-Rad's then prevailing rates.

10. TEMPORARY REMOVAL OF COVERED EQUIPMENT:

Bio-Rad may temporarily remove from a Covered Location any Covered Equipment or part thereof for repair at a Bio-Rad Service Center if Bio-Rad, in its sole discretion, deems such removal appropriate to provide Maintenance Service. Bio-Rad may provide the Customer with temporary use of loaner equipment on an "as available" basis, if requested to do so by the Customer.

11. COMPUTER COVERAGE:

The initial warranty coverage for computers is provided by the computer manufacturer (OEM). Bio-Rad's Service Plans do not provide coverage of connected computer hardware, peripherals, operating systems, networking or other software which is not related to the connected Bio-Rad instrumentation.

Following Customer/OEM restoration of functionality in the event of computer hardware or operating system failure, Bio-Rad will reinstall at customer request, any related Bio-Rad software for instrument control while the connected instrumentation is covered by a Complete or Extended Care Service Plan.

Bio-Rad shall not be held responsible for reestablishing network connections lost during system failure or repair, or for reinstalling third party software, hardware, or peripherals that are not supplied by Bio-Rad for use with connected instrumentation.

Any information or data stored on the computer is the sole responsibility of the customer. Bio-Rad shall not be held responsible for damages, loss, or data corruption resulting from any reason, including but not limited to, system failure, or resulting from scheduled or unscheduled system maintenance, or acts of God. It is strongly recommended that the equipment owner maintain redundant back up copies of all data stored on the computer.

Bio-Rad shall not be held responsible for computer system lock up, or crashes, resulting from; misuse, abuse, neglect, power failure, computer viruses, customer's system maintenance or lack thereof, fluctuation in power supply, customer installed peripherals or software, unauthorized configurations, or acts of God.

12. PAYMENT OF CHARGES:

Charges are due and payable within thirty (30) days of the Invoice Date.

Bio-Rad's quotations do not include sales, use, excise, personal property or similar taxes. The Customer shall pay any such taxes applicable to the services furnished hereunder or, in lieu thereof, provide Bio-Rad with an appropriate tax exemption certificate acceptable to the taxing authority concerned.

13. LIMITATION OF LIABILITY:

Any cause or circumstance of whatever nature which makes Bio-Rad performance impractical and which is not within the control of Bio-Rad or which cannot be prevented or overcome by Bio-Rad's exercise of reasonable diligence, shall excuse Bio-Rad from performance. Such circumstances shall include, but not be limited to Acts of God; acts or orders of governmental bodies having or asserting jurisdiction which prohibit or prevent performance hereunder, strikes; lockout or other labor and industrial disputes; acts of public enemies, wars, riots, sabotage; blockade embargoes, or insurrection; inability to obtain necessary labor or materials; transportation delays, and damage to equipment not due to lack of care by Bio-Rad personnel.

At Bio-Rad's sole option, Bio-Rad's liability to the Customer, arising out of Maintenance Service or other performance by Bio-Rad hereunder shall be limited to either the purchase price paid by the Customer for Bio-Rad parts and service on the relevant sales order or the correction of any defective Maintenance Service by restoring the equipment to good operating condition. Except as prohibited by law, in no event shall Bio-Rad be liable for damages, including but not limited to, incidental, special consequential or other damage, including loss of anticipated profits or other economic loss, arising out of the transactions and services provided, even if Bio-Rad had been advised of the possibility of such damage.

Bio-Rad is not responsible for loss of data on externally connected computer equipment or customer created data stored on the instrument, regardless of cause. Restoration of Bio-Rad software and default factory protocols can be included in the service provided, if required. Maintenance and troubleshooting of customer computer networks is the sole responsibility of the customer.

14. TERMINATION OF SERVICE PLAN:

Bio-Rad may terminate the purchased Service Plan, under the following circumstances:

- Attachment of Covered Equipment to other equipment not outlined in the quotation which adversely affects instrument performance and/or Bio-Rad's ability to perform Maintenance Service.
- Any modification, adjustment, relocation or repair not furnished by Bio-Rad which, in Bio-Rad's sole discretion, adversely affects instrument performance and/or Bio-Rad's ability to perform Maintenance Service.
- A finding by Bio-Rad, in its sole discretion, that Covered Equipment is not being maintained by the Customer as outlined in the owner/operation manual.
- If Customer petitions for reorganization under the Bankruptcy Act or is adjudicated Bankrupt, or if a receiver is appointed for the Customer's business or if the Customer makes an assignment for the benefit of its creditors, or the Customer defaults in payment of any sum due hereunder, or otherwise fails to fulfill its obligations under this Agreement, then Bio-Rad shall, without further notice, have the immediate right to terminate this Agreement.
- The Customers' failure to provide diagnostic programs, documentation or access to Covered Equipment pursuant to paragraph 5.

Should the Customer elect to terminate the Service Plan before the end of the specified period of coverage, a prorated percentage of the original plan price will be credited to the customer less the value of any services rendered. Proration shall be based upon remaining time within the period of coverage. No credit will be issued for Service Plans with less than 4 months of coverage remaining. In the case of Pre-Paid single event services such as IQOQ, a full credit will be issued provided the Pre-Paid service has not been started.

15. AMENDMENT:

These terms may be amended, modified or supplemented hereafter only by written instrument, signed by the Customer and an Authorized Bio-Rad Representative. Electronic exchange via fax or email are acceptable means of communicating any such changes.

16. NOTICES:

All notices and other communications to be given hereunder to Bio-Rad shall be given to the Authorized Bio-Rad Representative.

17. SERVICE WARRANTY:

Work performed by Bio-Rad is warranted against defects in material and workmanship during the Period of Coverage. Bio-Rad shall have no obligation to provide warranty service outside of the Period of Coverage.

18. One-Time, Flat Rate Services:

The following applies to one time, flat rate services, including Preventative Maintenance (Proactive Plans), IQOQ, PMOQ, MVOQ, Thermal Validation, Step Tablet Certification, and Instrument Checks (Performance Plans): Service is valid for one (1) year from acceptance of purchase order. Payment for full amount of one time Service is due net 30 days from the date of invoice, and invoicing occurs at the time of order submission. This is a flat rate service.

19. REPAIR PLAN TERMS AND CONDITIONS OF SALE (TIME & MATERIALS SERVICE):

The quoted amount includes estimated parts and/or labor required to complete requested service. Applicable taxes and shipping charges are not included. Instruments repaired at the Bio-Rad Service Center will be shipped back to the Customer with shipping charges PREPAID by Bio-Rad and added to the bill unless otherwise specified by the Customer. Total charges may vary should additional parts and/or labor be required, the customer will be advised of any change in estimated charges.

PROVISION OF PARTS ONLY, FOR CUSTOMER INSTALLATION:

Provision of parts by Bio-Rad for the purpose of repairs attempted by non-Bio-Rad personnel does not imply a guarantee of success. Installer of purchased parts assumes all risks including personal injury and damage to instrument or surroundings. Internal replacement parts purchased for end-user installation cannot be returned for credit unless approved in writing by Bio-Rad prior to purchase. Internal replacement parts include any part that is not external to an instrument (example: circuit boards, displays, switches etc.). Parts which are considered a user replaceable or maintenance item as documented in the users/operation manual are exempt.

BILLABLE SERVICE WARRANTY:

Bio-Rad provides a 90-day parts and labor warranty for work performed by Bio-Rad personnel, for which payment has been made for the services detailed on Bio-Rad's Service Report provided to customer upon completion of the repair. Should the installed part(s) identified on the Service Report require replacement within 90-days of the original service, Bio-Rad will provide the part and labor free of charge. Replacement parts supplied could be new or reconditioned at Bio-Rad's discretion however the warranty applies to both. This warranty does not apply to instruments covered by original product warranty or service plan or to parts that were not replaced during the original service. The warranty does not apply to internal replacement parts installed by customers or 3rd party service organizations.

PAYMENT FOR REPAIRS/SERVICES:

You may use either a Purchase Order or Credit Card to pay for repairs/services. Purchase Orders should contain the PO number, the billing and shipping address, and should be in standard institution format or letterhead. Return shipping charges are prepaid by Bio-Rad and added to the invoice unless otherwise requested by customer and stated on this quote. Credit card information should include the type of card (MasterCard, Visa or American Express), the name on the card, the account number, the expiration date and the billing address.

