



11-2018

Multi-Family Address List Creation Using Open Data & Delivery-Point Validation

Aaron D. Schroeder
University of Virginia

Follow this and additional works at: [https://repository.upenn.edu/
admindata_conferences_presentations_2018](https://repository.upenn.edu/admindata_conferences_presentations_2018)

Schroeder, Aaron D., "Multi-Family Address List Creation Using Open Data & Delivery-Point Validation" (2018). *2018 ADRF Network Research Conference Presentations*. 10.
https://repository.upenn.edu/admindata_conferences_presentations_2018/10

This paper is posted at ScholarlyCommons. https://repository.upenn.edu/admindata_conferences_presentations_2018/10
For more information, please contact repository@pobox.upenn.edu.

Multi-Family Address List Creation Using Open Data & Delivery-Point Validation

Multi-Family Address List Creation Using Open Data & Delivery-Point Validation

Creating a Consolidated Multi-Family Address List to Improve Service-Delivery to Arlington County Residents and Facilitate Compliance with 2020 Census Requirements

Aaron D. Schroeder, Ph.D.

aschroed@virginia.edu

November 14, 2018



UNIVERSITY
of VIRGINIA

Biocomplexity Institute & Initiative

Multi-Family Address List Project Purpose

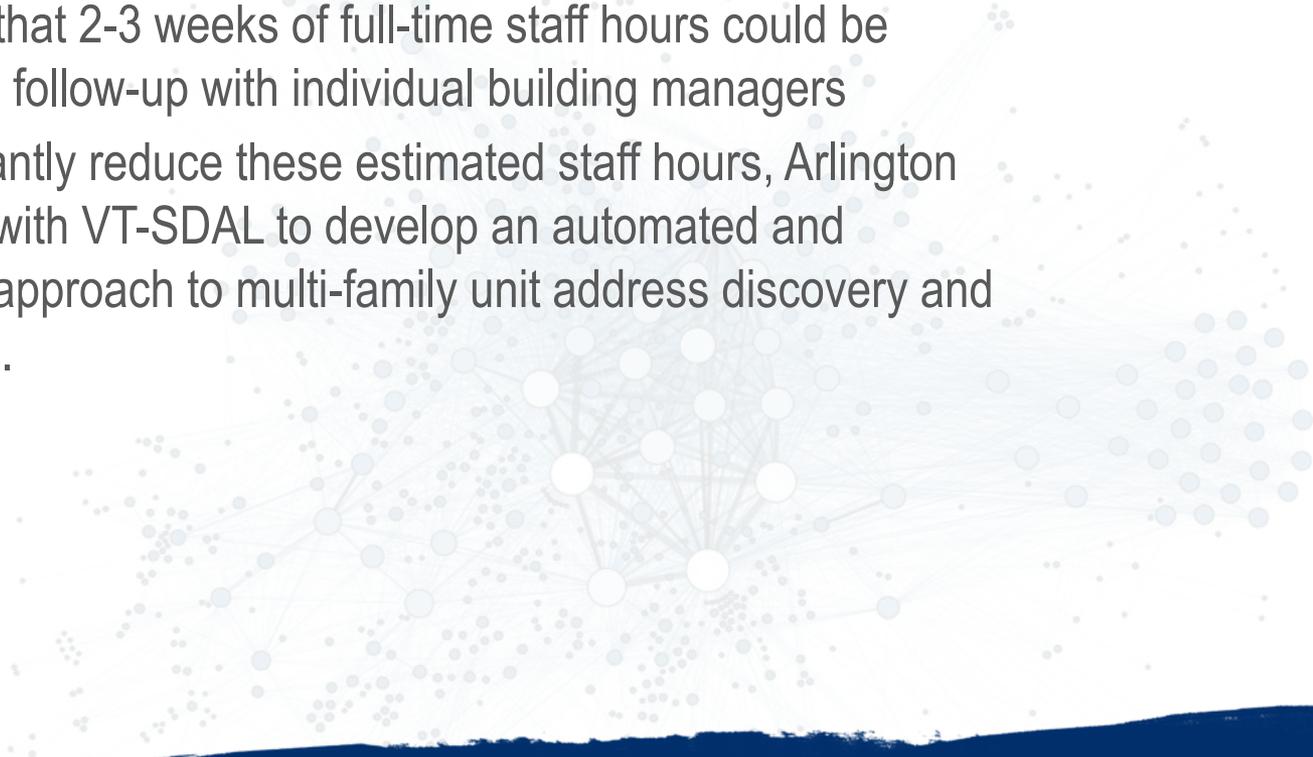
- The Multi-Family Address List is a consolidated list of apartment and condominium addresses which will be used by County staff to enhance service delivery to Arlington's multi-family population
- Rental unit address information is not regularly collected by many localities (property taxes are assessed on an entire complex and to the complex owner, not on individual rental units or their tenants)
- The purpose of this project was to fulfill Arlington County's stated vision of fostering an inclusive community by creating a dataset that thoroughly accounts for all multi-family development in the County

