



WEST SENECA DEER MANAGEMENT PLAN

COMPLETED MAY 2022

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TABLE OF CONTENTS

- Introduction and Background* 2**
- Need*..... 2**
- Measures*..... 3**
- Deer Management Options and Recommendations* 4**
 - Deer Car Collisions..... 4**
 - Biodiversity 5**
 - Damage to Private Property 5**
 - Damage to Crops 5**
- Deer Management Plan*..... 5**
 - Phase 1..... 6**
 - Education – For the broad West Seneca Public..... 6
 - Deer Habitat Zones – Focused activities in problem zones 7
 - Data Management..... 7
 - Phase 2..... 7**
 - Reduction Methods 7
- Timeline*..... 8**

INTRODUCTION AND BACKGROUND

In response to escalating complaints from town residents, the West Seneca Town Board conducted a survey of residents regarding deer-human interactions. The Town Board then decided to establish the West Seneca Deer Task Force in order to explore ways to address deer-human conflict, solicit community feedback on possible solutions, educate itself and the public on all manner of management options, and make recommendations to the Town Board on how to address the matter. In May 2021 The 10-member volunteer Task Force was assembled with the goal of inclusion and objectivity, bringing together concerned residents and a broad range of individuals with relevant education and/or professional expertise. The Task Force has solicited feedback from residents via letters, opportunities to speak at meetings, and a second, more comprehensive online survey. The Task Force members each conducted research in order to understand best practices for deer management, and the situation for deer, human, and environmental health. This research included outreach to area towns to discuss their management plans and other subject matter experts. Materials were gathered from Town departments. The Task Force simultaneously invited additional subject matter experts to present their knowledge and experience on the topic of Community Deer Management, including Ryan D. Rockefeller, Wildlife Biologist 1 – Big Game, NYS Department of Environmental Conservation and Kristina Ferrare, Forestry Program Specialist, Cornell Cooperative Extension Onondaga County. This Plan is being shared with the Community in May 2022.

The Task Force recognizes that there are very strong feelings around Deer Management, and what actions (if any) West Seneca should take. In many ways the deer in our Town enhance the quality of life for residents, however there are many who feel that a more active management plan for the deer population has become necessary for a variety of reasons. The members of the West Seneca Deer Task Force take their obligation to the community and the deer themselves very seriously, and each member has volunteered countless hours to educate him/herself on the successes and failures of communities that have undertaken Deer Management before us. We acknowledge the significant work completed by other area Towns, and specifically Amherst, whose plan provides us with methods that we are recommending.

In order to provide credibility to the work of the Task Force and to build consensus that a fair, and objective evaluation was completed, we began with every Deer Management option on the table and set about educating ourselves to the pros and cons of each. A comprehensive table of these options (**Attachment A**) is included in this plan along with the rationale for why each option was considered viable for our Town or not.

During our active listening period, it became clear that a wide range of opinions, experiences, and unsupported information were being brought to the Task Force. In response to the variety of information, the Task Force has compiled a *Frequently Asked Questions (FAQ)* document, including references listing sources of data and research. (**Attachment B**). The intention with this document is to provide a consistent base of knowledge to frame the recommendations made by the Task Force.

NEED

Through the surveys conducted, emails, letters, and public listening sessions, it became clear that West Seneca is divided on the need to address the deer population as it affects human experience.

Our public survey indicated that 33.5% of respondents did not perceive any issue with deer, 33.9% believed that deer have become too abundant, and some action is needed, and 32.2% perceived deer as a serious nuisance issue. However, 72% of respondents indicated they had personally experienced some deer-related issue, with yard

and plant damage being the common concern. Survey respondents were also divided in regard to how deer in West Seneca should be managed, with 45% in support of a culling program to control deer numbers, 25% opposed to such actions, and the remaining 30% preferring to attempt nonlethal management before other approaches are used, or feeling that they needed to learn more about the issue before supporting a plan of action.

Task Force members understand and agree that having deer in our Town is part of what makes it a place we want to live. We also learned from both our specialists, and from Town resident experiences shared, that there are situations where deer are negatively impacting both human experience and the environment. (Survey Responses **Attachment C**)

We learned that while feeding deer is a favorite activity for many West Seneca residents, doing so is actually illegal in all of the State of New York. We also learned that human feeding of deer can adversely impact deer health, change their natural patterns of travel through neighborhoods, and cause deer to lose their natural fear of humans which can have additional consequences that are ultimately harmful to the deer.

We learned that deer consume gardens, shrubs, landscaping, and trees in residents' yards at a rate that is concerning/frustrating to many residents. We also learned that specific choices about what is planted can have a significant impact on how much attention the plants receive from deer. Additionally, various methods for fencing and the use of other deterrents both impact damage done to gardens and landscaping. Some residents have experienced a very significant impact on agriculture.

We learned that some residents feel the experience of their yards is severely impacted due to the abundance of deer, or more specifically, the substantial fecal droppings they leave. Residents fear ticks and Lyme disease, and that deer feces may impact their domestic animals and families' health. We also learned that the occurrence of Lyme disease in humans in Erie County is fairly limited, and that Lyme disease is dependent on animals in addition to deer, like field mice, to transmit ticks.

We learned that residents are concerned that continued development of the Town is impacting available green space for deer to travel without impacting residences and traffic.

Finally, we learned that there are a significant number of deer related car accidents, and that deceased deer are often found on private property.

MEASURES

The Deer Task Force understands that it would be unreasonable to recommend Management approaches without also recommending measures in order to determine if the Management Plan implementation is being successful. We propose that several of the following measures be used in order to monitor success:

- West Seneca Police Department Annual Report on Deer / Car Accidents Including GIS Data 2018-2021. Prepared by Erie Crime Analysis Center (**Attachment D** sample data – 6 Month/ Annual Report establishment plus GIS data)
- NYS Thruway Authority (**E.1**) and NYS Department of Transportation (**E.2**) Report of Animal Crashes Routes 90, 219, 400, and other West Seneca roads 2015-2021 (**Attachment E.1 and E.2** sample data - Annual Report establishment plus GIS data)

- West Seneca Highway Department Annual Report on Deer Calls – (**Attachment F** sample data - 6 Month/ Annual Report including GIS data)
- NYS DEC Reports on Deer complaints in Town of West Seneca – This data would require a FOIL request by the Town.
- Insurance Companies or AAA annual data report on deer caused incidents leading to insurance claims in West Seneca – Recommended that the Town requests this data.
- Annual survey of West Seneca Residents issued each year in November in order to track resident experience, implemented by Robin L. Foster, PhD, Assistant Professor, Animal Behavior, Ecology and Conservation, Canisius College (**Attachment C**)
- Annual Plant Life survey key contact Brittany Hernon (**Attachment G**)

DEER MANAGEMENT OPTIONS AND RECOMMENDATIONS

The Deer Task Force recommends a two-phased approach to Deer Management in West Seneca. We recommend that we begin with education, law enforcement, and traffic modifications for one year, beginning in July 2022. There would be an evaluation of outcomes 1.5 years later, in January 2024, after a second and third survey have been completed, and annual reports will be available for 2022 and 2023 for review. At that time, if there has been no significant improvement in resident experience with deer interactions, we recommend a cull program.

In order to successfully monitor progress, we recommend that a Town staff member be assigned management of education and measurement efforts to support our recommendations.

DEER CAR COLLISIONS

1. Coordinate efforts with West Seneca Police and Highway Departments, Insurance Companies/ AAA, and NYS Sheriff for annual reports, in order to improve signage and roadside deterrents as necessary, and to establish and maintain a GIS database collision locations report.
2. Define a "hot spot" zone as a road segment wherein five or more deer/car collisions have occurred in one calendar year.
3. Installation of traffic safety devices and signage throughout the Town as indicated by the GIS maps targeting those areas of highest numbers of car/deer collisions. In addition, warning signs should be installed in areas where visibility, vegetation, and deer presence/passage are a concern.
4. Adopt an ordinance that allows West Seneca Police to enforce the New York State Environmental Conservation Law 11-0505 which prohibits feeding or enticing deer to be fed.
5. Establish efforts with the AAA and timely "deer data" press releases for the purpose of educating the public (not just residents) about driving defensively in areas of high deer concentrations.
6. Cut back roadside vegetation from August - October on easements in Deer Habitat Zones as identified by the GIS database. (Defined under Deer Management Plan)
7. Research road salt as an attractant to bringing deer to the roadside when ground is covered with snow.
8. Investigate different species of grasses not preferred by deer to be planted along rights of way.

BIODIVERSITY

1. Prevent damage by over-browsing of the habitat to the detriment of other plant and animal species.

DAMAGE TO PRIVATE PROPERTY

2. In Deer Habitat Zones where damage is occurring in excess of suggested thresholds, appropriate management techniques should be implemented. The survey (**Attachment G**) may be utilized in creating a benchmark threshold.
3. Coordinate with the WNY State Nursery and Landscape Association to establish a printed list of plant materials not preferred by deer, as well as a list of deterrents for homeowners and contractors to use. Both lists would be endorsed by the WNYSN/LA and made available to the public and landscape contractors through the Town of West Seneca and garden centers.
4. Inform residents that exceptions to zoning laws may be requested for fencing to prevent deer in yards.
5. Consider implementation of new zoning that prevents development within proximity of Greenway/ Preservation Areas as designated by the West Seneca 2016 Comprehensive Plan, as well as identified Deer Habitat Zones.

DAMAGE TO CROPS

1. Aid agricultural enterprises in minimizing damage to crops by maintaining a proactive approach to evaluating crop damage by deer. Facilitate this implementation in cooperation with the Cornell Cooperative Extension of Erie County and the NYS Department of Environmental Conservation.

DEER MANAGEMENT PLAN

The Task Force has considered a problem-centered approach based on the mitigation of the four areas of greatest concern to Town residents: Deer/vehicle accidents, damage to yards, agricultural losses, and damage to ecosystems. Specific recommendations will address these areas of concern. In addition, other issues will be considered as part of the overall framework and approach to deer management in the Town.

The plan has two phases.

PHASE 1

For the Management Plan to have real impact on resident experience in West Seneca, many years of consistent implementation will be required.

1. Assign facilitation of data, education, and deer/ human interactions monitoring to a Town staff member.
2. Budget a GIS Technician in the Computer Services Department and/or work with Robin Foster, PhD.
3. Initiate grant-funding requests to financially support the West Seneca Deer Management Plan.
4. Examine the possibility of establishing 4-6 distinct “Deer Habitat Zones” within West Seneca for the purpose of measuring the impact of various mitigation methods on resident perceptions in those areas.
5. Consider thresholds for:
 - a. Damage to private property
 - b. Damage to crops
 - c. Acceptable number of deer/car collisions

EDUCATION – FOR THE BROAD WEST SENECA PUBLIC

1. Develop policy for handling complaints of residents routinely feeding deer, potentially causing a "hot spot" accident zone, based on an educational approach using the database in the GIS.
2. Consider hiring a consultant or nonprofit partner to develop and provide education programs.
3. Adopt a local ordinance to allow West Seneca Police to ticket residents for feeding deer in violation of NYS Law.
4. Print and distribute an educational brochure to be distributed via the Town, Burchfield Nature & Art Center, West Seneca Chamber of Commerce, Library, Youth Services, Senior Center, additional services that connect broadly with the community, garden centers, and realtors, containing information on the following topics:
 - a. Why deer should not be fed
 - b. Living with deer in a suburban environment - why they are so numerous
 - c. Tips on avoiding deer/car collisions
 - d. Tips on minimizing deer damage to residential/ornamental plants including a list of deterrents and plants not preferred by deer for residents and contractors to use.
 - e. What is the West Seneca Deer Management Plan?
5. Design and put out signage in parks to discourage deer feeding.
6. Develop an audio-visual presentation available to the community via a link on the town website.
7. This plan and its supporting documents will be available for reference in the Town Library.
8. Have an education campaign that is continuous. Small advisory articles and maps every week in the West Seneca Bee or Sun during the rut season and possibly once a month during the rest of the year.
9. Develop a presentation format for introducing the Deer Management Plan to the community.
10. Implement education efforts with the AAA and WNY State Nursery and Landscape Association.
11. Videos that describe deer management methods shared and published by the Town and Library.

(Attachment H)

DEER HABITAT ZONES – FOCUSED ACTIVITIES IN PROBLEM ZONES

1. The division of the Town into Deer Habitat Zones for use in signage, monitoring and data collection, and changes in zoning laws.
2. Consideration of the impacts of continued development in the Town on the deer population.
3. Cut back roadside vegetation at rights-of-ways (State, County, Town) in habitat zones as identified by the database in the GIS data.
1. January 2023, define thresholds at which removal or population reduction in Deer Habitat Zones would be recommended. For example:
 - a. What is an acceptable number of accidents? What is the acceptable amount of damage?
 - b. What is the acceptable number of deer the habitat can support in each Deer Habitat Zone?
 - c. Define methods for achieving deer population size within these Deer Habitat Zones.

DATA MANAGEMENT

Utilizing the tools identified in Measures, the Town will review success of the project, and annually review definitions of success and threshold levels.

1. Install traffic safety devices (signage) throughout the town as indicated by the GIS maps targeting those areas where the highest numbers of car/deer accidents occur.
2. The Town should give unqualified support to each of the programs for an indefinite period of time to allow a comprehensive evaluation of their effectiveness. Collected data and results of the Deer Management Plan should be reviewed annually for effectiveness of the programs set forth by the plan. Trends for succession of vegetation, estimated growth rate of the Town, and estimated deer population growth should begin to be compared immediately.
3. Given the existing vegetation characteristics in West Seneca, clearly classify which of those cover types are considered as "deer habitat."
4. Nuisance permit, bait and shoot, and crop damage data should be overlaid with accident and death GIS data in order to analyze effectiveness to impact collisions, deer habitat, property damage, and deer nuisance permit.

PHASE 2

REDUCTION METHODS

The West Seneca Deer Task Force recommends the town implement education and traffic management methods with the identification of Deer habitat Zones and traffic management methods for 18 months – July 2022 – January 2024. In January 2024, the Town will evaluate and determine whether or not to recommend removal of deer to reduce the population.

A repeat of the November 2021 survey data: Our public survey indicated that 33.5% of respondents did not perceive any issue with deer, 33.9% believed that deer have become too abundant, and some action is needed,

and 32.2% perceived deer as a serious nuisance issue. However, 72% of respondents indicated they had personally experienced some deer-related issue, with yard and plant damage being the common concern. Survey respondents were also divided in regard to how deer in West Seneca should be managed, with 45% in support of a culling program to control deer numbers, 25% opposed to such actions, and the remaining 30% preferring to attempt nonlethal management before other approaches are used, or feeling that they needed to learn more about the issue before supporting a plan of action.

1. In response to 2022 and 2023 data compared with previous years, the Town will define thresholds that will trigger such a recommendation.
2. We recommend implementation of bait & shoot only in Deer Habitat Zones as identified by GIS gathered data.
3. Define a cull program to be implemented by volunteers, with specific trainings required. Specific methodologies to be defined with guidance from the NYS Department of Environmental Conservation.
4. Evaluate and monitor the NYS Department of Environmental Conservation nuisance permit program for effectiveness in Deer Habitat Zones.

TIMELINE

- July 2022 – Review 6 month and annual data; implement education and plant management programs
- January 2023 – Review annual data comparisons; implement ordinance, GIS data review, traffic signage
- February 2023 – Begin establishing the methods for a deer cull program in collaboration with NYS Department of Environmental Conservation
- July 2023 – Review 6 month and annual data
- January 2024 – Review annual data and decide actions regarding Phase 1 and Phase 2 of Management

Attachment A -- Deer Management Options

Non-Lethal		Task Force Findings
	Education	Resident surveys reveal a need for more education of many residents, (especially as it relates to the adverse effects of feeding wild deer) however the number of those who acknowledged that they would voluntarily participate in educational outreach was not encouraging. The challenge is devising an educational strategy for a population that thinks it knows enough.
	Relocation	Relocation involves the capture of wild deer through trapping or tranquilization, and transport to a partner municipality(ies) for release back into the wild. At the present time, NY Environmental Conservation Law §11-0505 (3) prohibits the trapping of deer except under special permit issued by the DEC for scientific purposes. Permits are not issued to relocate deer to the wild because acceptable release sites are not available and because the poor chances for deer survival do not warrant the risks.
Surgical Sterilization		
	Vasectomy	Vasectomy is the surgical sterilization of male deer. It has not been widely attempted because a single buck can impregnate many does. In order for a vasectomy program to be effective, a very high percentage of the bucks would have to be sterilized and that would be expensive and extremely difficult. Even if a large enough number was achieved, the unimpregnated does would re-cycle, thus extending the rut for months and pulling bucks from neighboring communities. Such a scenario would almost certainly increase deer vehicle collisions (DVC's) not to mention the added stress it would place on bucks, many of them surgically sterile yet still biologically driven to travel long distances to attempt to mate.
	Tubal Ligation	Tubal Ligation is one of two methods of surgical sterilization of female deer and involves the removal of the pathway (fallopian tubes) that eggs travel to achieve fertilization by sperm. All methods of fertility control are performed by specially trained veterinarians and are the most expensive means of deer population management. Does receiving tubal ligation still enter reproductive estrus repeatedly, thus stimulating local bucks to attempt to mate. This essentially extends the rut through the winter causing increased stress on both bucks and does that typically travel very little at this time of year to conserve energy.

