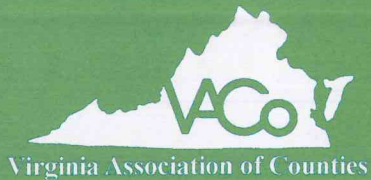


Recognizing the Best in County Government Programs!



2014 Achievement Awards



2014 VACo Achievement Awards

Deadline: June 2, 2014

Application Form

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 2, 2014.**

Program Information

Locality Henrico County
Program Title Standing Water Initiative Mobile Application
Program Category Information Technology

Contact Information

Name Raymond Hahn
Title Technology Support Specialist
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Signature of county administrator or chief administrative officer

Name John A. Vithoulkas
Title County Manager
Signature [Handwritten Signature]

Call for Entries

2014 VACo Achievement Award Application

Locality: Henrico County

**Program Title: Standing Water Initiative Mobile
Application**

Program Category: Information Technology

Overview

The Standing Water Initiative group (SWI) of the Henrico County Public Works, Engineering and Environmental Services Division, executes a multi-faceted approach to mosquito education and awareness as well as risk reduction of West Nile virus and other mosquito borne diseases. The approach includes: addressing citizen complaints; routinely inspecting mosquito breeding areas; and collecting adult mosquitoes for West Nile virus testing.

While the SWI group had been operating at an efficient rate, resources were over-allocated to redundant data entry steps involving recording field data on hard copy paper and then entering the data in-house into the main Access database. Several years were spent discussing the need to do more data management in the field. Due to the high cost of using an outside vendor, Henrico County's Department of Public Works (DPW) decided to pursue potential in-house mobile solutions to help streamline SWI's efforts, making it a more cost-efficient, effective and greener process.

The new Standing Water Initiative Mobile Application (SWIMA) is the result of the collaboration between DPW and Department of Information Technology (IT). The objective was to increase employee efficiency by replacing the antiquated Access database with a new web-based, user-friendly, mobile data management system. The new system allows employees to enter and query data in real time as well as access GIS data while working in the field. The IT Department's innovation in delivering a high quality and user-friendly product as well as managing the development phase by supporting an inclusive team has greatly increased customer service and improved daily productiveness and working conditions of Department of Public Works field employees.

The Challenge

With the demand for services rising and departmental resource levels remaining constant or in some areas diminishing, employees have strived to be creative and find ways to "do more with less". The SWI group's redundant data entry needed to be addressed to find efficiencies.

Additionally, hard copy maps of each mosquito breeding site (approximately 600) were necessary to assess where the site was located and to get directions. New mosquito breeding sites are continuously added and constant maintenance of hard copy map updates was extremely time consuming and inefficient. This interfered with time better spent responding to citizen complaints and mitigating mosquito populations.

Field inspectors were also spending valuable time each morning planning their daily schedules. All citizen complaints required in-office, historical and GIS-related research. This task often resulted in printing maps and complaint specifics. The printed documents were not useful after complaint resolution and the paper was either thrown away or recycled. Once the inspector left the office each morning, new citizen complaints could not be addressed until the next business day.

Program Criteria

Several years were spent discussing the need to do more data management in the field. The new SWIMA is the result of the collaboration between Henrico County's DPW and IT departments. The objective was to increase employee efficiency by replacing the antiquated Access database with a new web-based, user-friendly, mobile data management system. The new system allows employees to enter and query data in real time as well as access GIS data while working in the field. The entire process of development and implementation took approximately five months. Employees from the DPW and IT departments coordinated through weekly face-to-face meetings and email updates. The project team was able to work

constructively together, creating an environment that was both cordial and professionally productive. DPW field employees have been using the new mobile system for one year.

The SWIMA provides mobile and real time access to eleven years worth of SWI data, including citizen complaints, mosquito breeding site inspections, pesticide applications and adult mosquito collections. The web-based program has improved efficiency allowing data to be entered and edited in the field as opposed to being recorded on a sheet of paper and entered into the database at a later time. The precise and instant access to data provides information to be continually analyzed in an error-free environment.

The database component of the SWIMA is directly linked to a GIS web site where employees can access and edit GIS aerial maps, complaint locations, mosquito breeding site locations and mosquito trap sites. This feature eliminated the time consuming and wasteful task of constantly updating hundreds of hard copy aerial photographs and maps (Figures 1 and 2). Mobile access to GIS map data saves a tremendous amount of time getting from point to point in the field. Each inspector can now cover more sites over a wider geographic range each day.

All citizen complaints require that the inspector conduct an on-site visit. The ability to show citizens an on-line aerial map of their property during these site visits improves customer service. For example, the SWI responds to hundreds of drainage-related complaints and displaying an image of the natural topography, streams, floodplains, etc... can be useful in describing why they experience drainage problems and what potential solutions may exist.

Given the amount of data and the demand for on-going data analysis, the IT Department incorporated customized reports into the SWIMA (Figure 3). A tremendous amount of reporting data is now readily available at the press of a few buttons. Prior to the SWIMA, employees had to create complicated and lengthy Access queries. These reporting capabilities not only save time but fulfill a wide range of different needs. These reports are a tremendous benefit for

supervisors, regulatory agencies and rapid, error-free data analysis. A few examples are noted here and specific examples are provided in the Results and Supplemental Materials sections:

- Providing annual or real-time reports to upper management (citizen complaint details)
- Providing annual reports to regulatory agencies (total pesticide amounts applied)
- Annual data comparisons (number of citizen complaints, total mosquitoes collected by species, total number and location of West Nile virus positive mosquito samples)

The SWIMA's administration and security is completely controlled by the DPW employees. Different levels of database access are granted to both inter and intra departmental employees, which enhances internal customer service. There are many instances when DPW employees and other department employees (Public Utilities, Building Inspections, etc...) receive the same complaint. The citizen may be transferred to several departments before reaching the correct contact. The mobile database is searched for history related to the complaint location or specific complainant. Notes from any employee responding to a particular complaint are entered in one shared, central location and viewable by multiple county employees.

