

# 2018 Year End Review

## Vector Control Board Meeting

**10am Thursday May 23<sup>rd</sup> 2019**

Cass County Highway Department  
 Vector Control Conference Room  
 1201 Main Ave. West  
 West Fargo, ND 58078

Note: Meeting will be conducted by Cass County Vector Control Board, but all persons/organizations involved in area mosquito abatement efforts are encouraged to attend.

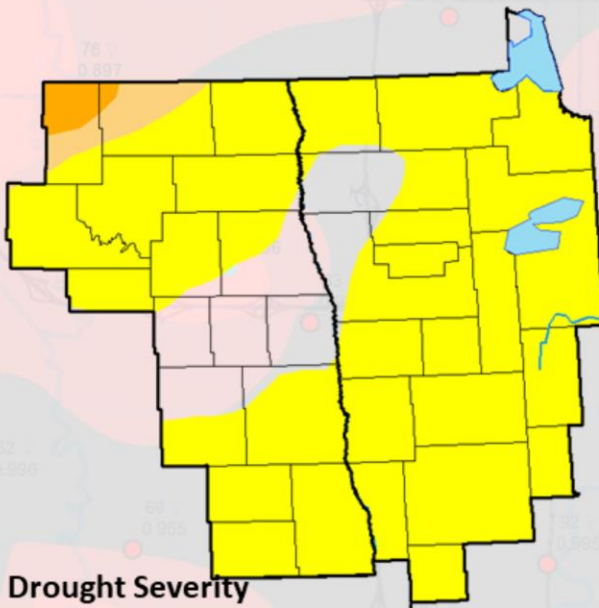
Agenda	
Call to Order	
2018 Cass Vector Control Season Review	Prather
Technical Updates	Prather
2019-2020 Contracts- Extra-Territorial Cost Share	Prather Suggested Motion
Discussion, Questions, & Comments	All
Adjourn	

# U.S. Drought Monitor Eastern North Dakota, ND WFO

**May 8, 2018**

(Released Thursday, May 10, 2018)

Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	15.79	84.21	3.60	1.30	0.00	0.00
<b>Last Week</b> 05-01-2018	71.28	28.72	3.60	1.30	0.00	0.00
<b>3 Months Ago</b> 02-06-2018	35.61	64.39	7.59	0.00	0.00	0.00
<b>Start of Calendar Year</b> 01-01-2018	55.17	44.83	0.64	0.00	0.00	0.00
<b>Start of Water Year</b> 09-25-2017	47.94	52.06	2.98	0.00	0.00	0.00
<b>One Year Ago</b> 05-09-2017	98.64	1.36	0.00	0.00	0.00	0.00

Intensity

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author

David Simeral  
Western Regional Climate Center

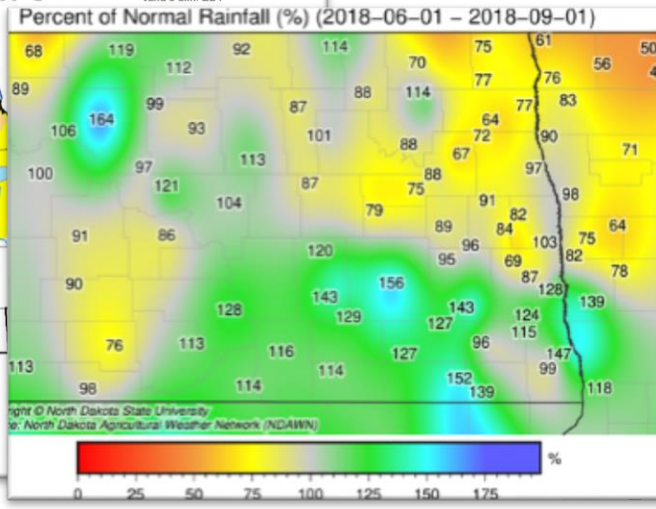
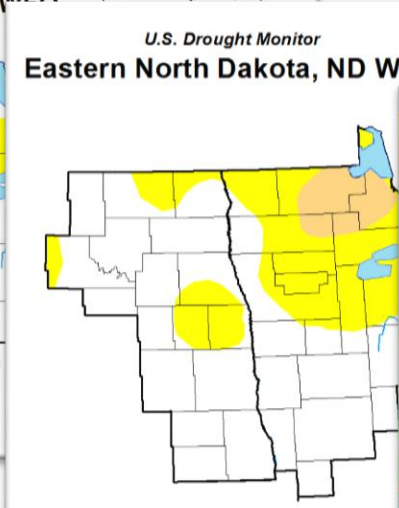
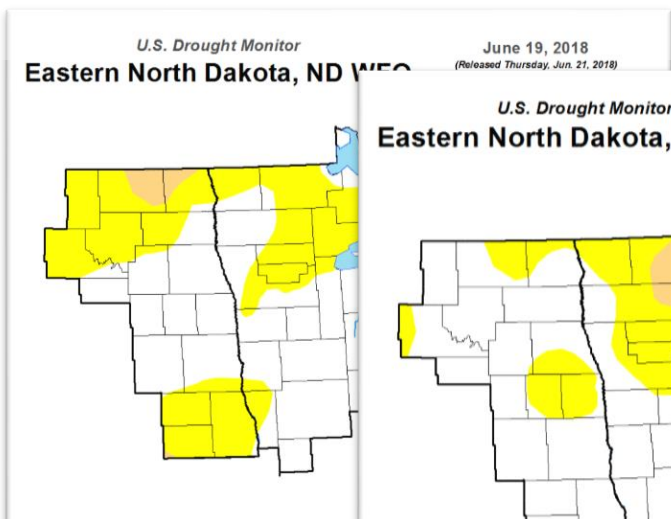


