

**Methodology for Estimates and
Forecasts of Housing Units,
Households and Population**
Integrated Parcel Lifecycle System (IPLS)



WHAT IS IPLS?

Integrated Parcel Lifecycle System

- Collects and links administrative data from multiple databases across the Fairfax County.
- Utilizes most current administrative data for Fairfax County at the time of processing
- Creates new data which is the most accurate for Fairfax County.
- All data are as of January 1 (snap shot in time) of the reporting year and updated annually.



Housing Units



Population



**Development
Pipeline**



**Existing
Land Use**



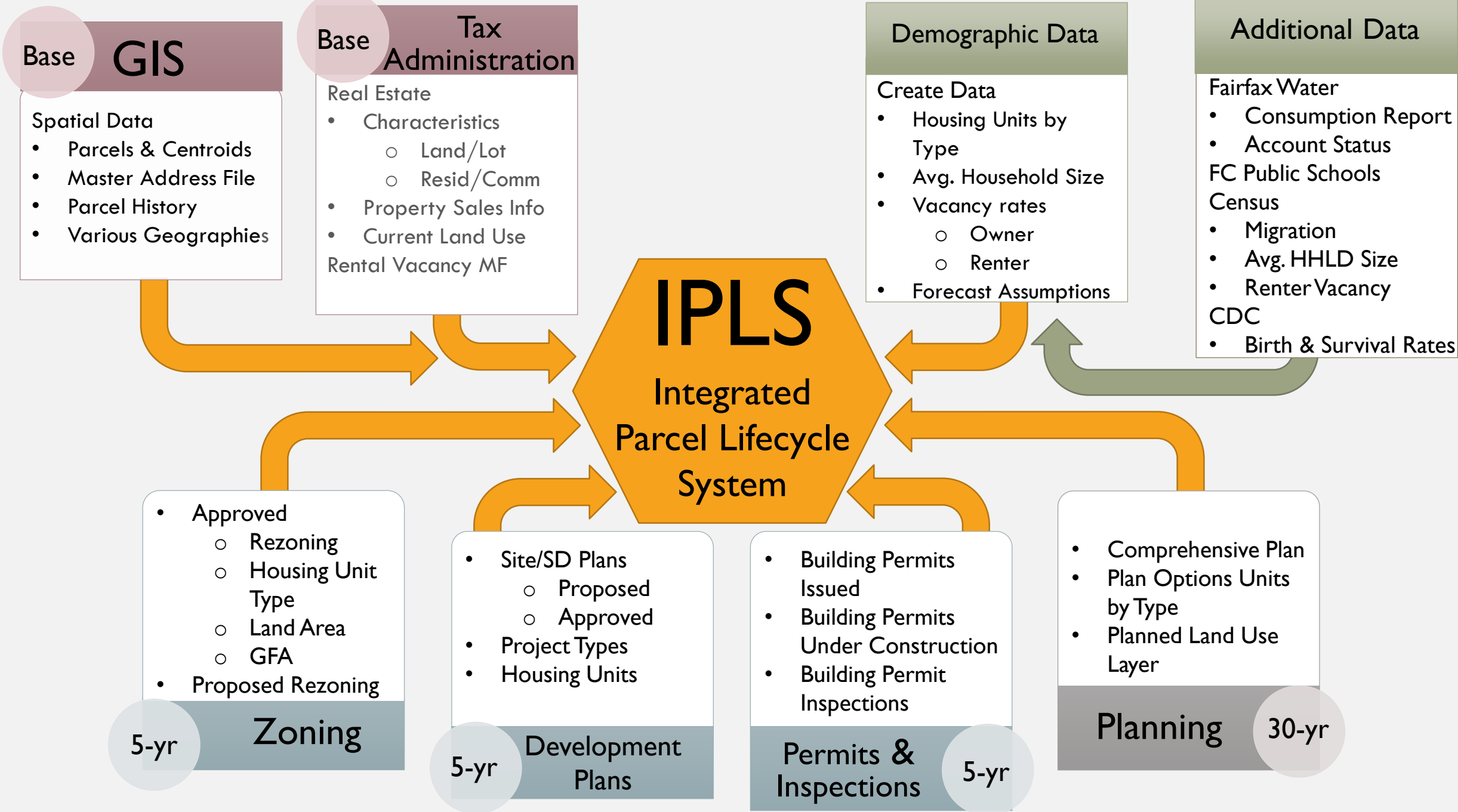
Households



Housing Value



Gross Floor Area



IPLS CURRENT ESTIMATES INPUT

Housing Units

- Real Estate Tax Assessment
 - Conditions for Inclusion: type of unit, age and condition of the structure, percent complete, assessed value, sales value, existing land use, zoning, and access to utilities.