	Ovariectomy	Ovariectomy involves the surgical removal of a female deer's ovaries. It is comparable in cost to tubal ligation and does not have the extended rutting consequence that tubal ligation brings. Does that receive ovariectomies do not enter estrus again in their lives.
Contraception		
	No oral contraceptives for deer	The Task Force was not able to identify a municipality that is using oral contraceptives on a wild free-ranging deer population. It is our understanding that oral contraceptives are not available for free ranging deer due to the uncertainty of consumption by non-target species and the inability to know which deer have consumed contraceptives or how much.
	PZP injectable	PZP is short for Porzine Zona Pellucida which is an injectable contraceptive that prevents fertilization of an egg. The formulation currently approved for use in NY State requires that the initial dose is followed by a booster 2-6 weeks later. This requires deer to be tranquilized and tagged for future identification purposes. The challenge with injectables is treating a large enough percentage of the population (approximately 75% of does) in order to achieve population reduction over time. Also, it is worth noting that any population decline that can be achieved is done so over a period of several years and will be at least partially offset by inward migration of unsterilized animals from neighboring communities.
	GonaCon injectable	GonaCon is another injectible contraceptive that has shown promise. It must be injected into the muscle for maximum efficacy so hand injection is more successful than darting, but since animals have to be tagged for identification, darting is not an option for West Seneca anyway. The cost of administering GonaCon or PZP ranges from a few hundred dollars per animal to \$2000.
Lethal		
	Controlled Hunt	"Hunting" as the NY State DEC defines it is not permitted in Wildlife Management Unit 9C where West Seneca falls. This means a controlled hunt would also not be legal in West Seneca as state law supercedes any local ordinance that might be enacted. Without a change to state law, a controlled hunt is not an option for West Seneca.

	Cull	State law does permit municipalities to execute culls under a nuisance permitting system managed at the state level by the DEC. Municipalities are given flexibility to define certain parameters of the cull, however with very few exceptions, culling is limited to all females since that is how population control is most effectively achieved. Culling can be done by any of the following means:
	Capture and Kill	As implied, deer are captured and then dispatched either by mechanical or chemical means. Animals killed mechanically are suitable for human consumption, however those killed with injectible drugs are not.
	Sharpshooters (Bait & Shoot)	These are paid professionals with special training and licensure who utilize rifles with infrared scopes and noise suppressors typically at night in limited areas of town that would be safely suitable for such activity. Aside from the cost, another problem with this approach is that for most of the year, suburban deer do not usually travel far from the core area where they have enough food and cover. Residents who do not live relatively close to a cull zone are not likely to see much immediate impact on the deer activity near their home.
	Town Employees (typically Police)	Some residents have suggested that since we already pay the police, why not allow them to perform a cull. The answer to that is that our officers are already performing essential services for the community. Culling would take away from those tasks or result in overtime, neither of which is favorable.
	Qualified Volunteers	Qualified volunteers are the most economical option for performing a cull. Archery equipment could be used in many more areas of the town than sharpshooters could safely be deployed. Archery is the most common method used for suburban deer population control programs across the country.

Attachment B

West Seneca Deer Frequently Asked Questions

Website link: <https://sites.google.com/view/west-seneca-deer-faqs/home>

Resident Perceptions of White-tailed Deer Issues
in the Town of West Seneca, NY:
Key Findings of the 2021 Resident Deer Survey

Final Report
to
West Seneca Deer Task Force
April 28, 2022

Prepared by
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Dept. Of Animal Behavior, Ecology and Conservation
Canisius College, Buffalo, NY

Executive Summary

White-tailed Deer (*Odocoileus virginianus*) have become increasingly numerous in residential areas within the town of West Seneca, NY over the past several decades. Residents have expressed concern over issues related to deer abundance, including deer-vehicle collisions, Lyme Disease, and property damage. A preliminary survey conducted by the Town Supervisor in March 2021 indicated that this was an issue in need of further exploration and led to the formation of the West Seneca Deer Task Force (Dickson, 2021).

The West Seneca Deer Task Force identified a need to gain additional information about resident perceptions and experiences with deer in the town and launched a second, more detailed survey in November 2021. The survey was active from November 7 to December 14, 2021 and was open to all West Seneca residents and taxpayers. The survey was distributed electronically through social media and using flyers and signs with QR codes linking to the survey website. The survey sought to assess resident concerns about deer-related issues, evaluate the prevalence of deer feeding in the town, and gauge attitudes towards various deer management options, including education, mitigation strategies, and lethal management to control deer numbers.

A total of 1,899 fully completed survey responses were received. These responses indicated several key findings:

- 1) Deer-related issues are perceived by residents from all areas of the Town. More than 70% of respondents indicated that they had personally experienced deer-related issues.
- 2) Resident opinions regarding the severity of the problem are mixed.
- 3) Yard/plant damage, deer-vehicle collisions, tick-borne illnesses, and deer droppings represent the issues of greatest concern.
- 4) Deer feeding appears to be a significant issue in the Town, despite an apparently high level of awareness of issues related to feeding wildlife.
- 5) Deer-vehicle collisions are often not reported to authorities.
- 6) Concerns about overdevelopment, speed limits, zoning restrictions on fencing, and lack of deer crossing signs are common.
- 7) Interest in deer-related education is mixed, with more interest in online learning options, particularly regarding health and safety issues.
- 8) Approximately half of respondents have employed deer-deterrent strategies, with relatively low success rates reported.
- 9) Support for deer management is mixed, with 45% of respondents in favor of lethal control, 25% opposing lethal control, and others preferring to learn more about the issue first or attempt nonlethal management before implementing a cull.

I. Background and Survey Methods

Issues of human-deer conflict, including property damage, disease concerns, and deer-vehicle collisions, are common in suburban neighborhoods. White-tailed deer have become increasingly abundant in suburban and exurban areas, where mosaic landscapes of undeveloped areas interspersed among patches of residential and agricultural land uses create ideal habitat conditions (Bowman, 2011). Numerous studies have shown that suburban residents often hold conflicting attitudes toward suburban deer management, highlighting the challenges for municipal decision-makers and importance of stakeholder involvement in the process (Baker and Fritsch, 1997; Raik et al., 2006).

The Town of West Seneca, NY, has struggled with issues of human-deer conflict for many years. Newspaper articles chronicle discussions on the topic in 2016, but no action was taken at that time (Elzufon, 2016; Habuda, 2016). Increasing reports of resident concerns about property damage, Lyme Disease, and deer-vehicle collisions prompted the Town Supervisor to seek additional information about the problem in 2021. After a brief resident survey conducted by the Town Board illustrated the scope of the issue and lack of consensus among residents regarding management options, a decision was made to commission the West Seneca Deer Task Force. This task force was charged with gathering information on resident issues with deer, conducting a transparent review of issues and potential solutions, considering the costs of a deer management program, determining methods for measuring and monitoring program successes, and making recommendations to the Town Board as to how the Town should proceed in addressing the reported issues (Dickson, 2021).

In order to assess resident attitudes, perceptions, and experiences related to deer issues in the Town of West Seneca, the task force opted to conduct an additional, more in-depth survey of residents and taxpayers. The survey was developed by the task force and implemented using Qualtrics software. Survey questions focused on four main areas of interest: 1) resident perceptions of deer-related issues, 2) resident experiences with deer feeding, 3) resident attitudes toward and experiences with deer damage mitigation strategies, and 4) resident positions on deer management options. Additionally, the survey collected some demographic data, including age, gender, and approximate geographic location within the community. Several open-ended questions were included to allow residents to express concerns that might not have been encompassed directly within the survey. A copy of the survey can be found in Appendix A.

The survey was active from November 7, 2021 to December 14, 2021, and was open to all residents and taxpayers ages 18 and older. The survey was publicized through social media, flyers, and signs. Survey responses were anonymous. However, IP addresses were collected to ensure that survey results were not impacted by ballot-stuffing or poll-crashing attempts (Duda and Nobile, 2010). If the system detected multiple responses from a single IP address, responses were compared to ensure that the same survey was not submitted repeatedly. No cases of poll-crashing were detected in the survey responses. Preliminary data from the survey were presented to the West Seneca residents at a community meeting in January 2021.

II. Respondent Demographics

A total of 1899 complete survey responses were received. All adult age groups were represented (Figure 1), with the majority of responses received from residents over age 35. Response rate was slightly female-biased, with 57% of respondents identifying as female, 39% identifying as male, and 4% identifying as nonbinary or preferring not to identify gender.

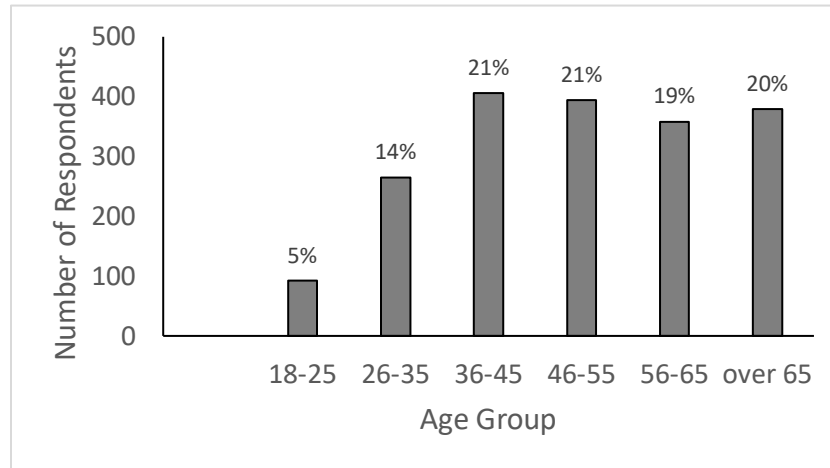


Figure 1. Survey Participation by Age Group

Although addresses were not collected to retain anonymity, the survey provided a generalized map of the Town of West Seneca (Figure 2A) and asked respondents to indicate in which quadrant they reside (Figure 2B). US census data from 2020 indicates that approximately 60% of town residents live within the areas labeled as quadrants C and D. Based on those statistics, the southern quadrants (C and D) appear to be slightly over-represented in the survey. This may reflect a greater level of concern from those areas, as studies have indicated that people are more likely to respond to surveys if they have a vested interest in the topic (Saleh and Bista, 2017).

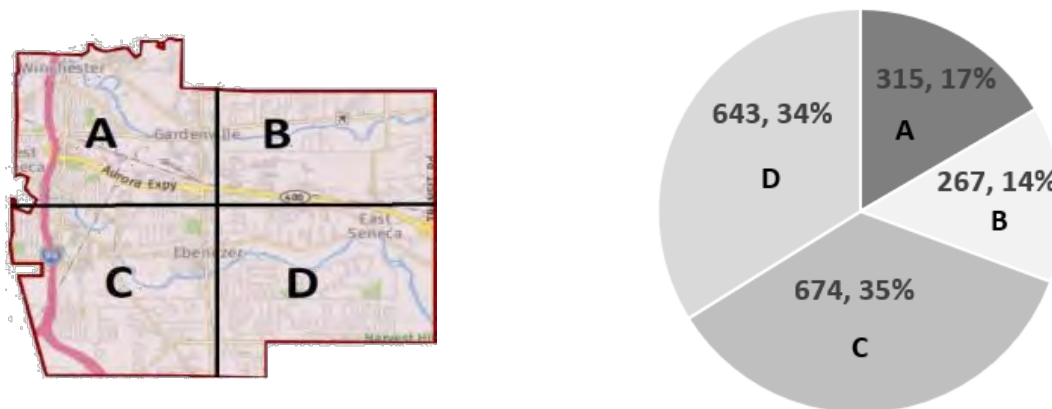


Figure 2A (left): Map of Town of West Seneca quadrants. Figure 2B (right): Survey participation by residential quadrant.

III. Perceptions of Deer and Deer-Related Concerns

Several of the survey questions were designed to investigate resident perceptions of deer-related concerns and experiences with deer issues to better understand the scope of the problem in the Town of West Seneca.

General Perception of Deer

To evaluate the overall perception of deer issues in West Seneca, respondents were asked to select one of the following three statements that best represented their view on the deer issue: 1) I enjoy the presence of the deer and do not believe there is an issue, 2) I enjoy the deer, but believe there are too many and some action should be taken, or 3) I feel that deer have become a nuisance or hazard and some action should be taken. Responses were relatively divided among these answers with 636 respondents (33.5%) indicating they did not perceive an issue, 643 (33.9%) believing deer have become too abundant and some action is needed, and 612 (32.2%) perceiving deer as a serious nuisance issue. Eight respondents did not answer the question.

Since deer issues may be localized and not affect all portions of a town equally, responses to this question were also analyzed by geographic quadrant. Responses were examined as a proportion of the total number of responses from each quadrant to account for differences in response rates from each section of the town. Although there was an apparent trend indicating a slightly lower overall perception of deer-related issues in the northern half of town (quadrants A and B), a single-factor ANOVA comparing responses among quadrants indicated no significant difference ($p = 0.99$).

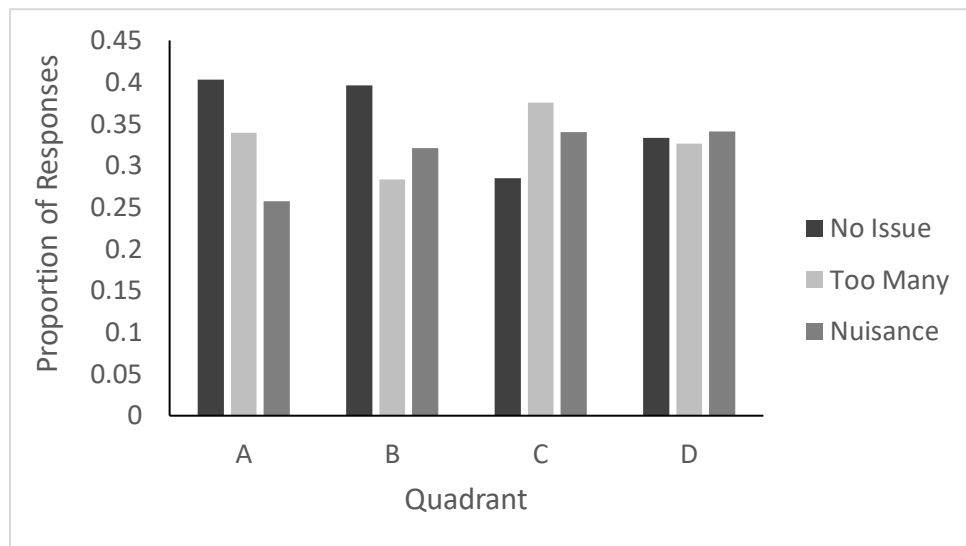


Figure 3. General perception of deer issue by geographic quadrant. Quadrants A and B comprise the northern half of the town, and quadrants C and D comprise the southern half of the town. Values indicate number as a proportion of total responses from each quadrant. Single-factor ANOVA indicates no significant difference in response among quadrants ($p = 0.99$).

Primary Resident Concerns

To assess which deer-related issues were of greatest concern to the community, we asked respondents to rate their level of concern (on a scale of 0 – 10) regarding the following: deer-vehicle collisions, tick-borne illnesses, structural damage, yard and plant damage, deer droppings in yards, and child and/or pet safety. Responses indicated that residents are concerned about all of these issues (Table 1). However, the greatest level of concern was indicated regarding yard and plant damage, with nearly 800 respondents rating that issue as a 9 or 10. Deer-vehicle collision was also a significant concern, with 695 respondents ranking it as a 9 or 10. Tick-borne illness and deer droppings were identified as issues of serious concern by more than 600 respondent each.