Please note that a Field Service Engineer will not be dispatched for an on-site billable service visit, and instruments returned to our Service Centre for repair will not be returned back to the Customer, until a purchase order or valid credit card number is provided.

Purchase Orders can be sent to us via email: LSG_Service_Orders@bio-rad.com or FAX: 1-800-879-2289, reference your Case/Work order number and/or quote number on the email or fax. If you are paying by Credit Card, we will provide you with a form to complete for your credit card information and contact you for the credit card number via phone upon receipt of your Credit Card information form.

Quoted prices do not include sales or similar taxes. Additional discounts or surcharges may apply. Invoice amounts will reflect final or total charges applicable. The Customer shall pay any such duties or taxes applicable to parts or materials furnished hereunder or, in lieu thereof, provide Bio-Rad with an appropriate tax exemption certificate acceptable to the taxing authority concerned. Any tax exemption certificates should be provided at time of Purchase Order issue or taxes will be charged based on local laws.

Minimum labor/travel charges are applicable in the event service is started but not completed, at customer request, or due to unavailability of instrument at time of initial visit.

Shipping charges: Customer is responsible for shipping both ways. Customer is full responsible for any shipping damage when shipping instrument(s) to Bio-Rad. Custom packaging material may be provided, subject to availability. Any charges for packaging material will be advised at the time of request.

Billing Account: An existing Bio-Rad billing account for the address that needs service is required. Should we not have an account for your specified billing/shipping address, a new account application will need to be completed and reviewed. It is the Customer's responsibility to provide the correct shipping and billing information on their purchase order.

Third Party Payers: By issuing a purchase order number or reference number against which we will bill, third party payers are expected to pay the invoice based on the terms stated on the invoice. Field service reports will be provided to the end user contact free of charge. Any additional copies required by third party payer may be subject to additional charges. End user contact information (name, phone, email) must be provided in order for Bio-Rad to provide service in a timely manner (shipping information, confirmation of reported problem with the instrument or location, etc).

LIMITATION OF LIABILITY:

Any cause or circumstance of whatever nature which makes Bio-Rad performance impractical and which is not within the control of Bio-Rad or which cannot be prevented or overcome by Bio-Rad's exercise of reasonable diligence, shall excuse Bio-Rad from performance. Such circumstances shall include, but not be limited to Acts of God; acts or orders of governmental bodies having or asserting jurisdiction which prohibit or prevent performance hereunder, strikes; lockout or other labor and industrial disputes; acts of public enemies, wars, riots, sabotage; blockade embargoes, or insurrection; inability to obtain necessary labor or materials; transportation delays, and damage to equipment not due to lack of care by Bio-Rad personnel.

At Bio-Rad's sole option, Bio-Rad's liability to the Customer, arising out of Maintenance Service or other performance by Bio-Rad hereunder shall be limited to either the purchase price paid by the Customer for Bio-Rad parts and service on the relevant sales order or the correction of any defective Maintenance Service by restoring the equipment to good operating condition. Except as prohibited by law, in no event shall Bio-Rad be liable for damages, including but not limited to, incidental, special consequential or other damage, including loss of anticipated profits or other economic loss, arising out of the transactions or services provided, even if Bio-Rad had been advised of the possibility of such damage.

Bio-Rad is not responsible for loss of data on externally connected computer equipment or customer created data stored on the instrument, regardless of cause. Restoration of Bio-Rad software and default factory protocols can be included in the service provided, if required. Maintenance and troubleshooting of customer computer networks is the sole responsibility of the customer.

Memorandum of Agreement

This agreement entered into between the NORTH SHORE MOSQUITO ABATEMENT DISTRICT (hereinafter referred to as the "DISTRICT") and Justin Eric Harbison, Ph.D. (hereinafter referred to as "HARBISON").


WHEREAS the DISTRICT is in need of expertise to scientifically evaluate mosquito and tick surveillance and control operations, and

WHEREAS the DISTRICT intends to employ an outside consultant to meet this need, and

WHEREAS the DISTRICT and HARBISON have defined operational research objectives for 2023 agreed on experimental protocols,

NOW therefore, it is agreed by and between the DISTRICT and HARBISON as follows:

1. Between Jan. 1, 2023 and Dec. 31, 2023 HARBISON will work up to five eight-hour days per week (40 hours), at the rate of thirty-five dollars (\$35) per hour not to exceed 500 hours within this period.
2. HARBISON's primary duties as consultant will be to participate in the design of and to conduct studies to evaluate the DISTRICT adult and larval mosquito control procedures and to provide a written report of results conclusions.
3. HARBISON's secondary duties will be to assist the Laboratory Manager in performing mosquito identification, conducting RAMP and PCR testing for West Nile Virus, evaluating surveillance results, conducting tick surveillance, conducting resistance monitoring and other duties as needed.
4. HARBISON will attend governmental and industry meetings which the Executive Director of the DISTRICT shall request that he attend and perform such other duties that the Executive Director will assign to him, consistent with his work schedule.
5. The DISTRICT will provide equipment, supplies and transportation necessary for HARBISON to accomplish assigned duties.
6. The DISTRICT will not provide health insurance coverage and HARBISON shall not be entitled to paid personal days, sick days or vacation days.
7. HARBISON shall be paid twice a month on the 15th and the last day of each month.



Mark Clifton, Ph.D.
Executive Director
North Shore Mosquito Abatement
District



Justin Eric Harbison, Ph. D.
Assistant Professor
Department of Public Health Sciences
Loyola University

Date: 5/9/ 2023

Date: 5/8/ 2023



Application Number

Agreement Number

Schedule Number

Advantage Lease Agreement

This Advantage Lease Agreement ("Agreement") is written in "Plain English". In this Agreement, the words **you** and **your** refer to the customer (and its guarantors), the words **we**, **us** and **our** refer to **Konica Minolta Business Solutions U.S.A., Inc., d/b/a Konica Minolta Premier Finance**. If we assign this Agreement to a third party lessor, **Lessor** shall refer to such third party lessor assignee, and the words **we**, **us** and **our** shall also mean and include such Lessor and its assignees as to our rights, remedies and entitlements under this Agreement and any Schedule so assigned, but not our obligations.

Customer Information

Full Customer legal Name/Address:

NORTH SHORE MOSQUITO ABATEMENT DISTRICT
117 Northfield Rd
Northfield, IL 60093-3309

Billing Name/Address:

**Northshore Mosquito Abatement Dist
Attn Robert Berry**
117 Northfield Rd
Northfield, IL, 60093-3309

Billing Contact Name: Jennifer Zimmer

Phone¹: (847) 446-9434

Email: jzimmer@nsamd.com

Federal Tax ID²:

36-6002032

Do not enter Social Security Number

Select to bypass for SS#

Term and Payment Information

Term in Months	Number of Payments	Payment Frequency	Payment(Plus Applicable Taxes)	End of Lease Purchase Option
60	60	Monthly	\$208.00	Fair Market Value

Product Description

Installation Location - 1: Northshore Mosquito Abatement Dist Attn Robert Be, 117 Northfield Rd, Northfield, IL 60093-3309

Qty	Product Description	Product Configuration
1	Bizhub C300i	Dk-516 Copy Desk, Fs-533 Stapler Finisher, (2)Fk-514 Fax Kit 1st & 2nd Line

Maintenance & Group Pool Billing Information

Pool Group 1

Maintenance Plan: Base Plus

Pool Group ID	Pool Name	Pages Included	Overage Charge	Overage Frequency
1	Mono-1	50	\$ 0.00600	Monthly
	Color-1	25	\$ 0.04500	Monthly

Pool Group 1 - Asset Schedule

Installation Location - 1: Northshore Mosquito Abatement Dist, 117 Northfield Rd, Northfield, IL 60093-3309

Qty	Product Description	Customer Invoice Information	Meter Type
1	Bizhub C300i		Mono/Color

¹ By providing a telephone number for a cellular phone or other wireless device, you are expressly consenting to receiving communications (for NON-marketing or solicitation purposes) at that number, including, but not limited to, prerecorded or artificial voice message calls, text messages, and calls made by an automatic telephone dialing system from Lessor and its affiliates and agents. This Express Consent applies to each such telephone number that you provide to us now or in the future and permits such calls. These calls and messages may incur access fees from your cellular provider.