**Drought Severity**

- D0 - Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme

<http://droughtmonitor.unl.edu/>

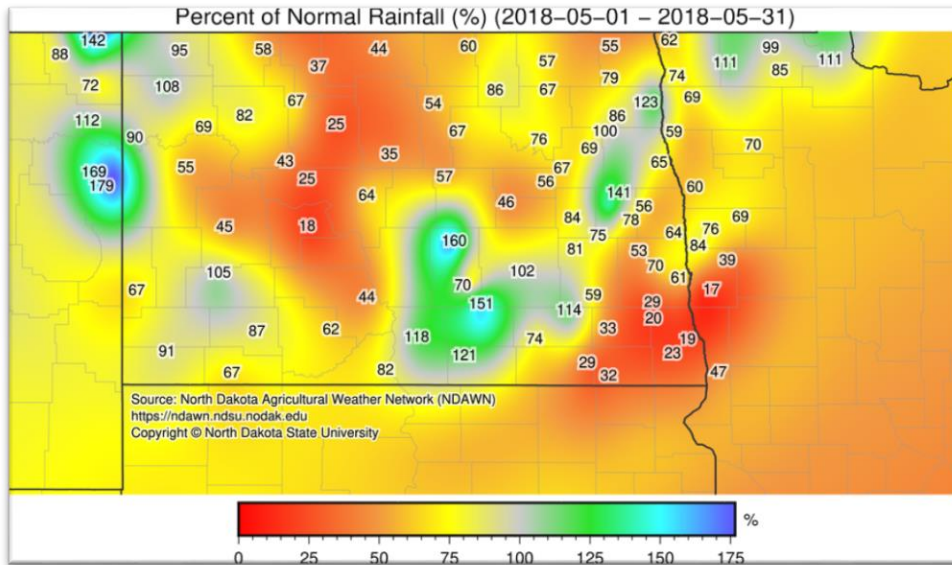
The summer of 2018 is best defined by acknowledging the rapid change that occurred. During the mosquito control season we witnessed the change from drought conditions to above normal precipitation. Winter-like weather persisted into late April but gave way rapidly to Summer temps and thunderstorms. And lastly we saw little to no autumn weather with the early October snowstorm that abruptly ended the season.



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North Dakota Agricultural Weather Network (NDAWN)

# Weather Conditions

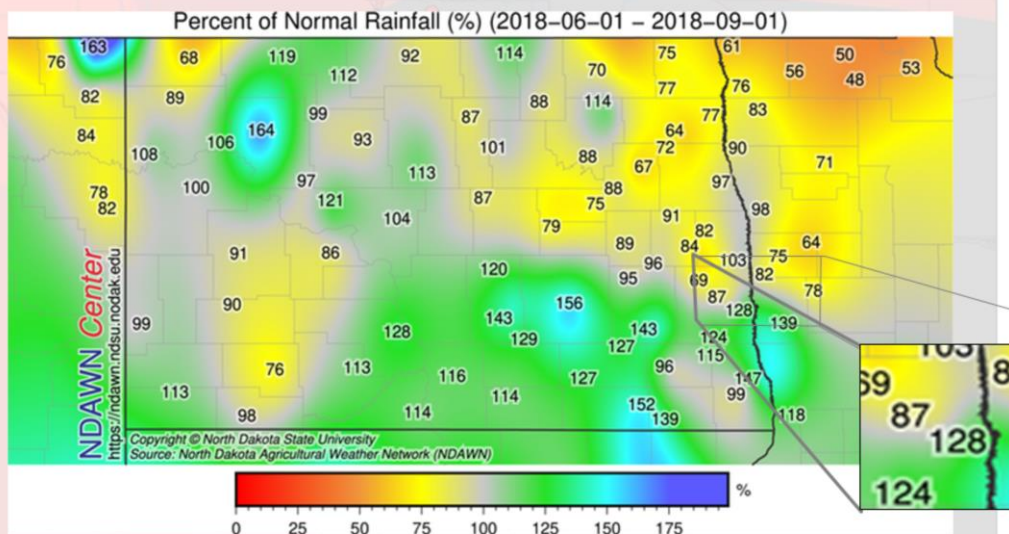
## Rainfall May 1st to May 31st



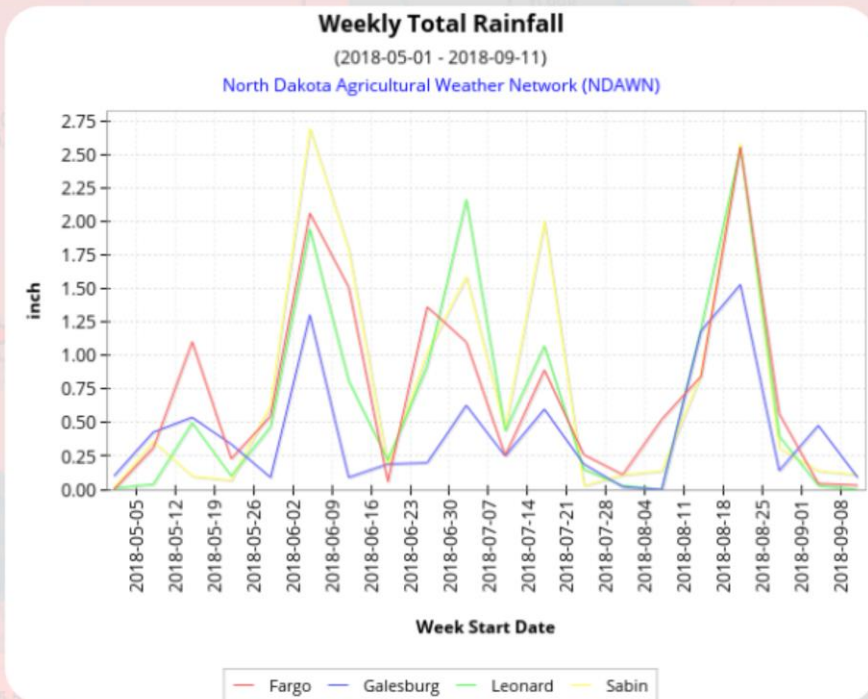
As previously noted, much of May remained dry, cold, and drought like. However rains returned and conditions shifted to above normal precip for much of our region. Generally, south metro and points beyond received the most significant rainfall totals during the busiest portions of the year.