	DVC	TBI	SD	YPD	DD	CPS
0	87	101	217	107	187	233
1-2	144	206	311	221	273	301
3-4	184	166	199	148	138	153
5-6	279	257	244	149	176	207
7-8	369	302	177	206	167	169
9-10	695	656	322	790	608	359
No Response	141	211	429	278	350	477

Table 1. Responses indicating level of concern (0 = no concern; 10 = very high concern) regarding the following issues: deer-vehicle collision (DVC), tick-borne illness (TBI), structural damage (SD), yard and plant damage (YPD), deer droppings (DD), and child/pet safety (CPS).

Resident Experiences with Deer-related Issues

The survey included several questions to assess the scope of deer-related issues in the Town of West Seneca and offered respondents an open text box to elaborate on their experiences. Of 1895 responses received for this question, 1366 respondents (72%) indicated that they had personally experienced some type of deer-related issue within the Town of West Seneca. Respondents that indicated they had experienced issues were then asked to identify which of the following they had personally experienced: deer-vehicle collision, structural damage, yard and plant damage, tick-borne illness, and excessive deer droppings in yard (Figure 4). Furthermore, deer-vehicle collisions were separated based on whether or not the incident had been reported to authorities. Yard and plant damage was the most commonly reported issue, with over 1200 respondents

indicating they had been affected by it. The presence of excessive deer droppings in yards was also a common concern, with 841 respondents reporting it. Interestingly, the number of deer-vehicle collisions that were not reported to authorities (258 respondents) exceeded the number of reported collisions (245 respondents). This may have important implications for ongoing monitoring. Numbers of deer-vehicle collisions are often used as a metric for assessing the severity of deer issues in an area, and for evaluating the effectiveness of deer management. This trend may indicate the usefulness of future community surveys to supplement data from police reports of deer-vehicle collisions. Additional deer-related issues that were reported using the open-ended question included deceased deer in yards (often resulting from deer-vehicle collisions), deer aggression towards humans and pets, pet illnesses, excessive numbers of deer in yards or driveways, and deer appearing to be extremely tame around humans.

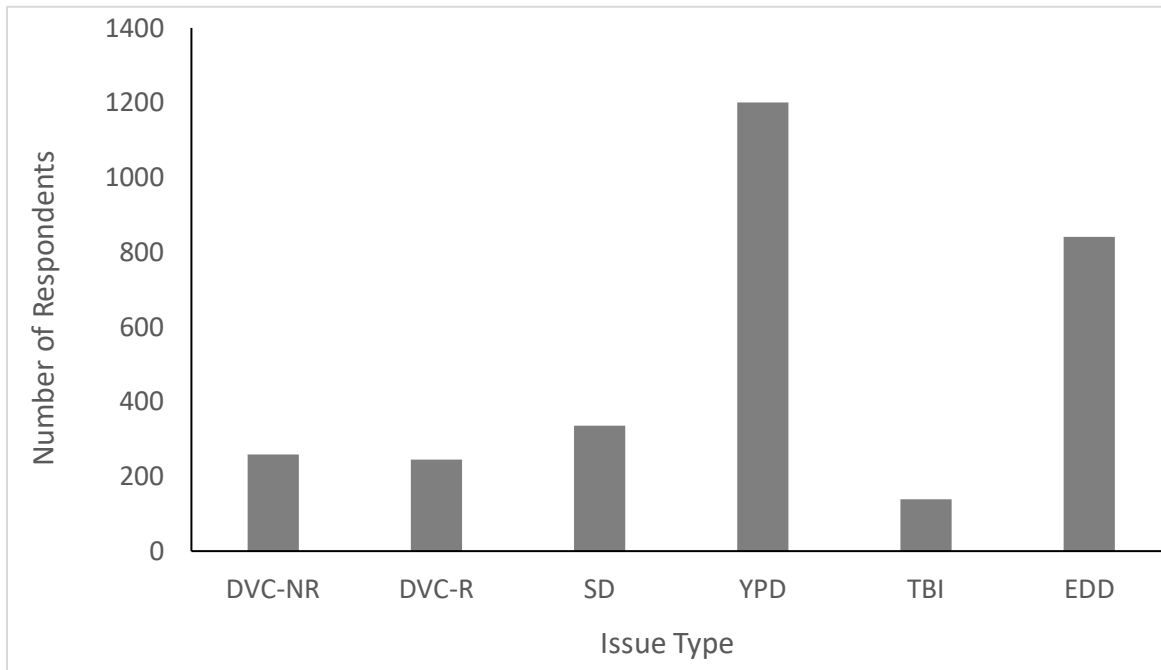


Figure 4. Personal experiences with deer-related issues reported by survey respondents, including deer vehicle collisions that were not reported (DVC-NR), deer-vehicle collisions that were reported (DVC-R), structural damage (SD), yard and plant damage (YP), tick-borne illness (TBI), and excessive deer droppings (EDD).

Concerns with Development and Deer Habitat

Although not asked about specifically in the survey, many respondents used the open-ended text box options to raise concerns related to overdevelopment and the loss of deer habitat. Common themes raised in these responses included concerns that development was reducing deer habitat resulting in increased deer presence in residential yards, and that habitat fragmentation by roads would lead to increased deer-vehicle collisions. Additionally, respondents indicated a concern for losing the “character” of the town, which has historically included both green spaces and deer.

Concerns about Speed Limits and Signage

Another key theme that was apparent in the survey's open-ended text box responses was concern about speed limits and a lack of signage contributing to deer-vehicle collisions. Many respondents described issues with speeding on roadways where deer are common and expressed concern that common deer crossing areas were not clearly marked. These responses often suggested that the Town consider reassessing speed limits on certain roads where deer collisions are most frequent and requested additional deer crossing signs to help raise awareness of the hazards in these areas.

III. Deer Feeding in West Seneca

The feeding of deer by humans can increase issues of human-deer conflict. Feeding deer can result in congregations of large numbers of animals near feeding sites, and can change deer behavior, resulting in decreased fear of humans and increased time in human-dominated areas, such as residential yards (Pennsylvania Game Commission, 2007). Deer feeding has been commonly reported in the Town of West Seneca and could be a contributing factor in the issues reported by residents. To assess the issue of deer feeding in the town, we asked respondents several questions to evaluate general resident knowledge about deer feeding, the prevalence of deer feeding in town, and the perceptions and motivations of those who feed deer.

Knowledge about Deer Feeding

To evaluate the general knowledge of West Seneca residents about deer feeding issues, we asked respondents to indicate their level of agreement (agree, disagree, neutral/don't know) to five statements: 1) If people didn't feed the deer, they might starve, 2) Feeding of deer contributes to the spread of wildlife disease, 3) Feeding deer is beneficial for their health, 4) Deer that have been fed by people are more likely to be involved in nuisance situations or vehicle collisions, and 5) It is illegal to feed deer in NYS. Responses indicate that West Seneca residents are well-informed about issues related to feeding deer (Table 2). Approximately 80% of respondents were aware that deer do not require supplemental food to survive, and 78% knew that feeding deer is not beneficial to their health. A smaller number (61%) were aware that feeding deer contributes to the spread of wildlife diseases, and 64% knew that feeding deer can contribute to increased deer-vehicle collisions. Nearly 71% of respondents were aware that it is illegal to feed deer in New York State.

Statement	Agree	Disagree	Neutral/DK
If people didn't feed the deer, they might starve	111	1519	266
Feeding of deer contributes to the spread of wildlife disease	1159	272	464
Feeding deer is beneficial for their health	114	1472	308
Deer that have been fed by people are more likely to be involved in nuisance situations of vehicle collisions	1216	297	382
It is illegal to feed deer in NYS	1344	68	484

Table 2. Responses indicating level of agreement with statements about deer feeding.

Prevalence of Deer Feeding and Motivations for Feeding Deer

While the previous responses indicate relatively widespread knowledge in the town about the issues related to deer feeding, there is little doubt that feeding is still occurring. When asked if they had observed others in the town actively feeding deer, 38% of respondents indicated that they had witnessed deer feeding occurring occasionally, and 18% reported that they observed people feeding deer frequently (Figure 5).

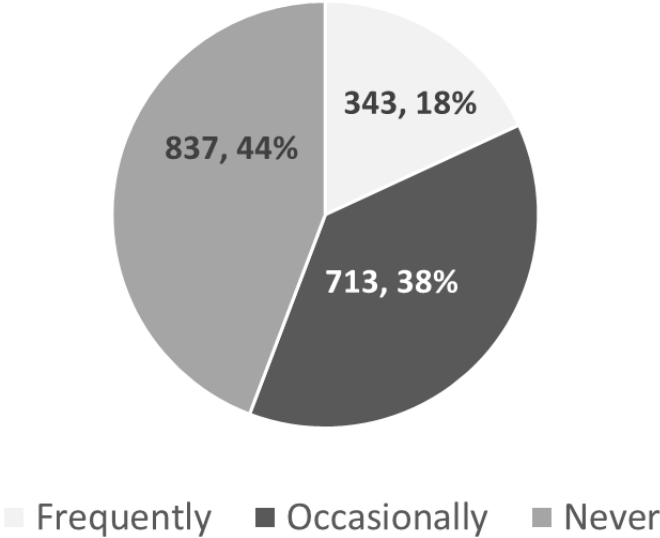


Figure 5. Prevalence of deer feeding observed by survey respondents in the Town of West Seneca.

Additionally, respondents were asked to disclose whether they personally had fed deer in the Town of West Seneca. It should be noted that educational press releases that were used to publicize the survey also promoted the problems associated with deer feeding and reminded the public that it is illegal to feed deer. Despite the anonymous nature of the survey, it is likely that this may have impacted people’s willingness to self-report their deer feeding activity, resulting in an underreporting bias for this question. However, 163 respondents (8.5%) did report that they currently feed deer or had done so in the past. The majority of self-reported deer feeders (151) indicated that they fed deer by leaving food out in their own yards. Even a small percentage of residents engaging in this type of deer feeding on a regular basis could have a large impact on the community by drawing more deer into residential neighborhoods. Deer feeding was also reported in public areas, such as parks, by 30 respondents, and hand-feeding of deer was reported by 6 respondents.

To address the issue of deer feeding through education, it is important to understand the motivations of people who engage in feeding deer. Respondents who reported that they currently feed deer or had fed deer previously were asked to provide the reason they chose to feed deer (Figure 6). Despite the earlier evidence that residents are largely aware of the negative health impacts of supplemental feeding on deer, the most common reason given for feeding them was to help them survive (68 respondents). Other common reasons for feeding deer included forming a bond with them (36 respondents) and reducing household food waste (33 respondents). Less common reasons included increasing the chances of seeing deer (11 respondents) and getting good photos of deer (8 respondents).

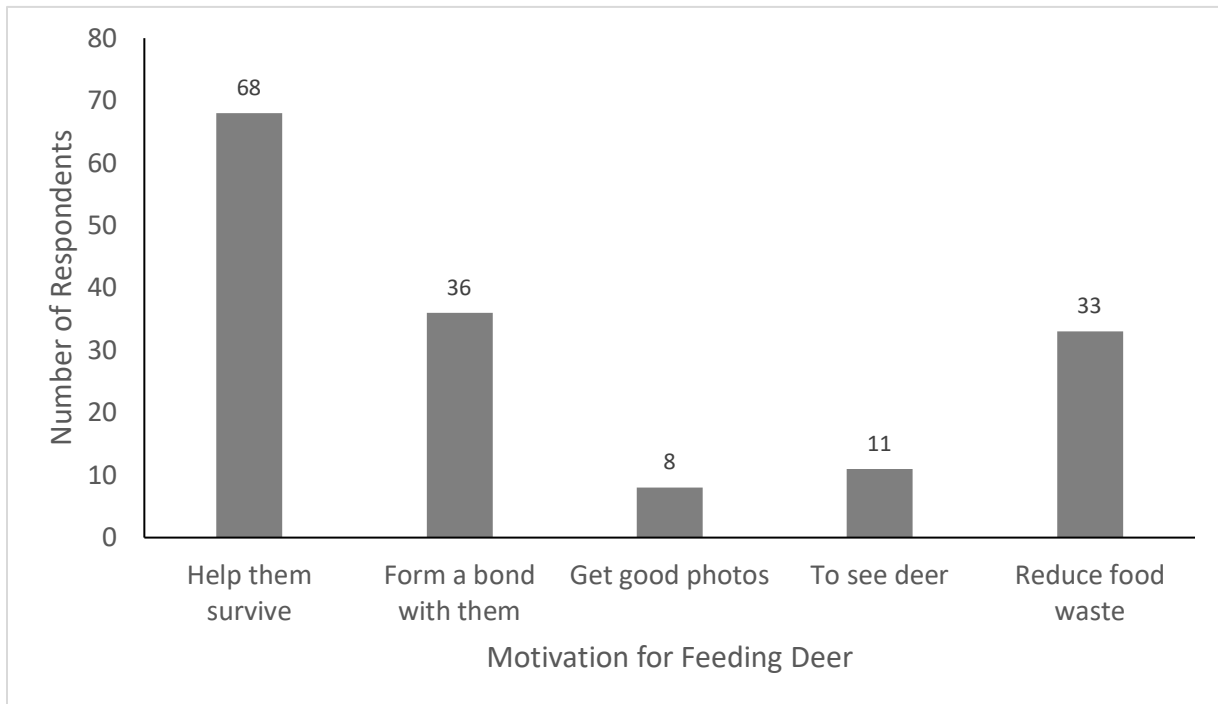


Figure 6. Motivations for deer feeding reported by survey respondents.

IV. Perceptions of Deer Damage Mitigation

In situations where human-deer conflict arises, strategies to mitigate or reduce deer damage are often promoted as a means of alleviating resident concerns. To investigate the experience of West Seneca residents with these methods, the survey included several questions to assess which strategies were commonly in use in the Town, and how effective users perceived them to be. The survey results indicated that just over half of respondents (51%) had tried using some sort of deer repellent strategy in the past. Approximately 12% indicated that they were familiar with these techniques but had not personally tried them, and 10% reported that they were unfamiliar with deer repellent strategies and were interested in learning more about them. Just over a quarter of respondents (27%) indicated that they were not interested in taking any action to deter deer on their property.

Respondents who indicated that they had tried deer repellents were asked to indicate which strategies they had used (Figure 7), and if deer repellents overall had been effective for them. The most common strategies employed were the use of deer resistant plants (740 respondents), fencing (605 respondents), and chemical repellents (734 respondents). Less common measures used included wrapping plants (455 respondents), using scare devices, such as motion activated lights or sprinklers (383 respondents), and using deer whistles on vehicles (105 respondents). Of 954 respondents that replied to this question, 690 (72%) reported that no deer repellent strategy they had tried was effective. Additional information provided using the open response text box revealed two additional concerns regarding these methods. Many respondents indicated that although they had some success with chemical repellents, the frequency with which these substances must be reapplied may be cost-prohibitive and felt that the mounting costs of maintaining landscaping on their property were unreasonable. Additionally, several residents mentioned that zoning restrictions impacted their ability to build a fence of a height sufficient to exclude deer from their yard.

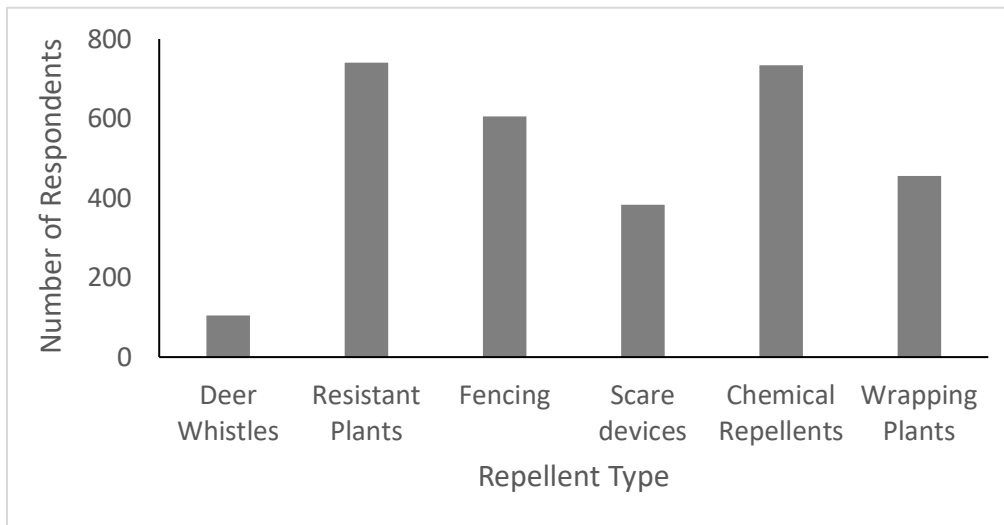


Figure 7. Deer repellent strategies employed by survey respondents. Overall, 72% of respondents who indicated using deer repellent strategies indicated that they were ineffective.