² To help the Government fight the funding of terrorism and money laundering activities, Federal Law requires all financial institutions to obtain, verify and record information that identifies each person who opens an account. What this means is, when you open an account, we will ask for your name, address and other information that will allow us to identify you; we may also ask to see identifying documents.



The Konica Minolta equipment leased in this Agreement is covered under Konica Minolta's Customer ONE Guarantee. A copy of the Guarantee can be obtained at your local branch or by visiting <https://kmbs.konicaminolta.us/CustomerOne>



Terms And Conditions

(THIS AGREEMENT CONTAINS THE TERMS AND CONDITIONS SET FORTH BELOW, ALL OF WHICH ARE MADE A PART OF THIS AGREEMENT AND INCORPORATED INTO EACH SCHEDULE.)

1. LEASE AGREEMENT: You agree to lease from us the personal property identified herein, and additional personal property as identified in Schedules to this Advantage Lease Agreement, incorporating these TERMS AND CONDITIONS by reference - from time to time - signed by you and us (such property and any upgrades, replacements, repairs and additions referred to as "Equipment") for business purposes only. Each Schedule is a separate assignable lease. To the extent the Equipment includes intangible property or associated services such as periodic software licenses and prepaid database subscription rights, such property shall be referred to as the "Software". You agree to all of the terms and conditions contained in this Agreement and any Schedule, which together are a complete statement of our agreement regarding the listed equipment ("Agreement") and supersede all other writings, communications, understandings, agreements, purchase orders, solicitation documents and related documents. This Agreement may be modified only by written Agreement and not by course of performance. This Agreement becomes valid upon execution by or for us. The Equipment is deemed accepted by you hereunder and under the applicable Schedule unless you notify us within three (3) days of delivery that you do not accept the Equipment and specify the defect or malfunction. In that event, at our sole option, we or our designee will replace the defective item of Equipment or this Agreement will be canceled and we or our designee will repossess the Equipment. You agree that, upon our request, you will sign and deliver to us, a delivery and acceptance certificate confirming your acceptance of the Equipment leased to you. The "Billing Date" of this Agreement will be the twentieth (20th) day or an alternative agreed upon date following installation. You agree to pay a prorated amount of 1/30th of the monthly payment times the number of days between the installation date and the Billing Date. This Agreement will continue from the Billing Date for the Term shown and will be extended automatically for successive one (1) month terms unless you (a) send us written notice, between ninety (90) days and one hundred fifty (150) days before the end of the initial term or at least 30 days before the end of any renewal term that you want to purchase or return the Equipment, and you timely purchase or return the Equipment. Leases with \$1.00 purchase options will not be renewed. The periodic renewal payment has been set by mutual agreement and is not based on the cost of any component of this lease. **THE BASE RENTAL PAYMENT SHALL BE ADJUSTED PROPORTIONATELY UPWARD OR DOWNWARD, IF THE ACTUAL COST OF THE EQUIPMENT EXCEEDS OR IS LESS THAN THE ESTIMATE PROVIDED TO YOU.** If any provision of this Agreement is declared unenforceable in any jurisdiction, the other provisions herein shall remain in full force and effect in that jurisdiction and all others. You authorize us to insert or correct missing information on this lease including your proper legal name, serial numbers, other numbers describing the Equipment and other omitted factual matters. You agree to provide updated annual and/or quarterly financial statements to us upon request. You authorize us or our agent to obtain credit reports and make credit inquiries regarding you and your financial condition and to provide your information, including payment history, to our assignee or third parties having an economic interest in this Agreement, any Schedule or the Equipment.

2. RENT: Rent will be payable in installments, each in the amount of the Monthly Payment (or other periodic payment) shown plus any applicable sales, use and property tax. If we pay any tax on your behalf, you agree to reimburse us promptly along with a processing fee. Subsequent installments will be payable on the first day of each rental payment period shown beginning after the first rental payment period or as otherwise agreed. We will have the right to apply all sums received from you to any amounts due and owed to us under the terms of this Agreement. **Your obligation to make all Monthly Payments (or other periodic payment) hereunder is absolute and unconditional and you cannot withhold or offset against any Monthly Payments (or other periodic payment) for any reason.** You agree that you will remit payments to us in the form of company checks (or personal checks in the case of sole proprietorships), direct debit or wires only. You also agree cash and cash equivalents are not acceptable forms of payment for this Agreement and that you will not remit such forms of payment to us. **WE BOTH INTEND TO COMPLY WITH ALL APPLICABLE LAWS. IF IT IS DETERMINED THAT YOUR PAYMENTS UNDER THIS AGREEMENT OR UNDER A SCHEDULE RESULT IN AN INTEREST PAYMENT HIGHER THAN ALLOWED BY APPLICABLE LAW, THEN ANY EXCESS INTEREST COLLECTED WILL BE APPLIED TO AMOUNTS THAT ARE LAWFULLY DUE AND OWING UNDER THIS AGREEMENT OR WILL BE REFUNDED TO YOU. IN NO EVENT WILL YOU BE REQUIRED TO PAY ANY AMOUNTS IN EXCESS OF THE LEGAL AMOUNT.**

3. OWNERSHIP OF EQUIPMENT: We are the owner of the Equipment and have sole title (unless you have a \$1.00 purchase option) to the Equipment (excluding software). You agree to keep the Equipment free and clear of all liens and claims. You are solely responsible for removing any data that may reside in the Equipment you return, including but not limited to hard drives, disk drives or any other form of memory.

4. WARRANTY DISCLAIMER: WE MAKE NO WARRANTY EXPRESS OR IMPLIED, INCLUDING THAT THE EQUIPMENT IS FIT FOR A PARTICULAR PURPOSE OR THAT THE EQUIPMENT IS MERCHANTABILITY. YOU AGREE THAT YOU HAVE SELECTED EACH ITEM OF EQUIPMENT BASED UPON YOUR OWN JUDGMENT AND DISCLAIM ANY RELIANCE UPON ANY STATEMENTS OR REPRESENTATIONS MADE BY US. WE ARE LEASING THE EQUIPMENT TO YOU "AS-IS". You acknowledge that neither we nor our representatives are the Lessor's agents and none of us are authorized to modify the terms of this Agreement or any Schedule without the Lessor's consent. No representation or warranty of ours with respect to the Equipment will bind Lessor, nor will any breach thereof relieve you of any of your obligations hereunder. You are aware of the name of the manufacturer or supplier of each item of Equipment and you will contact the manufacturer or supplier for a description of your warranty rights. You hereby acknowledge and confirm that you have not received any tax, financial, accounting or legal advice from us, the Lessor, the manufacturer or supplier of the Equipment. **THIS AGREEMENT AND EACH SCHEDULE CONSTITUTES A "FINANCE LEASE" AS DEFINED IN ARTICLE 2A OF THE UNIFORM COMMERCIAL CODE.** You agree that the Customer One Guarantee is a separate and independent obligation of ours, that no Lessor or assignee of the Lessor shall have any obligation to you with respect to the Guarantee and that your obligations under this Agreement are not subject to setoff, withholding, reduction, counterclaim or defense for any reason whatsoever including, without limitation, any claim you may have against us with respect to the Customer One Guarantee.

5. LOCATION OF EQUIPMENT: You will keep and use the Equipment only at your address shown above and you agree not to move it unless we agree to it. At the end of the Agreement's term, if you do not purchase the Equipment, you will return the Equipment to a location we specify at your expense, in retail resalable condition (normal wear and tear acceptable), full working order, and in



complete repair.

6. LOSS OR DAMAGE: You are responsible for the risk of loss or for any destruction of or damage to the Equipment. No such loss or damage relieves you from the payment obligations under this Agreement. You agree to promptly notify us in writing of any loss or damage and you will then pay to us the present value of the total of all unpaid Monthly Payments (or other periodic payments shown) for the full Agreement term plus the estimated fair market value of the Equipment at the end of the originally scheduled term, all discounted at four percent (4%) per year. Any proceeds of insurance will be paid to us and credited, at our option, against any loss or damage. You authorize us to sign on your behalf and appoint us as your attorney in fact to execute in your name any insurance drafts or checks issued due to loss or damage to the Equipment.

