

PRINCE WILLIAM COUNTY



# Getting the Most Out of Your Adulticide Program

Nathaniel Nagle  
Assistant Branch Chief  
Mosquito & Forest Pest Management Branch  
Prince William County Public Works

# Outline



- History of aduaticiding in PWC
- Considerations for aduaticiding
  - Not the “why”, but the “what” and “how”
- Spray block criteria
- Post-spray analysis
- Future considerations

# History Pre 2010



- Citizen “request for spray” program
- Spray blocks based around subdivisions
  - In some cases individual streets or houses
- 2-3 ULV adulticide machines
  - No GPS tracking or software
- 1-2 staff members per mission



# History

## Transition Period: 2010-2011



- “Request for spray” largely ended
- Adulticiding reactive to adult mosquito/disease surveillance
  - Citizen requests for spray investigated with site visits and/or adult mosquito trapping
- Spray blocks and staffing remained the same
- Brainstorming for improvements to current system

# History

## 2012-Present



- 2 new Clarke Cougar ULV sprayers w/ smartflow acquired (2012)
  - Sentinel GIS software
- Spray block “criteria” developed and implemented
- Standardized 2 staff per mission
- Post-spray analysis

# Considerations/ Establishing the Criteria



- Existing trap sites and spray blocks
- Population density
- Target mosquito species
- Geography
- Road attributes
- Zoning



# Spray Block Criteria

- Spray blocks will be designed around existing or future trap sites
  - Radius of ½ mile
- Speed limit of 35 mph or less
- Encompass residential areas
- Time limited to 2.5 hours
- Block perimeter determined by natural, geographical or manmade features





# Spray Blocks

## Criteria Applied

- 1 block is now broken into 3 based on the ½ mile radius
- Blocks are more easily separated and tasked by trap site
- Block length is now 2-4 miles each and 20-30 minutes of time to complete