Households

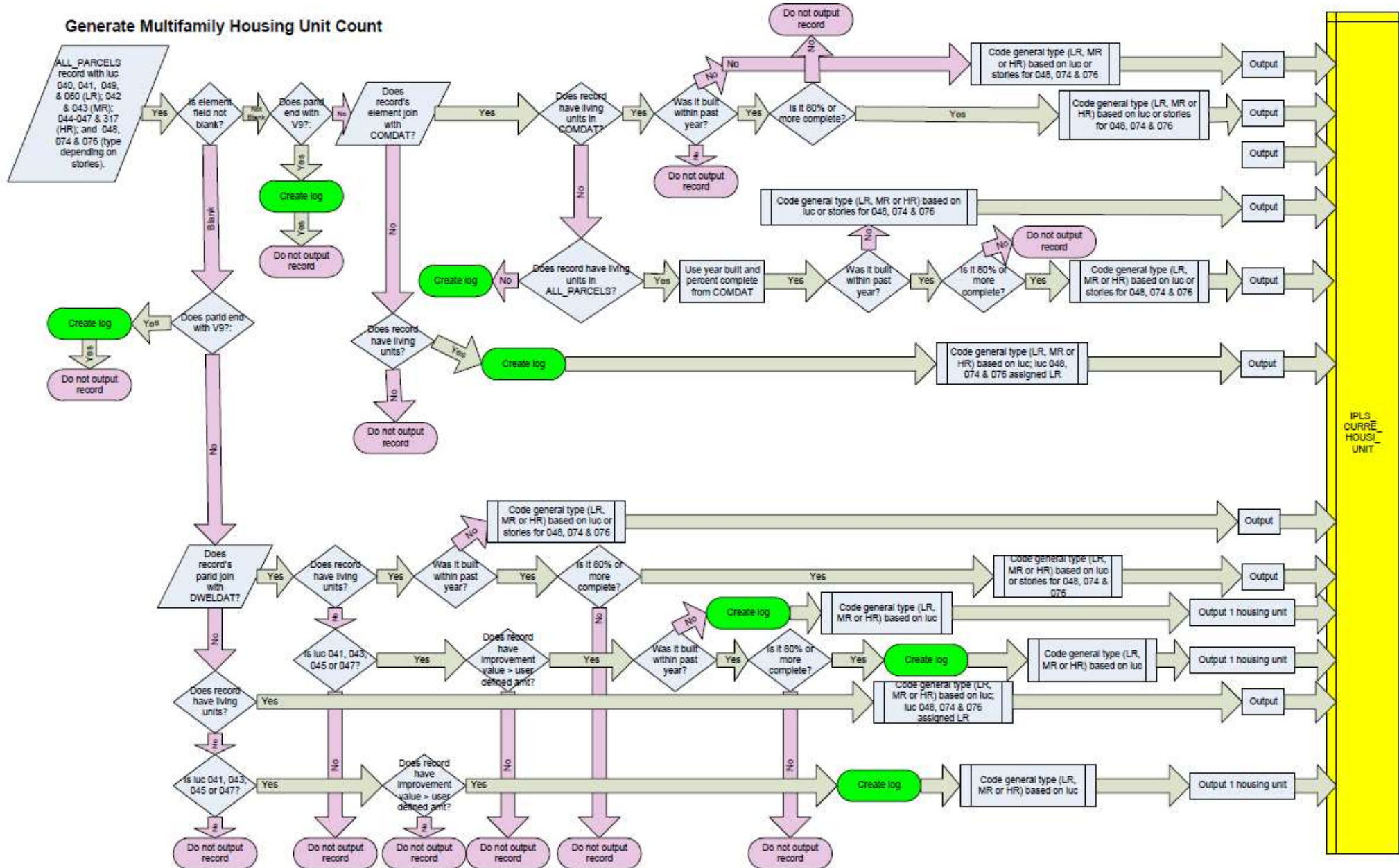
- Fairfax Water
 - Account Status and Consumption Rates
 - Owner Vacancy Estimates
- Fairfax County Surveys of Rental Housing Complexes
 - Renter Vacancy Estimates
- U.S. Census Bureau
 - Vacancy Estimates

Population

- Fairfax Water Usage by Type of Unit
- Average Household Size Estimates
 - ACS 5-Year Data (Racial/Ethnic & Age)
 - Fairfax County Public School Enrollment by Area
- Group Quarters Population
 - Fort Belvoir
 - George Mason University
 - Detention Centers
 - Nursing Homes
 - Etc.

Decision Tree

Generate Multifamily Housing Unit Count





HOUSEHOLD METHODOLOGY

10 Housing Units and 9 Households





HOUSEHOLD METHODOLOGY

10 Housing Units and 9 Households
Vacancy rate is spread across all housing units.





POPULATION METHODOLOGY

- **Average household size**
 - Information from the ACS by census tracts and type of unit.
 - Fairfax County Public Schools Enrollment by Area
 - Fairfax Water Data
 - Adjustments are made using American Community Survey information along with administrative data such as school membership information, water consumption.
- **Group Quarters Population**
 - Contacting facilities to get population numbers.