The SWIMA was developed and implemented entirely in-house with no outside assistance or development costs. The IT Department worked closely with the SWI group to develop an extremely user-friendly and completely customized product. Four touch screen laptops were purchased for a total project cost of \$11,600. In comparison, a vendor produced system could have cost \$20-30K not including required hardware, annual fees, software upgrade fees or technical support fees.

The SWIMA project required the creation of a Business Data database and a Spatial Database that are integrated for seamless operations. Remote access is gained using Dell laptop

computers with connectivity established through Net Motion software providing field employees access to both databases.

The Business Data database was created in-house using Oracle APEX which is a web application development tool for the Oracle database. The SWIMA database application is built on top of an Oracle database that utilizes Oracle Real Application Clusters (RAC) for a high level of current availability and flexible scalability for future enhancements.

The Spatial Database is built upon Microsoft SQL Server 2008r2 using Esri's Spatial Database Engine (ArcSDE) version 10.1. The SQL Server database utilizes Microsoft's Active/Passive Clustering to provide a highly available environment. The mobile mapping solution is built on Esri's ArcGIS Server 10.1 in a network load balanced setting utilizing Esri's ArcGIS API for Silverlight.

The two separate databases are joined using database connections allowing sharing of essential data. This eliminates duplicate data entry into both databases.

Program Results

Although Henrico County has experienced funding reductions, the level of service has not been compromised. Creation of the SWIMA greatly improves SWI inspectors' working conditions and efficiency. This allows employees to become more focused on providing a higher degree of service.

The SWIMA is a proven success. Benefits include:

- Citizen complaint response time has decreased. With access to real time data while working in the field, complaints are often addressed the same day received. An extra notification was built into the mobile application to alert field inspectors how many new calls have been received each day (Figure 4). Prior to the mobile application, inspectors

would spend time in the office each morning printing maps or forms and planning their daily schedule. Any citizen complaints received that day were not accessible until the end of the day when they returned to the office. Therefore, the earliest a complaint was addressed was the next business day. Thanks to the SWIMA, citizens are pleasantly surprised to often receive an in-person response within hours after placing a complaint.

- Increased efficiency by eliminating redundant data entry has saved each inspector approximately six hours per week (24 total man hours saved per week). The time savings results in more employee hours spent in the field, which results in higher daily productivity.
- Increased county-wide coverage each day, especially for mosquito breeding sites. The ability to view a county-wide aerial map and the approximately 600 points in the field has doubled the amount of sites the inspector is able to visit each day (Figure 1). Prior to the mobile application, big binders of individual, printed aerials were used to navigate from site to site (Figure 2). Required data was written on a paper form and entered into the database at day's or week's end. Data is now entered real time from the field into the SWIMA. Other field staff can view what portion of the county is being covered each day by a fellow field inspector, thereby preventing any overlap and maximizing coverage. The more potential mosquito breeding sites visited and controlled each day contributes to the short and long term public health protection of county residents.
- Expanded and customized reporting was built into the mobile application. The reporting capabilities save endless man hours otherwise spent organizing data and conducting calculations. Just a few of the many reporting opportunities include:

- *State record keeping requirements and total pesticides applied.* Henrico County's pesticide use is a regulated activity under the Virginia Department of Agriculture and Consumer Services (VDACS). For each pesticide application there is specific

information that needs to be recorded. Required information includes applicator name and certification number, pesticide(s) applied and application date, pest controlled, area treated, application rate, and total pesticide applied. All records must be kept for two years. Prior to the SWIMA, this information was recorded on paper and necessary conversion calculations were done by hand. With several field employees each recording their pesticide application activities, organization of these hard copy records was a cumbersome task. In the mobile application, any time a pesticide application is made the details are entered and automatically saved into a customized "VDACS Report". This report includes all VDACS's record keeping requirements and the information is stored in one, organized, and easy-to-read table (Figure 5).

The amount of pesticide applied is automatically calculated based on the specific pesticide's application rate and the area treated (Figure 6). This built in calculation saves time and is error-free. In addition, DPW is able to view total pesticides applied (per product) for any given date range (Figure 7). This is relevant because there are regulatory mandates if pesticide amount thresholds are met or exceeded. The ability to easily calculate how much pesticide product is normally used during a given time period is also beneficial for budgeting purposes. Last year the Henrico County Manager implemented a spending freeze that extended several months beyond the start of mosquito season. DPW was able to compare their current inventory to the total amount used during the same time period the previous year. This simple step assured DPW their inventory would most likely last through the end of the spending freeze.

- *Statistical analysis.* The SWI team uses a statistical method known as Maximum Likelihood Estimation (MLE) to calculate West Nile virus (WNV) infection rates of collected Henrico County mosquitoes. The MLE takes into account the size of each mosquito sample tested during a specific time period and the corresponding results (WNV+ or WNV-) . Prior to the SWIMA, at least two hours were spent each week compiling several data sets and performing calculations. The SWIMA's built-in MLE report now calculates the weekly MLE in as little as 30 seconds. This is a tremendous time-saving tool which assists in evaluating public health risk.