Resident Interest in Educational Programming

Public education is often a key component of community deer management programs. To better inform the development of any future educational activities, we asked survey respondents to indicate their likelihood of attending educational programs on several topics: 1) deer-resistant gardening, 2) physical deer deterrents (such as fencing), 3) other deer deterrents (such as chemical repellents and scare devices), and 4) deer-related health and safety issues (such as Lyme Disease prevention). We also asked respondents to indicate whether they would support the delivery of deer-related educational programs in West Seneca schools.

Support for deer-related educational programs in schools was high, with 1330 respondents (71%) indicating that they would be in favor of this action. For all topics suggested for public educational outreach, interest was higher for online learning options than for in-person educational programs (Figure 8). Interest was greatest for programs about health and safety, with 558 respondents indicating that they would be likely to attend such programs in person, and 954 indicating that they would be likely to engage with online content about this topic.

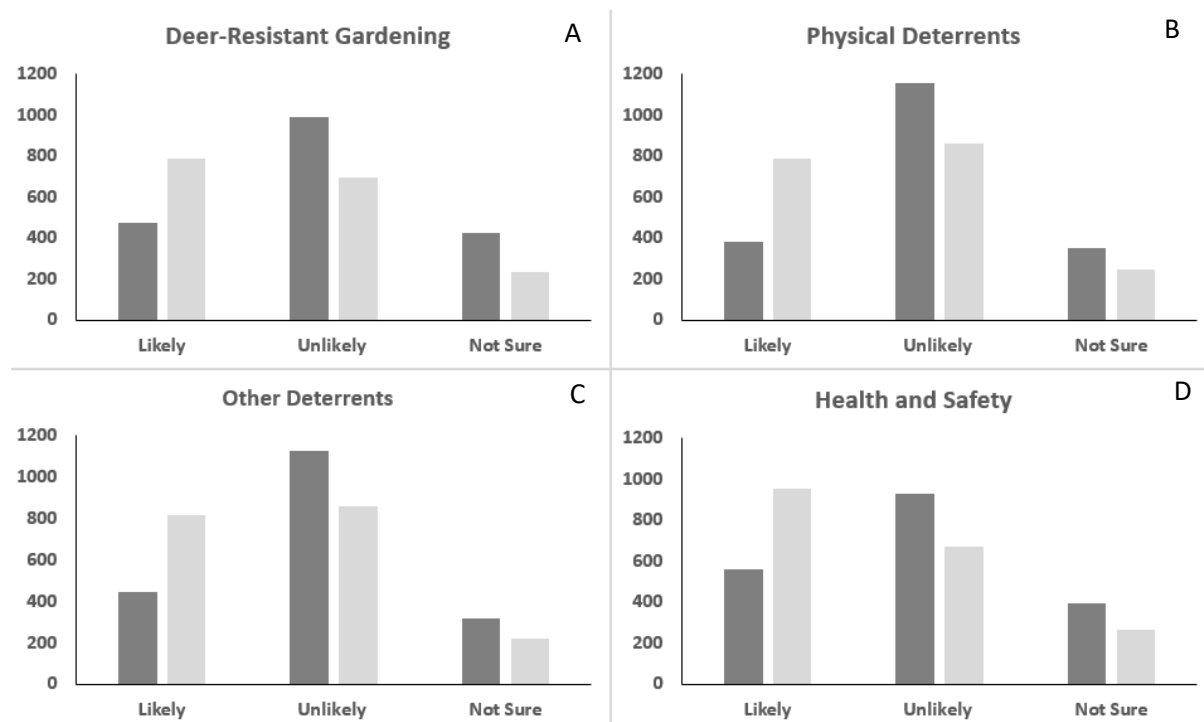


Figure 8. Interest in educational programming related to deer issues. Dark bars indicate in-person programs and light bars indicate online education. Overall, respondents appear to be more willing to engage with online content than to attend live educational programs.

V. Resident Positions on Deer Management

To assess the attitudes of residents toward deer management, survey respondents were asked to indicate which of four statements best described their position on deer management options: 1) I support lethal management to reduce the size of the deer herd, 2) I do not support lethal management to reduce the size of the deer herd, 3) I would support lethal management only after other methods have been attempted first, and 4) I need more information before supporting a position (Figure 9). Lethal management options, such as a cull, were supported by 45% of respondents. An additional 18% of respondents indicated that they would support lethal management, but only if other options were attempted first. A quarter of respondents stated that they did not support any form of lethal management. Approximately 12% of respondents felt they needed more information before supporting a position.

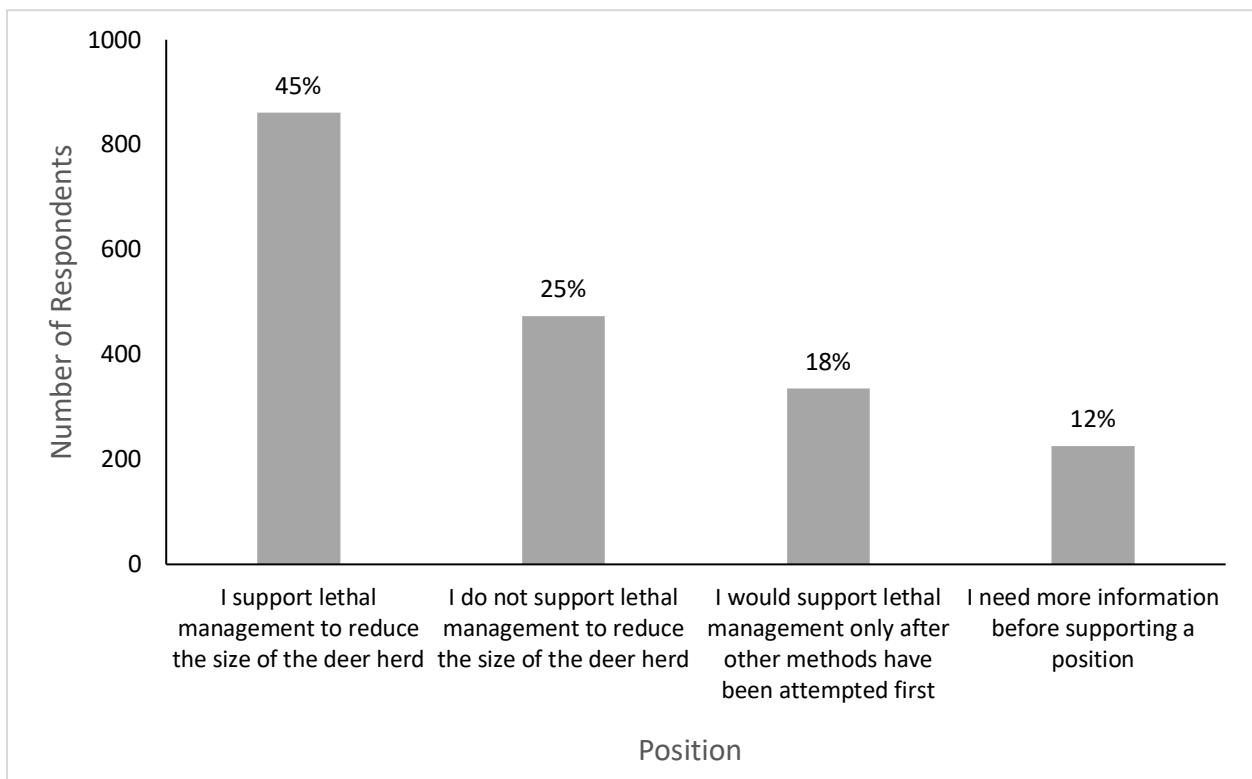


Figure 9. Respondent attitudes towards deer management strategies.

VI. Key Findings and Recommendations

The survey of residents indicated that perception of deer-related issues is widespread throughout the Town of West Seneca, with residents from all portions of the town reporting significant concerns about deer-vehicle collisions, damage to property and landscaping, and health and safety issues. However, residents are divided in their attitudes toward deer and deer management. Stakeholder support is a critical component of any management plan, and a clear understanding of the issues and perspectives involved is a key element of success in a community deer

management program (Decker et al., 2004). Surveys such as this can help to demonstrate stakeholder concerns and values, highlight areas where further information needs to be collected, and guide actions such as educational outreach and management plan development.

This survey produced the following key findings with implications for Town of West Seneca deer management decision-making:

- 1) Deer-related issues are perceived by residents from all areas of the Town of West Seneca, suggesting that this is not a localized problem restricted to certain areas within the town.
- 2) Residents are split in their perceptions of the severity of the problem. Approximately 1/3 of respondents indicated that deer are not a problem in their opinion. Although 2/3 of respondents did perceive an issue, only about 1/3 felt that deer were a serious nuisance. These differences in perception may reflect differences in how people are affected by deer, including variations in living situation (renters versus homeowners), differences in values and tolerance levels, or differences in deer damage occurrence over smaller spatial scales than the quadrants used in the survey can reflect.
- 3) Although residents indicate concern about all aspects of human-deer conflict, yard/plant damage, deer-vehicle collisions, tick-borne illnesses, and deer droppings in yard (and the health concerns associated) represent the issues of greatest concern.
- 4) Most residents are experiencing deer-related issues to some degree. More than 70% of respondents indicated that they had personally experienced deer-related issues, with yard/plant damage and excessive deer droppings in yards being most commonly reported.
- 5) Responses suggest that deer-vehicle collisions are just as likely to go unreported as they are to be reported. This implies that using police records alone may underestimate annual deer-vehicle collision numbers.
- 6) Write-in response boxes were commonly used to address concerns about overdevelopment, which was not asked about directly in the survey. This may suggest that further research should be done to better understand resident opinions on development patterns in the Town, and the effects of development on deer-related issues.
- 7) Write-in responses also focused on concerns about speed limits and deer crossing signs, suggesting that these issues should be investigated.
- 8) Deer feeding appears to be a significant issue in the Town of West Seneca, despite the apparently high level of awareness of issues related to feeding wildlife. Deer feeding was most commonly reported as taking place in private yards, which may be a contributing factor to high numbers of deer in certain neighborhoods. The most commonly reported motivations for deer feeding were a desire to help or bond with deer, and an attempt to reduce food waste in what people may believe to be a more sustainable manner than throwing it away. This suggests that increased education about deer feeding may be beneficial despite the prevalence of responses indicating that people understand the costs of feeding deer.
- 9) Approximately half of respondents indicated that they had employed some form of deer deterrent strategy in the past, and 72% of those felt that these techniques were not effective. This survey did not investigate the effectiveness of specific strategies. Future

efforts to assess which strategies appear to be most effective in West Seneca may be beneficial.

- 10) Many respondents used the open text box options to indicate concerns about their ability to employ deterrent methods they felt may be effective, both because of the high cost involved in repeated application of chemical repellents and because of zoning restrictions preventing some residents from constructing fences high enough to exclude deer.
- 11) Although support for deer-related education in West Seneca public schools was high, interest in general public education on deterrent methods was lower. Respondents indicated the greatest interest in programs related to health and safety issues, and support was higher for online educational options than for in-person programs. This survey did not inquire about respondents' reasons for these preferences. It should be considered that the covid-19 situation may play a role in these responses. As the pandemic recedes, support for in-person programming may increase.
- 12) Respondent positions on deer management were mixed. Slightly less than half (45%) were in favor of lethal management options. An additional 18% indicated that they would support lethal management only after other methods were employed first. 25% of respondents indicated that they were opposed to lethal management. The remaining 12% of respondents felt they needed more information before supporting a position.

Recommendations:

The following recommendations are based on the findings on this survey:

- 1) Conduct an educational outreach campaign designed to reduce deer feeding issues, and work to enforce existing state laws prohibiting deer feeding.
- 2) Develop a series of educational programs, including online education options, to assist residents who wish to learn more about deer deterrent methods and deer-related health and safety precautions.
- 3) Investigate the possibility of preserving additional green spaces in the Town for the benefit of both humans and wildlife.
- 4) Investigate the feasibility of lowering speed limits and/or increasing deer crossing or other warning signage on roadways with a high risk of deer-vehicle collision.
- 5) Investigate the possibility of changing zoning restrictions to allow residents experiencing deer issues to employ fences of at least 8 feet in height to deter deer from their property.
- 6) Use additional resident surveys to supplement police information on deer-vehicle collisions when assessing management impacts.
- 7) Provide accessible information to the public to support decisions on management and maintain transparency with stakeholders.

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Introduction and Consent



Survey of West Seneca Resident Perceptions on Deer

Thank you for participating in our survey! **Your responses are completely anonymous. We will not ask you for any identifying information or collect IP address information from your device.**

To take part in this survey, you must be at least 18 years old and a resident or property owner in the Town of West Seneca.

What is the Purpose of this Survey?

The goal of this survey is to better understand the perceptions of West Seneca residents and property owners about our local White-tailed Deer. This survey is being conducted by the West Seneca Deer Task Force to assist us in better understanding the public's values and experiences related to deer in West Seneca. The results of this survey will assist the Task Force in making recommendations for deer management in West Seneca.

How Do I Participate?

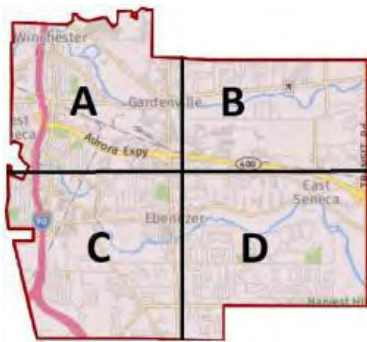
If you would like to participate, all you need to do is complete and submit this short survey. It generally takes about 10-15 minutes to answer the questions. If at any point you decide that you do not wish to continue, simply close the survey without submitting your answers.

Who Can I Contact if I Want Further Information?

For more information, please contact the West Seneca Deer Task Force at wsdeertaskforce@twsny.org

Are you 18 years of age or older?

- I am under 18
- I am at least 18 years of age at the time of taking this survey



Are you a resident or property owner in West Seneca? If so, please indicate the general area of town in which you live or own property using the map above.

- Yes, I am a West Seneca resident or property owner. I live or own property in the section labeled A on the map above
- Yes, I am a West Seneca resident or property owner. I live or own property in the section labeled B on the map above
- Yes, I am a West Seneca resident or property owner. I live or own property in the section labeled C on the map above
- Yes, I am a West Seneca resident or property owner. I live or own property in the section labeled D on the map above
- No, I do not reside or own property in the Town of West Seneca

Section 1

Thanks for choosing to take our survey! We appreciate your help!



Let's start with some questions to help us learn a little bit about you and your experiences with deer in West Seneca. Remember, all of your responses are anonymous!

Please select your age range

- 18-25 years
- 26-35 years
- 36-45 years
- 46-55 years
- 56-65 years
- 66 years or older

Please select your gender

- Male
- Female
- Non-binary
- Prefer not to answer
- Prefer to write own response

Which of the following best describes your perception of deer in West Seneca?

- I enjoy the presence of the deer and do not believe there is an issue
- I enjoy the deer, but believe there are too many and some action should be taken
- I feel that deer have become a nuisance or hazard and some action should be taken

Please use the sliders to indicate your level of concern about the following deer-related issues. 0 indicates no concern, 10 indicates extreme concern

	Not Concerned			Somewhat Concerned			Very Concerned				
	0	1	2	3	4	5	6	7	8	9	10
Deer-vehicle collisions											
Tick-borne illnesses (such as Lyme Disease)											
Damage to fences or structures											
Damage to yard or plants											
Deer droppings in yard											
Safety of children and pets											

I have personally experienced deer-related issues in the Town of West Seneca.

- Yes
- No

Which of the following issues have you personally experienced? (Select all that apply)

- Deer-vehicle collision which was reported
- Deer-vehicle collision which was NOT reported
- Damage to fencing or structures
- Damage to yard or plants
- Tick-borne illness (Lyme Disease)
- Excessive deer droppings in yard
- Other

Please use this space to briefly describe the issues you have experienced with deer in West Seneca.

Have you employed any deer deterrent methods on your property?