## Spray Session Detail: 7/30/2015

### Blocks 88 & 89

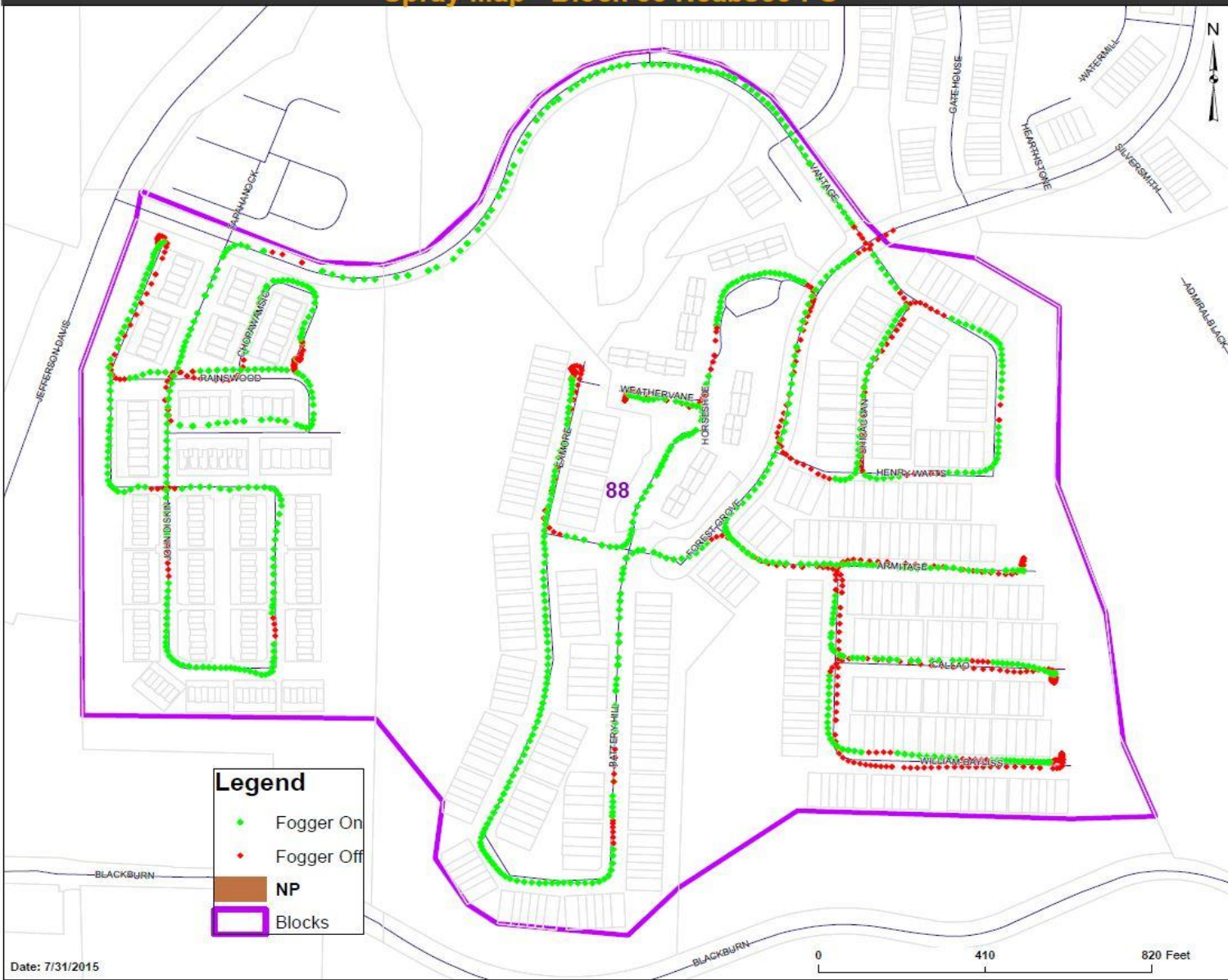
Report Created On: 7/31/2015

<u>Driver</u>	<u>Chemical</u>	<u>Log In Time</u>	<u>Log Out Time</u>	<u>Duration</u>	<u>Distance (miles)</u>	<u>SprayDistance (mi)</u>	
		<u>AI (lbs/gal)</u>	<u>Mix Rate</u>	<u>Mix Use (oz)</u>	<u>Mix Use (gal)</u>	<u>AI Use (lbs)</u>	<u>Treated Acres</u>
7/30/2015							
88							
Aaron Henecke	Zenivex E4 RTU	8:19:22PM	8:42:39PM	00:23:17	3.91	2.51	
		0.3000	1: 0.00	141.38	1.10	0.33	91.18
	Truck/Equipment: ES2926 / Cougar ULV				Wind: < 5 NE	Temp: 79F	