7. COLLATERAL PROTECTION AND INSURANCE: You are responsible for installing and keeping the Equipment in good working order. Except for ordinary wear and tear, you are responsible for protecting the Equipment from damage and loss of any kind. If the Equipment is damaged or lost, you agree to continue to pay the amounts due and to become due hereunder without setoff or defense. During the term of this Agreement, you agree that you will (1) insure the equipment against all loss or damage naming us as loss payee; (2) obtain liability and third party property damage insurance naming us as an additional insured; and (3) deliver satisfactory evidence of such coverage with carriers, policy forms and amounts acceptable to us. All policies must provide that we be given thirty (30) days written notice of any material change or cancellation. If you do not provide evidence of acceptable insurance, we have the right, but not the obligation, (a) to obtain insurance covering our interest (and only our interest) in the Equipment for the lease term, and renewals and (i) any insurance we obtain will not insure you against third party or liability claims and may be cancelled by us at any time, (ii) you will be required to pay us an additional amount each month for the insurance premium and an administrative fee, (iii) the cost may be more than the cost of obtaining your own insurance, (iv) you agree that we, or one of our affiliates, may make a profit in connection with the insurance we obtain, (v) you agree to cooperate with us, our insurer and our agent in the placement of coverage and with claims; or (b) we may waive the insurance requirement and charge you a monthly property damage surcharge in the amount of .0035 of the original equipment cost to cover our credit risk, administrative costs and other costs, as would be further described on a letter from us to you and on which we may make a profit. If you later provide evidence that you have obtained acceptable insurance, we will cancel the insurance we obtained or cease charging the surcharge.

8. INDEMNITY: We are not responsible for any loss or injuries caused by the installation or use of the Equipment. You agree to hold us and any Lessor harmless and reimburse us and them for loss and to defend us and them against any claim for losses or injury or death caused by the Equipment. **We reserve the right to control the defense and to select or approve defense counsel. This indemnity survives the expiration or termination of this Agreement.**

9. TAXES AND FEES: You agree to pay when invoiced all taxes (including personal property tax, fines and penalties) and fees relating to this Agreement or the Equipment. You agree to (a) reimburse us for all personal property taxes which we are required to pay as owner of the Equipment or to remit to us each month our estimate of the monthly equivalent of the annual property taxes to be assessed. If you do not have a \$1.00 purchase option, we will file all personal property, use or other tax returns and you agree to pay us a processing fee for making such filings. You agree to pay us up to \$100.00 on the date the first payment is due as an origination fee. We reserve the right to charge a fee upon termination of this Agreement either by trade-up, buy-out or default. Any fee charged under this Agreement may include a profit and is subject to applicable taxes.

10. ASSIGNMENT: YOU HAVE NO RIGHT TO SELL, TRANSFER, ASSIGN, OR SUBLEASE THE EQUIPMENT OR THIS AGREEMENT. We may sell, assign, or transfer this Agreement and/or the Equipment without notice. You agree that if we sell, assign, or transfer this Agreement and/or the Equipment to a Lessor, such Lessor will have the same rights and benefits that we have now and will not have to perform any of our obligations. You agree that the rights of such Lessor will not be subject to any claims, defenses, or set offs that you may have against us whether or not you are notified of such assignment. The cost of any Equipment, Software, services and other elements of this Agreement has been negotiated between you and us. None of Lessor or Lessor's assignees will independently verify any such costs. Lessor and Lessor's assignees will be providing funding based on the payment you have negotiated with us. You are responsible for determining your accounting treatment of the appropriate tax, legal, financial and accounting components of this Agreement.

11. DEFAULT AND REMEDIES: If (a) you do not pay any lease payment or other sum due to us or other party when due or (b) if you break any of your promises in the Agreement, any Schedule or any other agreement with us or (c) if you, or any guarantor of your obligations become insolvent or commence bankruptcy or receivership proceedings or have such proceedings commenced against you, you will be in default. If any part of a payment is more than three (3) days late, you agree to pay a late charge of ten percent (10%) of the payment which is late or if less, the maximum charge allowed by law. If you are ever in default, we may do any one or all of the following; (a) withhold service, parts and supplies and / or void the Customer One Guarantee; (b) terminate or cancel this Agreement and/or any and all Schedules and require that you pay, **AS LIQUIDATED DAMAGES FOR LOSS OF BARGAIN AND NOT AS A PENALTY**, the sum of: (i) all past due and current Monthly Payments (or other periodic payments) and charges due under this Agreement and any Schedule; (ii) the present value of all remaining Monthly Payments (or other periodic payments) and charges for the remainder of the term of this Agreement and any Schedules, discounted at the rate of four percent (4%) per annum (or the lowest rate permitted by law, whichever is higher); and (iii) the present value (at the same discount rate as specified in clause (ii) above) of the amount of any purchase option with respect to the Equipment or, if none is specified, our anticipated value of the Equipment at the end of the initial term of this Agreement and any Schedules (or any renewal thereof); and (c) require you to return the Equipment to us to a location designated by us (and with respect to any Software, (i) immediately terminate your right to use the Software including the disabling (on-site or by remote communication) of any Software; (ii) demand the immediate return and obtain possession of the Software and re-license the Software at a public or private sale; and/or (iii) cause the Software supplier to terminate the Software license, support and other services under the Software license). We may recover interest on any unpaid balance at the rate of four percent (4%) per annum but in no event more than the lawful maximum rate. We may also use any of the remedies available to us under Article 2A of the Uniform Commercial Code as enacted in the state where we or the Lessor have our principal place of business. You agree to pay our reasonable costs of collection and enforcement, including but not limited to attorney's fees and actual court costs relating to any claim arising under this Agreement including, but not limited to, any legal action or referral for collection. If we have to take possession of the Equipment, you agree to pay the cost of repossession. The net proceeds of the sale of any repossessed Equipment will be credited against what you owe us **YOU AGREE THAT WE WILL NOT BE RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES FOR ANY REASON WHATSOEVER.** You agree that any delay or failure to enforce our rights under this Agreement does not prevent us from enforcing any rights at a later time. All of our rights are cumulative. It is further agreed that your rights and remedies are governed exclusively by this Agreement and you waive lessee's rights under Article 2A (508-522) of the UCC.

12. UCC FILINGS: You grant us a security interest in the Equipment if this Agreement or any Schedule is deemed a secured transaction and you authorize us to record a UCC-1 financing statement or similar instrument in order to show our interest in the Equipment.

13. CONSENT TO LAW, JURISDICTION AND VENUE: This Agreement shall be deemed fully executed and performed in the state of our or the Lessor's principal place of business and shall be



governed by and construed in accordance with its laws. If we or the Lessor bring any judicial proceeding in relation to any matter arising under this Agreement, you irrevocably agree that any such matter may be adjudged or determined in any court or courts in the state of our or the Lessor's principal place of business, or in any court or courts in your state of residence, or in any other court having jurisdiction over you or your assets, all at the sole election of us or the Lessor. You hereby irrevocably submit generally and unconditionally to the jurisdiction of any such court so elected by us or the Lessor in relation to such matters. BOTH PARTIES WAIVE TRIAL BY JURY IN ANY ACTION BETWEEN US.

14. LESSEE GUARANTEE: You agree, upon our request, to submit the original of this Agreement and any Schedules to us or the Lessor via overnight courier the same day you submit the facsimile or other electronic transmission of the signed Agreement and such Schedules. Both parties agree that this Agreement and any Schedules signed by you, whether manually or electronically, and submitted to us by facsimile or other electronic transmission shall, upon execution by us (manually or electronically, as applicable), be binding upon the parties. This lease may be executed in counterparts and any facsimile, photographic and/or other electronic transmission of this lease which has been manually or electronically signed by you when manually or electronically countersigned by us or attached to our original signature counterpart and/or in our possession shall constitute the sole original chattel paper as defined in the UCC for all purposes (including any enforcement action under paragraph 11) and will be admissible as legal evidence thereof. Both parties waive the right to challenge in court the authenticity of a faxed, photographic, or other electronically transmitted or electronically signed copy of this Agreement and any Schedules.