- Yes, I have tried using deer deterrents on my property
- No, I am familiar with deer deterrent methods but have not attempted to use any
- No, I am unfamiliar with deer deterrent methods and would like to learn more about them
- No, I am not interested in methods for deterring deer activity on my property

Which deer deterrent methods have you employed? (select all that apply)

- Deer whistles on vehicle
- Planting deer-resistant plants
- Fencing around yard or gardens
- Scare devices (motion lights, sprinklers, windchimes, etc)
- Chemical repellents
- Wrapping plants and trees
- Other

Do you feel your use of deer deterrents was successful in reducing deer-related issues on your property?

- Yes (please explain further)
- No

Please choose your level of agreement to the following statements about deer feeding:

	Disagree	Agree	Neutral/Don't Know
If people did not feed the deer they might starve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeding of deer can contribute to the spread of wildlife diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeding deer is beneficial for their health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deer that have been fed by people are more likely to be involved in nuisance issues or vehicle collisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is illegal to feed deer in New York State	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I have observed other people in the town feeding deer.

- Occasionally
- Frequently
- Never

I have fed deer in West Seneca.

- Yes
- No

How do you feed deer? (select all that apply)

- By hand
- By leaving food in my yard
- By leaving food in public areas, such as parks
- Other

What do you feed deer?

- Apples, carrots, or other fruits and vegetables Corn
- A commercial deer feed
- Other

Why do you feed deer? (choose all that apply)

- To help them survive
- To form a bond with them
- To get good photos
- For another reason

Which of the following statements best apply to your experiences with deer in West Seneca? (select all that apply)

- The deer appear tame and often approach people closely
- The deer appear to be unafraid of people or pets and spend time in private yards
- The deer appear to be unafraid of traffic and spend time near roads
- I usually see the deer from a distance and they do not approach people closely

Where do you most often encounter deer in West Seneca? (check all that apply)

- In my yard
- In other people's yards
- In public areas, such as parks
- Visible from roads (at a distance)
- Close to roads (or in the road)

Knowledge and Perceptions about Elk

Thanks for staying with us so far! Just one section to go. Now we have some questions about your opinions on deer management options.



Fun Fact: Did you know that deer can run at speeds over 30 miles per hour? (At least for short distances).

How likely would you be to attend educational programs:

	Likely	Unlikely	Not Sure
about the use of deer resistant gardening methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
about the use of deer fencing and other physical deterrents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
about the use of other deterrents, such as chemical deterrents or motion-activated deterrents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
health and safety issues related to deer, such as tick-borne illness prevention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely would you be to watch online educational programs:

	Likely	Unlikely	Not Sure
about the use of deer resistant gardening methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
about the use of deer fencing and other physical deterrents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
about the use of other deterrents, such as chemical deterrents or motion-activated deterrents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
health and safety issues related to deer, such as tick-borne illness prevention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I would support educational programs about deer being offered in West Seneca Schools.

- Yes
- No

Which of the following statements best describes your position on deer management in West Seneca? **Lethal management refers to a controlled hunt or culling program*

- I support lethal management to reduce the size of the deer herd
- I do not support lethal management to reduce the size of the deer herd
- I would support lethal management only after other methods have been attempted first
- I feel like I don't know enough about the issue and need more information before supporting a position

Please use this space to tell us anything else you would like us to know about your experiences with deer in West Seneca (250 word limit)

Attachment D
Sample of Deer Vehicle Collisions Data
collected by West Seneca Police Department



68 COURT ST
BUFFALO, NY 14202

Deer Vehicle Collisions 2018-2021

Prepared by:
Mike Richbart

Requested by:
Chief Edward Baker

May 10, 2022

Contents

1	General Comments and Summary	2
2	DVC's 2018 (170 Total)	3
3	DVC's 2019 (195 Total)	4
4	DVC's 2020 (143 Total)	5
5	DVC's 2021 (167 Total)	6
6	DVC Graphs	7
7	Seasonal Maps	8
8	Exploratory Cluster Analysis	10

1 General Comments and Summary

- Shapefiles are attached for each year using NAD 1983 StatePlane New York West FIPS 3103 (US Feet).
- An interactive html map is included to explore Deer Vehicle Collisions (DVCs) by year and location. This can be accessed using google chrome after downloading the file.
- DVCs reoccur in similar places each year, based on visual inspection there does not seem to be much change in locations.
- DVC counts do vary by year: 2019 had an approximate increase of 15% from the previous year, but decreased 25% in 2020.
- DVCs vary greatly between meteorological seasons: From 2018-2021, autumn had over double the amount of accidents than spring and summer.
- During summer months DVCs are mainly isolated to a rectangular area surrounding Southgate plaza. This area is highlighted in Figure 3: Summer
- During a two month span (10/2019-12/2019), 15 accidents occurred in a small area near the Buffalo Airfield. This area is highlighted in Figure 4: Autumn.
- For all years, two clusters were found using the DBSCAN algorithm. Both were located on RT 277: one located near the Charles Burchfield nature and art center and the other located near Southgate plaza. DBSCAN is an exploratory technique grouping observations based on Euclidean distance and minimum density. It does not take into account road networks. These clusters represent possible locations of interest for high counts of DVCs.
- Depending on the aims of research, a more thorough analysis can be conducted using spatial regression or General Estimating Equation (GEE) modeling to narrow down geographic locations or discover local predictors.