IPLS CURRENT ESTIMATES OUTPUT

Housing Units

- PIN
- Parcel ID (Centroid)
- Number of Housing Units
- Housing Unit Type
 - SF, TH, DX, MP, LR, MR, HR, and MH
- Current Land Use Code
- Year Built
- Valid To (Report Year)

Households

- PIN
- Parcel ID (Centroid)
- Household Estimate
 - Current (Most Likely)
 - Low
 - High
- Valid To (Report Year)

Population

- PIN
- Parcel ID (Centroid)
- Population Estimate
 - Current (Most Likely)
 - Low
 - High
- Valid To (Report Year)

IPLS FORECASTS INPUT

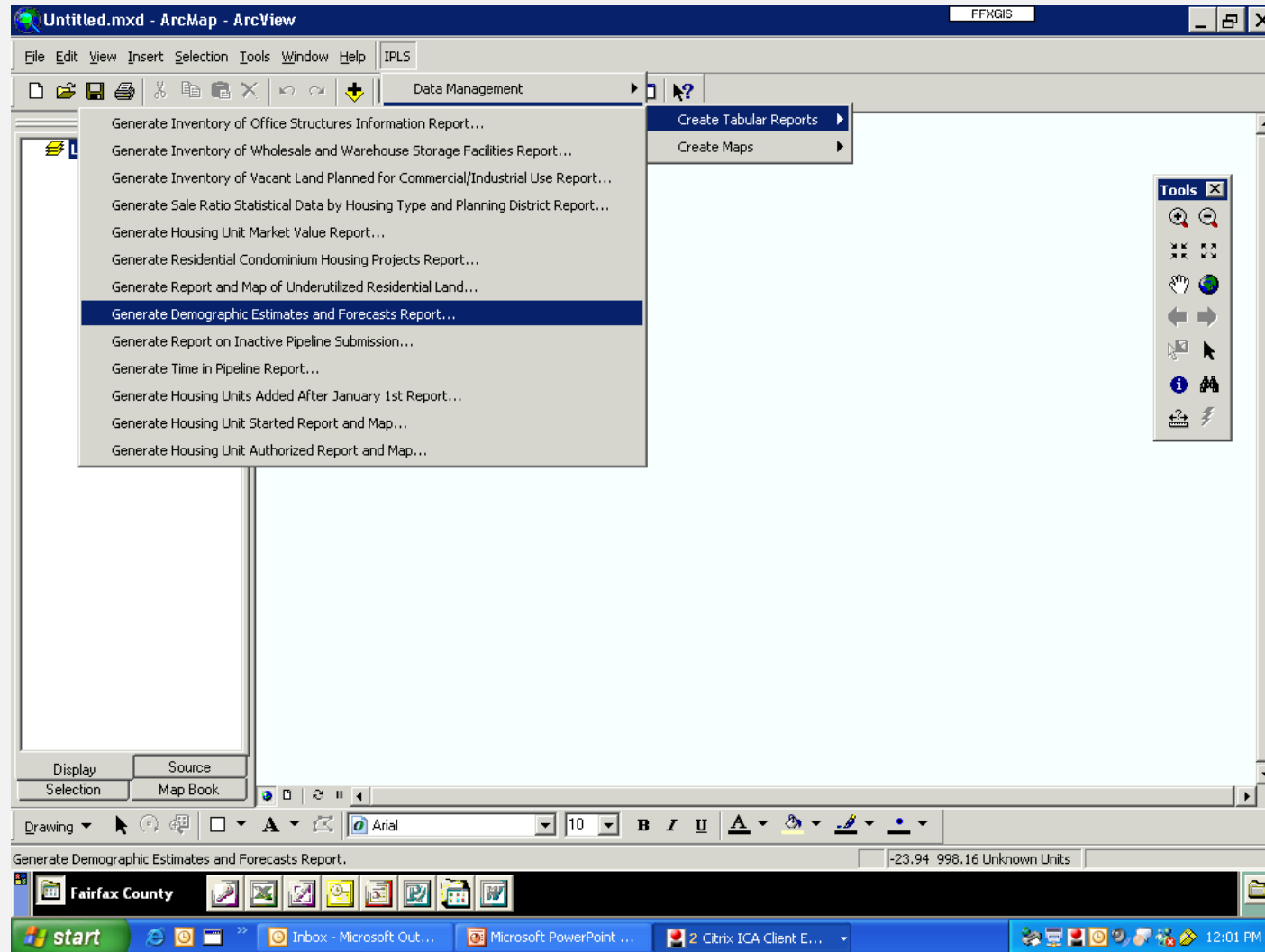
Short-term forecasts:

- 1-5 years
- Residential Development Activity
 - Under Construction
 - Building Permit Issued
 - Development Plan Approved
 - Development Plan Submitted
 - Rezoning Granted
 - Rezoning Pending
- 5-year Projection Accuracy
 - 0.24% average percent error for Housing Units over 7 years of forecast.

Long-term forecasts:

- 6-30 years
- Comprehensive Plan (Base Plan)
- Plan Options (Max HU Potential)
- Existing Parcel Characteristics
 - Age of Structure
 - Location
 - Steepness
 - Flood Plains
 - Structure on Parcel < 15 Years Old
 - Vacant Parcel Sold Within Last Two Years, etc.
- 10-year Projection Accuracy over 2 10-year forecast period
 - 3.44% average percent error

IPLS REPORT TOOL



IPLS EXTENSION REPORTING TOOL OUTPUTS

- Report
 - Current and Forecasted Population, Housing Units & Households
 - Market Value of Housing Units
 - Residential Condominiums Inventory
 - Office Space Inventory
 - Wholesale & Warehouse Storage Facilities Inventory
 - Existing Land Use Acres by Custom Geography
 - Zoned Acres by Custom Geography
- Report and Map
 - Housing Units Authorized by Building Permits
 - Housing Starts
 - Housing Units Completed
 - Vacant Land Planned for Commercial or Industrial Use
 - Underutilized and Vacant Land Planned for Residential Use
- Map
 - Population Density Map
 - Based on Current Estimate or Forecast Year

