

APARTMENT MORATORIUM REPORT

Germantown Board of Mayor and Aldermen



**GERMANTOWN
TENNESSEE**

Background

Resolution 18R03

Date: January 8, 2018

Instituted an Eighteen-Month
Moratorium on New Apartment and
Apartment Building Development in
the Smart Code Zoning Districts

Background

Resolution 18R03

Date: January 8, 2018

WHEREAS, the Board, accordingly, has significant concerns regarding the potential impact of future apartment and apartment building development in the Smart Code Zoning Districts;

Purpose:

To study, research, analyze or assess the likely impacts and nature of any future apartment and apartment building development in the Smart Code zoning districts

Apartment Moratorium Report

Executive Summary

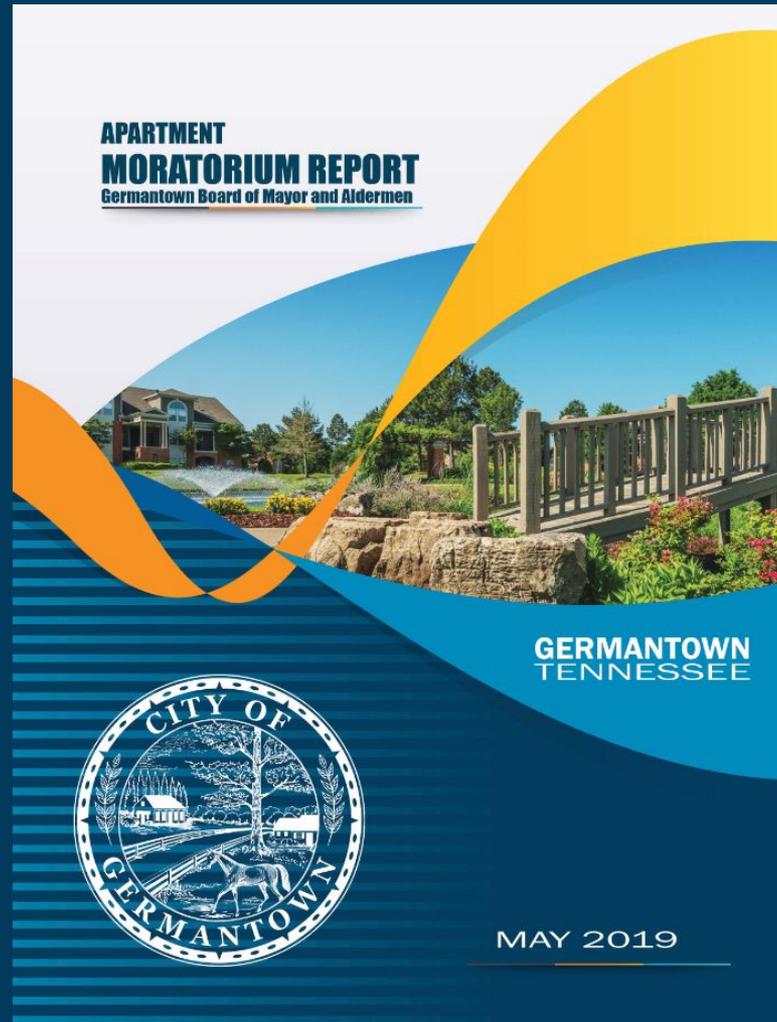
Introduction

Key Areas of Concentration

- Infrastructure
- Police
- Fire
- GMSD

Appendix

References



Background

Resolution 18R03

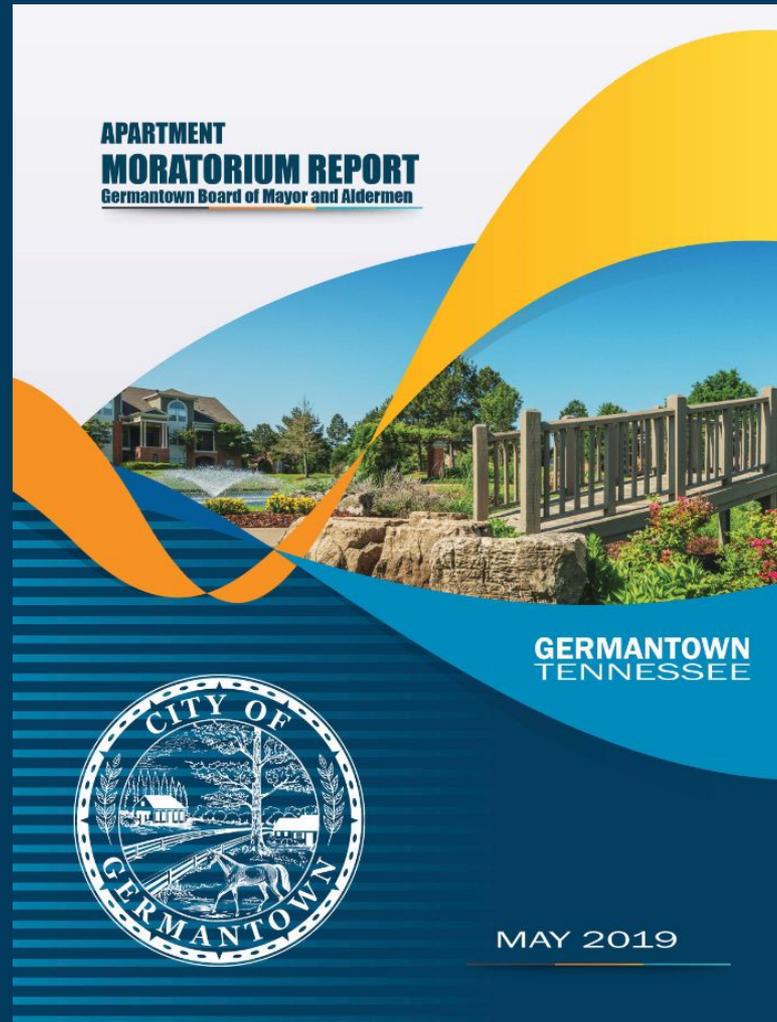
Date: January 8, 2018

WHEREAS, comparatively dense developments, such as apartments and apartment buildings, could result in disproportionate impacts on City resources and services compared to other forms of residential development.

Apartment Moratorium Report

Objectives:

- **Research and Assess Likely Impact**
 - Apartments
 - Other Residential Types
- **Quantify Impact**
 - Existing data to assist in forecasting impact



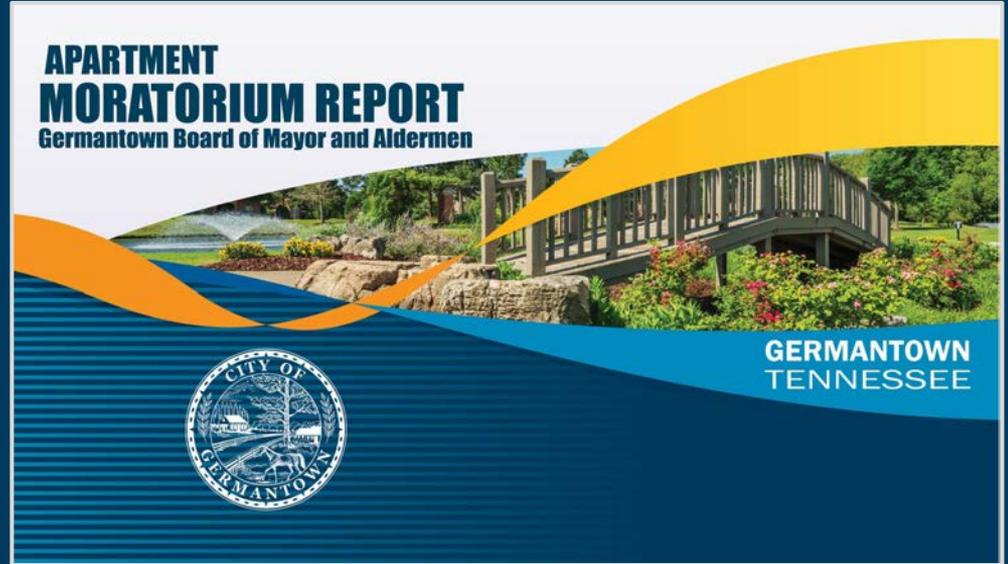
Apartment Moratorium Presentation

Objectives:

- Preview Report Content and Methodology
 - Run-through (Reader's Digest)
 - All Material found in Report
 - Page Numbers

A-1

- Summarize Key Findings



The Research Team



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Total Residential Dwelling Units:

16,081

Apartments

1,014



Condominiums

1,198



Single-Family

13,148

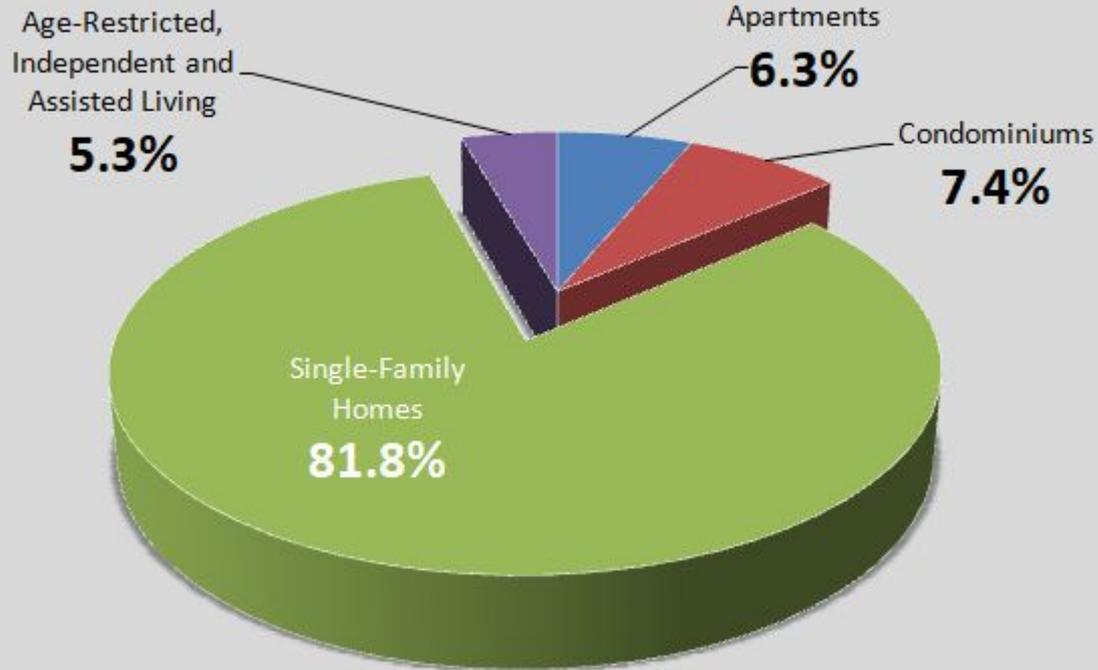


Assisted Living

721



Percentage of Residential Dwelling Unit Types



Total Apartment Dwelling Units:

1,014

Bridges

252

Farmington Gates

182

Retreat

280

Vineyard

200

Westminster

100



Research Questions:

1. How do apartments compare in relation to the other dwelling unit types in the City of Germantown?
2. What trends do we see in any historical data associated with GPD, GFD, GMSD? What variables, if any, are attributed to service demands?
3. Can we use that data to forecast the impact any additional apartment developments and other residential build-out would have on City Services?

Background and Methodology

Data Gathering

- Historical call for services data was gathered from both the GPD and GFD
- Student enrollment data was obtained from GMSD

		K	1	2	3	4	5	6	7	8	9	10	11	12
DES	Apt													
	Condo													
	SFH	125	113	95	142	99	133							
FES	Apt	13	12	7	13	13	8							
	Condo	14	6	5	8	10	11							
	SFH	98	106	90	78	90	100							
FHES	Apt													
	Condo													
	SFH	80	80	81	83	65	54							
RS	Apt	17	16	21	16	13	11	20	15	10				
	Condo	3	9	4	9	5	7	5	5	3				
	SFH	105	96	122	113	108	97	101	123	131				
HMS	Apt							27	9	11				
	Condo							11	15	14				
	SFH							266	325	311				
HHS	Apt										25	21	24	17
	Condo										17	13	15	12
	SFH										374	363	296	306
Total	Apt	30	28	28	29	26	19	47	24	21	25	21	24	17
	Condo	17	15	9	17	15	18	16	20	17	17	13	15	12
	SFH	408	395	388	416	362	384	367	448	442	374	363	296	306