# Sentinel GIS Report



# Spray Map - Block 88 Neabsco PS



# Sentinel GIS Map

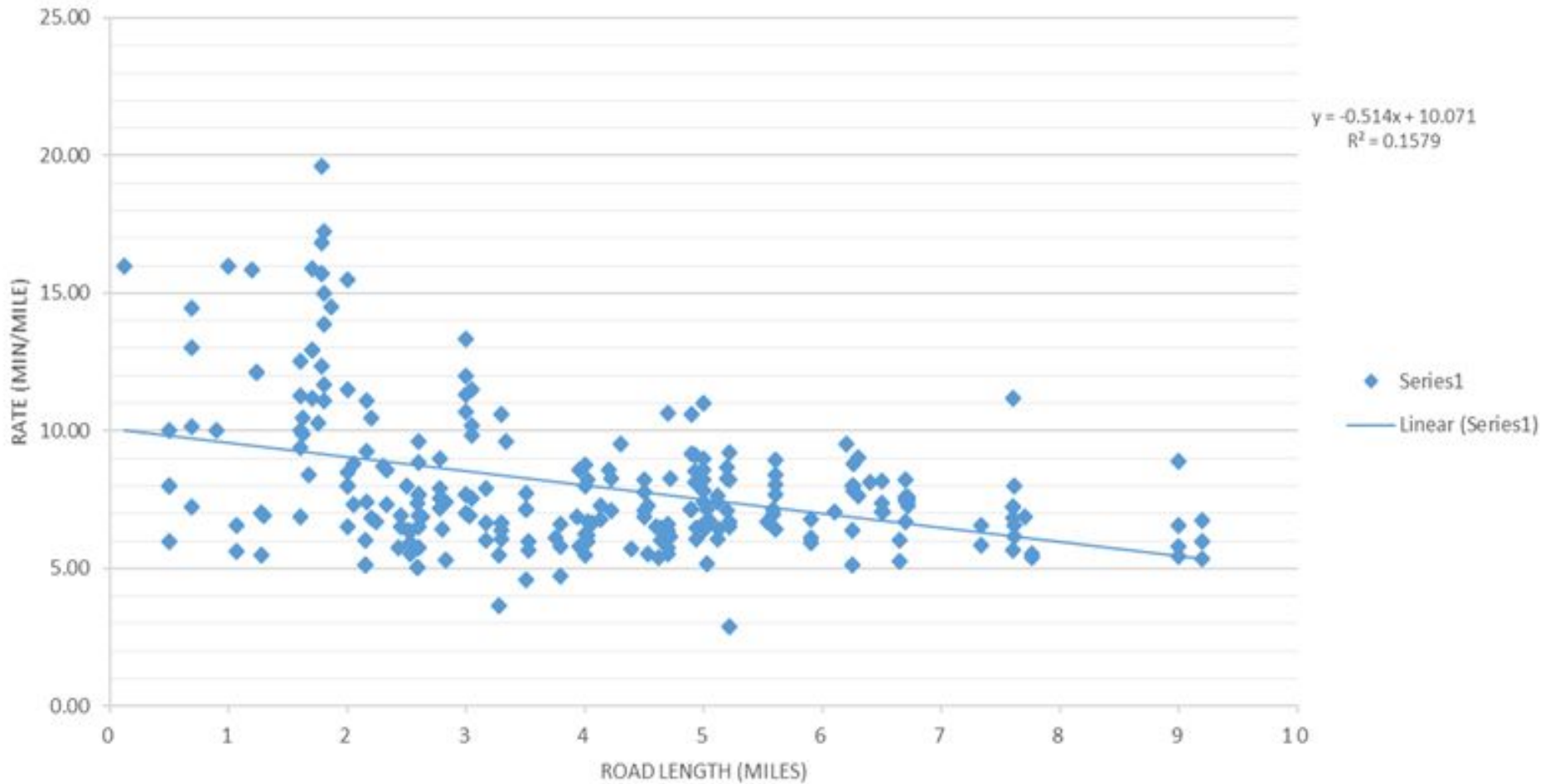


# Spray Analysis

- Analysis of spray mechanics, not efficacy
  - Time, miles, total flow, acreage
- Easily compared against known spray block attributes
- Why do it?
  - Efficiency, planning, budgeting, minimizing abuse