File Home Insert Page Layout Formulas Data Review View Foxit PDF Tell me what you want to do

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General

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Conditional Formatting Format as Table

Normal Bad Good

Check Cell Explanatory... Input

Clipboard Font Alignment Number Styles

A19 Planning Districts

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
1	 <p>Fairfax County Government Department of Neighborhood and Community Services 12011 Government Center Parkway Fairfax, Virginia 22035</p>																						
2																							
3																							
4																							
5																							
6																							
7																							
8																							

**Current and Projected Population
by Planning Districts
Fairfax County, January 2018**

Generated on: 2018-10-31 10:11 AM

Note: Population includes both household population and group quarters population. Countywide totals may vary by geography depending on how well the geographic layer aligns with actual county boundaries.

Planning Districts	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2
FAIRFAX	78,539	79,000	79,123	79,229	79,337	79,485	79,629	79,845	80,089	80,322	80,571	80,847	81,108	81,383	81,654	81,915	82,181	82,426	82,702	82,961	83,
LINCOLNIA	19,255	19,262	19,266	19,268	19,268	19,270	19,273	19,300	19,303	19,323	19,346	19,380	19,417	19,451	19,485	19,518	19,552	19,574	19,598	19,646	19,
LOWER POTOMAC	40,242	40,330	40,466	40,618	40,738	40,847	40,973	41,207	41,358	41,618	41,853	42,225	42,578	42,889	43,205	43,568	43,894	44,233	44,517	44,883	45,
MOUNT VERNON	99,543	97,929	97,999	98,086	99,108	100,280	101,447	102,945	104,605	106,068	107,268	108,525	109,880	111,163	112,450	113,797	115,031	116,292	117,532	118,880	120,
ANNANDALE	75,575	75,647	75,743	75,921	76,157	76,380	76,609	76,882	77,134	77,364	77,555	77,756	77,977	78,179	78,382	78,601	78,806	79,020	79,222	79,445	79,
BAILEYS	45,287	45,325	45,350	45,376	45,396	45,486	45,609	45,859	46,233	46,721	47,350	48,083	48,808	49,543	50,277	51,056	51,786	52,515	53,245	53,965	54,
VIENNA	72,383	73,059	73,578	74,150	74,429	74,777	75,169	75,778	76,387	77,312	78,482	79,857	81,228	82,609	83,956	85,361	86,706	88,046	89,379	90,798	92,
POHICK	142,136	142,244	142,344	142,403	142,484	142,578	142,600	142,819	142,875	143,079	143,234	143,483	143,721	143,830	144,076	144,285	144,549	144,678	144,907	145,069	145,
ROSE HILL	52,936	52,967	53,036	53,179	53,297	53,427	53,572	53,833	53,971	54,255	54,455	54,803	55,126	55,369	55,697	56,044	56,276	56,520	56,836	57,188	57,
SPRINGFIELD	57,307	57,326	57,356	57,387	57,435	57,510	57,610	57,810	58,017	58,311	58,704	59,117	59,612	60,057	60,473	60,965	61,374	61,808	62,239	62,709	63,
BULL RUN	131,605	132,051	132,785	133,984	134,673	135,452	136,159	136,954	137,633	138,378	139,006	139,721	140,566	141,311	142,113	142,923	143,597	144,373	145,073	145,904	146,
UPPER POTOMAC	198,742	202,289	204,528	206,712	208,866	211,814	214,183	216,933	219,636	222,152	225,743	228,786	231,968	234,982	238,060	241,095	244,039	246,960	249,862	252,812	255,
MCLEAN	78,716	79,641	80,802	82,691	85,374	87,936	90,488	93,235	95,930	98,123	99,495	101,152	102,783	104,445	106,066	107,738	109,354	110,974	112,595	114,264	115,
JEFFERSON	60,608	61,653	61,940	62,133	62,213	62,316	62,432	62,606	62,831	63,087	63,359	63,683	64,006	64,334	64,652	64,977	65,303	65,623	65,945	66,263	66,

IPLS - Population Density Map Parameters

Generate for Year: 2018 2028 2038 2048
 Year: 2018

Estimated or Normal Value: Low Normal High
 Type: Normal Value

Input Layer (polygon layer only)

- Planning Districts
- Supervisor Districts
- Federal Census Tracts
- Federal Census Block Groups
- Human Services Regions
- Sewersheds
- Transportation Analysis Zones
- Voting Precincts
- Zip Codes
- County Border

Selected Layer Name:

Save As

Geodatabase File:

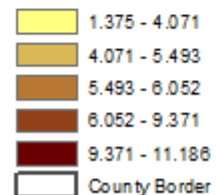
Geographic Layer Name:

**Fairfax County, Virginia
January 2018**

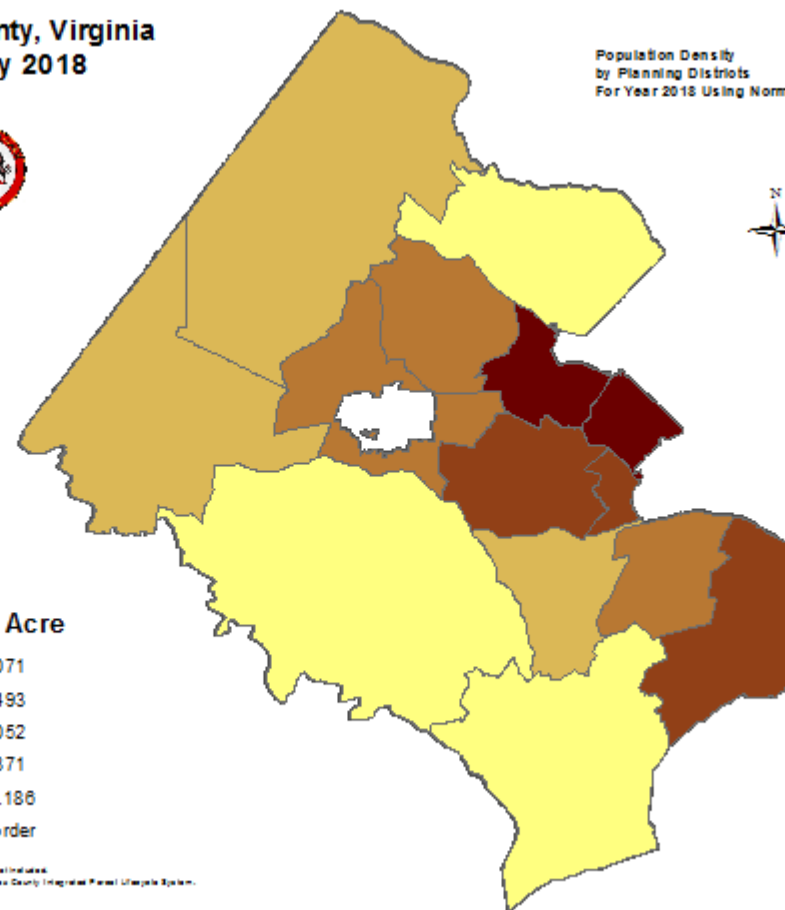
Population Density
by Planning Districts
For Year 2018 Using Normal Assumption



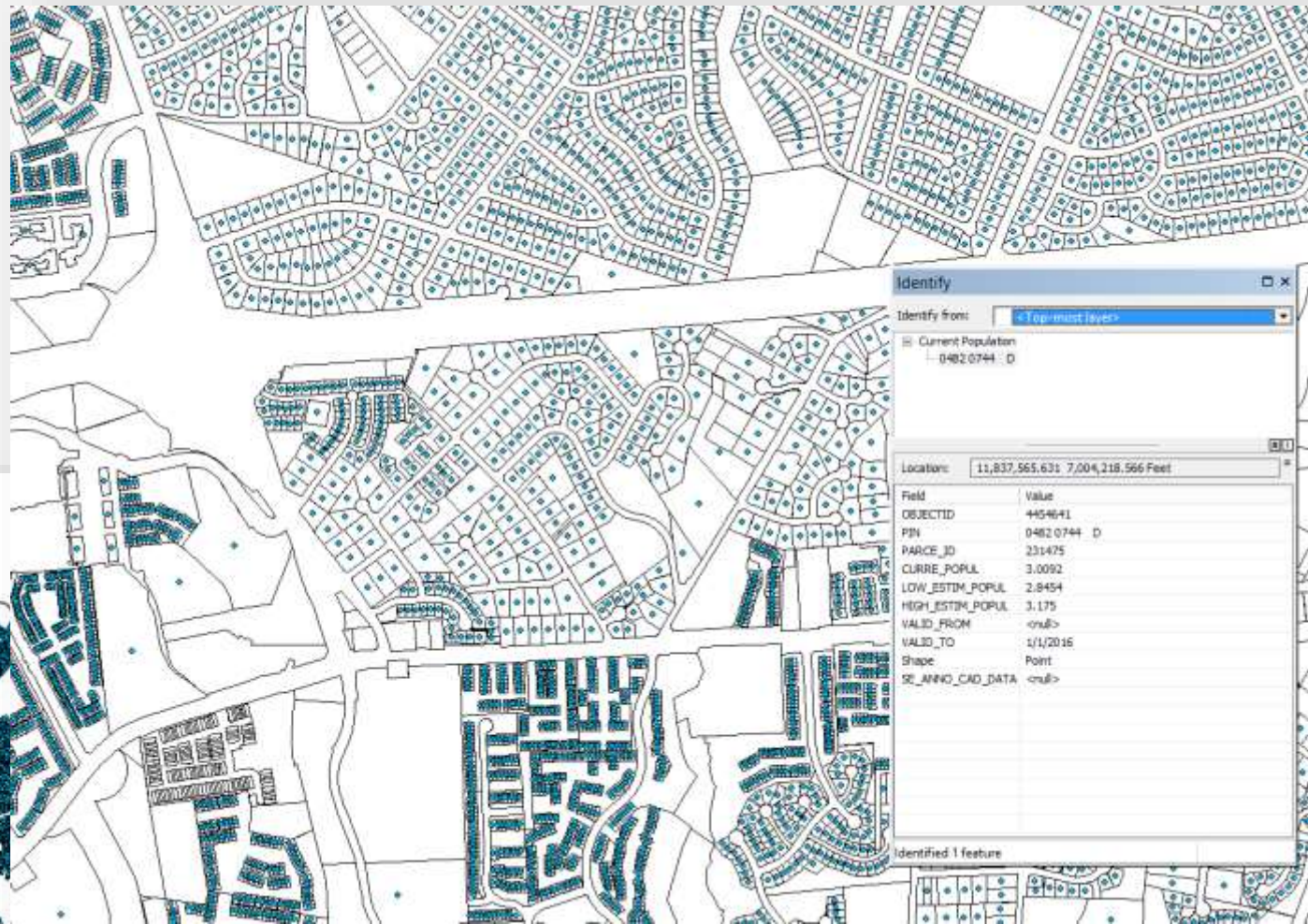
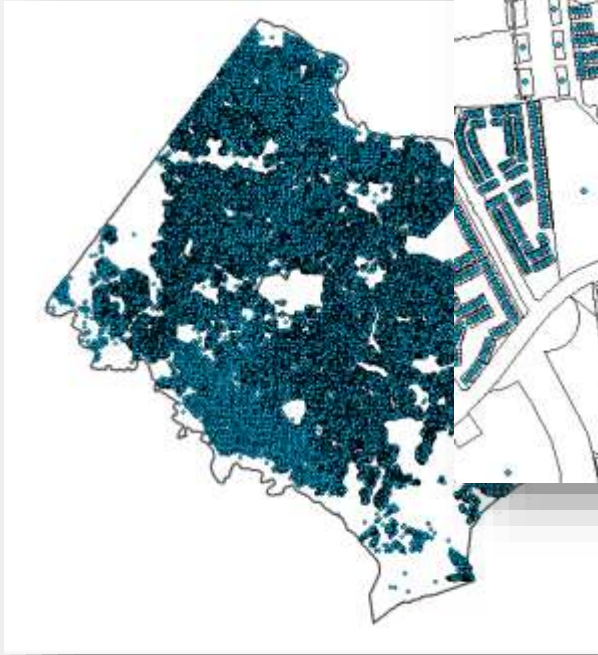
Persons Per Acre