- *The ability to compare annual data.* Tracking public health risk and mosquito populations relies heavily on annual data comparisons so it was crucial to maintain the integrity of previously collected data. Several years of data previously stored in an Access database were converted to the new mobile database and the ability to compare annual data with the custom reports and the click of a few buttons is nothing short of incredible (Figure 8).

- *Reporting is beneficial for upper management and/or the public.* For example, it is not uncommon for the DPW Director to inquire annually about how many drainage-related complaints were received (Figure 9).

Supplemental Materials

The information included in this submittal skims the surface of promoting the development, management and implementation of Henrico County's Standing Water Initiative Mobile Application.

Figure 1. WEB-BASED, MOBILE APPLICATION MAPPING

Figure 2. PRE MOBILE APPLICATION MAP BINDERS

Figure 3. CUSTOMIZED REPORTS

Figure 4. DAILY COMPLAINT NOTIFICATION

Figure 5. VDACS REPORT

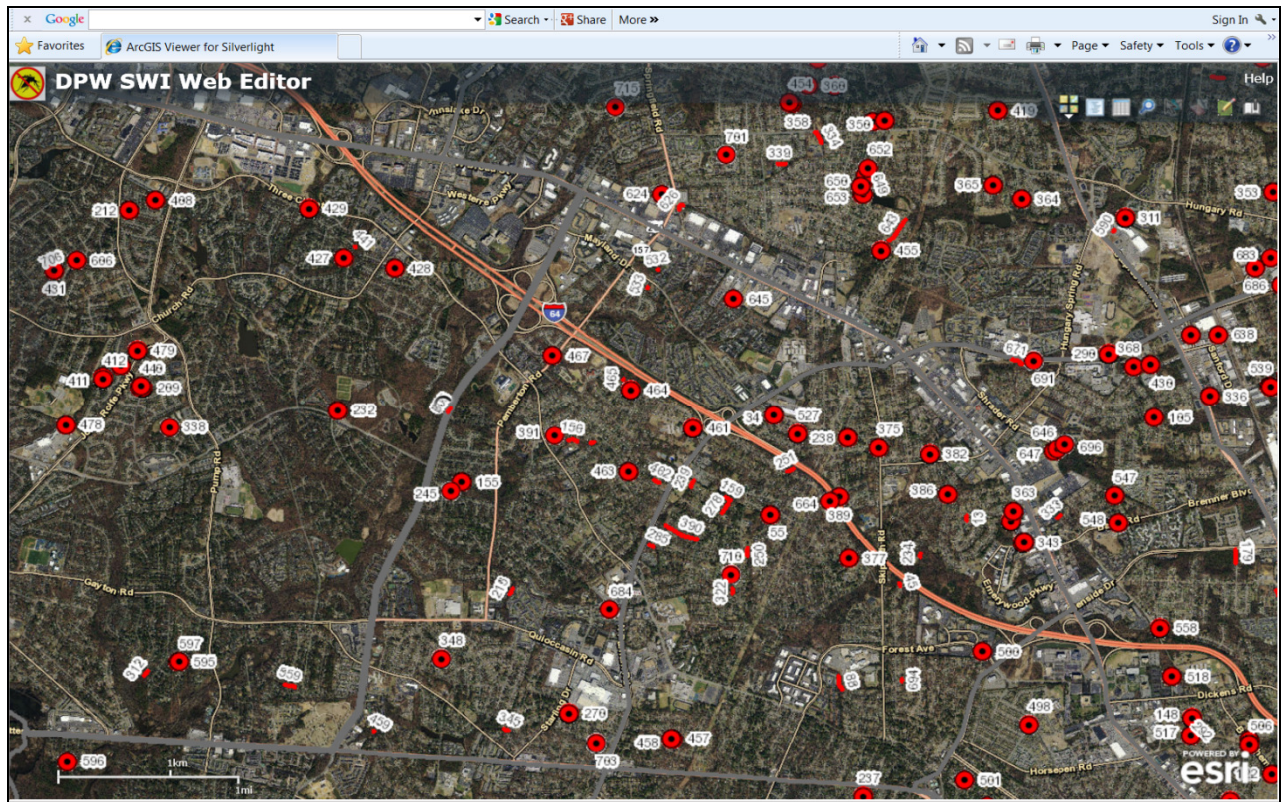
Figure 6. PESTICIDE APPLICATIONS AND TREATMENT SITE INSPECTION FINDINGS