# Weather Conditions

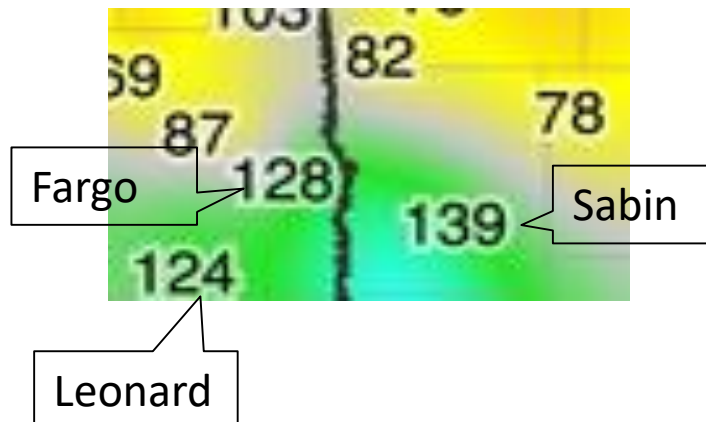
## Rainfall June 1<sup>st</sup> to Sept 1st



# Rain Events: Incidence and Severity



The graph above demonstrates rain gage measurements at 4 locations surrounding the metropolitan area in the ND Ag Weather Network system. Rain events were frequent and oftentimes heavy throughout the area and season as storms whipped through the region.



<https://ndawn.ndsu.nodak.edu//>

# Material Usage In Standing Water:

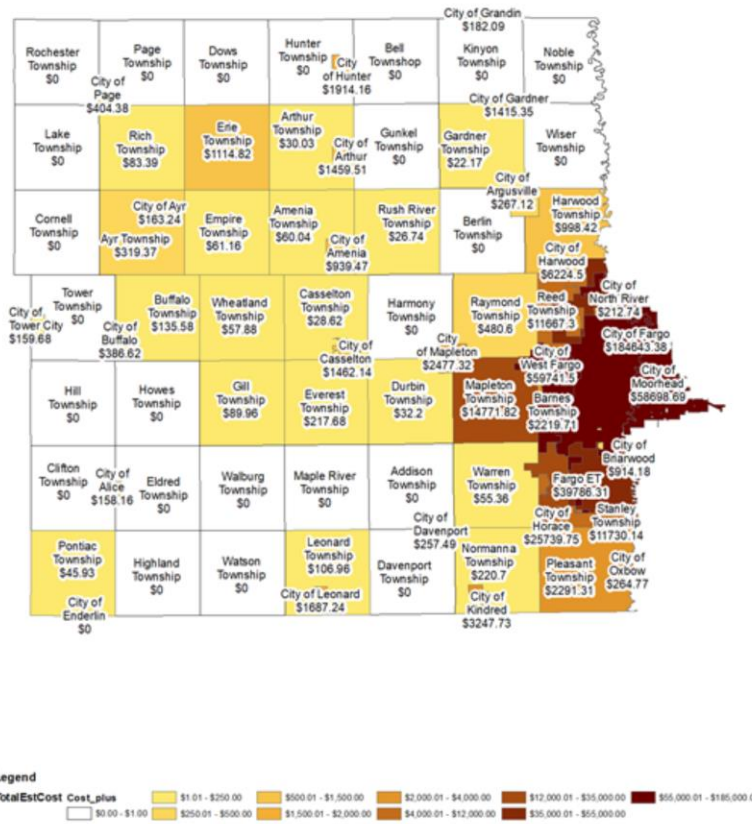
- 2018 was the #3 all time granular larval control products used
- Very good chance 2018 could be #2 overall because not all paper records were digitized and even those that were digitized ignored treatments less than 2 lbs
- Paper records were necessary for May-June 7th due to numerous software failures
- Software/data collections issues still persist
  - Highest priority in 2019
  - More information later

Lbs of larvicide used



# Larvicides

## Estimated 2018 Field Operations Expenditures



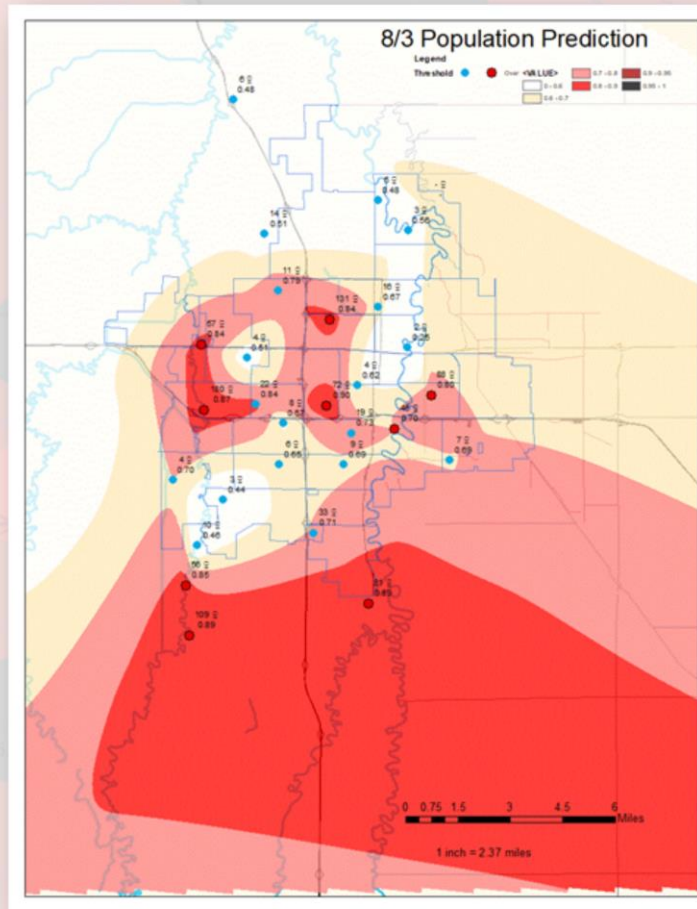
The map above is a geographic representation of the cash value of materials that were applied to standing water.

Clearly the urbanized areas of highest human population is the core focus of our effort.

Most cities that did not receive larval control materials received applications of adult control barrier sprays at some point.

Barrier spray applications tend to produce greater results than sparse larviciding for rural and small city scenarios given the limited capacity for visits.