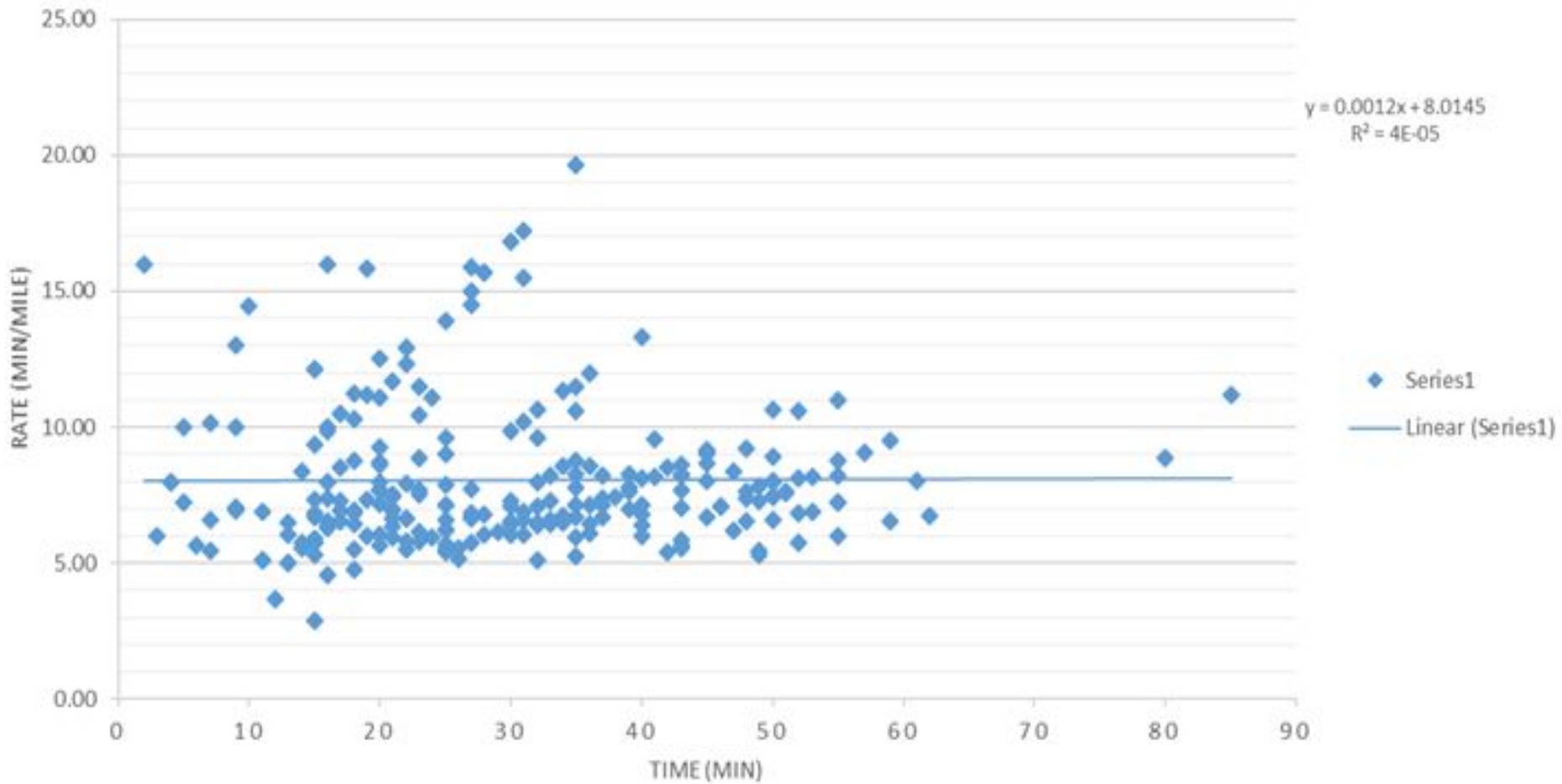


## RATE VS. BLOCK ROAD LENGTH



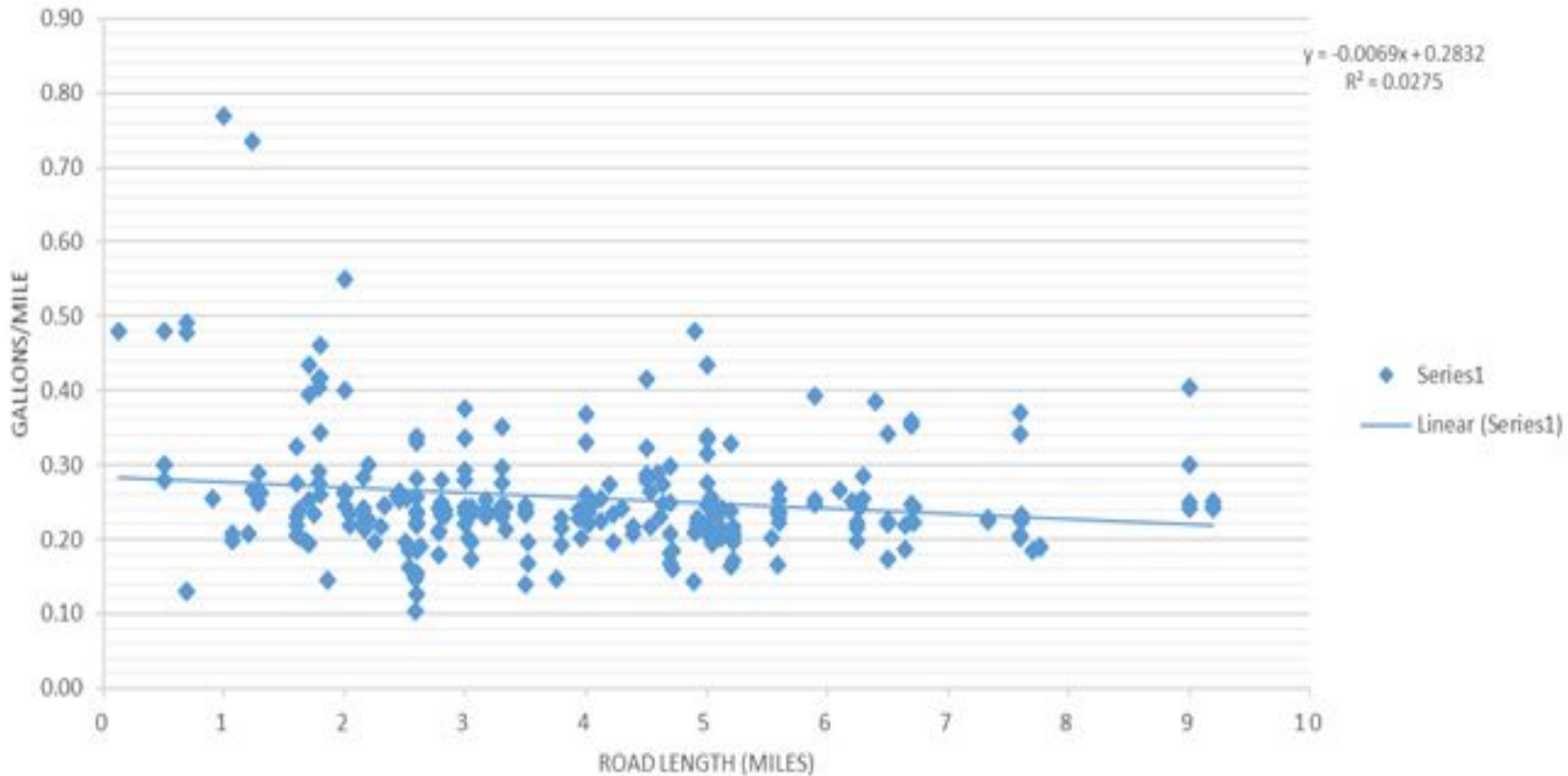