Note: Population of City of Fairfax not included.
 Source: Population Density from Fairfax County Integrated Parcel Mapping System.



PARCEL LEVEL DATA



- Parcel Centroids allow data to be summarized by **any** geography.

FORECAST POPULATION





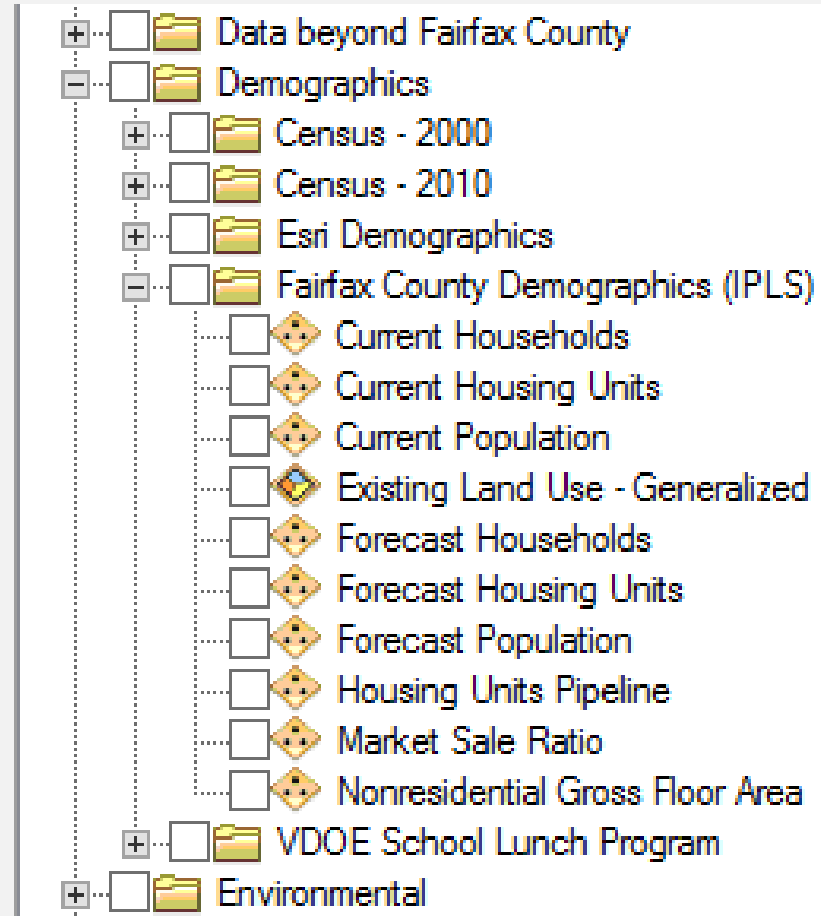
STUDY AREA

STUDY AREA

- Housing Unit Data is accurate to the parcel/point.
- Household and Population Estimates require caution when using small geographic areas.
- As geography size decreases, accuracy decreases.