## Static Surveillance Sites



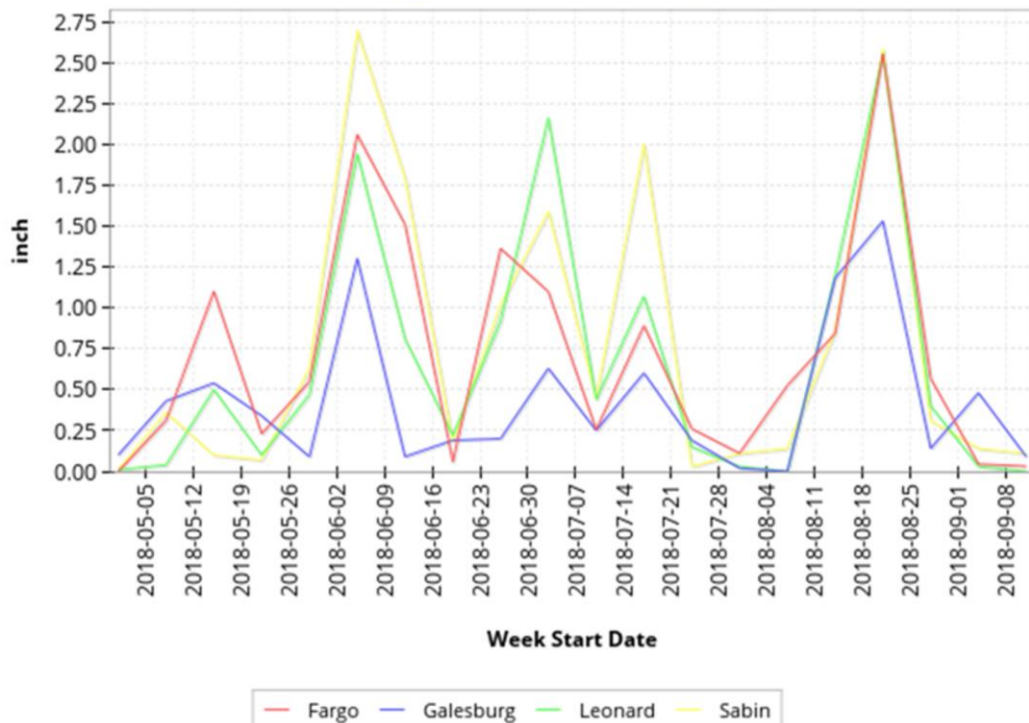
The points on the graphic above displays the Standard Nuisance Surveillance Network. This network of traps consist of New Jersey Light Traps that are collected daily. Adult mosquito sampling locations throughout Cass County during the 2018 season remained much the same as in past years. In this graphic the shaded areas indicate population data relative to historical observations via percentile

The utility of this type of visualization again proves to be a helpful model for displaying conditions and planning field operations especially during the wide ranging conditions observed in 2018. At present, Cass Vector Control is the only operation utilizing and displaying these types of analysis. Work is ongoing to improve results as well as collaborate with Collier County FL in their work to automate data collection for nuisance conditions.

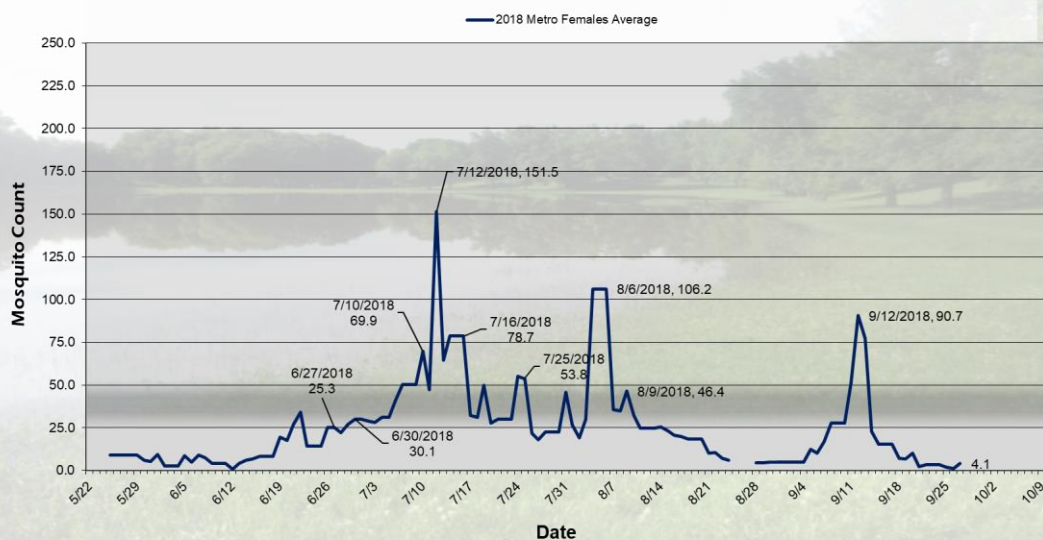
## Weekly Total Rainfall

(2018-05-01 - 2018-09-11)

North Dakota Agricultural Weather Network (NDAWN)



## Metro Area Mosquito Trap Average Based on 22 New Jersey Light Traps Throughout Fargo/West Fargo



Unsurprisingly, rainfall events greater than 1" cause increased nuisance conditions and decreased comfort level for residents during several episodes in 2018. The 2018 Season ranks slightly above average rainfall total but with average frequency when compared with past.

A key difference however was abnormally cool temperatures in both early May and Mid Sept which limited the effect of these rains and likely shortened the window of opportunity for both nuisance and arbovirus transmission.