Figure 7. PESTICIDE TOTALS BY DATE

Figure 8. MULTI-YEAR MOSQUITO COLLECTION TOTALS

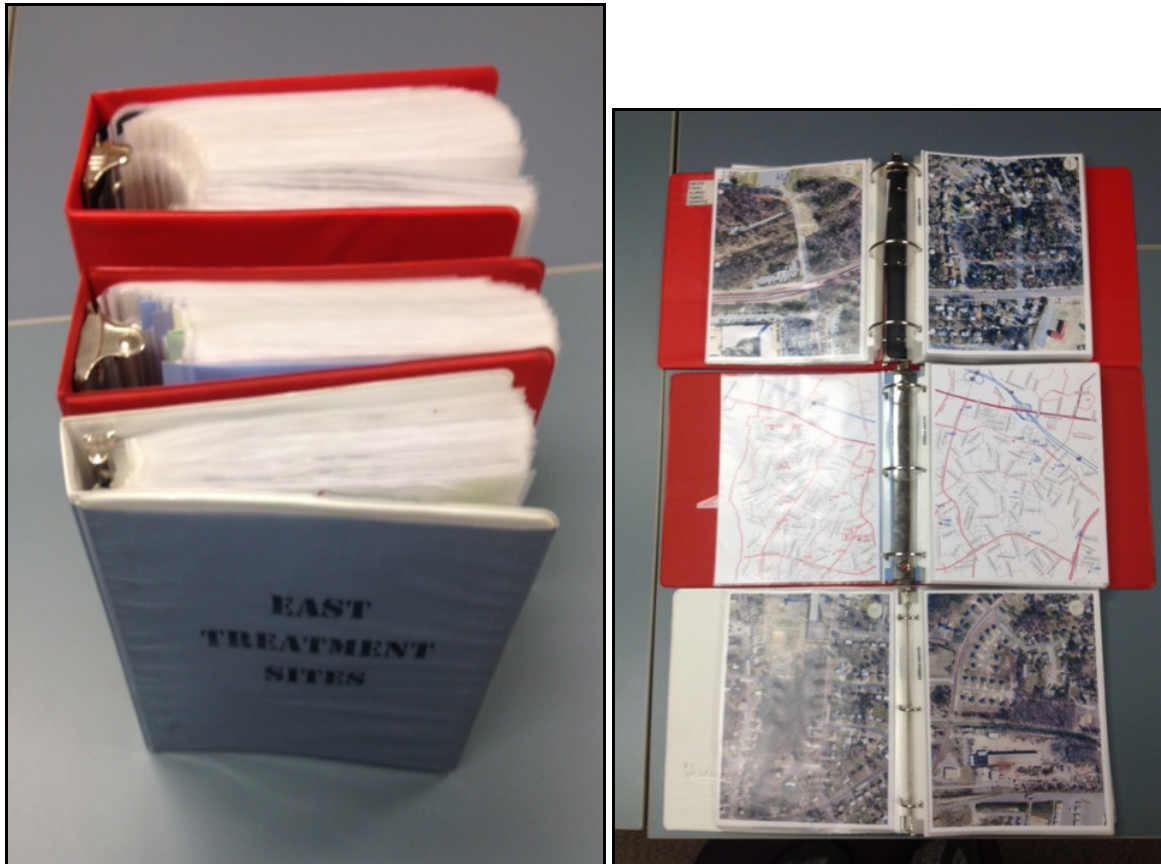
Figure 9. COMPLAINT TYPES

FIGURE 1. WEB-BASED, MOBILE MAPPING APPLICATION



Increases efficiency in the field and replaces large binders of individually-printed, hard copy aerial maps.

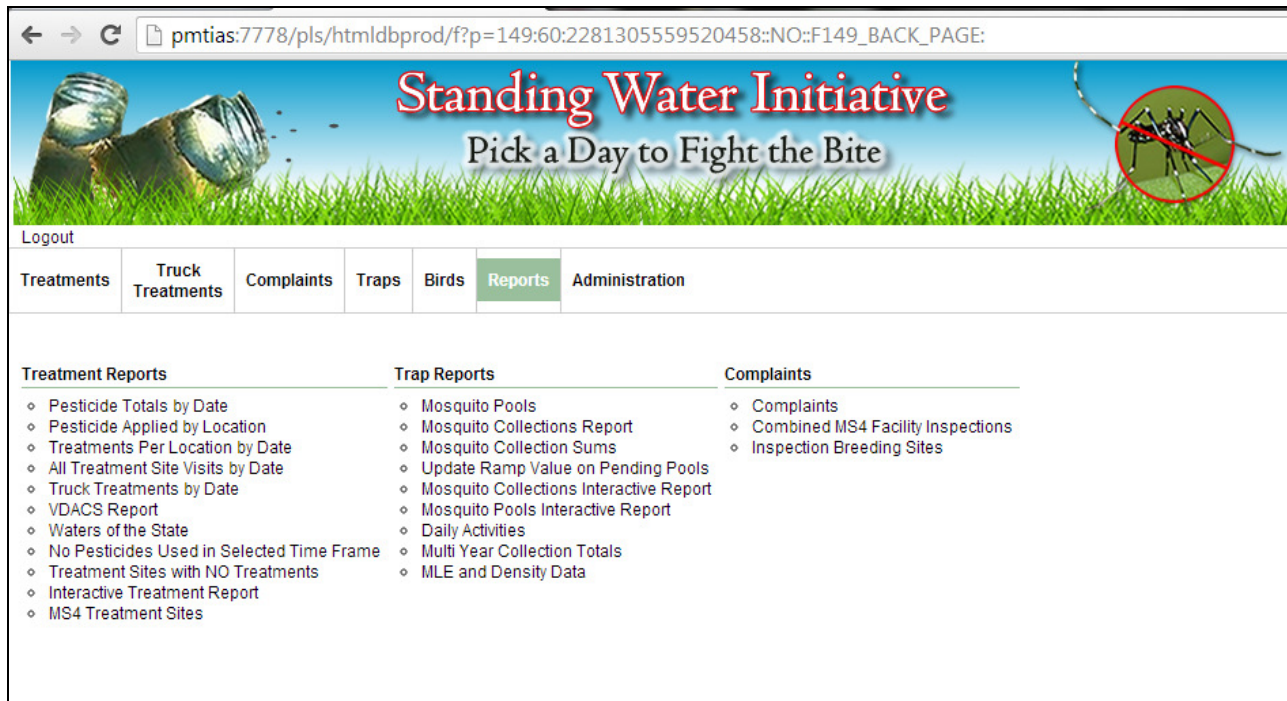
FIGURE 2. PRE MOBILE APPLICATION MAP BINDERS



Large binders of individually-printed, hard copy aerial maps were tedious.