## RATE VS. TIME





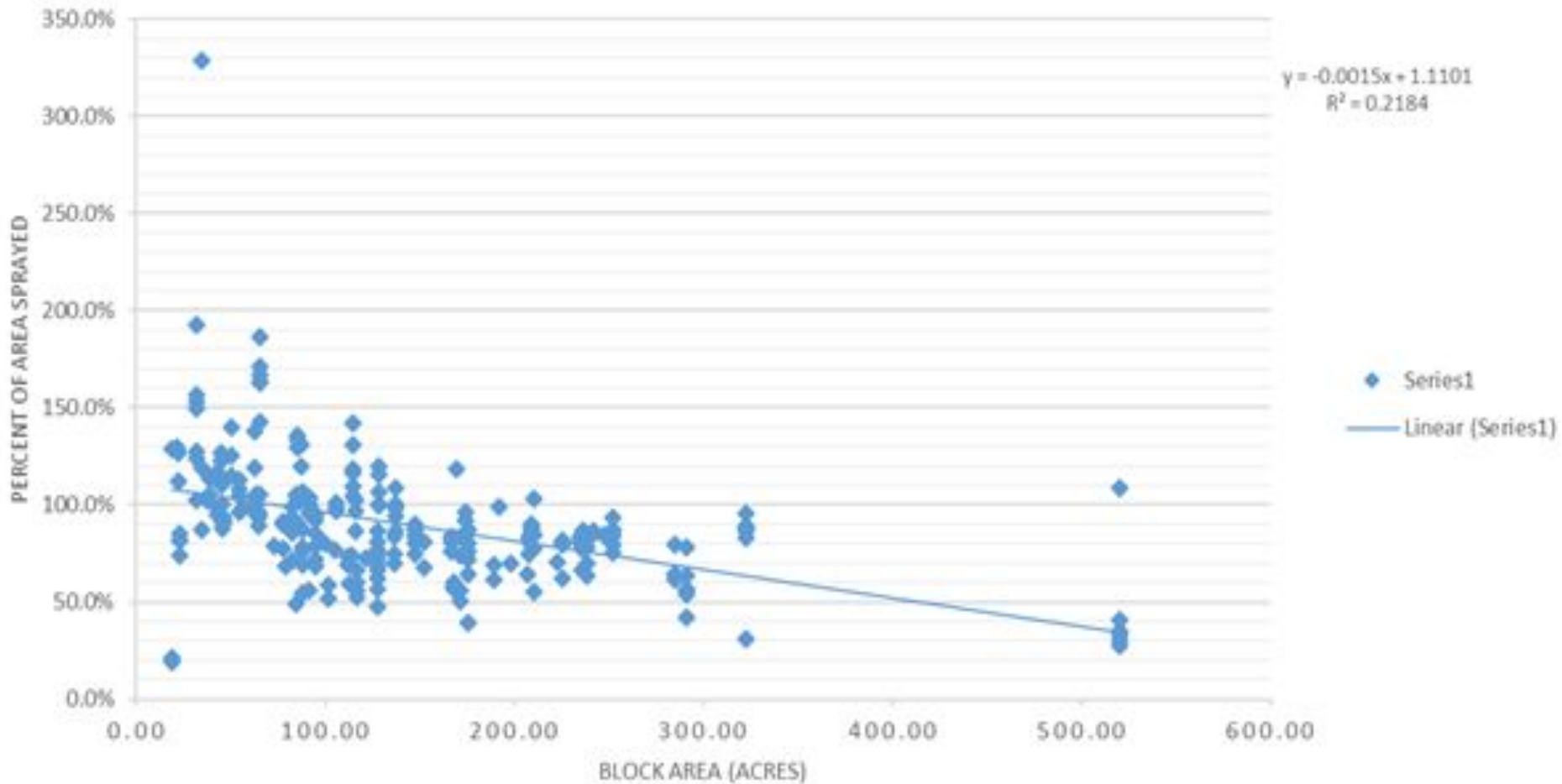
## GALLONS PER MILE VS. BLOCK ROAD LENGTH