# West Nile Virus Remains a Threat

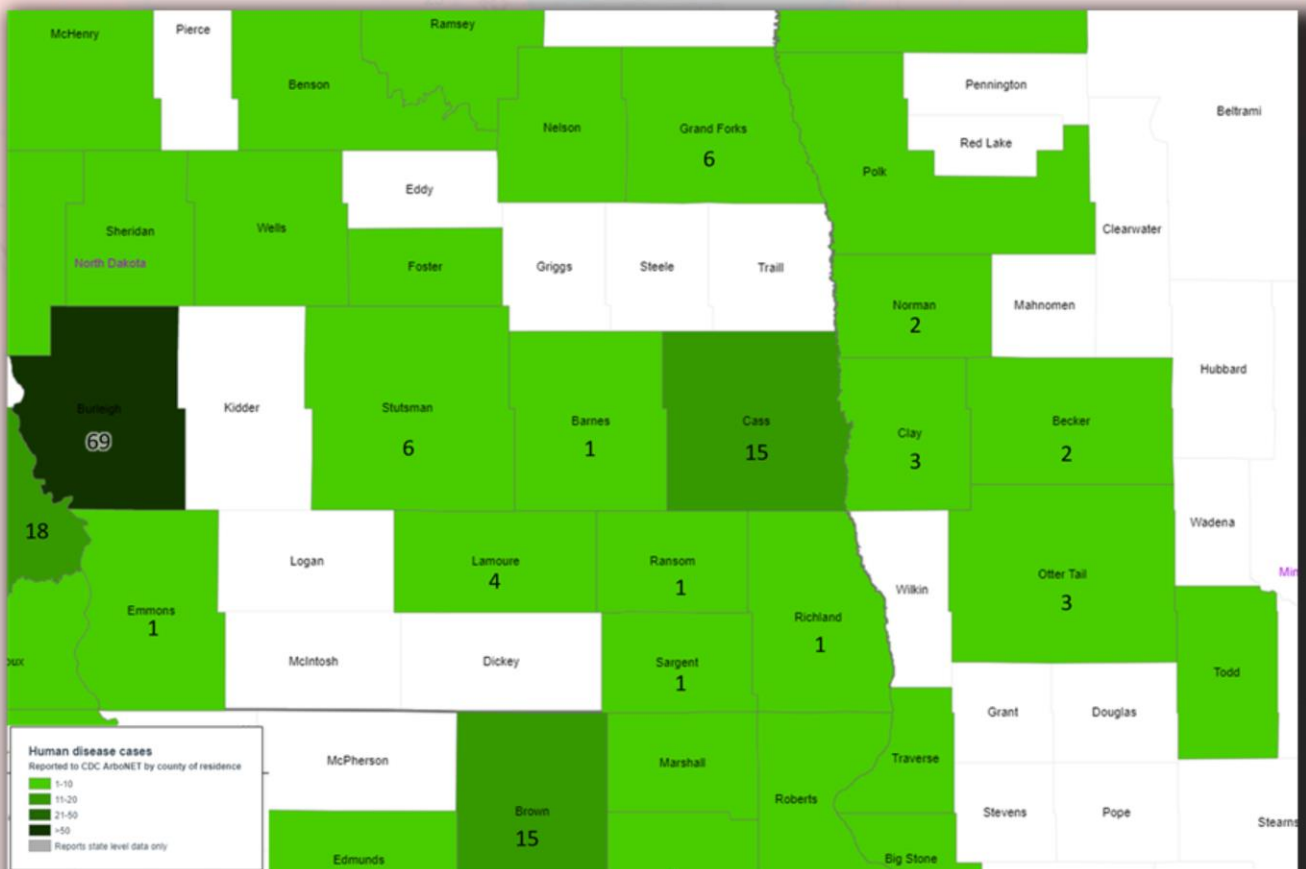
West Nile again proved to be active in the community and region in 2018 although fewer human cases occurred in Cass and Clay Counties compared to previous years.

The Upper Great Plains region and the Great lakes Region were very active with both total number of infections and incidence of neuroinvasive disease.

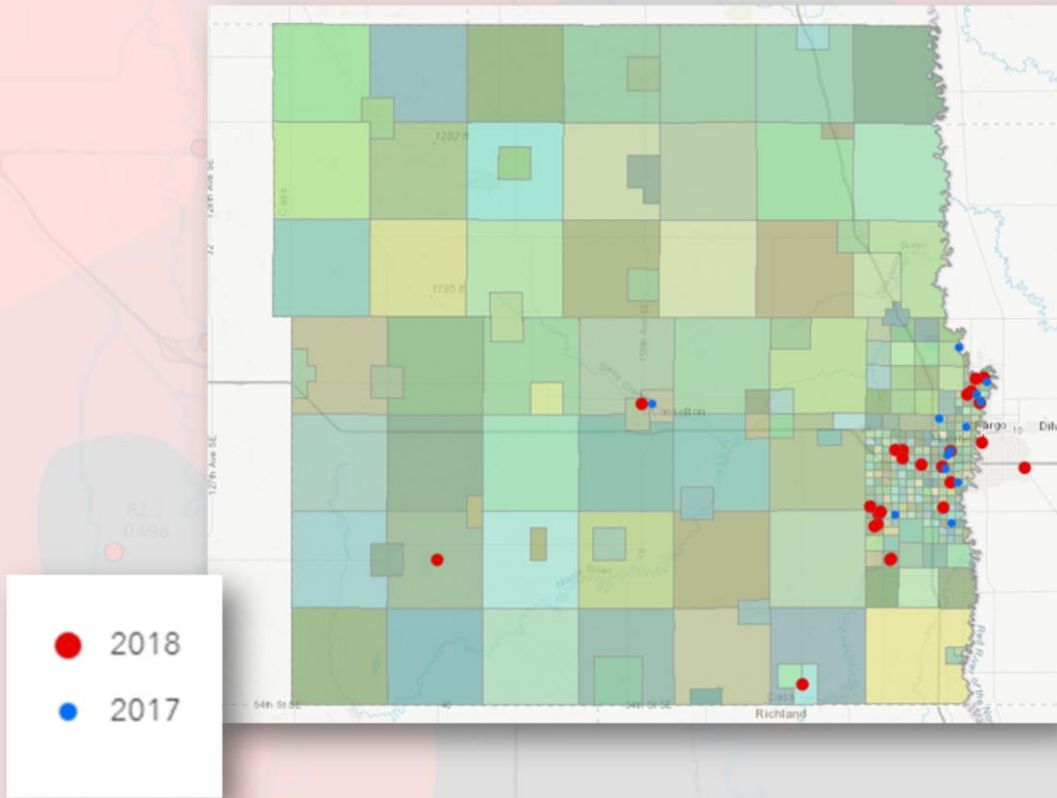
More regionally, Burleigh County saw one of its largest outbreak of WNV in recent years (69 Cases). North Dakota was 3<sup>rd</sup> overall (201 Human Cases) in the US for total number of detected human WNV infections, trailing only Nebraska(245) and California (204) Again this year, South Dakota and North Dakota rank 1 & 2 nationally for the highest rates of infection per 100,000 residents.

Inspections, sampling, and field operations to limit WNV risk will continue be frequent and extensive in 2019.