3 DVC's 2019 (195 Total)

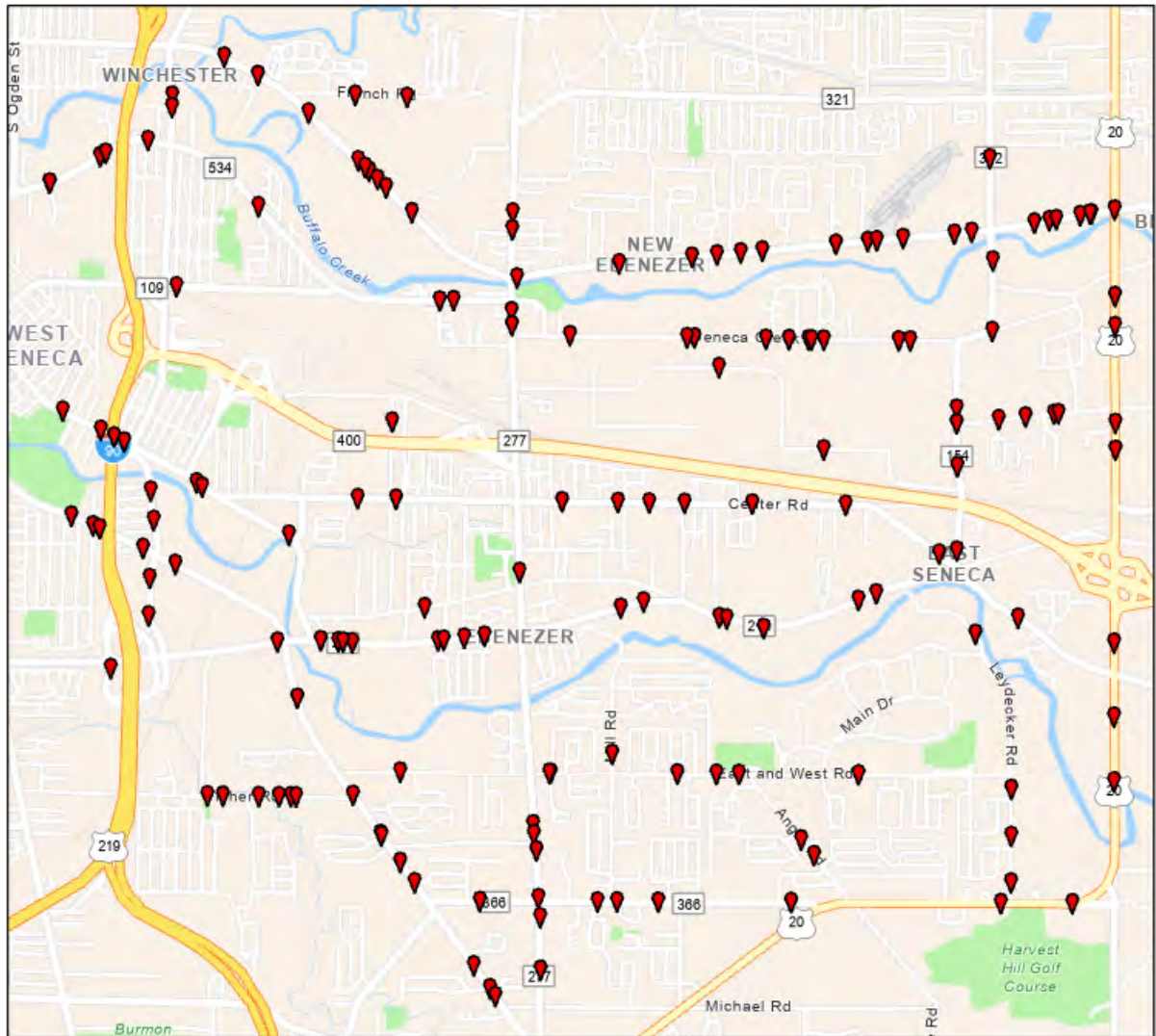


Table 2: Unmapped DVCs

Location	Count
RT 400	18
RT 219	9

4 DVC's 2020 (143 Total)

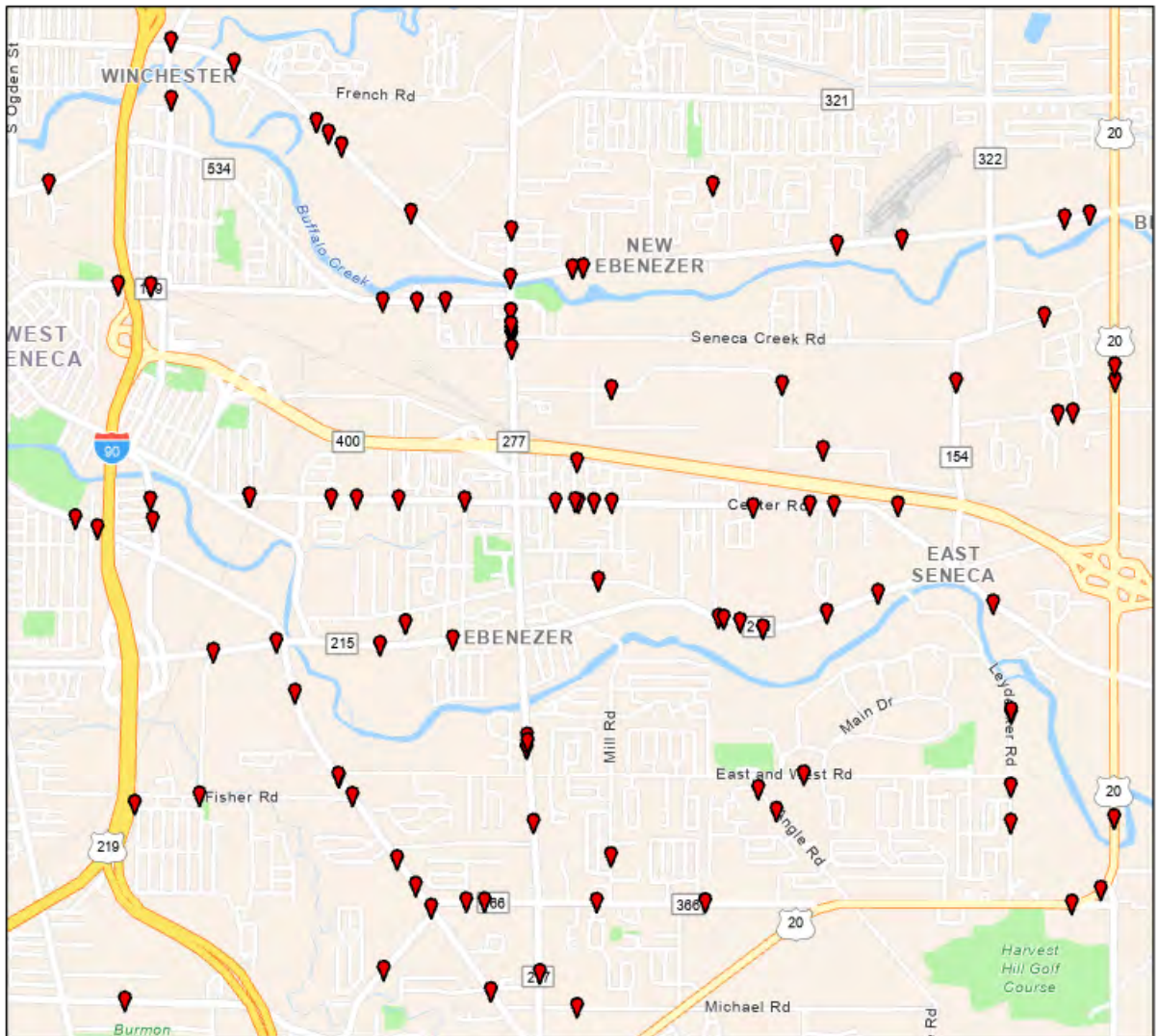


Table 3: Unmapped DVCs

Location	Count
RT 400	19
RT 219	10

5 DVC's 2021 (167 Total)

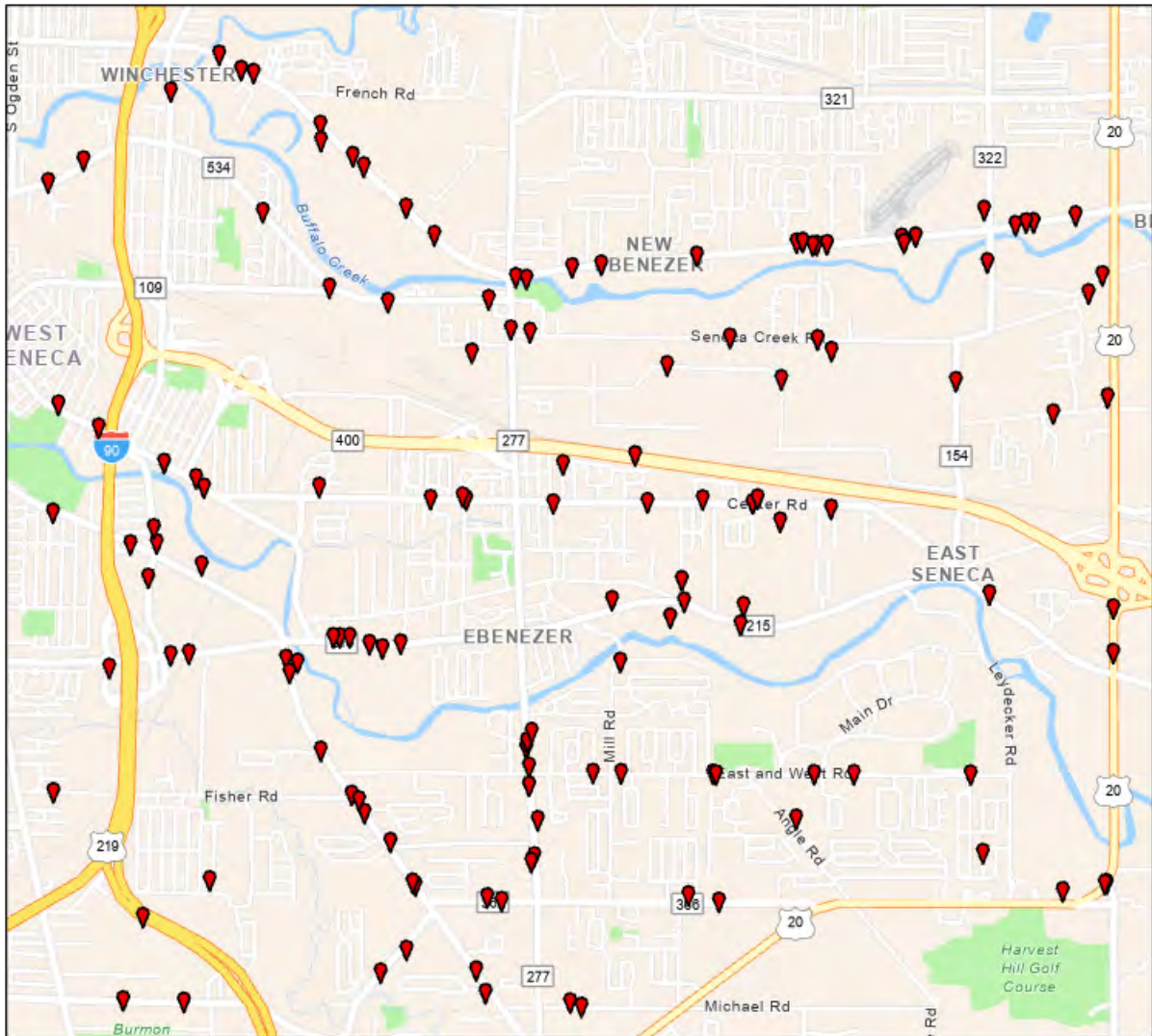
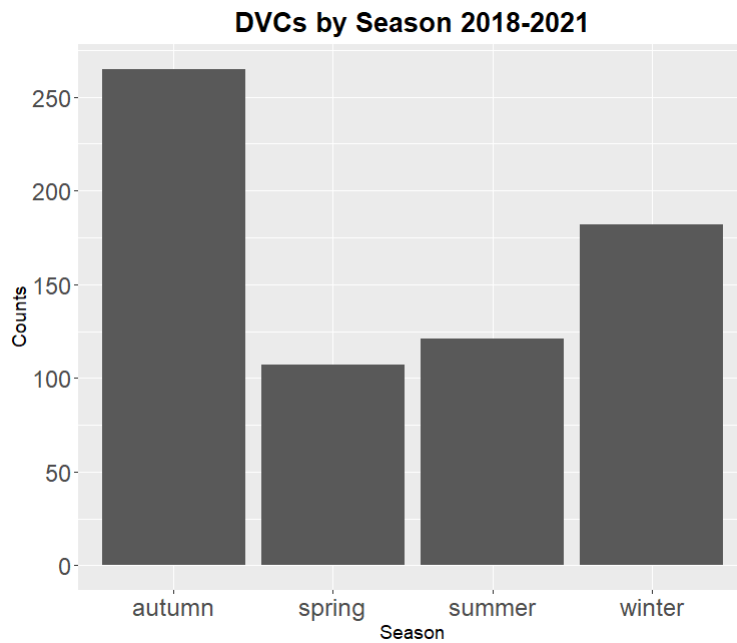
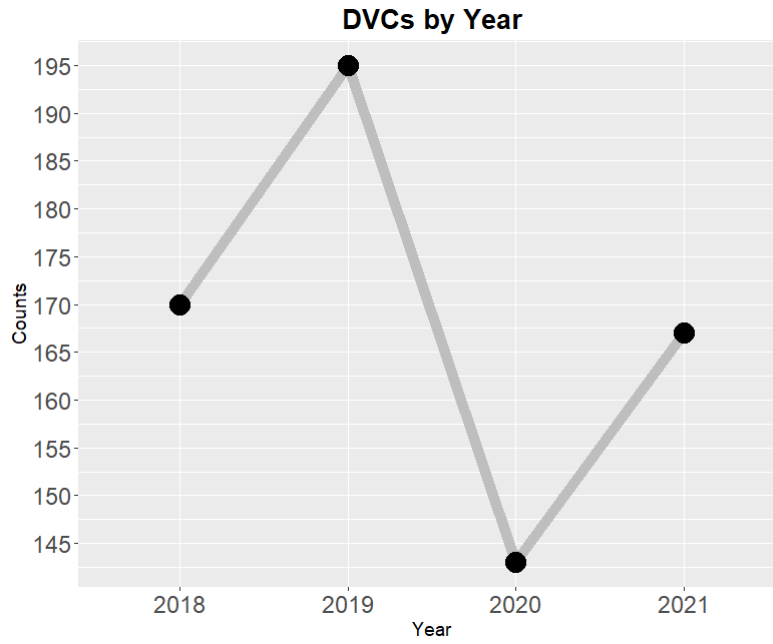


Table 4: Unmapped DVCs

Location	Count
RT 400	10
RT 219	1
Borden rd	1

6 DVC Graphs



7 Seasonal Maps

Figure 1: Winter

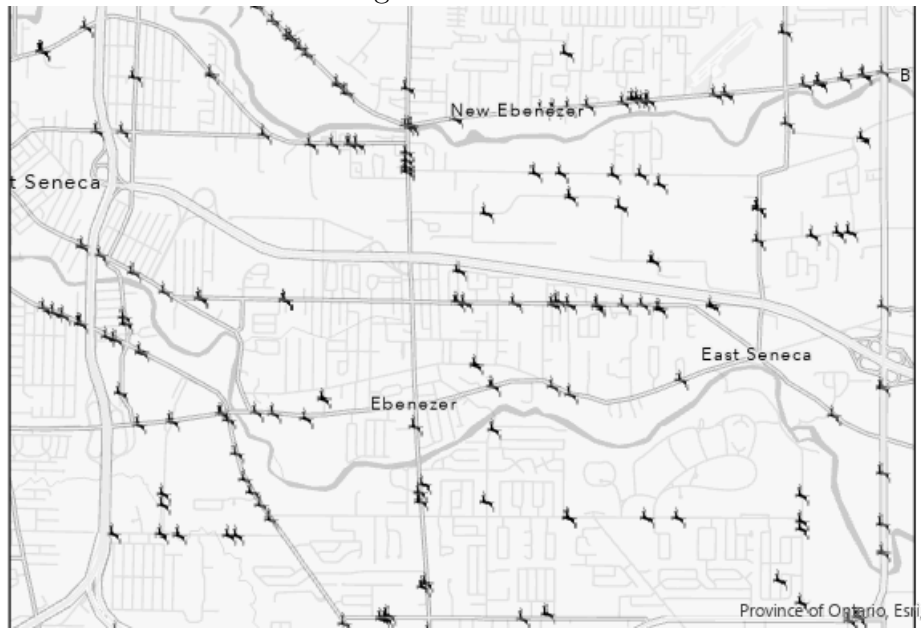


Figure 2: Spring

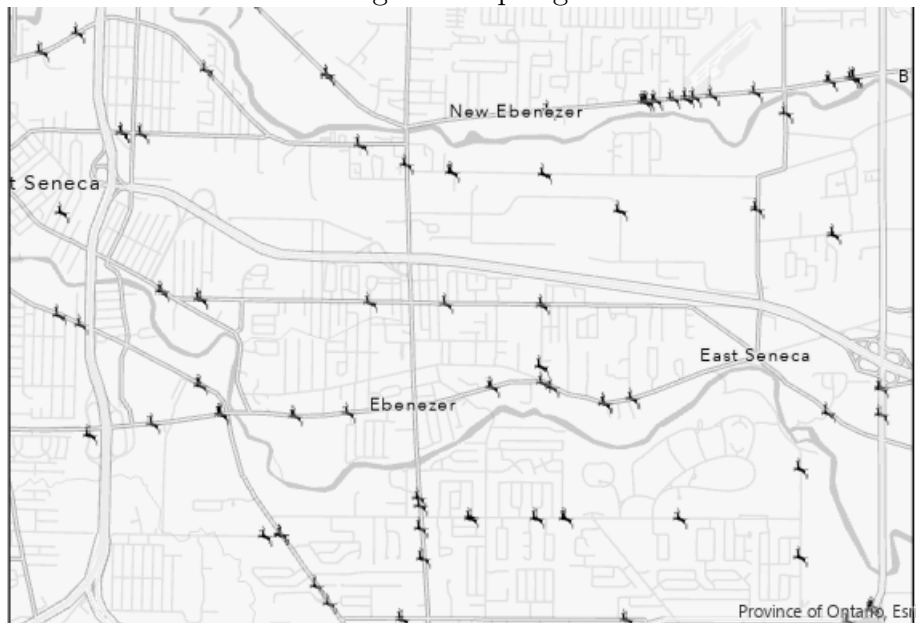


Figure 3: Summer

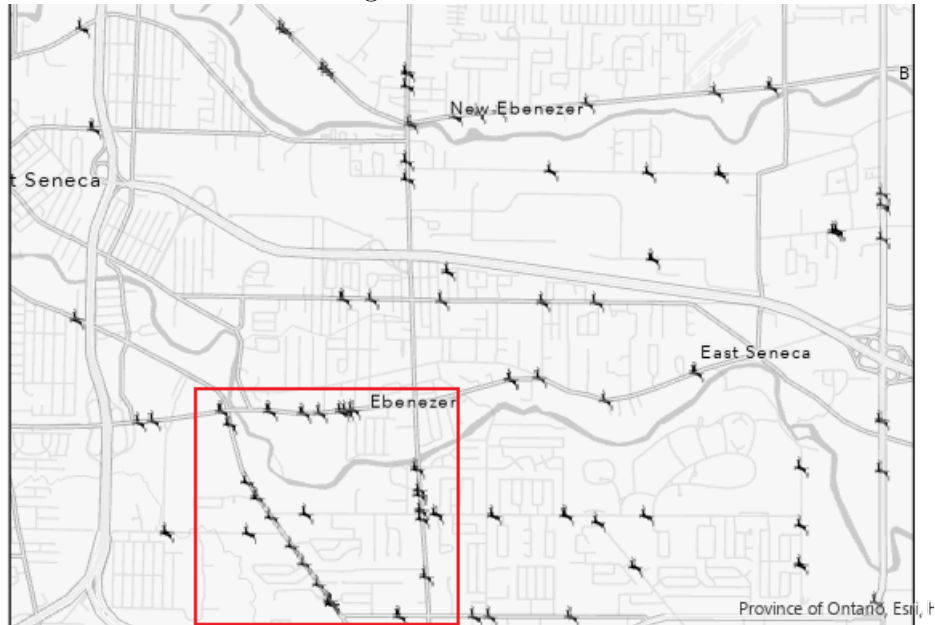
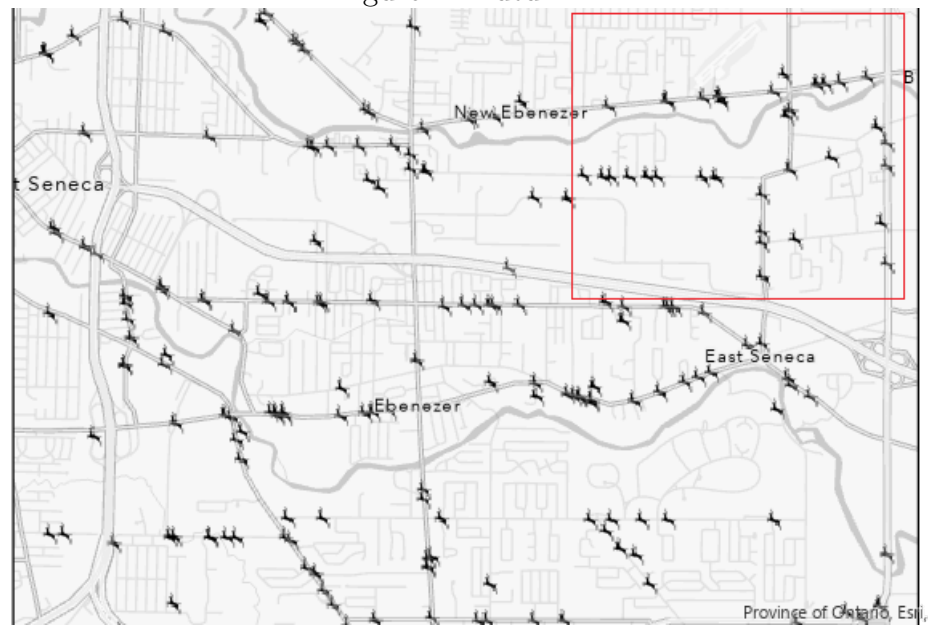
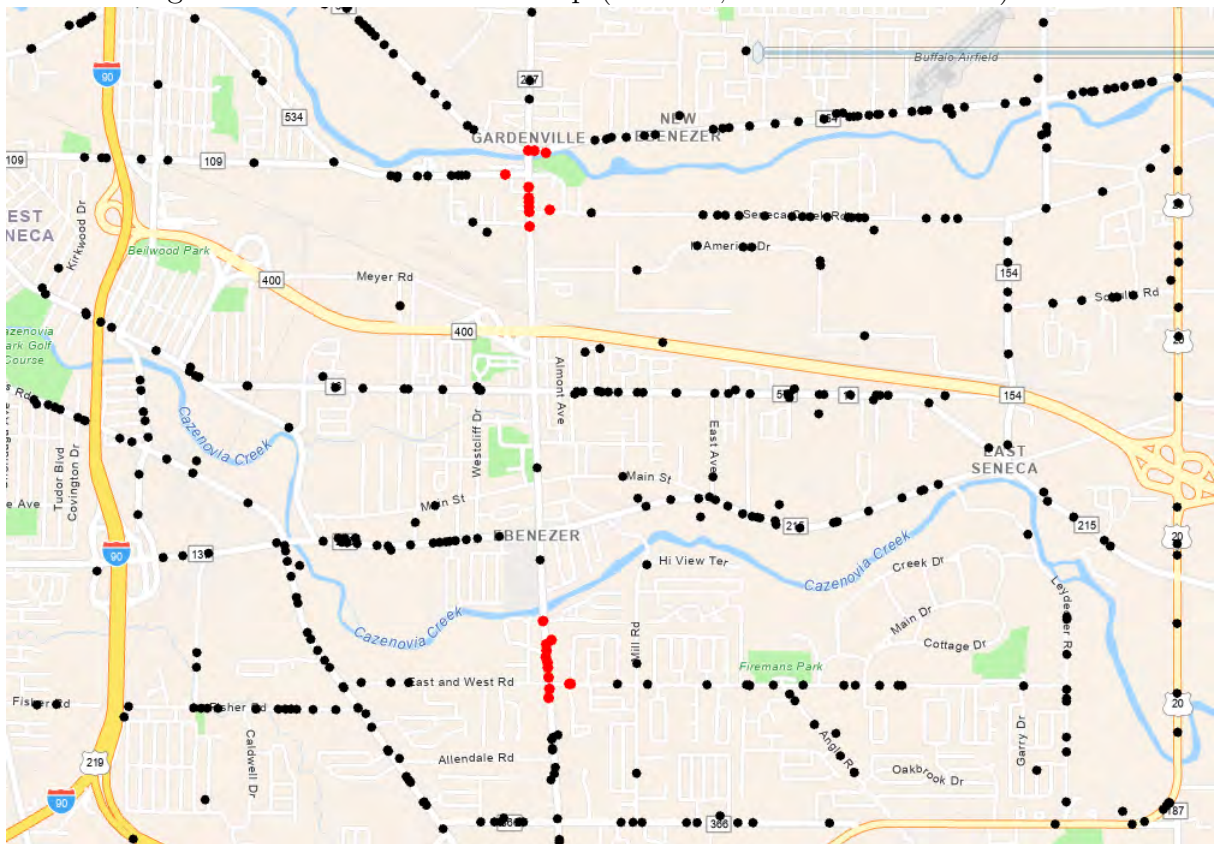