DATA ACCESS

- **ArcMap (County Staff)**
 - Toolbars > FFX DataLoader v4.0
- **ArcMap IPLS Extension**
- **Fairfax OpenData (General Public)**
 - [Demography > IPLS](#)
- **Demographic Mapper**
 - [Selectable Summary Data](#)
 - CDP, Block Groups and Zip-codes
- **Demographic Reports**
 - [Summary Data](#)





Fairfax County Geospatial Data

Search Open Data



Open Data

How to Search and Access Data

Fairfax County, Virginia offers over 170 GIS data layers to view and/or download. ([View the full list](#))

Use the search bar at the top of the page, or the links below, to find data. Datasets can be filtered to contain only the features of the dataset of interest. Data are offered in several formats including: CSV, KML, shapefile, and JSON. It is suggested that downloaded data be reprojected to the local coordinate system.

By accessing any of the data, maps, or applications provided by Fairfax County, you agree to the terms in our [disclaimer](#).

Any error reports or questions about Fairfax County's geospatial data should be directed to the [Fairfax County GIS Branch](#).

Explore Data Categories



Boundaries



Culture & Society



Demography

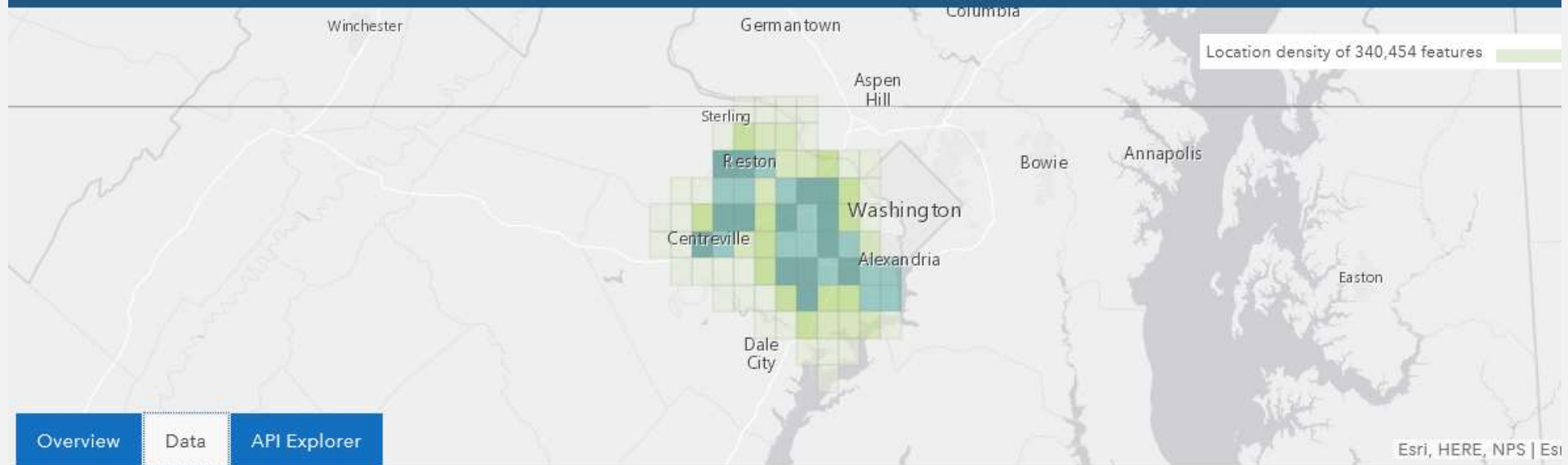


Education



Election

<http://data-fairfaxcountygis.opendata.arcgis.com/>



Overview

Data

API Explorer

Esri, HERE, NPS | Esri

Forecast Population

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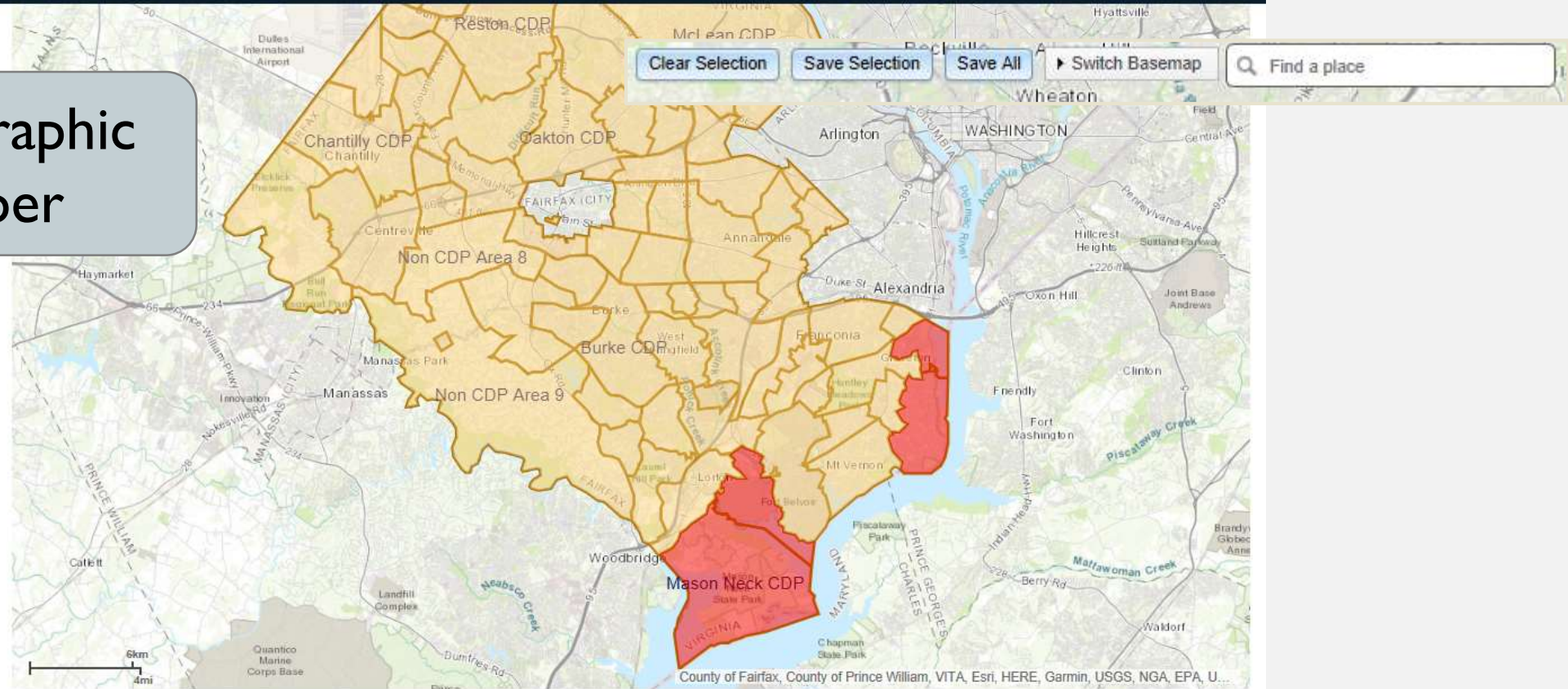
APIs ▾