15. COMPUTER SOFTWARE: Notwithstanding any other terms and conditions of this Agreement, you agree that as to Software only: a) We have not had, do not have, nor will have any title to such Software, b) You have executed or will execute a separate software license Agreement and we are not a party to and have no responsibilities whatsoever in regards to such license Agreement, c) You have selected such Software and in accordance with paragraph 4 of this Agreement, WE MAKE NO WARRANTIES OF MERCHANTABILITY, DATA ACCURACY, SYSTEM INTEGRATION OR FITNESS FOR USE AND TAKE ABSOLUTELY NO RESPONSIBILITY FOR THE FUNCTION OR DEFECTIVE NATURE OF SUCH SOFTWARE, SYSTEMS INTEGRATION, OR OTHERWISE IN REGARDS TO SUCH SOFTWARE. YOUR LEASE PAYMENTS AND OTHER OBLIGATIONS UNDER THIS LEASE AGREEMENT SHALL IN NO WAY BE DIMINISHED OR DELAYED ON ACCOUNT OF OR IN ANY WAY RELATED TO THE ABOVE SAID SOFTWARE LICENSE AGREEMENT OF FAILURE IN ANY WAY OF THE SOFTWARE.

16. MAINTENANCE AND SUPPLIES: Equipment services provided under this Agreement include labor and parts required to maintain covered Equipment in a normal operating condition. We will provide toner for covered Equipment on an as needed basis. Consumable supplies do not include staples unless selected. The consumable supplies provided are our property until they are consumed and are intended to be used exclusively in the covered Equipment. You bear the risk of loss for unused supplies in the event of theft, employee misconduct, fire or other mishap. We reserve the right to replace a device, at no additional cost to you, with a comparable unit when repair of the original device is not practical or economically feasible. Pricing under this Agreement is based on published and commercially reasonable expectations of supply and consumables consumption. At our discretion, we may perform an audit of supply/consumables consumption and equipment usage data to determine consumption levels. In the event the actual consumption levels exceed the levels used to determine contract pricing by more than 20%, we have the right to invoice for the excess consumption. Paper must be separately purchased by you. A page is defined as one meter click and varies by page size as follows: 8.5"x11" = 1 click, 11"x17" = 2 clicks, 18"x27" = 3 clicks, 27"x36" = 4 clicks and 36"x47" = 5 clicks. You agree to provide us access to the equipment and we will provide labor or routine, remedial and preventive maintenance service as well as remedial parts during normal business hours (defined as 8:30 am to 5:00 pm, Monday through Friday, exclusive of holidays observed by us). All part replacements shall be on an exchange basis with new or refurbished items. We are not obligated to provide services or repairs in the event of Equipment abuse/misuse or casualty. Out of scope services, including after hours, moves, modifications and abuse/misuse will be charged at our current rates. If necessary, the service and supply portion of this Agreement may be assigned. We may charge you a Supply Freight Fee to cover our costs of shipping supplies to you. You acknowledge that (a) we (and not the Lessor or its assignees) are the sole party responsible for any service, repair or maintenance of the Equipment, and (b) we (not the Lessor or its assignees) are the party to any service maintenance agreement.

17. FLEET DEVICE MONITORING: We may ask your permission to install and maintain server-based software to monitor the printing devices on your network ("Fleet Device Monitoring"). Where the use of Fleet Device Monitoring software as part of a managed print program has been agreed to, it will be used to detect new devices and add such devices to this Agreement at pre-established price levels. The added device(s) will be covered under the terms of this Agreement. You will be notified via email and may reject the addition of the device(s) by contacting us. If you agree to allow us to install and maintain Fleet Device Monitoring software on your network, and the software cannot reliably operate in your environment for any reason, we reserve the right to suspend or terminate services under this Agreement.

18. OVERAGES AND COST ADJUSTMENTS: You agree to comply with any billing procedures designated by us, including notifying us of the meter reading on the Billing Date. If meter readings are not received, we reserve the right to estimate your usage and bill you for that amount. At the end of the first year of this Agreement and once each successive twelve month period, we may increase your payment, and the per page charge over the pages included (Overage) (if applicable) by a maximum of ten percent (10%) of the existing charge, or if less, the maximum amount permitted by applicable law. We may bill you a per page charge for all pages produced between the date of your final invoice and the date when you satisfy your obligations under this Agreement and either purchase or return the equipment to us. Notwithstanding anything herein to the contrary, for pools designated as "One Rate" pools, escalations within the original Agreement term and Supply Freight Fees do not apply nor are meter readings required. All Agreements are subject to escalation in any renewal period.

End of Lease Options

You will have the following options at the end of the original term, provided the Agreement or applicable Schedule has not terminated early and no event of default under the Agreement and/or any Schedule has occurred and is continuing. 1. Purchase all of the Equipment as indicated in the "Term and Payment Information" section of the Agreement or any applicable Schedule ("fair market value" purchase amounts will be determined by us). 2. Renew the Agreement and/or applicable Schedule per paragraph 1 (on Agreement). 3. Return Equipment as provided in Paragraph 5 (on Agreement).



Lease Acceptance

THIS IS A NONCANCELABLE / IRREVOCABLE AGREEMENT: THIS AGREEMENT CANNOT BE CANCELED OR TERMINATED.

Konica Minolta Business Solutions U.S.A., Inc.,
d/b/a Konica Minolta Premier Finance

Signature:



Name: _____

Title: _____

Date Signed: _____

Customer

NORTH SHORE MOSQUITO ABATEMENT DISTRICT

Signature:



Name: JENNIFER ZIMMER

Title: Internal Operations Manager

Date Signed: 10/28/2021



ROSS D. SECLER
rsecler@omflaw.com

October 12, 2023

Via Email: MClifton@nsmad.com

Mark Clifton, Ph.D.
Executive Director
North Shore Mosquito Abatement District
117 Northfield Rd.
Northfield, IL 60093

RE: Legal Services Contract Renewal Proposal –
North Shore Mosquito Abatement District (2024 FY)

Dear Dr. Clifton:

Please allow this letter to serve as our request to renew our agreement, originally approved in 2016, for legal services during your upcoming budget calendar year. As you are aware, we have not increased our fees since our initial engagement in 2016. For the upcoming fiscal year, as done in the past, we propose to continue with a flat, monthly retainer inclusive of most legal services. However, we propose a modest increase for the monthly to \$1,700 per month. The only additional legal costs would be for various items detailed in the original proposal and that would be confirmed prior to the commencement of work on same. To date, only one such additional, special legal project has been necessary, and we do not foresee any such special legal project in the coming fiscal year. Other than the monthly retainer fee amount, we suggest no other changes to the previous arrangement and agreement. We further propose that I continue to serve as the principal contact for the “legal team.”

It is a pleasure to serve as counsel to the NSMAD and look forward to the opportunity to continue in such service. If you should have any questions or concerns, please do not hesitate to contact me.

Yours very truly,
**ODELSON, MURPHEY,
FRAZIER, & McGRATH, LTD.**

Ross D. Secler

cc: Jennifer Zimmer (via email)

Agenda for the Decennial Committee on Local Government Efficiency Act North Shore Mosquito Abatement District

Call to Order: A meeting of the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District (NSMAD) will be held at NSMAD headquarters, 117 Northfield Road, Northfield, IL on June 8, 2023. The meeting will convene at 6:00 P.M.