Figure 4: Autumn

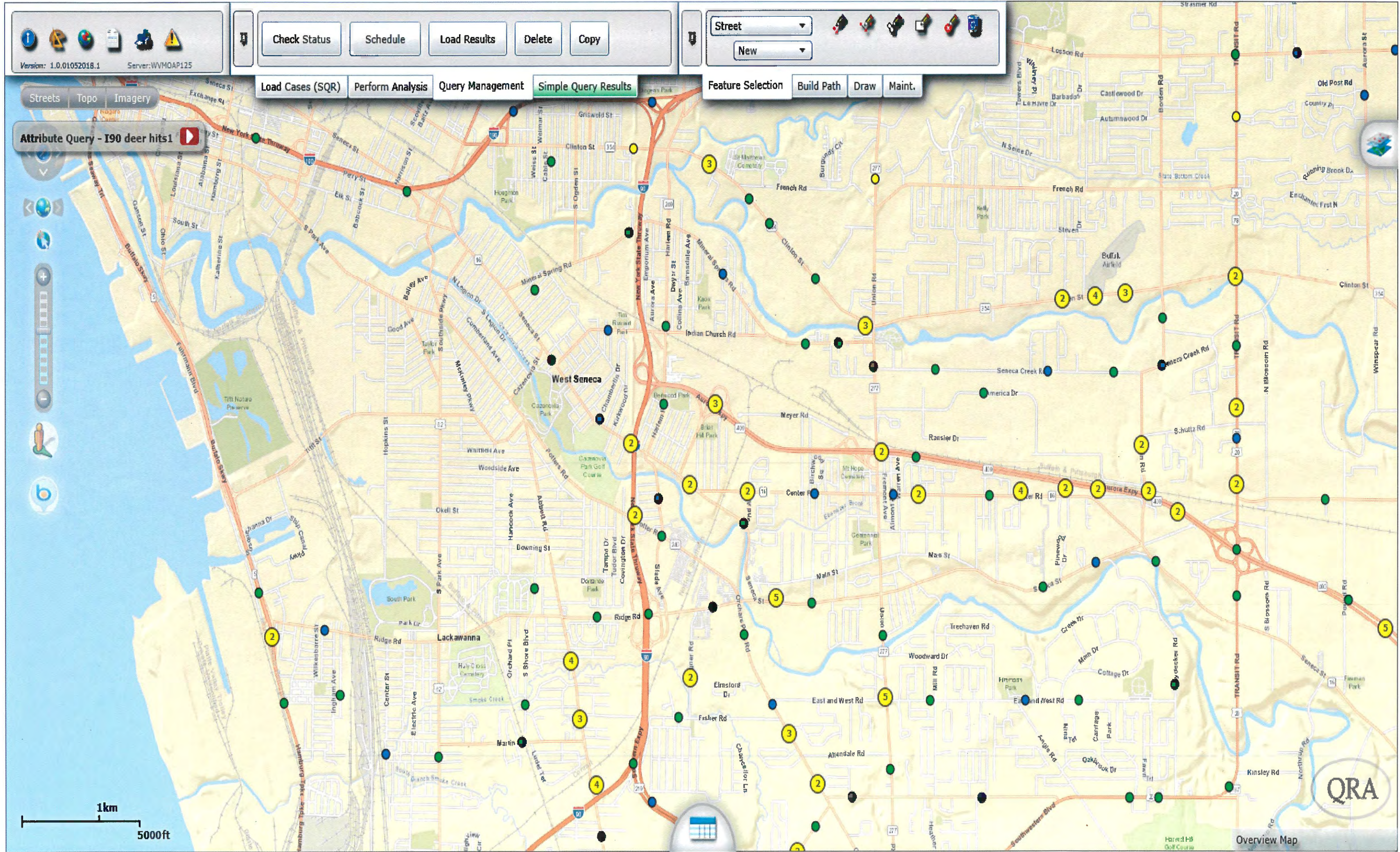


8 Exploratory Cluster Analysis

Figure 5: DBSCAN Cluster Map (.2 Miles, minimum 15 DVCs)