Additional Benefit – CENSUS 2020

- An additional benefit is enabling easier compliance with new 2020 Census requirements to include the provision of address information for each unit within each apartment or condominium building (i.e. unit numbers and/or letters).
- Most localities in Virginia do not regularly collect address data for every multi-family unit. This circumstance is also not limited to Virginia as can be seen in a recent New York Times article discussing the same issue being faced by New York City (<https://www.nytimes.com/2018/03/09/nyregion/census-2020-new-york.html>).
- Potentially a benefit for MANY Virginia Localities

Enhancing Existing Efforts

- While Arlington chose to conduct an online survey to capture these addresses, given historic survey response rates, it was estimated that 2-3 weeks of full-time staff hours could be required to follow-up with individual building managers
- To significantly reduce these estimated staff hours, Arlington partnered with VT-SDAL to develop an automated and replicable approach to multi-family unit address discovery and verification.



arlingtonva.us

Site Plan

Contains one instance for each parcel identified by RealEstatePropertyGeocode associated with a site plan.

Parcel ID	Address	Area	Height	Floors	Units	Height	Floors	Units	Height	Floors	Units
174	17400	100	10	1	1	10	1	1	10	1	1
175	17500	100	10	1	1	10	1	1	10	1	1
176	17600	100	10	1	1	10	1	1	10	1	1
177	17700	100	10	1	1	10	1	1	10	1	1
178	17800	100	10	1	1	10	1	1	10	1	1
179	17900	100	10	1	1	10	1	1	10	1	1
180	18000	100	10	1	1	10	1	1	10	1	1
181	18100	100	10	1	1	10	1	1	10	1	1
182	18200	100	10	1	1	10	1	1	10	1	1
183	18300	100	10	1	1	10	1	1	10	1	1
184	18400	100	10	1	1	10	1	1	10	1	1
185	18500	100	10	1	1	10	1	1	10	1	1
186	18600	100	10	1	1	10	1	1	10	1	1
187	18700	100	10	1	1	10	1	1	10	1	1
188	18800	100	10	1	1	10	1	1	10	1	1
189	18900	100	10	1	1	10	1	1	10	1	1
190	19000	100	10	1	1	10	1	1	10	1	1
191	19100	100	10	1	1	10	1	1	10	1	1
192	19200	100	10	1	1	10	1	1	10	1	1
193	19300	100	10	1	1	10	1	1	10	1	1
194	19400	100	10	1	1	10	1	1	10	1	1
195	19500	100	10	1	1	10	1	1	10	1	1
196	19600	100	10	1	1	10	1	1	10	1	1
197	19700	100	10	1	1	10	1	1	10	1	1
198	19800	100	10	1	1	10	1	1	10	1	1
199	19900	100	10	1	1	10	1	1	10	1	1
200	20000	100	10	1	1	10	1	1	10	1	1

arlingtonva.us

Site Plan Property

Contains one instance for each parcel identified by RealEstatePropertyGeocode associated with a site plan.