Background and Methodology

Data Limitations

Accessible:

- Year apartment was built
- Total number of units
- Average monthly rent per unit
- Number of calls per unit

NOT Accessible:

- Age of tenants
- Income
- Health status
- Number of residents per unit
- Length of occupancy

Background and Methodology

Per Unit Calculations

- Per Unit calculations were used to compare apartment impact as they relate to other dwelling unit types within the City

Dwelling Type	Year	Calls for Service		Incident Calls Per 100 Units	Avg. Incident Calls per 100 Units
		Incidents	# of Units		
Apartments	2014	278	1014	27.4	31.8
	2015	360	1014	35.5	
	2016	384	1014	37.9	
	2017	306	1014	30.2	
	2018	284	1014	28.0	
Age-Restricted, Independent, and Assisted Living	2014	69	636	10.8	12.2
	2015	81	636	12.7	
	2016	98	689	14.2	
	2017	88	721	12.2	
	2018	80	721	11.1	
Condominiums	2014	380	1198	31.7	37.0
	2015	534	1198	44.6	
	2016	439	1198	36.6	
	2017	458	1198	38.2	
	2018	407	1198	34.0	
Single Family Homes*	2014	7063	12956	54.5	57.4
	2015	8411	13002	64.7	
	2016	7733	13047	59.3	
	2017	7582	13120	57.8	
	2018	6655	13148	50.6	

* Incident calculations for the total single-family home population was estimated using findings from the sample set

Forecasting

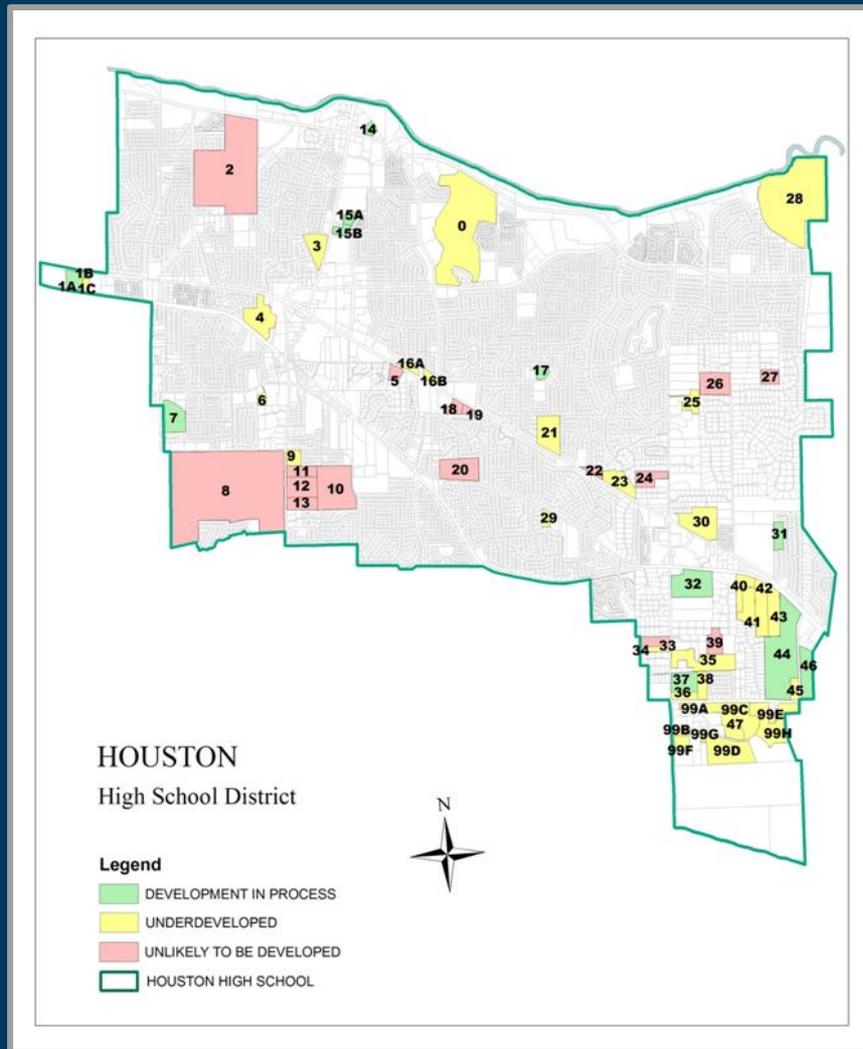
- This study has made the assumption that any and all new multi-family development within Smart Code zoning districts will be applied for, approved, and developed only as apartments over the next ten years.
- This aggressive residential build-out scenario looks at the potential for all dwelling types throughout the City and their effect on services both at a district or zone level and city-wide.