WEST SENECA ANIMAL CRASHES
TIME FRAME 1/1/2015 - 12/31/2021



NON-REPORTABLE = PROPERTY DAMAGE UNDER \$1000

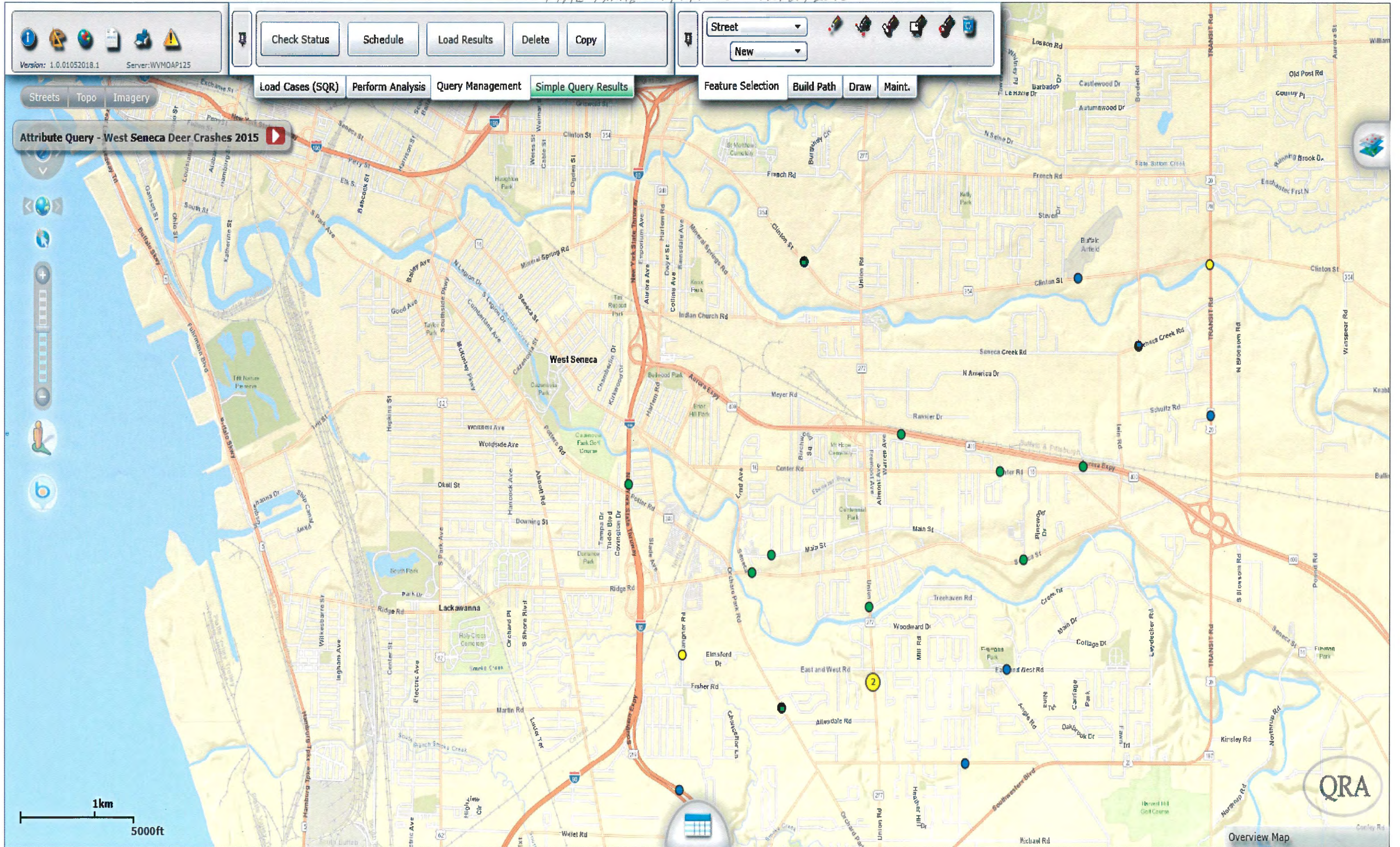
● - NON REPORTABLE ANIMAL CRASH
● - REPORTABLE ANIMAL CRASH

} SINGLE CRASH

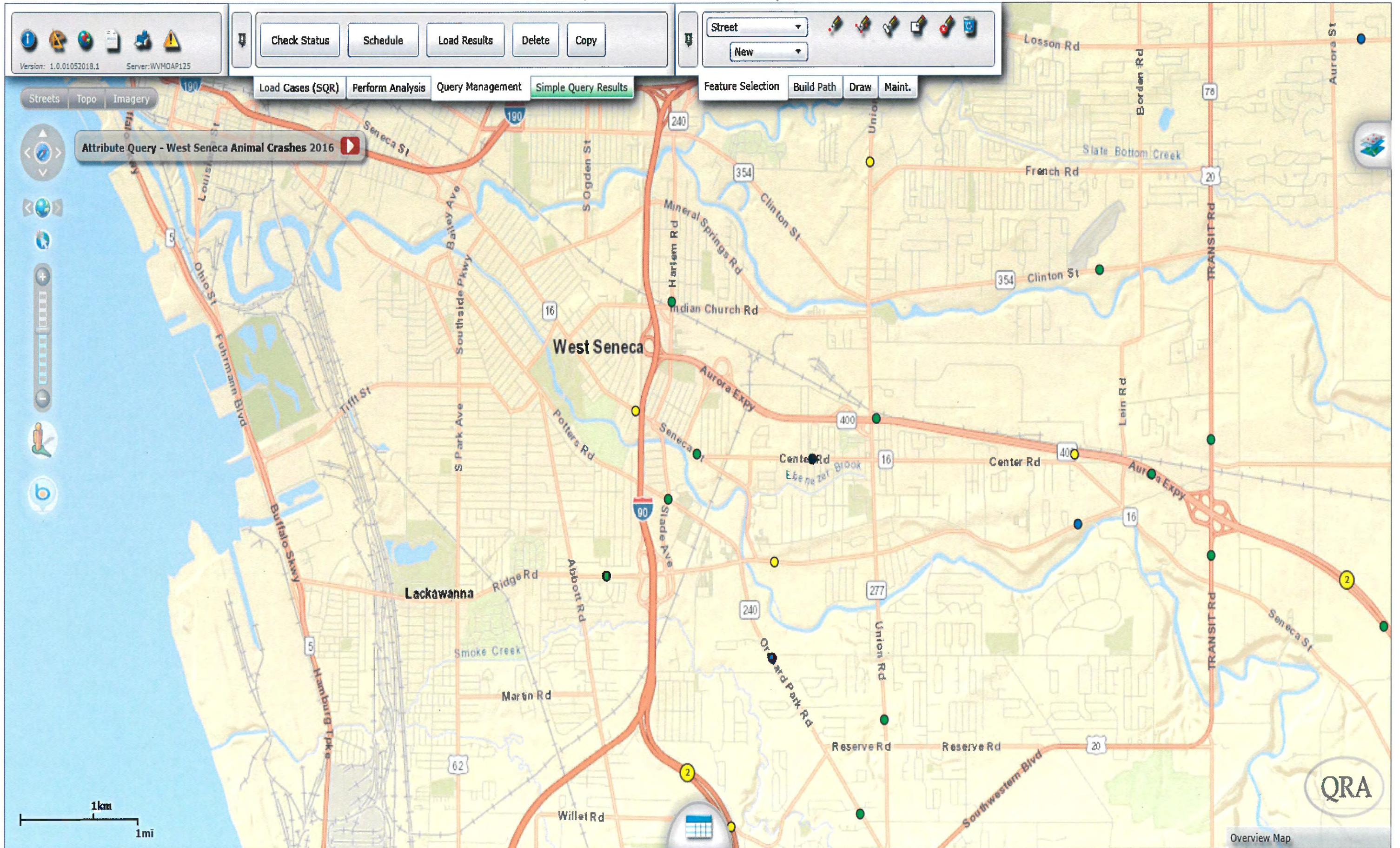
● - INJURY ANIMAL CRASH
● - NUMBER OF ANIMAL CRASHES AT APPROXIMATE LOCATION

2015 ANIMAL CRASHES

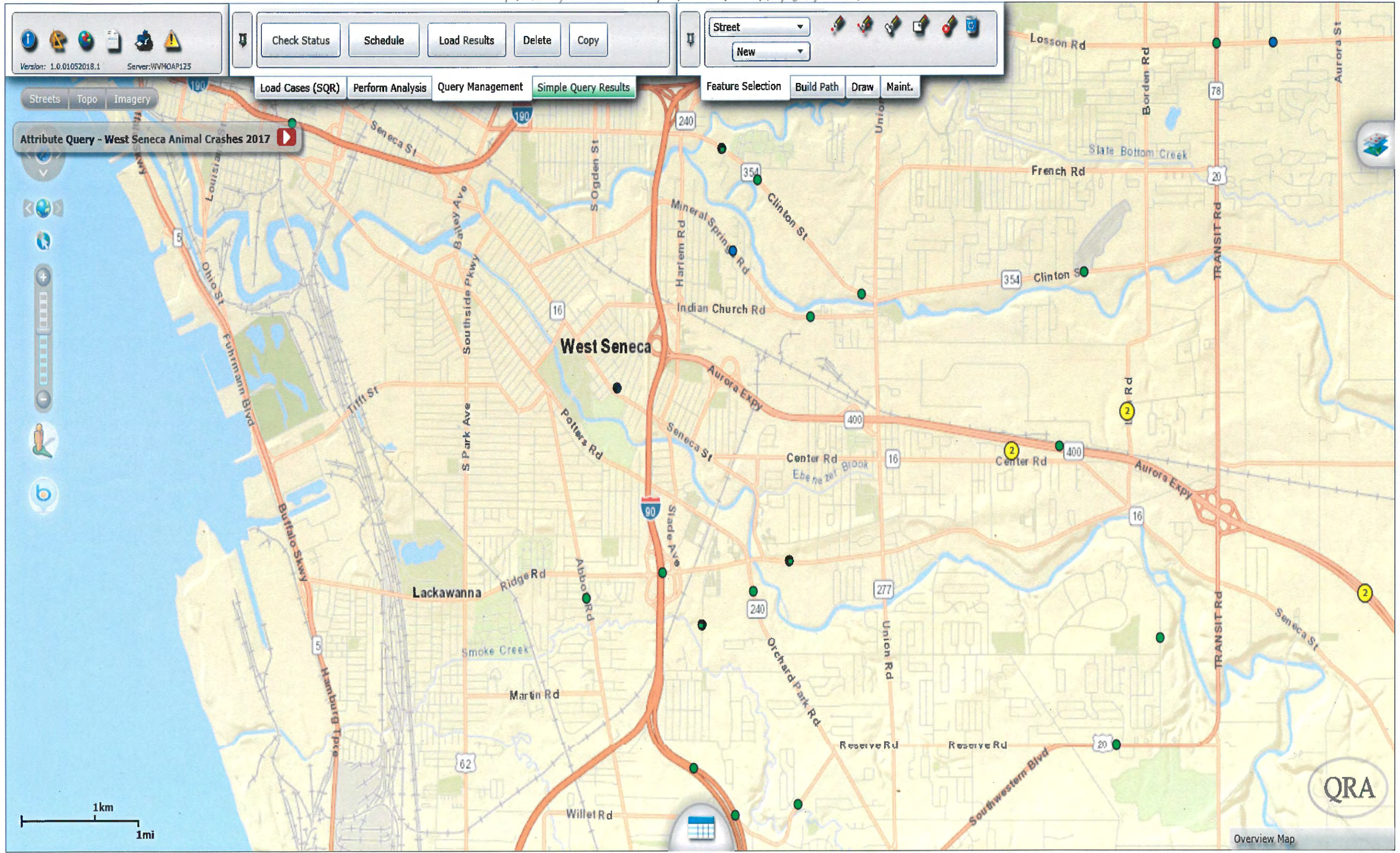
TIME FRAME 1/1/2015 - 12/31/2015



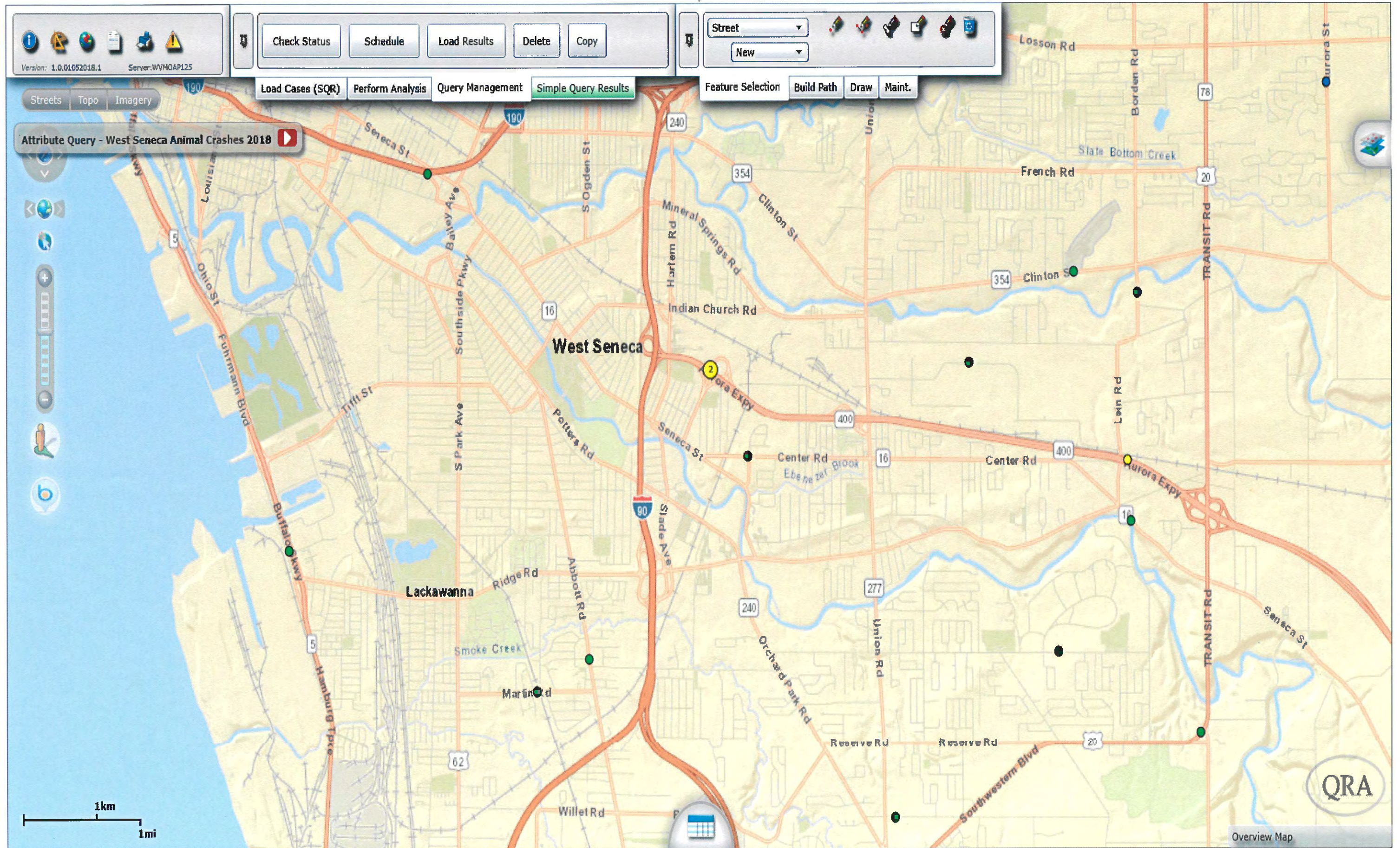
TIME FRAME 1/1/2016 - 12/31/2016



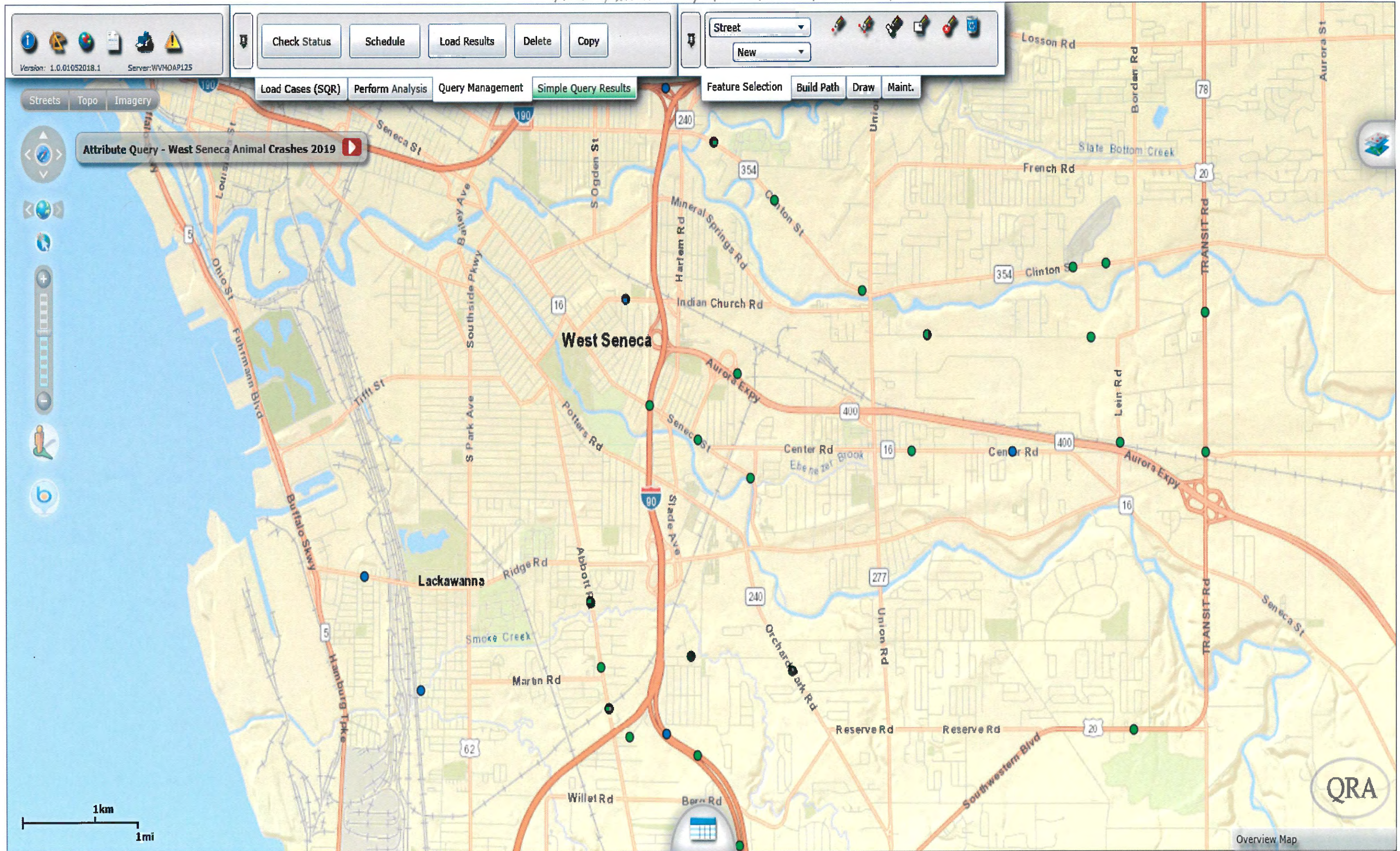
2017 ANIMAL CRASHES
TIME FRAME 1/1/2017 - 12/31/2017



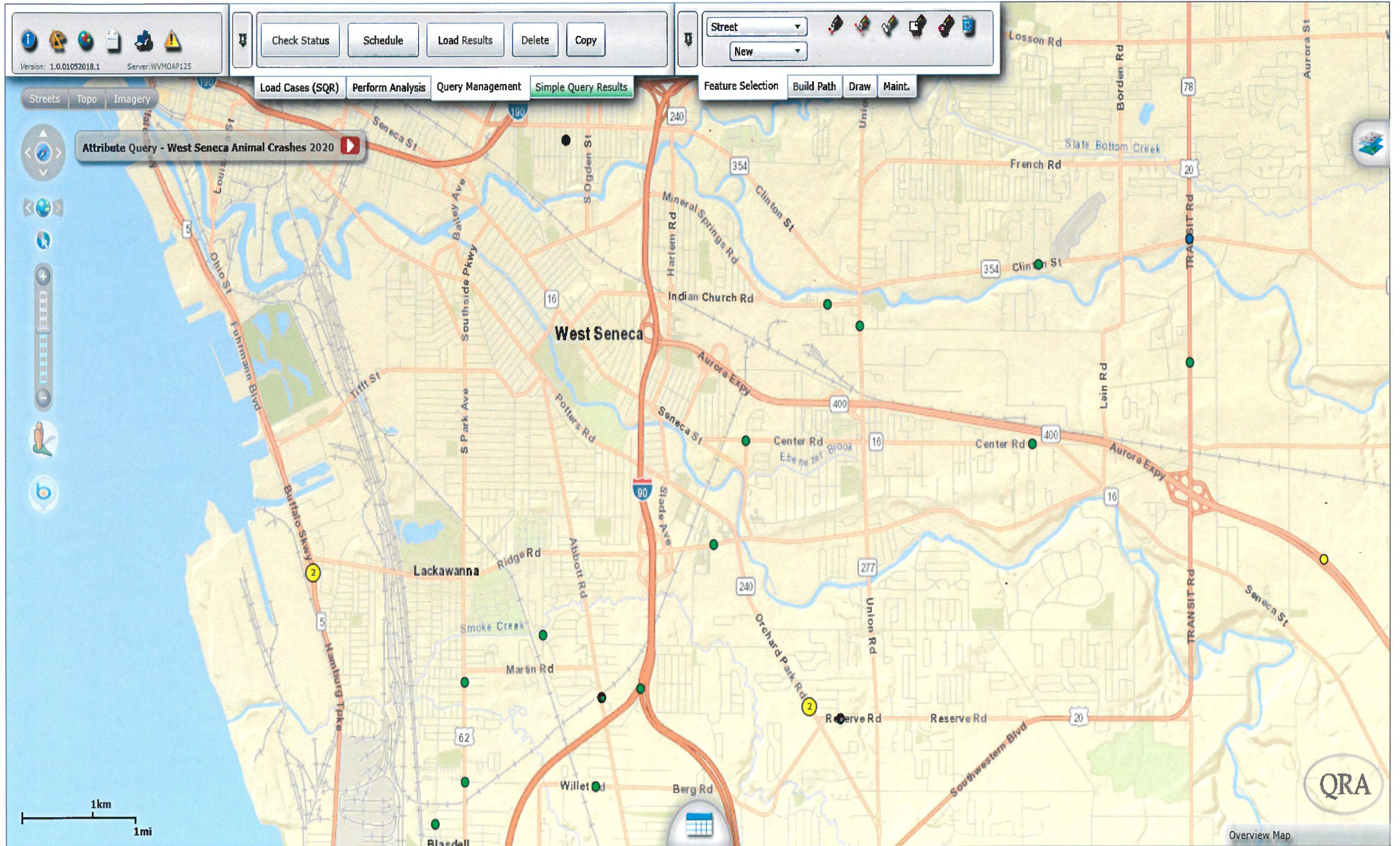
2018 ANIMAL CRASHES
TIME FRAME 1/1/2018 - 12/31/2018



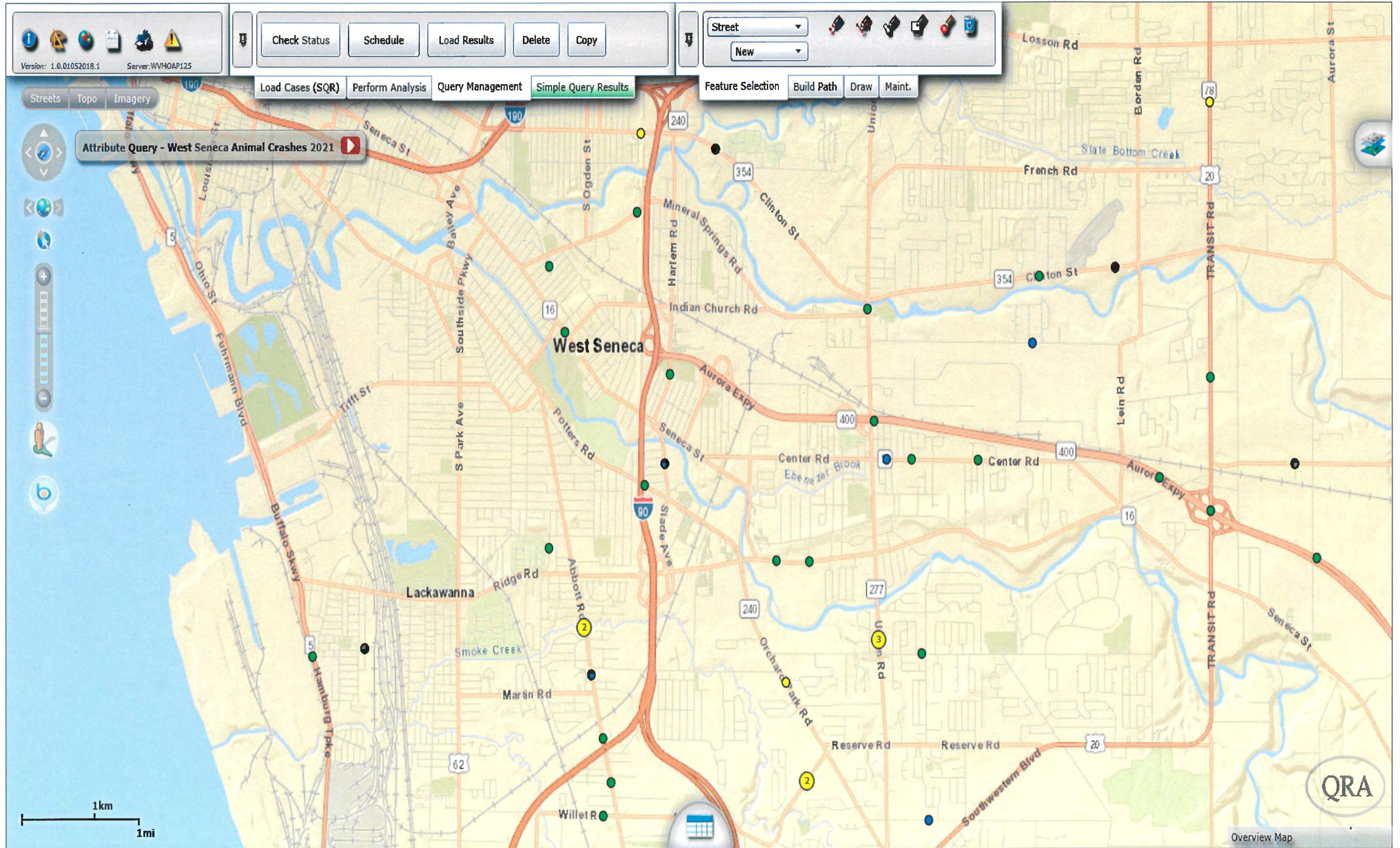
TIME FRAME 1/1/2019 - 12/31/2019



2020 ANIMAL CRASHES
TIME FRAME 1/1/2020 - 12/31/2020



2021 ANIMAL CRASHES
TIME FRAME 1/1/2021 - 12/31/2021



Attachment F

West Seneca Highway Department/ Animal Control

Sample data collected

Deer incident numbers

2021 total 343

Updated 2022 deer incident numbers

Jan	21
Feb	41
March	24
Apr (through Apr. 19th)	15

Contact: Highway Supervisor Brian Adams

Attachment G

Proposed model for plant monitoring

In order to evaluate the impact of deer browsing on plants in West Seneca, and to establish a baseline for deer browse in the area the AVID (Assess Vegetation Impacts from Deer) monitoring method will be used. This program was developed to monitor plants each year and look at impacts from deer, and additional information about the program, user guides and data sheets can be found at <https://aviddeer.com>.

Plant monitoring will be carried out by a local College or University student, with guidance from Brittany Hernon (and Robin Foster?) from the West Seneca Deer Task Force. The student can receive internship credit for carrying out this project, as long as all proper approvals and paperwork from their school are obtained and completed. (The Town of West Seneca will reach out to local colleges and universities to advertise this unpaid internship opportunity, in order to find interested candidates.)

The student will review the AVID user manual and determine a suitable location in the Town of West Seneca for monitoring. The student will use the AVID protocols to establish plots throughout the monitoring location and collect relevant data. Data will be submitted to the Town of West Seneca with a brief report of findings.

Monitoring will be carried out annually to look at changes in deer browse. The baseline data will be used as a comparison to future years and will allow the Town of West Seneca to track changes in vegetation and deer browse as deer management is implemented.

Attachment H Deer Management Educational Sources

Deer Management Program – Controlled Bow Hunt - Redding, CT
<https://townofreddingct.org/government/services/deer-management/>

Managing Deer in the Landscape -
UME Woodland Stewardship Education
<https://youtu.be/GaQRLyhV2es>

Integrated Deer Management Approach - UME Woodland Stewardship Education
<https://youtu.be/srUWUuCyubU>

Upper Dublin Township
Police Department - Analysis of Deer Hunt/Cull Program 1/3
<https://www.upperdublin.net/wp-content/uploads/2019/05/2018-2019-Deer-Management-Program-Analysis.pdf>

Upper Dublin Township
Police Department - Analysis of Deer Hunt/Cull Program 2/3
<https://www.upperdublin.net/wp-content/uploads/2021/04/2019-2020-Deer-Management-Analysis-Report.pdf>

Upper Dublin Township
Police Department - Analysis of Deer Hunt/Cull Program 3/3
<https://www.upperdublin.net/wp-content/uploads/2021/04/2020-2021-Deer-Management-Analysis-Report.pdf>

Missouri Department of Conservation: Deer Management Information
<https://mdc.mo.gov/your-property/improve-your-property/wildlife-management/deer-management>

Deer Problems in Residential Areas:
<http://www.ncwildlife.org/Portals/0/WildlifeProblems/documents/DeerProblemsinResidentialAreas.pdf>

Management and Gardening strategies to minimize deer damage in the Landscape -
<https://gardening.ces.ncsu.edu/wildlife-5/management-strategies-to-minimize-deer-damage-in-the-landscape/>