Showing 1 to 10 of 340,454

Hint: Click on ▾ to filter columns.

▼ OBJECTID	▼ PIN	▼ CURRE_YEAR_1_POPUL	▼ LOW_ESTIM_YEAR_1_POPUL	▼ HIGH_ESTIM_YEAR_1_POPUL	▼ CURRE_YEAR_2_PC
1	0253 09 0189	3.278	3.1	3.458	3.278
2	0253 09 0301	3.278	3.1	3.458	3.278
3	0253 09 0339	3.278	3.1	3.458	3.278
4	0244 09020205	2.209	2.089	2.33	2.209
5	0244 09020209	2.209	2.089	2.33	2.209
6	0251 17 0051	3.25	3.225	3.275	3.25
7	0251 17 0076	3.25	3.225	3.275	3.25

Demographic Mapper



Communit Name	YEAR	Total Population	Population Forecast (5 yrs)	Land Area (Acres)	Total Housing Units	Single Family Detached	Single Family Attached	Multi-family 1-4 Stories	Multi-family 5-8 Stories	Multi-family 9+ Stories	Occupied Housing Units	Housing Units 30+ Year	Housing Units <30 Years	Housing Mkt Value < \$500K	Housing Mkt Value \$500K to < \$1m	Housing Mkt Value \$1m+	Total Gross Floor Area	Office Gross Floor Area	Retail Gross Floor Area	Industrial Gross Floor Area
Belle Haven CDP	2018	6,976	7,371	1,835.666	3,242	1,474	227	1,031	0	510	3,167	3,017	134	1,919	959	255	1,492,109	214,028	1,248,036	30,045
Fort Hunt CDP	2018	16,846	16,926	4,009.001	6,149	6,148	1	0	0	0	6,040	5,636	512	288	5,456	388	243,721	22,342	217,618	3,761
Mason Neck CDP	2018	2,387	2,413	12,813.09	816	814	2	0	0	0	804	635	173	227	435	104	1,284	0	0	1,284

Data Source: Fairfax County Department of Management and Budget; Economic, Demographic and Statistical Research.

Reports

Demographic Reports

DEPARTMENT RESOURCES



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DEMOGRAPHIC REPORTS

Small area housing, population, development, and land use information. Estimates and projections of data presented by supervisor district, planning district, human services region, and census tract and block group. Please note that the geographies contained in the reports have changed over time.

[2018](#) | [2017](#) | [2016](#) | [2015](#) | [2014](#) | [2013](#) | [2012](#) | [2011](#) | [2010](#) | [2009](#) | [2008](#) | [2007](#) | [2005-2006](#) | [2004](#) | [2003](#) | [2002](#) | [2001](#) | [2000](#) | [1999](#) | [1998](#) | [1997](#) | [1996](#) | [1995](#) | [1994](#) | [1993](#) | [1992](#) | [1991](#) | [1990](#) | [1989](#) | [1988](#) | [1987](#) | [1986](#) | [1985](#) | [1984](#) | [1983](#) | [1982](#) | [1981](#) | [1980](#) | [1979](#) | [1978](#) | [1977](#) | [1976](#) | [1975](#) | [1974](#) | [1973](#)

RELATED

Methodology: Appendix A

<https://www.fairfaxcounty.gov/demographics/sites/demographics/files/assets/demographicroports/fullrpt.pdf>

Data Dictionary

<https://www.fairfaxcounty.gov/demographics/sites/demographics/files/assets/datadictionary/ipls-data-dictionary-gis.pdf>

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