Action Items:

1. Designation of Committee Members:
 - a. Mark Clifton, Executive Director NSMAD
 - b. John Zbesko, Trustee Member
 - c. Nelson Howard, Trustee Member
 - d. William Zimmer, Trustee Member
 - e. Kathleen Kendrick, Trustee Member
 - f. Kathryn Calkins, Trustee Member (Absent)
 - g. Appointment of Resident #1 – Michael Korman
 - h. Appointment of Resident #2 – Sheri Latash
2. Designate Mark Clifton, Executive Director NSMAD, as Chair of Committee
3. Schedule remaining Decennial Committee meetings
 - a. Thursday, January 11, 2024, at 6pm
 - b. Thursday, June 13, 2024, at 6pm
4. District's Operational Summary & Reports:
 - a. Annual Report 2022
 - b. Draft Audit Report 2022
5. Illinois Governing Statutes:
 - a. Mosquito Abatement Districts Act - 70ILCS 1005
 - b. Illinois Pesticide Act - 415ILCS 60
 - c. Environmental Protection Act - 415ILCS 5
6. Ordinances
 - a. Summary of Ordinances
7. Rules:
 - a. Employee Personnel Handbooks – Full Time & Seasonal
 - b. 2023 NSMAD Organizational Chart
 - c. Employee Position Descriptions – Full Time & Seasonal
8. Procedures & Management Practices:
 - a. NSMAD Schedule of Compliance
 - b. Best Practices of Integrated Mosquito Control
 - c. NSMAD Integrated Pest Management Plan
 - d. FY 2021 Annual Financial Report
9. Input from General Public
10. Adjournment

Decennial Committees on Local Government Efficiency Act

Public Act 102-1088 enacted on June 10, 2022 created the *Decennial Committees on Local Government Efficiency Act* requiring units of local government to form a committee to study the following:

- a) Unit of local government's governing statutes
- b) Ordinances
- c) Rules
- d) Procedures
- e) Powers
- f) Jurisdiction
- g) Shared services
- h) Intergovernmental agreements
- i) Interrelationships with other units of local government and the State
- j) Any other issues pertinent to the unit of local government

The committee shall be formed one year after the effective date of this Public Act, and at least once every 10 years thereafter. The committee's membership shall include the appointed members of the governing board of the governmental unit, any chief executive officer or other officer of the governmental unit, and at least 2 residents of the governmental unit who are appointed by the chair of the board of the governmental unit. The committee shall meet at least 3 times.

Committee members shall serve without compensation but may be reimbursed by the governmental unit for their expenses incurred in performing their duties. The governmental unit shall provide administrative and other support to its committee. The committee shall meet in accordance with the Open Meetings Act, and the committee shall be a public body to which the Freedom of Information Act applies. Meetings may be held in conjunction with regularly scheduled meetings of the governmental unit as an agenda item, subject to conformance with the Open Meetings Act and a majority of committee members present.

The committee shall collect data, research, analysis, and public input in their study. The committee shall create a report with recommendations regarding increased accountability and efficiency to be submitted to the county board in which the unit of local government is located no later than 18 months after the formation of the committee. The report shall be made available to the public. After the committee has issued its report, the committee is dissolved.

Agenda for the Decennial Committee on Local Government Efficiency Act North Shore Mosquito Abatement District

Call to Order: A second meeting of the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District (NSMAD) will be held at NSMAD headquarters, 117 Northfield Road, Northfield, IL on January 11, 2024. The meeting will convene at 6:00 P.M.

Action Items:

1. Record of Committee Members in Attendance
 - a. Mark Clifton, Executive Director NSMAD and Chair
 - b. John Zbesko, Trustee Member
 - c. Nelson Howard, Trustee Member
 - d. William Zimmer, Trustee Member
 - e. Kathryn Calkins, Trustee Member
 - f. Michael Korman, Resident Member
 - g. Sheri Latash, Resident Member
2. Designation of new Committee Member - Dr. Marla Isaacs, Trustee Member
3. Approve minutes of June 13, 2023 Meeting
4. District Powers:
 - a. Illinois Combined Statutes
5. Jurisdiction:
 - a. District Boundaries
6. Intergovernmental Agreements:
 - a. Illinois EPA – Used Tire Collections
 - b. Evanston
7. Interrelationships
 - a. Other Units of Local Government
 - b. State of Illinois
 - c. Federal Government
 - d. Other State Governments
 - e. Non-Governmental Organizations
8. Other Issues:
 - a. Maintenance Contracts
 1. Lab
 2. Copier Lease
 - b. Professional Services Contracts
 1. Consultant Contract
 2. Legal Services
 3. Audit Services
 4. Actuary Services
9. Discussion of Sample Decennial Committee Reports from Other Government Agencies
10. Input from General Public

11. Adjournment

Agenda for the Decennial Committee on Local Government Efficiency Act North Shore Mosquito Abatement District

Call to Order: A third and final meeting of the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District (NSMAD) will be held at NSMAD headquarters, 117 Northfield Road, Northfield, IL on July 11, 2024. The meeting will convene at 6:00 P.M.

Action Items:

1. Record of Committee Members in Attendance
 - a. Mark Clifton, Executive Director NSMAD and Chair
 - b. John Zbesko, Trustee Member
 - c. Nelson Howard, Trustee Member
 - d. William Zimmer, Trustee Member
 - e. Kathryn Calkins, Trustee Member
 - f. Dr. Marla Isaacs, Trustee Member
 - g. Michael Korman, Resident Member
 - h. Sheri Latash, Resident Member
2. Approve minutes of January 11, 2024 Meeting
3. Input from the General Public
4. Committee Vote to Approve the Decennial Report for the North Shore Mosquito Abatement District
5. Committee Vote to Dissolve the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District
6. Adjournment

Minutes for the Decennial Committee on Local Government Efficiency Act North Shore Mosquito Abatement District

At the first meeting of the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District (NSMAD) held at NSMAD office, 117 Northfield Road, Northfield, IL on Thursday, June 8, 2023. Trustee John Zbesko called the meeting to order at 6:05 pm.

In Attendance:

Mark Clifton, Executive Director NSMAD
John Zbesko, Trustee NSMAD
Nelson Howard, Trustee NSMAD
William Zimmer, Trustee NSMAD
Kathleen Kendrick, Trustee NSMAD (Virtual)
Michael Korman, Resident
Sheri Latash, Resident
David Zazra, Communications Director NSMAD
Jennifer Zimmer, Internal Operations Manager NSMAD
Ross Secler, Attorney of Odelson, Murphey, Frazier & McGrath, Ltd

I. Formation of Committee and Designation of Members:

Trustee Zbesko asked for a motion to approve the formation of the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District and to designate the following list of Trustees, Residents and Employee as Committee Members:

- a. Mark Clifton, Executive Director NSMAD
- b. John Zbesko, Trustee Member
- c. Nelson Howard, Trustee Member
- d. William Zimmer, Trustee Member
- e. Kathleen Kendrick, Trustee Member
- f. Kathryn Calkins, Trustee Member
- g. Michael Korman, Resident Member
- h. Sheri Latash, Resident Member

Committee Member Zimmer made the motion, Committee Member Clifton seconded. All ayes.

Committee Member Zimmer made a motion to designate Executive Director Mark Clifton as Chair of the Decennial Committee. Committee Member Korman seconded. All ayes.

II. Decennial Committees on Local Government Efficiency Act Purpose

Committee Chair Clifton summarized the following for the Committee to establish the purpose of this meeting and the report that the Committee will put together on behalf of the North Shore Mosquito Abatement District.

Decennial Committees on Local Government Efficiency Act

Public Act 102-1088 enacted on June 10, 2022 created the *Decennial Committees on Local Government Efficiency Act* requiring units of local government to form a committee to study the following:

- Unit of local government's governing statutes
- Ordinances
- Rules
- Procedures
- Powers
- Jurisdiction
- Shared services
- Intergovernmental agreements
- Interrelationships with other units of local government and the State
- Any other issues pertinent to the unit of local government

The committee shall be formed one year after the effective date of this Public Act, and at least once every 10 years thereafter. The committee's membership shall include the appointed members of the governing board of the governmental unit, any chief executive officer or other officer of the governmental unit, and at least 2 residents of the governmental unit who are appointed by the chair of the board of the governmental unit. The committee shall meet at least 3 times.

Committee members shall serve without compensation but may be reimbursed by the governmental unit for their expenses incurred in performing their duties. The governmental unit shall provide administrative and other support to its committee. The committee shall meet in accordance with the Open Meetings Act, and the committee shall be a public body to which the Freedom of Information Act applies. Meetings may be held in conjunction with regularly scheduled meetings of the governmental unit as an agenda item, subject to conformance with the Open Meetings Act and a majority of committee members present.

The committee shall collect data, research, analysis, and public input in their study. The committee shall create a report with recommendations regarding increased accountability and efficiency to be submitted to the county board in which the unit of local government is located no later than 18 months after the formation of the committee. The report shall be made available to the public. After the committee has issued its report, the committee is dissolved.