Parcel ID	Address	Area	Height	Floors	Units	Height	Floors	Units	Height	Floors	Units
401	40100	100	10	1	1	10	1	1	10	1	1
402	40200	100	10	1	1	10	1	1	10	1	1
403	40300	100	10	1	1	10	1	1	10	1	1
404	40400	100	10	1	1	10	1	1	10	1	1
405	40500	100	10	1	1	10	1	1	10	1	1
406	40600	100	10	1	1	10	1	1	10	1	1
407	40700	100	10	1	1	10	1	1	10	1	1
408	40800	100	10	1	1	10	1	1	10	1	1
409	40900	100	10	1	1	10	1	1	10	1	1
410	41000	100	10	1	1	10	1	1	10	1	1
411	41100	100	10	1	1	10	1	1	10	1	1
412	41200	100	10	1	1	10	1	1	10	1	1
413	41300	100	10	1	1	10	1	1	10	1	1
414	41400	100	10	1	1	10	1	1	10	1	1
415	41500	100	10	1	1	10	1	1	10	1	1
416	41600	100	10	1	1	10	1	1	10	1	1
417	41700	100	10	1	1	10	1	1	10	1	1
418	41800	100	10	1	1	10	1	1	10	1	1
419	41900	100	10	1	1	10	1	1	10	1	1
420	42000	100	10	1	1	10	1	1	10	1	1
421	42100	100	10	1	1	10	1	1	10	1	1
422	42200	100	10	1	1	10	1	1	10	1	1
423	42300	100	10	1	1	10	1	1	10	1	1
424	42400	100	10	1	1	10	1	1	10	1	1
425	42500	100	10	1	1	10	1	1	10	1	1
426	42600	100	10	1	1	10	1	1	10	1	1
427	42700	100	10	1	1	10	1	1	10	1	1
428	42800	100	10	1	1	10	1	1	10	1	1
429	42900	100	10	1	1	10	1	1	10	1	1
430	43000	100	10	1	1	10	1	1	10	1	1
431	43100	100	10	1	1	10	1	1	10	1	1
432	43200	100	10	1	1	10	1	1	10	1	1
433	43300	100	10	1	1	10	1	1	10	1	1
434	43400	100	10	1	1	10	1	1	10	1	1
435	43500	100	10	1	1	10	1	1	10	1	1
436	43600	100	10	1	1	10	1	1	10	1	1
437	43700	100	10	1	1	10	1	1	10	1	1
438	43800	100	10	1	1	10	1	1	10	1	1
439	43900	100	10	1	1	10	1	1	10	1	1
440	44000	100	10	1	1	10	1	1	10	1	1
441	44100	100	10	1	1	10	1	1	10	1	1
442	44200	100	10	1	1	10	1	1	10	1	1
443	44300	100	10	1	1	10	1	1	10	1	1
444	44400	100	10	1	1	10	1	1	10	1	1
445	44500	100	10	1	1	10	1	1	10	1	1
446	44600	100	10	1	1	10	1	1	10	1	1
447	44700	100	10	1	1	10	1	1	10	1	1
448	44800	100	10	1	1	10	1	1	10	1	1
449	44900	100	10	1	1	10	1	1	10	1	1
450	45000	100	10	1	1	10	1	1	10	1	1
451	45100	100	10	1	1	10	1	1	10	1	1
452	45200	100	10	1	1	10	1	1	10	1	1
453	45300	100	10	1	1	10	1	1	10	1	1
454	45400	100	10	1	1	10	1	1	10	1	1
455	45500	100	10	1	1	10	1	1	10	1	1
456	45600	100	10	1	1	10	1	1	10	1	1
457	45700	100	10	1	1	10	1	1	10	1	1
458	45800	100	10	1	1	10	1	1	10	1	1
459	45900	100	10	1	1	10	1	1	10	1	1
460	46000	100	10	1	1	10	1	1	10	1	1
461	46100	100	10	1	1	10	1	1	10	1	1
462	46200	100	10	1	1	10	1	1	10	1	1
463	46300	100	10	1	1	10	1	1	10	1	1
464	46400	100	10	1	1	10	1	1	10	1	1
465	46500	100	10	1	1	10	1	1	10	1	1
466	46600	100	10	1	1	10	1	1	10	1	1
467	46700	100	10	1	1	10	1	1	10	1	1
468	46800	100	10	1	1	10	1	1	10	1	1
469	46900	100	10	1	1	10	1	1	10	1	1
470	47000	100	10	1	1	10	1	1	10	1	1
471	47100	100	10	1	1	10	1	1	10	1	1
472	47200	100	10	1	1	10	1	1	10	1	1
473	47300	100	10	1	1	10	1	1	10	1	1
474	47400	100	10	1	1	10	1	1	10	1	1
475	47500	100	10	1	1	10	1	1	10	1	1
476	47600	100	10	1	1	10	1	1	10	1	1
477	47700	100	10	1	1	10	1	1	10	1	1
478	47800	100	10	1	1	10	1	1	10	1	1
479	47900	100	10	1	1	10	1	1	10	1	1
480	48000	100	10	1	1	10	1	1	10	1	1
481	48100	100	10	1	1	10	1	1	10	1	1
482	48200	100	10	1	1	10	1	1	10	1	1
483	48300	100	10	1	1	10	1	1	10	1	1
484	48400	100	10	1	1	10	1	1	10	1	1
485	48500	100	10	1	1	10	1	1	10	1	1
486	48600	100	10	1	1	10	1	1	10	1	1
487	48700	100	10	1	1	10	1	1	10	1	1
488	48800	100	10	1	1	10	1	1	10	1	1
489	48900	100	10	1	1	10	1	1	10	1	1
490	49000	100	10	1	1	10	1	1	10	1	1
491	49100	100	10	1	1	10	1	1	10	1	1
492	49200	100	10	1	1	10	1	1	10	1	1
493	49300	100	10	1	1	10	1	1	10	1	1
494	49400	100	10	1	1	10	1	1	10	1	1
495	49500	100	10	1	1	10	1	1	10	1	1
496	49600	100	10	1	1	10	1	1	10	1	1
497	49700	100	10	1	1	10	1	1	10	1	1
498	49800	100	10	1	1	10	1	1	10	1	1
499	49900	100	10	1	1	10	1	1	10	1	1
500	50000	100	10	1	1	10	1	1	10	1	1