Forecasting

60 Properties

Current Zoning,
Small Area Plan

Assigned one of
three categories



Developments In Process
(11)

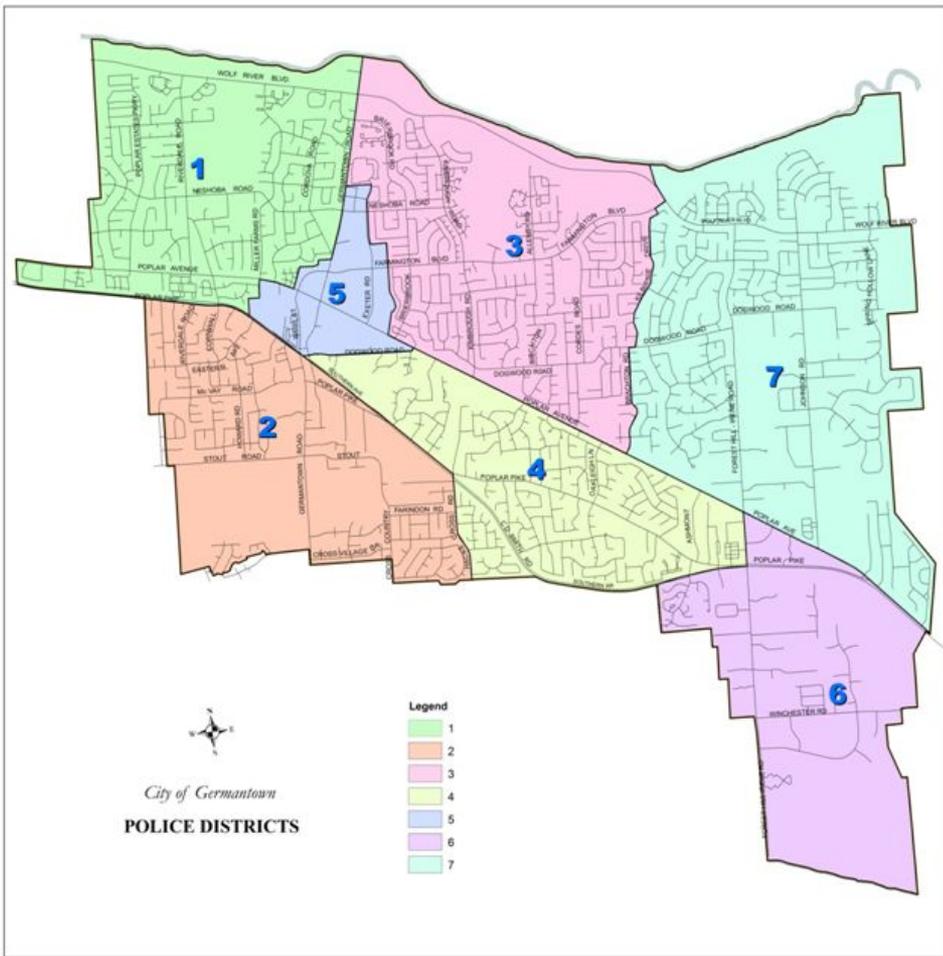
Underdeveloped
Properties
(33)

Properties Unlikely To Be
Developed < 10 Years
(16)