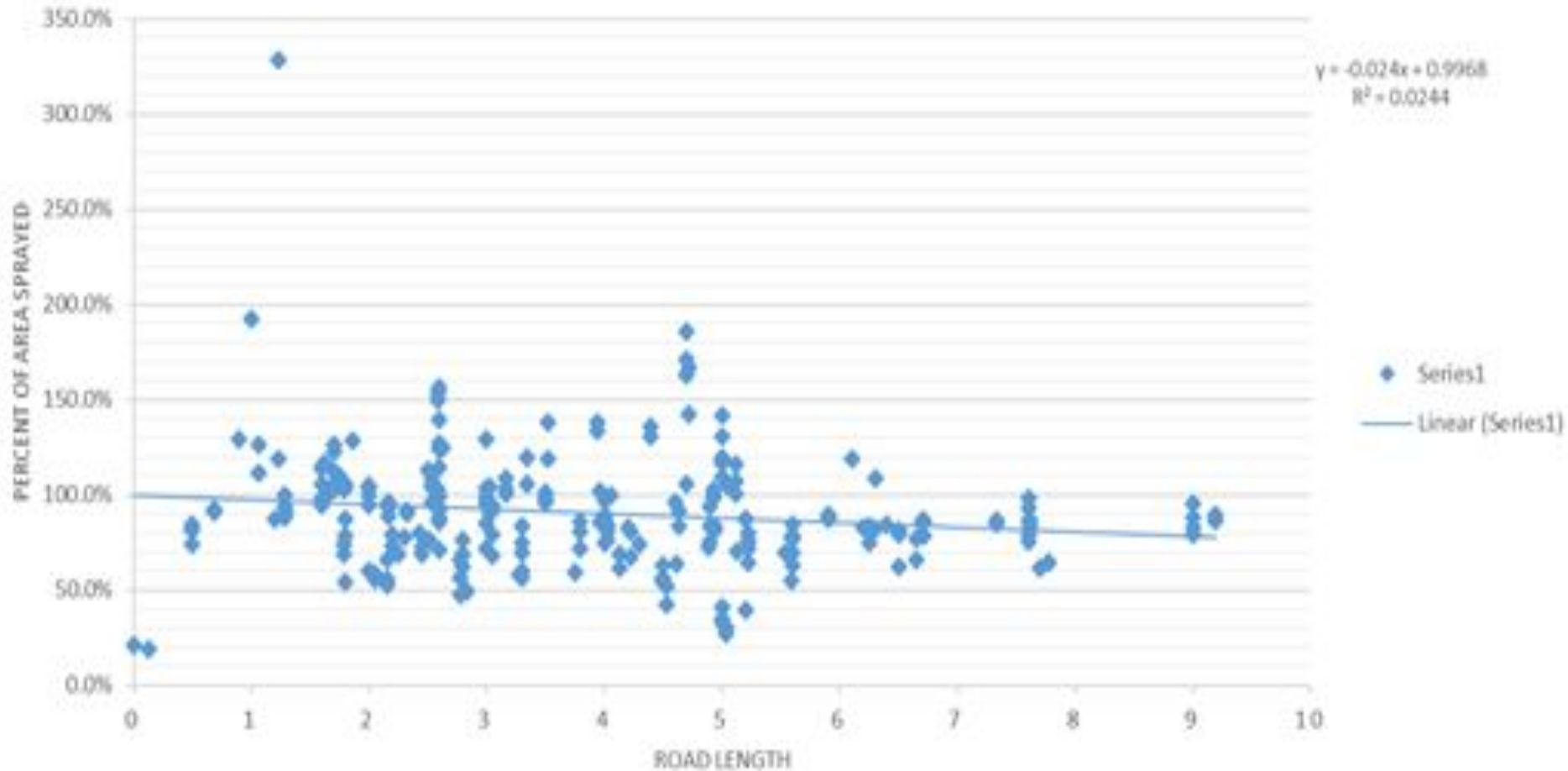


## PERCENT OF AREA SPRAYED VS. BLOCK AREA





## PERCENT OF AREA SPRAYED VS. BLOCK ROAD LENGTH





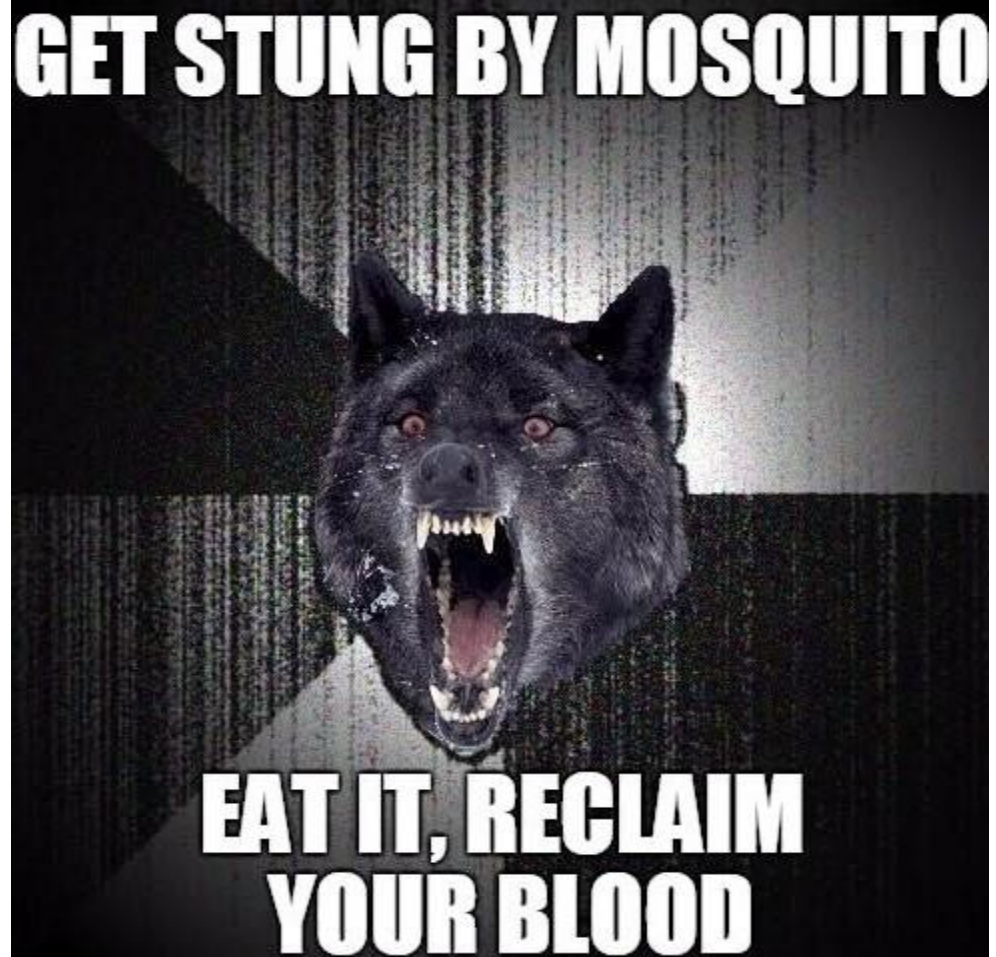
# What Did We Learn??

- Rate of speed changes by road length but not by time of spray
- Material sprayed does not change by road length
- Area sprayed decreases with increasing block area but not with increasing road length



# Future Considerations

- Redo the criteria
- Investigate specific attributes of spray blocks
  - Road attributes (# of turns?), zoning, parcel size, etc.
- Refine the dataset, especially outliers
- Make recommendations for adulticide block planning, creation, and execution



## Questions???

Nathaniel Nagle, Assistant Branch Chief  
Mosquito and Forest Pest Management Branch  
Prince William County Department of Public Works