III. Scheduling of Remaining Decennial Committee Meetings:

Committee Member Zimmer made a motion to schedule the following two dates and times as meetings of the Decennial Committee:

Thursday, January 11, 2024, at 6 pm
Thursday, June 13, 2024, at 6 pm

Committee Member Zbesko seconded the motion. All ayes.

The following NSMAD reports were supplied to the Committee members prior to the meeting.

IV. District's Operational Summary & Reports:

- a. Annual Report 2022
- b. Audit Report 2021

Committee Chair Clifton explained that the District produces an Annual Report to summarize the operations of the District for residents. This report is then archived on the District's website, available in the District office and sent to other units of government and other local stakeholders.

The District's finances are audited each year by an independent auditing firm and are in good standing with sufficient reserves. The District does not carry any debt, including pension debt, and has maintained a flat levy for the past six years. The resulting report is available to residents and submitted to the State of Illinois Comptroller.

V. Illinois Governing Statutes:

- a. Mosquito Abatement Districts Act - 70ILCS 1005
- b. Illinois Pesticide Act - 415ILCS 60
- c. Environmental Protection Act - 415ILCS 5

Committee Chair Clifton gathered all the governing statutes that pertain to Mosquito Abatement Districts in Illinois and the action of mosquito abatement. The District was established under the Mosquito Abatement Districts Act (70ILCS 1005) so that is the main description of the purpose and mandate from the State of Illinois.

Attorney Secler added that the mandate of the District from the state of Illinois is public health focused and can also extend to tick surveillance and control.

Committee Member Korman inquired about the rationale of having a designated mosquito abatement district in Illinois. Committee Chair Clifton explained that a mosquito abatement district is solely focused on mosquito control and vector borne diseases. Unlike a municipality or health department, taxpayer funds or resources will never be diverted to other needs. Due to the seasonal variability of mosquito abatement, climate change and emerging pathogens; other cities have made the mistake of cutting mosquito control budgets, only to have to overspend in the event of a weather event or disease outbreak. The origin of the Mosquito Abatement Districts Act was to combat the breeding mosquitoes in the swampy land that was undeveloped at the time and to help control the spread of Malaria.

Committee Member Howard reminded the committee about how much the emergence of West Nile virus changed mosquito abatement in the United States and how valuable a district with a singular focus is to identifying emerging diseases in order to protect the public.

Operationally the District is regulated by the Illinois Pesticide Act. This and the Illinois Department of Agriculture issues the licenses for the District and employees. The Environmental Protection Act allows the District to collect and pays to recycle tires.

VI. District Ordinances:

- a. Summary of Ordinances

Internal Operations Manager Zimmer summarized the ordinances passed by the Trustees of the NSMAD. These include various employee policies, board meeting regulations and annexations of District boundaries.

Committee Member Latash asked about annexation of unincorporated areas of Glenview and how it is decided which Mosquito Abatement District adds the area their District. Committee Chair Clifton explained that in order to be annexed an area must be contiguous to the established boundaries of the existing District.

Committee Member Latash asked if the committee might think about recommending that unincorporated areas of existing municipalities be automatically included in the District boundaries. Committee Chair Clifton agreed that the recommendation would be helpful and if enacted the NSMAD could avoid annexation neighborhood by neighborhood.

Committee Member Latash asked if the District was able to work other municipalities that wanted mosquito control with an Intergovernmental Agreement. Committee Chair Clifton responded that the District has been asked about the idea in the past and he has found nothing that would prohibit such an agreement. Issues in the past have been physical distance from the District and the amount of excess capacity of the District.

Committee Member Latash asked if the District was able to enter into an Intergovernmental Agreement with the Village of Glenview to have Glenview prioritize the District's message due to only having a part time sanitarian.

Committee Member Korman asked if all communities that the District serves can be asked for their internal policies to see if the District's alerts and messages are correctly prioritized in each municipality.

VII. District Rules:

- a. Employee Personnel Handbooks – Full Time & Seasonal
- b. 2023 NSMAD Organizational Chart
- c. Employee Position Descriptions – Full Time & Seasonal

The District employs seven full time employees. Seasonally, the District hires 18-20 field and laboratory staff members. The policies in the handbooks are monitored by the District's attorneys and approved by the Board of Trustees.

VIII. Procedures & Management Practices:

- a. NSMAD Schedule of Compliance
- b. Best Practices of Integrated Mosquito Control
- c. NSMAD Integrated Pest Management Plan
- d. FY 2021 Annual Financial Report

Committee Chair Clifton explained that he and the Internal Operations Manager put together a calendar of all the instances during the year that the District is required to comply with either county, state or federal regulations.

The NSMAD Integrated Pest Management Plan is based off the Best Practices of Integrated Mosquito Control from the American Mosquito Control Association, it governs our treatment plan and the thresholds that the District operates under.

The Annual Financial Report is compiled from the results of the District's yearly audit. It is also available to residents and submitted to the State of Illinois Comptroller.

IX. Input from the Committee and General Public:

Committee Member Latash inquired about specific unincorporated areas of Glenview and if the NSMAD treats them if they are within the District's borders. Committee Chair Clifton explained that incorporated by Glenview or not, if an area is within the District's borders, they are treated.

Committee Member Korman inquired about areas that are contiguous to the District and not currently being treated and the public health issue they are creating. Committee Chair Clifton explained that the only area that problem exists is on the District's west border in Glenview. To the south of the District, the City of Chicago does their own mosquito control and in the north is maintained by the South Lake Mosquito Abatement District.

X. Adjournment:

Committee Chair Clifton asked for a motion to adjourn. Committee Member Zbesko made the motion to adjourn. All ayes.

The October 5th meeting was adjourned at 7:37 pm.

ATTESTED
Committee Chair, Mark Clifton

SUBMITTED
Internal Operations Manager, Jennifer Zimmer

**Minutes for the Decennial Committee on Local Government Efficiency Act
North Shore Mosquito Abatement District**

At the second meeting of the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District (NSMAD) held at NSMAD office, 117 Northfield Road, Northfield, IL on Thursday, January 11, 2024. Committee Chair Mark Clifton called the meeting to order at 6:12 pm.

In Attendance:

Mark Clifton, Executive Director NSMAD and Chair
John Zbesko, Trustee Member
Nelson Howard, Trustee Member
William Zimmer, Trustee Member
Kathryn Calkins, Trustee Member
Dr. Marla Isaacs, Trustee NSMAD
Michael Korman, Resident Member (Virtual)
Sheri Latash, Resident Member
David Zazra, Communications Director NSMAD
Jennifer Zimmer, Internal Operations Manager NSMAD
Ross Secler, Attorney of Odelson, Murphey, Frazier & McGrath, Ltd

I. Motion to Designate New Committee Member:

Committee Chair Clifton asked for a motion to designate Dr. Marla Isaacs as a Trustee Member of the NSMAD Decennial Committee. Committee Member Zimmer made the motion, Committee Member Latash seconded. All ayes.

II. Approval of Minutes:

Committee Member Zimmer made a motion to approve the June 13, 2023 committee meeting minutes of the NSMAD Decennial Committee. Committee Member Latash seconded. All ayes.

III. Information Review:

Committee Chair Clifton began the meeting by asking the members if any of the items from the last meeting needed any additional review or if they had questions on any of the items. Committee Member Latash said that she had a continuing concern with the unincorporated areas of Glenview that do not receive mosquito abatement. Committee Chair Clifton explained that the District is attempting to remedy this situation with proposed legislation and in the meantime continuing to have residents of the area sign a petition.

No members needed additional clarification, so the meeting moved on to the first items for review.

IV. District Powers:

- a. Illinois Combined Statutes

The North Shore Mosquito Abatement District and all other mosquito abatement districts were

created by the Mosquito Abatement District Act (70 ILCS 1005/0.01) (from Ch. 111 1/2, par. 73.990) Sec. 0.01. The statute details the mandate of the district and how we are to govern ourselves.

Attorney Secler added that due to this statute the mandate is clear on the District's purpose. The Act is also narrow but not too narrow so that, under the Act, we have been able to expand into tick and other vector research and surveillance. He suggests that if we get the opportunity, we may want to press the legislature to expand the act beyond mosquitoes to specifically add other vectors like arthropods in order to be forward thinking in addressing public health.

V. Jurisdiction:

a. District Boundaries

The District Boundaries have evolved from an initial area determined when the District was founded and over the years with a series of annexations that make up the area that is covered today.