Constant in-office updates decreased valuable field time. The SWIMA provides the same information in one on-line screen (see Figure 1).


FIGURE 3. CUSTOMIZED REPORTS



Reports save numerous hours previously spent on spreadsheet manipulation and calculations.

FIGURE 4. DAILY COMPLAINT NOTIFICATION

← → ↻ pmtias:7778/pls/htmlbprod/f?p=149:30:300424575372318:NO



Standing Water Initiative
Pick a Day to Fight the Bite

Logout

There has been 1 complaint(s) entered today. ← **Daily notification of new citizen complaints**

Treatments Truck Treatments Complaints Traps Birds Reports Administration

Treatment Sites [Add Treatment Site](#)

Site Desc Treatment Block Site Type Site ID [Go](#)

View Records [Clear Search](#)


Treatments	Site ID	Site Desc	Block	OID	Area Sqft	Site Type	Material	Last Treatment	Edit Site
	397	12313 Morning Creek Rd - Inlet	C1	406	16	INLET	CONCRETE	09/09/2013	Edit
	398	12200 Wyndham Lake Dr. - End Treatment (See Notes)	C1	407	100	END TREATMENT	VEGETATED	09/09/2013	Edit
	399	12316 Creek Mill Pl. - Inlet	C1	408	16	INLET	CONCRETE	09/06/2013	Edit
	400	5513 Woolshire Pl. - Inlet (See Notes)	C1	409	16	INLET	CONCRETE	09/06/2013	Edit
	401	5513 Woolshire Pl. - Inlet (See Notes)	C1	410	16	INLET	CONCRETE	09/06/2013	Edit
	402	5512 Woolshire Pl. - End Treatment (See Notes)	C1	411	25	END TREATMENT	VEGETATED	09/06/2013	Edit
	403	5629 Stoneacre Pl. - Inlet (See Notes)	C1	412	36	INLET	VEGETATED	09/09/2013	Edit
	406	5105 Windy Hollow Ct. - Inlet (See Notes)	C1	415	16	INLET	CONCRETE	09/06/2013	Edit
	407	5104 Windy Hollow Ct. - End Treatment (See Notes)	C1	416	25	END TREATMENT	VEGETATED	09/06/2013	Edit
	549	11820 Park Forest Way - BMP (See Notes)	C1	565	25	BMP	VEGETATED	09/06/2013	Edit
	316	12113 and 12119 Country Hills Ct	C1	322	100	ROADSIDE DITCH	VEGETATED	06/15/2011	Edit
	468	11816 Mason Park Way - End Treatment	C1	483	50	END TREATMENT	VEGETATED	09/06/2013	Edit
	469	5232 Drystack Ln. - End Treatment (See Notes)	C1	484	35	END TREATMENT	VEGETATED	09/06/2013	Edit
	667	11820 Norwich Pl. - End Treatment to the left of the driveway	C1	685	120	END TREATMENT	VEGETATED	08/02/2013	Edit
	673	Next to 6200 Isleworth Dr at end of Dominion Club Dr - Channel	C1	691	300	CHANNEL	VEGETATED	08/07/2013	Edit

Spreadsheet

row(s) 1 - 15 of 572 [Next >](#)

New citizen complaints are real-time accessible from the field.

FIGURE 5. VDACS REPORT



Logout
There has been 1 complaint(s) entered today.