### West Nile virus (WNV) activity reported to ArboNET, by state, United States, 2018 (as of Dec 31, 2018)

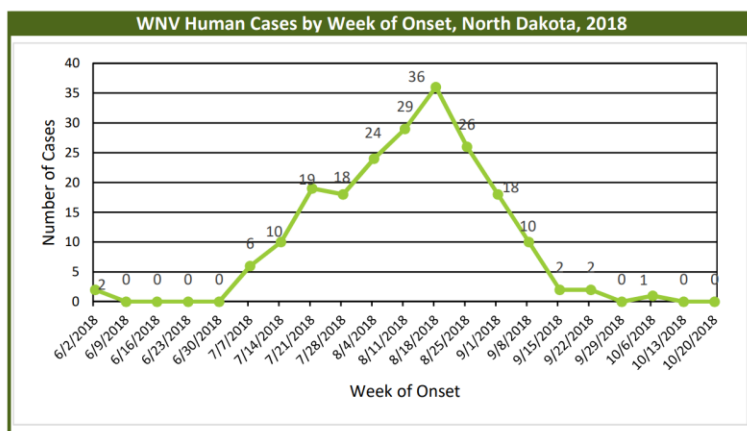


# Cass Vector WNV Sampling and Human Infection



Above: Cass County Vector Control’s WNV positive indicators. 2018 was the second year were collaboration with other entities permitted through documentation of all positive samples of WNV in the County. As seen in 2017, WNV –particularly human infections appear to be mostly a function of human population.

Below: ND Department of Health graph illustrating the dates of onset of illness in North Dakota. This clearly illustrates the typical historical pattern of heightened risk occurring in late July to early Sept. Cass Vector’s first detection was prior to any human infection in Cass. A mosquito pool tested positive on 6/18/2019 and resultant interventions were scheduled.



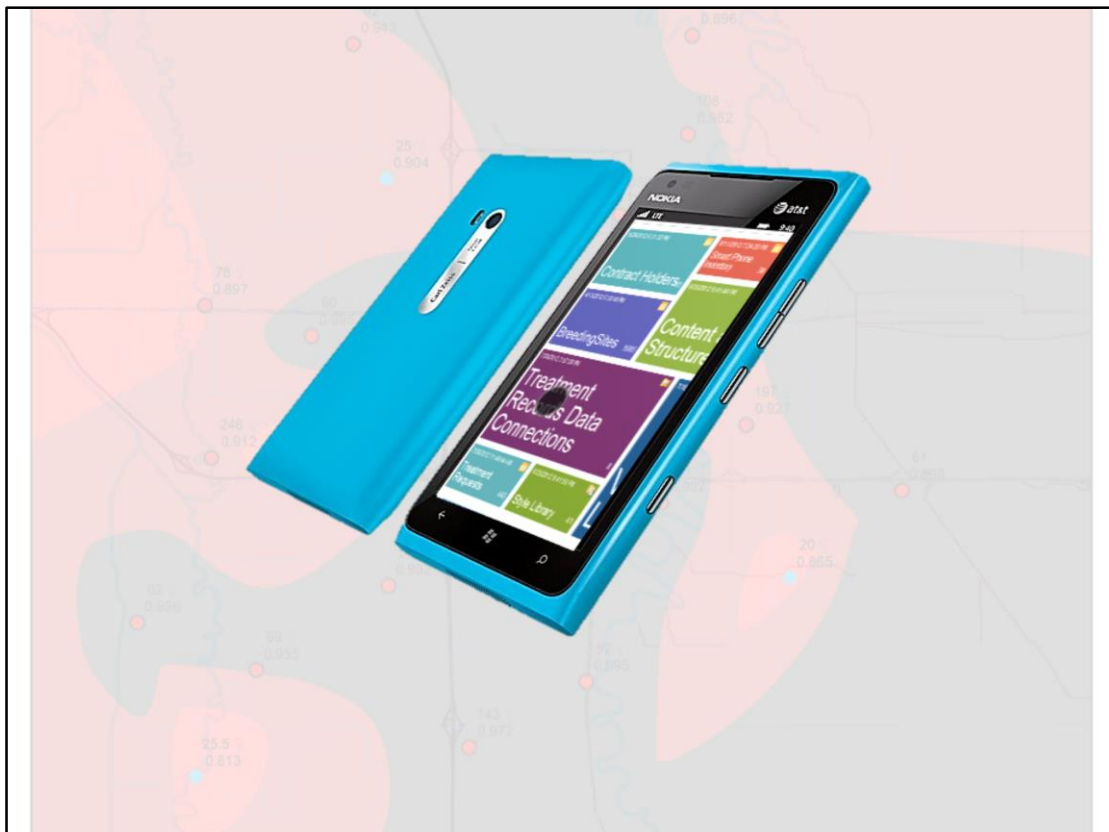
## Updates to Data Collection Tools

Use of web service technology and smart phones (free excluding data fees) are essential for both operations and oversight. These tools allow for instant field progress updates, real time inventory tracking, expedited invoicing, as well as several other enhanced performance metrics that we have grown accustomed to and rely upon for business processes both administratively and in the field.

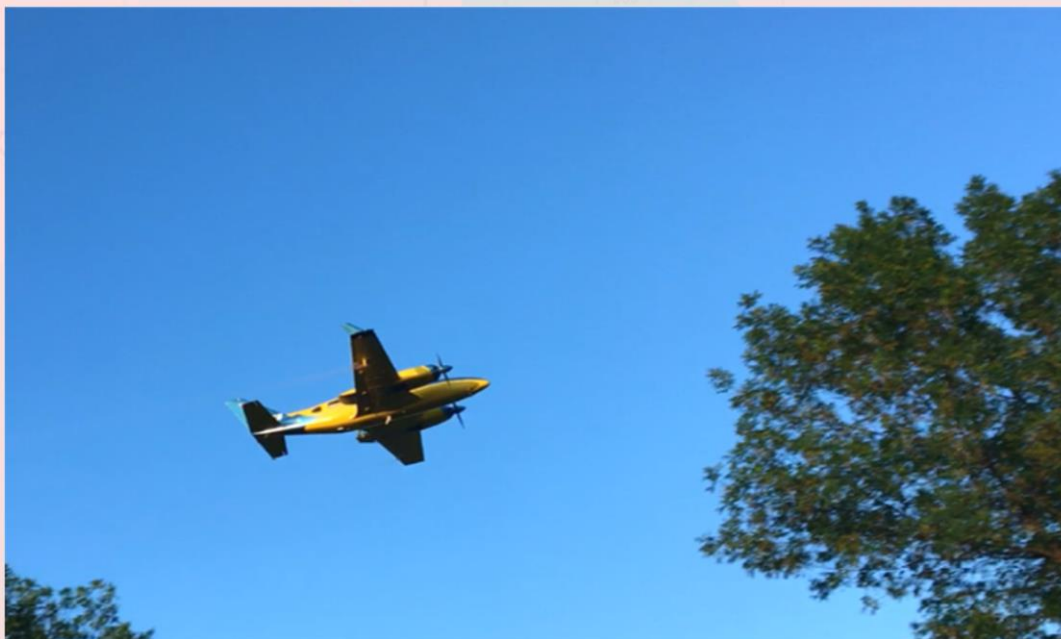
Through 2018 over 195,000 inspections have been logged in our data collection app that was originally built in 2011 using tools released in 2009. These nearly 200,000 pesticide application and site inspection records are the absolute core of the over 7 million dollars spent in mosquito control in those 7 years.

