Orange County Vector Control – Research for Mobile App Development

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Summary

My primary take-away was that the greatest value would be gained by simplifying the basic management of data. OCVC needs a system that allows for a simple, unified method of data entry, storage, and access. Currently, each member of OCVC employs a system of their own design to manage data. The proprietary nature of these systems make sharing and collaboration a challenge. All data is eventually entered in to the agency's database (TOPO) which funnels all data in a single direction. (The joke around the offices is that "Data goes in but it doesn't come out"). There is a single employee who is responsible for accessing this database. Therefore, all requests for service details, site histories, or analytics reports have a turn-around period that is too long to provide timely value.

Assumptions and Findings

Assumption: The ability to generate routes based on the tech's daily task list would be desirable.

Findings: Techs have freedom to choose which jobs they do each day and tend to plan their own routes accordingly. Therefore, at this iteration, an automatic route generation feature would have little to no value.

Assumption: Assignment of Work Orders would be handled by drawing a region on the map and assigning a tech the SRs and ITs that fall within that selection.

Findings: Techs are pre-assigned to zones by vector type so the above workflow would not be used.

Assumption: A "Chemical Calculator" would be a valuable work request application as it would allow a tech to have an accurate picture of the type and amount of chemicals needed for the day's route.

Findings: Tech load their trucks to the "max level" for each chemical they use. They only reload if the levels fall below what they feel is required for that day's route. The "Calculator" would provide more value if used for data validation when the tech enters the chemicals they've used into their site report.

Assumption: Access to a site's treatment history would have value.

Findings: Confirmed. At present, once a report is submitted, it is a multi-step, multi-department process to get it back.

User Profiles

Monica

Seasonal Employee: Works 6 months out of the year, 3rd season on the job, background is non-related, receives training.

Responsibilities:

- Sprays for mosquitoes along gutters that have been designated as "hot" (known breeding sites).
- Treats sections of gutters where she observes standing water/wet debris.
- Treats areas of standing water off the street with either a portable sprayer or chemical tablets
- Collects and logs dead crows
- Collects and logs dead red-tail squirrels

Current Workflow:

- Has an established route which she follows completing one cycle per month.
- All cities in Orange County are covered by 9 seasonal employees that do what Monica does.
- Routes are divided into quadrants (based on Thomas Guide) and assigned by Supervisors. These routes don't change.
- Each quadrant is printed and marked in red pen to designate "regular" and "hot" areas
- Quadrants contain different numbers of sites. Some quadrants have none.
    - Each employee is responsible for planning their own route and will organize their "quadrant stack" based on that
- Monica adds Post-It type arrows to her maps to keep notes. Arrows vary in color and allow for hand notation
    - Post-Its accumulate over her 6 months employment period
    - The next season brings fresh maps without the previous season's notation
- When Monica picks up a dead crow, she fills out a form
- When she picks up a dead squirrel, she fills out a form
- At the end of the day Monica fills out a daily report which includes:
    - Start and End times
    - Area covered
    - Chemicals applied and amount used
- She calculates chemical usage by measuring (or counting) the remaining chemicals and subtracting that number from the amount she began the day with.
- Prior to the next day's route, Monica enters her daily report and notes into the OCVC system through a computer located at OCVC headquarters

Inefficiencies:

- Each employee has their own system for processing tasks and record keeping
- Taking over another route (even temporarily) requires time to become familiar with another employee's system
- Data entry is multi-method and is location dependent
- Site and treatment histories are not readily available

Takeaways:

- Ease of entering data in a simple and consistent manner would be of high value
- The ability to log daily reports from the field would increase efficiency

Kara & Leslie

Dispatchers: Work the front desk. Interface with the public over the phone, email, and in-person. Enter service requests into the system.

Responsibilities:

- Takes service requests over the phone from county residents and enter the information into the system
- Enter service requests into the system that were received via email through the online submission form
- Handle request for and provide mosquito-eating fish to county residents who opt for on-site pickup.
- Lookup Service Request history for internal use

Current Workflow:

- When a call comes in, either the site address or caller's phone number can be entered to determine if the site already exists in the system
    - If there is no record of the site, a new site is created
    - If the site exists, a list of past service requests is displayed
        - If a prior SR matches the current issue, the SR is re-activated
        - If there are no matching SRs, a new SR is created
- Service Requests submitted via the online form are collected and entered using the same process as above
- If a request is received that OCVC does not handle, Kara and Leslie contact the resident to let them know
- When a resident requests a fish pick-up
    - Kara or Leslie create a new SR, mark it as complete, and schedule a follow-up
    - After the resident picks up the fish, the follow-up is marked as closed

Inefficiencies:

- There is no way to edit or remove sites from the system
- The system cannot be searched by Service Request #
    - Reports can only be generated by date so, if a specific SR is needed, the report would include all SRs from that day
- Certain locations have no addressing and require a Thomas Guide lookup and a lat/long entry.

Takeaways:

- The Dispatcher's job is simple and straightforward so improvements to data entry and management would provide the highest value

Kit

Works in the Lab: Studies mosquito populations, crow deaths, cases of West Nile Virus.

Responsibilities:

- Track cases of West Nile Virus among mosquitoes, animals, and humans.

- Plots cases on a map for presentational purposes

Current Workflow:

- Relies on Vector Control for accurate reporting of data

Inefficiencies:

- New reports take time and effort to get into a usable form that can be used for lab purposes

Takeaways:

- Despite the fact that most Lab-specific use cases are outside the spec of the Vector Control app v.1.0, there is still value for the Lab
    - Ability to access pertinent data after its been entered and synced to the server
    - Specific data types/values can be "flagged" for immediate notification to the Lab
    - "Notes" would provide added value to the data they use
- Expressed interest in the type of features that already exist in LandVision
    - Loading multiple, custom layers
    - Access to custom configuration
    - Use captured data to generate presentational maps

John

Tech 2 - Residential: Inspects and treats for mosquitoes and rats. Works assigned zone processing regular treatments (ITs), service requests (SRs) and residential pools.

Responsibilities:

- Inspect and treat flood channels for mosquitoes
- Inspect and treat pools for mosquitoes
- Take specimen samples for lab testing from areas of heavy mosquito activity
- Respond to residential service requests

Current Workflow:

- Has an established route which he follows completing one complete cycle per month.
- Uses printed map with the address of each service request highlighted with a dot
- Notes are added by hand on or alongside the map
- After a SR is completed, he writes job data and notes onto a form after returning to the truck.
- Sets follow-up dates which he enters, along with all other data, into his own spreadsheet for record keeping
- Prior to the next day's route, John enters his daily report and notes into the OCVC system through a computer located at OCVC headquarters

Inefficiencies:

- Job data is spread across multiple printouts and binders
- Site history is dependent on John's notes and recollections

Takeaways:

- John stated multiple times that his job was "not that hard"
- Stated that the most benefit would be gained from a system that gets the "basics" right.
- Interest in a simple system for entering and accessing data

- Value in the ability to query a buffer around a site for specific types or conditions over a set time period