Treatments Truck Treatments Complaints Traps Birds Reports Administration

Back

VDACS Reporting Dates

Begin Date 01/01/2013
End Date 01/01/2014
Clear Search

Enter date range

Required Pesticide Application Records

Report Help

VDACS Report

Treatment Site	Applicator	Certification Number	Date of Application	Site Type	Pest Controlled	Applied Area (Sqft)	Pesticide	EPA Registration Number	Pesticide Applied	Application Rate	Application Equipment
2201 Craven Ln - Channel in woods next to this address.	CARR, LANE	93965-G	03/28/2013	Mosquito Breeding	Mosquito Larvae	421	VECTOMAX CG	73049-429	.096648 lbs	10	HAND SHAKER
10431 Woodman Rd - wetland at West End Depot between DPW & Fire Training	BUCHANAN, RANDY	74729-G	04/04/2013	Mosquito Breeding	Mosquito Larvae	3400	VECTOMAX CG	73049-429	1.561065 lbs	20	HAND SHAKER
4410 Penick Rd. wetlands behind property (see note)	CARR, LANE	93965-G	04/09/2013	Mosquito Breeding	Mosquito Larvae	55000	VECTOMAX CG	73049-429	12.626263 lbs	10	HAND SHAKER
1001 N Laburnum Ave - Wetlands at Fairfield Library	BUCHANAN, RANDY	74729-G	04/09/2013	Mosquito Breeding	Mosquito Larvae	43472	VECTOMAX CG	73049-429	9.979798 lbs	10	HAND SHAKER
4306 S. Laburnum Ave - BMPs - Beside Applebees Parking lot (See Notes)	ROBINSON, BRANDON	121280-T	04/17/2013	Mosquito Breeding	Mosquito Larvae	1255	NATULAR T-30	8329-85	13 tab	1	BY HAND
2617 Harvie Rd - Inlet at Carlton Rd	ROBINSON, BRANDON	121280-T	04/18/2013	Mosquito Breeding	Mosquito Larvae	16	NATULAR T-30	8329-85	1 tab	1	BY HAND
Carlton Rd (Glenwood Farms Apts) - Inlet near Harvie Rd	ROBINSON, BRANDON	121280-T	04/18/2013	Mosquito Breeding	Mosquito Larvae	16	NATULAR T-30	8329-85	1 tab	1	BY HAND
SE Corner of Laburnum & Howard Rd - Inlet	ROBINSON, BRANDON	121280-T	04/18/2013	Mosquito Breeding	Mosquito Larvae	16	NATULAR T-30	8329-85	1 tab	1	BY HAND
3508 Carlton Rd - Channel runs from back of property to street corner	ROBINSON, BRANDON	121280-T	04/18/2013	Mosquito Breeding	Mosquito Larvae	40	VECTOMAX CG	73049-429	.009183 lbs	10	HAND SHAKER
600 & 514 Luther Rd - Channel at the end of Roberts Ave. behind homes	ROBINSON, BRANDON	121280-T	04/19/2013	Mosquito Breeding	Mosquito Larvae	1992	AGNIQUE MMF (LIQUID)	53263-28	2.02586 fl oz	45	HANDHELD SPRAYER
45 S AIRPORT DR - BMP (Underground detention) at Dollar General. Enter off Nine Mile, check inlets and access ports	ROBINSON, BRANDON	121280-T	04/19/2013	Mosquito Breeding	Mosquito Larvae	30	NATULAR T-30	8329-85	1 tab	1	BY HAND
5203 Hollymead Dr - Inlet	ROBINSON, BRANDON	121280-T	04/19/2013	Mosquito Breeding	Mosquito Larvae	16	NATULAR T-30	8329-85	1 tab	1	BY HAND
208 Carlstone Dr. - Inlet	ROBINSON, BRANDON	121280-T	04/19/2013	Mosquito Breeding	Mosquito Larvae	16	NATULAR T-30	8329-85	1 tab	1	BY HAND
2490 Charles City Rd. - Inlet (See Notes)	ROBINSON, BRANDON	121280-T	04/22/2013	Mosquito Breeding	Mosquito Larvae	5	NATULAR T-30	8329-85	1 tab	1	BY HAND
5209 ART AVE - Inlet near intersection with Brandonview Ave	ROBINSON, BRANDON	121280-T	04/22/2013	Mosquito Breeding	Mosquito Larvae	5	NATULAR T-30	8329-85	1 tab	1	BY HAND

Spreadsheet
rows 1 - 16 of 1248

State record keeping requirements are stored in one, organized table and can be viewed for a given date range.

FIGURE 6. PESTICIDE APPLICATIONS AND TREATMENT SITE INSPECTION FINDINGS

The screenshot displays the 'Standing Water Initiative' mobile application interface. At the top, there is a banner with the text 'Standing Water Initiative' and 'Pick a Day to Fight the Bite'. Below the banner, there is a navigation bar with tabs: Treatments, Truck Treatments, Complaints, Traps, Birds, Reports, and Administration. The 'Treatments' tab is selected.

The main form is titled 'Maintain Treatments' and includes the following fields and sections:

- Site ID:** 628
- Site Area:** 16
- Treatment Date:** 08/14/2013
- Applicator:** ROBINSON, BRANDON
- Notes:** (Text area)
- Findings (One Selection is Required):**
 - ☐ Dry
 - ☒ Larvae
 - ☐ Egg Rafts
 - ☐ Wet - No Larvae
 - ☐ Pupae
 - ☒ MS4 Inspection
 - ☐ Wet - Inaccessible
 - ☐ Adults
 - ☐ Pro Active
 - ☐ Flowing
- Pesticide Applied:**
 - Pesticide:** VECTOMAX CG
 - Application Equipment:** HAND SHAKER
 - Area:** 16
 - Application Rate 5- 20 LBS/ACRE:**
 - Rate Applied:** 10
 - Total Pesticide Applied:** .003673
- Secondary Pesticide:**
 - Pesticide:** N/A
 - Application Equipment:** N/A
 - Secondary Area:**
 - Application Rate:**
 - Secondary Rate:**
 - Total Secondary Applied:**
- Expire:**
- Last Change:** 08/14/2013 by ROB100

Red arrows point to the following fields, indicating auto-population and calculations:

- Pesticide:** VECTOMAX CG
- Application Equipment:** HAND SHAKER
- Rate Applied:** 10
- Total Pesticide Applied:** .003673

Annotations on the right side of the form:

- Auto populated depending on which pesticide used** (points to Pesticide and Application Equipment)
- Amount of pesticide applied is automatically calculated** (points to Rate Applied and Total Pesticide Applied)

Form is consistent with regulatory agency's reporting requirements. Real time and built-in calculations eliminate error and save time.