Work is ongoing to provide updated tools and applications that both maintain quality data collection, provide oversight, and compliance with state pesticide application law.

As new programs and technology are introduced, we will continue to monitor, fund, and build upon our past successes.



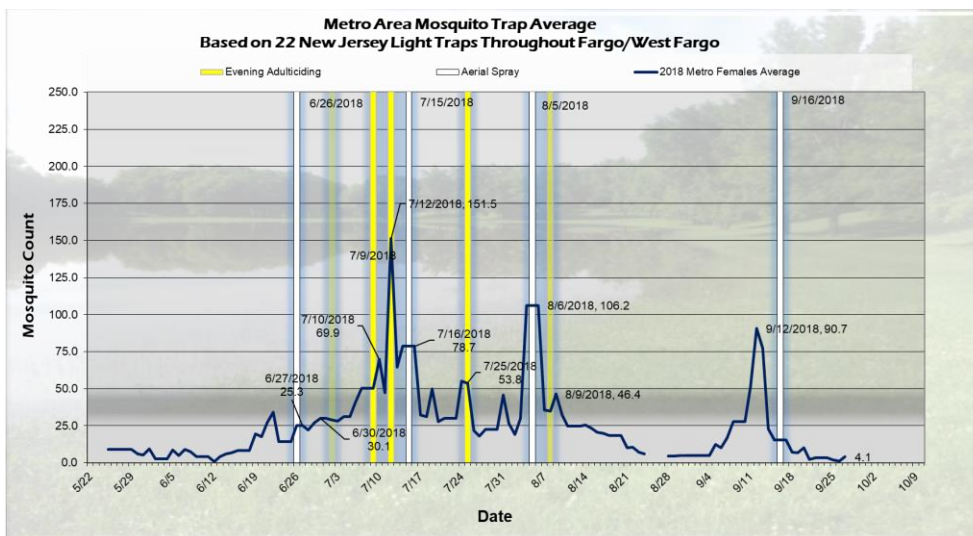
# Airborne Custom Spraying



Contracting with Airborne Custom has led to many developments and marked improvements in the past years. New aircraft introduced in 2012 gave us larger capacity and faster speeds to permit full metro coverage in one night.

Now, with additional pilots we have options for 2 aircraft in operation simultaneously. This further reduces the application time to just under 3 hours. This provides us the ability to target the absolute peak mosquito activity in the evenings and reduces the number of passes that occur in total darkness.

The advantages of a faster application will improve efficacy of those late season applications were air temperatures tend to drop rapidly immediately after sunset.

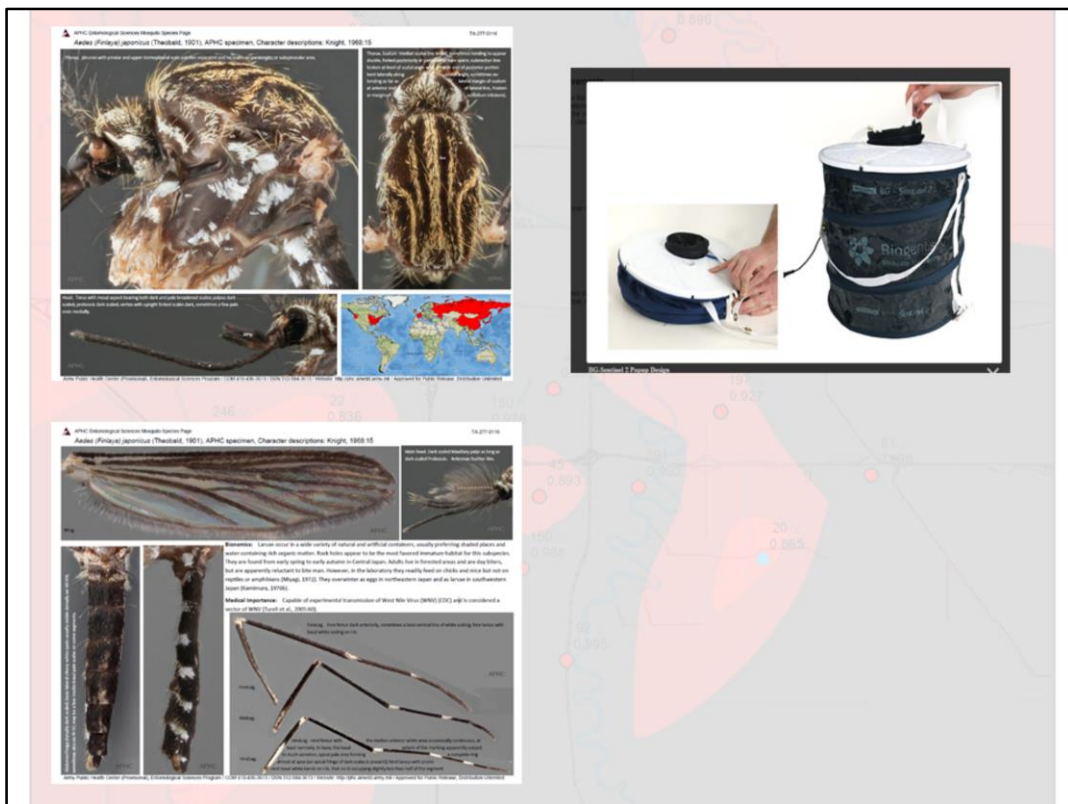


# Technical Notes

*Aedes Japonicus*- First detection in Cass and likely ND. Additional efforts to confirm

Addition of BioGents Sentinel 2 traps – Considered the new standard for adult mosquito control traps. Utilizes human odor mimicking lure to attract more species. Permits CCVC to collaborate further on invasive aedes surveillance – Improve our CDC/NACCHO rating of “needs improvement”. These will have similar results as our current CO2 baited CDC light traps and might potentially replace them but for now we will use both concurrently.