arlingtonva.us

Property

The basic information, primary address, owners, etc., about a property.

Parcel ID	Address	Area	Height	Floors	Units	Height	Floors	Units	Height	Floors	Units
1000	10000	100	10	1	1	10	1	1	10	1	1
1001	10010	100	10	1	1	10	1	1	10	1	1
1002	10020	100	10	1	1	10	1	1	10	1	1
1003	10030	100	10	1	1	10	1	1	10	1	1
1004	10040	100	10	1	1	10	1	1	10	1	1
1005	10050	100	10	1	1	10	1	1	10	1	1
1006	10060	100	10	1	1	10	1	1	10	1	1
1007	10070	1									

Delivery Point Validation

- Delivery Point Validation™ (DPV®) is the process of verifying that an address is actually deliverable, meaning that mail can be sent to that address
- Delivery points are different from street addresses. A single street address may have multiple delivery points, such as individual units in an apartment building. To identify delivery points individually, the USPS gives each one a unique 11-digit number composed of the delivery point's nine-digit ZIP+4 Code plus an extra two digits that narrow the designation to the delivery point itself
- Use of the USPS DPV product is limited to entities leasing and reselling the service (SmartyStreets) - > \$50K for an annual license

Efficient Use of the DPV Service

- Checking every possible combination of address, floors/stories, and apartment addressing scheme is certainly untenable
- Goal
 - Perform as few queries as necessary of the DPV service while assuring no addresses are missed
- Approach
 - Make a best guess, with wide parameters, at what the addresses might be, then validate against the DPV service
 - Over-guess floors by 2, units by 10

Results & Issues

- Result: Successful Creation of Replicable Method
 - In combination with mailings, emailings and fieldwork, this effort has helped in the collection of address data from over 96% of the County's total number of apartment complexes
- Issue: Garden Apartments
 - While very good at mid- and high-rise apartment buildings, not very good for many large garden apartment complexes (2-3 story, many buildings).
 - Varied and sometimes very odd addressing schemes