The District serves approximately 330,000 residents in the municipalities of Deerfield (east of Pfingsten and south of Lake Cook Road only) Evanston, Glencoe, Glenview (east of Pfingsten Road), Golf, Kenilworth, Lincolnwood, Morton Grove (east of Washington Street), Niles (east of Harlem Avenue), Northbrook (east of Pfingsten Road), Northfield, Skokie, Wilmette and Winnetka.

The area covered by the NSMAD consists of 70 square miles of Cook County's North Shore. This sprawling and diverse area includes more than 900 miles of streets, 40,000 catch basins, 26.9 miles of rivers, 31.8 miles of railroad rights of way, 2.9 miles of ravines, 21.8 miles of bike trails, 17.8 miles of Forest Preserve District trails and approximately 3,500 acres of Forest Preserve District land.

VI. Intergovernmental Agreements:

- a. Illinois EPA – Used Tire Collections
- b. Evanston Department of Public Health

In 2022, the District added used tire collection as another method of source reduction. The Intergovernmental Agreement with the Illinois EPA – Used Tire Collections, allows the District to pick up to 250 used tires and hold them on the District property, where they will not hold water, until then the Illinois EPA picks up the used tires and recycle them at no charge to the District.

The District's Intergovernmental Agreement with the Evanston Department of Public Health defines this agreement that provides the District with a summer laboratory intern and WNV testing equipment. The Evanston Department of Public Health receives grant money from the State of Illinois to perform West Nile virus testing that has been allocated to fulfilling this Intergovernmental Agreement, allowing the money to have a greater impact using the infrastructure that the District already has to perform testing.

Committee Member Latash asked if the Illinois EPA – Used Tire Collections IGA, that was signed in 2022, has an end date or if it continues into perpetuity. Committee Chair Clifton explained that his understanding is that the agreement continues until one of the parties asks to terminate the agreement.

VII. Interrelationships:

- a. Other Units of Local Government
- b. State of Illinois
- c. Federal Government
- d. Other State Governments
- e. Non-Governmental Organizations

Committee Chair Clifton compiled an extensive list of the interrelationships between the North Shore Mosquito Abatement built with other partners in public health and other stakeholders - governmental and non-governmental.

For example, since the District boundaries cover 14 different municipalities and areas that are also maintained by the Cook County Forest Preserve, it is essential that these relationships are maintained to coordinate treatments and notification of the public.

After reviewing the list of interrelationships, Committee Member Korman inquired about the District's relationship with the Illinois Department of Transportation and if the District does larval treatment on the catch basins on the tollways. Committee Chair Clifton answered that the NSMAD does not conduct larval treatment on the catch basins on the tollways due to safety concerns. The District is pursuing relationships with the CTA and Metra in order to access their property in order to treat for mosquitoes.

Trustee Member Howard added that prior investigations have shown that due to the lack of vegetation near catch basins in high traffic areas, like expressways, there is less reason to risk the safety of employees to treat catch basins since they are unlikely to be breeding.

Trustee Member Calkins asked about the District's relationship with the Metropolitan Water Reclamation District. Committee Chair Clifton answered that renewing a connection with them was another goal for the District in the near future. Communications Director Zazra added that their trustees are given weekly and annual reports along with all our other stakeholders.

VIII. Other Issues:

- a. Maintenance Contracts
 - i. Lab
 - ii. Copier Lease
 - iii. Photovoltaic System

The District has entered into several maintenance contracts in order to cover essential items in and around the building. A yearly laboratory PCR testing system repair and support plan is contracted through Bio-Rad. Konica Minolta holds a five-year copier lease and maintenance agreement with the District. And finally, Continental Energy Solutions provides the NSMAD with a yearly photovoltaic system maintenance and support plan.

- b. Professional Services Contracts
 - i. Consultant Contract
 - ii. Legal Services
 - iii. Audit Services
 - iv. Actuary Services

In order to comply with various state laws and regulations, the District maintains Professional Services Contracts with Legal, Accounting and Actuary Firms. The District also entered into a

Memorandum of Agreement with Dr. Justin Harbison of Loyola University Chicago. This Agreement and research project scope are evaluated annually and help to further the District's research into underground tunnels and to assess the effectiveness of the products the NSMAD program uses.

IX. Discussion of Sample Decennial Committee Reports from Other Government Agencies:

Prior to the meeting, Committee Members were provided with a few examples of completed Decennial Committee on Local Government Efficiency Act reports that have already been submitted by other taxing districts. These examples will help to guide the committee on the District's final report.

Committee Chair Clifton explained that the next step in the process will be compiling all of the information and input into a draft report for the Committee to review. Internal Operations Manager Zimmer anticipated that the report will be sent out in April.

X. Input from the Committee and General Public:

Committee Member Korman stated that he didn't have any comments at the moment but may have more comments after he reviews the information again and will forward them to Committee Chair Clifton. All the Committee members were encouraged to do the same.

XI. Adjournment:

Committee Chair Clifton asked for a motion to adjourn. Committee Member Zbesko made the motion to adjourn. All ayes.

The January 11th meeting was adjourned at 6:47 pm.

ATTESTED
Committee Chair, Mark Clifton

SUBMITTED
Internal Operations Manager, Jennifer Zimmer

Minutes for the Decennial Committee on Local Government Efficiency Act North Shore Mosquito Abatement District

At the third and final meeting of the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District (NSMAD) held at NSMAD office, 117 Northfield Road, Northfield, IL on Thursday, July 11, 2024. Committee Chair Mark Clifton called the meeting to order at 6:05 pm.

In Attendance:

Mark Clifton, Executive Director NSMAD and Chair
John Zbesko, Trustee Member
Nelson Howard, Trustee Member
William Zimmer, Trustee Member
Kathryn Calkins, Trustee Member
Sheri Latash, Resident Member
Jennifer Zimmer, Internal Operations Manager NSMAD
Ross Secler, Attorney of Odelson, Murphey, Frazier & McGrath, Ltd

I. Approval of Minutes:

Committee Member Zbesko made a motion to approve the January 11, 2024 committee meeting minutes of the NSMAD Decennial Committee. Committee Member Howard seconded. All ayes.

II. Information Review:

Committee Chair Clifton began the meeting by asking the committee members if any of the items from the last meeting needed any additional review or if they had questions on the final draft of the report. No committee member had any questions, so Committee Chair Clifton began an overview of the conclusions of the report, and detailed the work that the District has begun on the recommendations of the report.

III. Input from the Committee and General Public:

Committee Member Calkins stated that the District's expanded outreach and education efforts should be added to the list of Program Offerings and Program Expansions.

Committee Member Latash added that access to the freight rail lines should be added to the areas that the NSMAD would like to have access to, along with the CTA and Metra properties, in order to treat areas of standing water that can produce mosquitoes.

While reviewing the report for the committee, Committee Chair Clifton noted that the NSMAD building a relationship and collaborating with the Metropolitan Water Reclamation District should be added to the final list of recommendations.

Lastly, Committee Member Calkins noted that the last sentence in the Climate Change portion of Future Challenges for the NSMAD, should be moved to the list of Committee recommendations.

IV. Approval of Final Report

After agreeing on the amended portions of the final draft, Committee Member Zbesko made a motion to approve the Decennial Report for the North Shore Mosquito Abatement District, as amended, dated July 11, 2024. Committee Member Latash seconded. A roll-call vote on the motion resulted in the following; Ayes: Committee Members Clifton, Zbesko, Latash, Howard, Calkins, and Zimmer. The motion passes.

V. Dissolution of committee

Committee Member Zimmer made a motion to dissolve the Decennial Committee on Local Government Efficiency Act for the North Shore Mosquito Abatement District. Committee Member Zbesko seconded. A roll-call vote on the motion resulted in the following; Ayes: Committee members Clifton, Zbesko, Latash, Howard, Calkins, and Zimmer. The motion passes.

VI. Adjournment:

Committee Chair Clifton asked for a motion to adjourn. Committee Member Calkins made the motion to adjourn. All ayes.

The July 11th meeting was adjourned at 6:35 pm.

ATTESTED

Committee Chair, Mark Clifton

SUBMITTED

Internal Operations Manager, Jennifer Zimmer