Lastly, we will be incorporating of CDC bottle bioassay’s to monitor pesticide resistance in adult mosquitoes. Will also aide to improve the final “needs improvement metric from CDC/NACCHO.





## MEMORANDUM

### **Vector Control Board**

To: Cass County Vector Control Board  
From: Ben Prather, Cass County Vector Control  
Date: Thursday, May 9, 2019  
Subject: Agenda Item for the May 23rd 2019 Meeting

Dr. Tim Mahoney  
Clay Whittlesey  
Dr. Joe Rinehart

Ben Prather  
Director

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#### Background:

Municipal Contracts are the primary source of operating funds for the Vector Control program due to constraints of ND Century Code.

Language and terms of agreement occasionally change to reflect the financial aspects of the district and its partnering jurisdictions. Most recently, one aerial application was offered via the annual contract to Fargo and West Fargo as they both provide 100% funding for their in-town mosquito control applications.

As the financial health of the program increases, we now have the opportunity to offer a cost share of 50% for activities undertaken in extra-territorial (ET) areas of fully funded jurisdictions in Cass.

Specifically, we request the ability to offer, via the annual contract, terms to the Cities of Fargo and West Fargo to utilize Vector Control mill funds to equally divide the cost of treatments in agreed upon ET area.

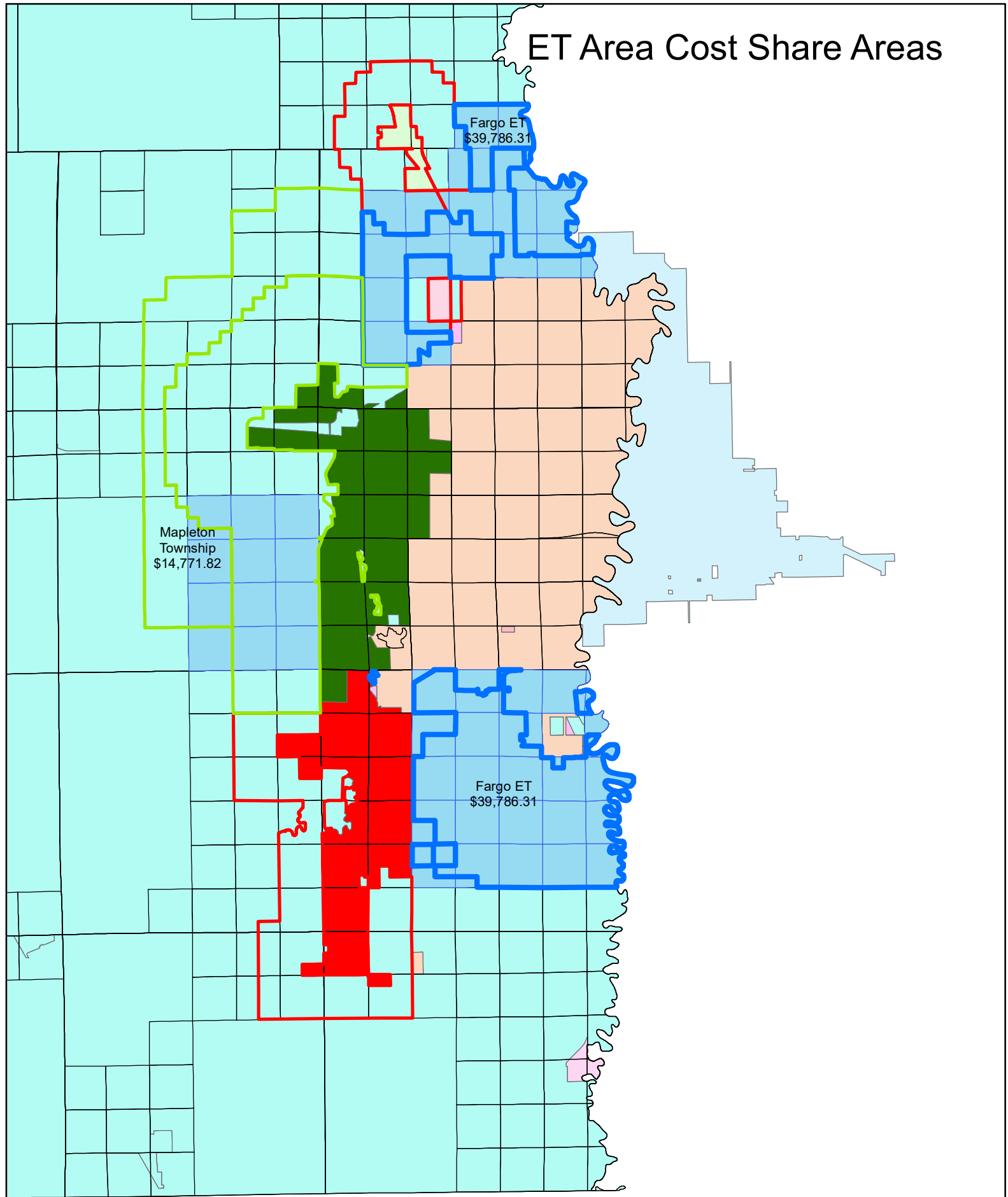
#### SUGGESTED MOTION:

Authorize Vector Control Director to release finalized contracts to the cities of Fargo and West Fargo which provide cost share option for ET area mosquito control activities.

C:\Users\pratherb\Cass County\Vector - Documents\2019 Vector\Contracts\VECTOR ContractsET board Memo.docx

1201 Main Ave West  
West Fargo, North  
Dakota  
58078-1301  
701-298-2382

# ET Area Cost Share Areas



## Legend

- CITY FARGO
- HARWOOD; HORACE; REILE'S ACRES
- WEST FARGO
- Reed ET Area
- Mapleton ET Area
- Stanley ET Area
- Larviciding Index



## Vector Control Board

To: Cass County Vector Control Board  
From: Ben Prather, Cass County Vector Control  
Date: Monday, June 3, 2019  
Subject: Agenda Item for the May 23rd 2019 Meeting

Dr. Tim Mahoney  
Clay Whittlesey  
Dr. Joe Rinehart

Ben Prather  
Director

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