FIGURE 7. PESTICIDE TOTALS BY DATE

← → ↻ pmtias:7778/pls/htmlbprod/f?p=149:63:2281305559520458::NO:RP:F149_BACK_PAGE,P63_BOOKMARK:60,

Pick a Day to Fight the Bite

Logout

Treatments Truck Treatments Complaints Traps Birds Reports Administration

[Back](#)

Pesticides Applied Between Dates

▪ Begin Date **Choose date range**

▪ End Date

[Clear Search](#)

[Report Help](#)

Pesticide Totals by Date

Pesticide	EPA Regulation Number	Total Pesticide Applied	Total Sqft Treated
AGNIQUE MMF (LIQUID)	53263-28	52.298554 fl oz	50,625
ALTOSID PELLETS	27224-448	.025597 lbs	223
ALTOSID XRB	2724-421	10 briq	312
AQUABAC 200 G	62637-3	3.298099 lbs	28,733
NATULAR T-30	8329-85	388 tab	7,276
NATULAR XRT	8329-84	27 tab	567
SUSTAIN MBG	769-992	.009183 lbs	80
VECTOBAC WDG	73049-56	.250312 lbs	21,807
VECTOLEX WDG	73049-57	.492239 lbs	21,442
VECTOLEX WSP	73049-20	1 wsp	25
VECTOMAX CG	73049-429	101.829764 lbs	440,421
VECTOMAX FG	73049-429	2.488062 lbs	10,838
VECTOMAX WSP	73049-429	199 wsp	5,306

[Spreadsheet](#) **Report tables can be downloaded to Excel for further analysis**

Pesticide Applied Details

Pesticide

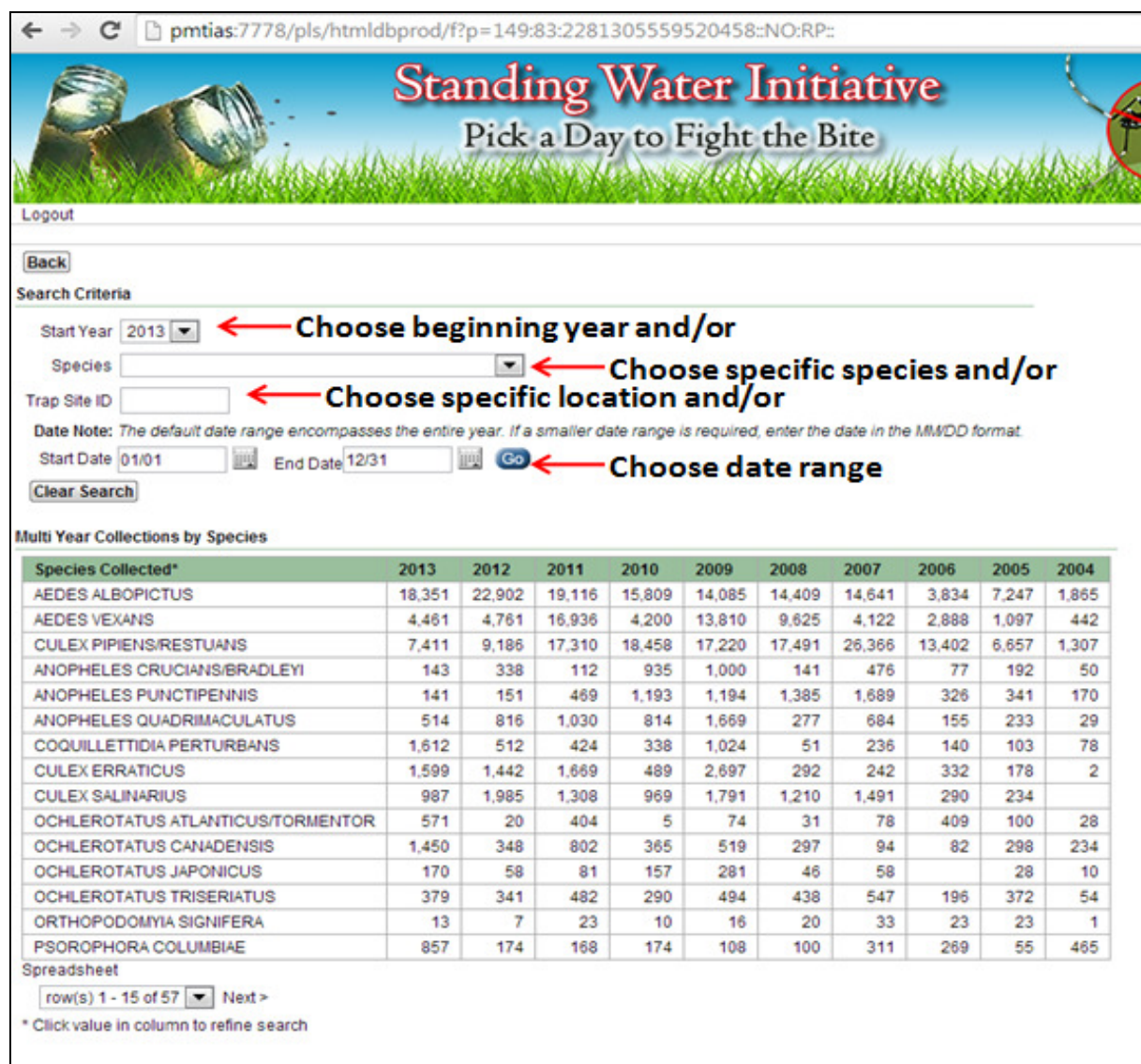
Site Id	Site Desc	*Pesticide	EPA Registration #	Pesticide Applied Qty	Treated Area (Sqft)	Treatment Date	WOS
1	800 Timken Dr. - Main (See Note)	VECTOMAX CG	73049-429	.045914 lbs	200	07/30/2013	YES
7	3614 Harris Ave - Alley behind home, access from Rescue Ave.	VECTOMAX WSP	73049-429	2 wsp	100	07/26/2013	YES
12	2800 Greenway Ave. alley behind home	VECTOMAX CG	73049-429	.034435 lbs	150	05/02/2013	YES
12	2800 Greenway Ave. alley behind home	VECTOMAX CG	73049-429	.002296 lbs	10	05/28/2013	YES
12	2800 Greenway Ave. alley behind home	AQUABAC 200 G	62637-3	.017218 lbs	150	06/11/2013	YES
12	2800 Greenway Ave. alley behind home	VECTOMAX CG	73049-429	.002296 lbs	10	07/17/2013	YES
13	2414 Sunnysbrook Rd. - Channel (See Notes)	VECTOMAX CG	73049-429	.034435 lbs	150	07/22/2013	YES
13	2414 Sunnysbrook Rd. - Channel (See Notes)	VECTOMAX CG	73049-429	.009183 lbs	40	09/04/2013	YES
18	4410 Penick Rd. wetlands behind property (see note)	VECTOMAX CG	73049-429	12.626263 lbs	55000	04/09/2013	YES
18	4410 Penick Rd. wetlands behind property (see note)	AGNIQUE MMF (LIQUID)	53263-28	45 fl oz	43560	05/30/2013	YES
18	4410 Penick Rd. wetlands behind property (see note)	VECTOMAX CG	73049-429	1.147842 lbs	5000	08/15/2013	YES
18	4410 Penick Rd. wetlands behind property (see note)	VECTOMAX CG	73049-429	5.73921 lbs	25000	08/30/2013	YES
19	6717 East Davista Ave - Channel behind home (see note)	VECTOMAX CG	73049-429	.057392 lbs	250	06/11/2013	YES
19	6717 East Davista Ave - Channel behind home (see note)	AGNIQUE MMF (LIQUID)	53263-28	258264 fl oz	250	07/23/2013	YES
33	11849 Blandfield Street - Inlet (See Note)	NATULAR XRT	8329-84	1 tab	64	05/29/2013	YES

[Spreadsheet](#)

row(s) 1 - 15 of 1246

Helpful for permitting requirements, budget predictions and date range comparisons.

FIGURE 8. MULTI-YEAR MOSQUITO COLLECTION TOTALS



Tracks mosquito populations, public health risk and annual collection data.

FIGURE 9. COMPLAINT TYPES

How many drainage-related complaints in 2013?

Standing Water Initiative
Pick a Day to Fight the Bite

Logout

Treatments Truck Treatments Complaints Traps Birds Reports Administration

Back Choose year

Complaints

Number Year 2013 Resolved -Select- Response By -Select- Begin Date End Date ☐ Expired Only

☐ Alley ☐ BMP ☐ Containers ☒ Drainage ☐ Grading ☐ Mailing Response ☐ Mosquitoes ☐ MS4 ☐ Other ☐ Rootball ☐ Sink Hole ☐ Swimming Pool ☐ Tires ☐ Wetlands

☐ Email Sent ☐ Neighborhood Mailing ☐ Postal Sent

Clear Search Choose complaint type

View Status	Complaint Number	Complaint Location	Date Received	Complainant	Complaint Resolved	Response By	Nature Of Complaint	Information Sent
	13-247	12912 Kain Rd	12/11/2013	MUSTAFA, MR.	YES	MULLIGAN, JOHN	Drainage Concerns	
	13-246	1805 Rolfe Way	12/09/2013	WILSON, MR.	YES	BUCHANAN, RANDY	Drainage Concerns	
	13-245	9744 Old Dell Trace	11/19/2013	MORRIS, SCOT	NO	BUCHANAN, RANDY	Drainage Concerns	
	13-244	10501 GLENCOE RD	06/11/2013	SIMMONS, JANIE & JIM	YES	CARR, LANE	Drainage Concerns	
	13-243	12700 & 12706 Sawdust DR	11/05/2013	WOOD, ANN	YES	MULLIGAN, JOHN	Drainage Concerns	
	13-242	8301 Colemant CT	11/05/2013	OUN, TRELANE	YES	RUHLEN, TERRY	Drainage Concerns, Grading	
	13-241	11661 New Wade LN	10/31/2013	URBAN, FOREST	YES	CARR, LANE	Drainage Concerns, Grading	
	13-240	4241 Mountain Grove Rd	10/22/2013	ONG, MRS.	YES	CARR, LANE	Drainage Concerns	
	13-239	405 Wishhart Ct	10/18/2013	NUNNELLY, WARD	YES	BUCHANAN, RANDY	Drainage Concerns	Email Sent
	13-238	11044 Slenderleaf Dr	10/17/2013	SMITH, DONTE	YES	CARR, LANE	Drainage Concerns	
	13-237	332 Flicker Dr	10/16/2013	O'KEEFFE, FRANCIS J & M	YES	BUCHANAN, RANDY	Drainage Concerns	
	13-236	326 Flicker Dr	10/16/2013	TAYLOR, QUEEN	YES	BUCHANAN, RANDY	Drainage Concerns	
	13-231	3 Glenbrook CIR E	09/26/2013	SHIRLEY, CLAIRE	YES	BUCHANAN, RANDY	Drainage Concerns	
	13-222	10001 Patterson Ave	09/19/2013	LANCASTER, ROBERT	YES	BUCHANAN, RANDY	Drainage Concerns	
	13-220	2105 Old Prescott Pl	09/17/2013	PAGANO, MELLANI	YES	BUCHANAN, RANDY	Drainage Concerns	Email Sent

Spreadsheet

row(s) 1 - 15 of 185 Next > 185 drainage-related citizen complaints

2013 Complaint Totals

Year	Number of Complaints	Unresolved	Resolved
2013	326	14	312

326 total citizen complaints