GERMANTOWN POLICE DEPARTMENT IMPACT ANALYSIS



GERMANTOWN
TENNESSEE



City of Germantown
POLICE DISTRICTS



Categorizing Calls for Service



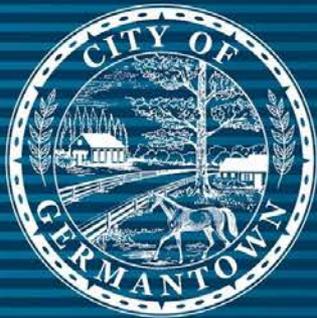
Incidents

- Any call for service from public
- Officer initiated call (traffic stop)
- Calls for service / Incidents - terms are used interchangeably

Crimes

- Incidents ultimately classified as criminal violations
- Trespassing, theft, assault, and drug offenses

STATISTICAL ANALYSIS

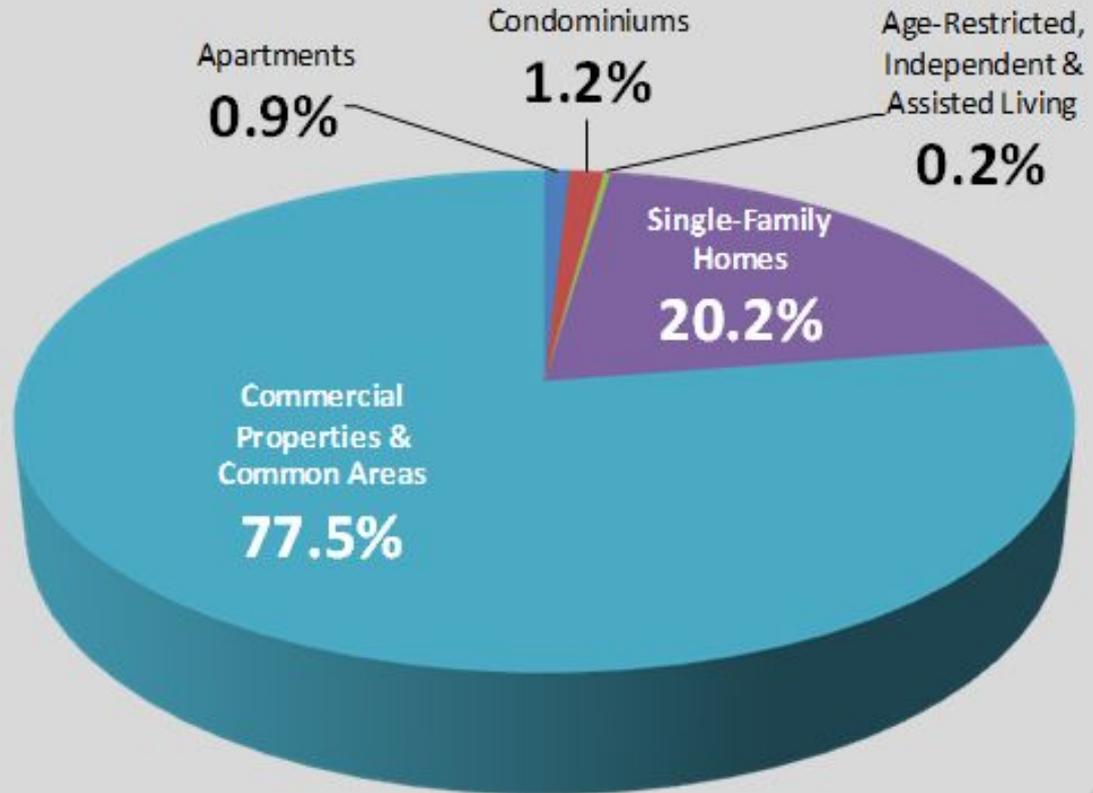


GERMANTOWN
TENNESSEE

Police: Total Incidents (2014 - 2018)

Call for Service Origination	Five-Year Total Call Volume
Apartments	1,612
Condominiums	2,218
Single-family Homes	37,444
Age-Restricted, Independent, & Assisted Living	416
Commercial & Common Areas	143,634
Total Calls for Service	185,324

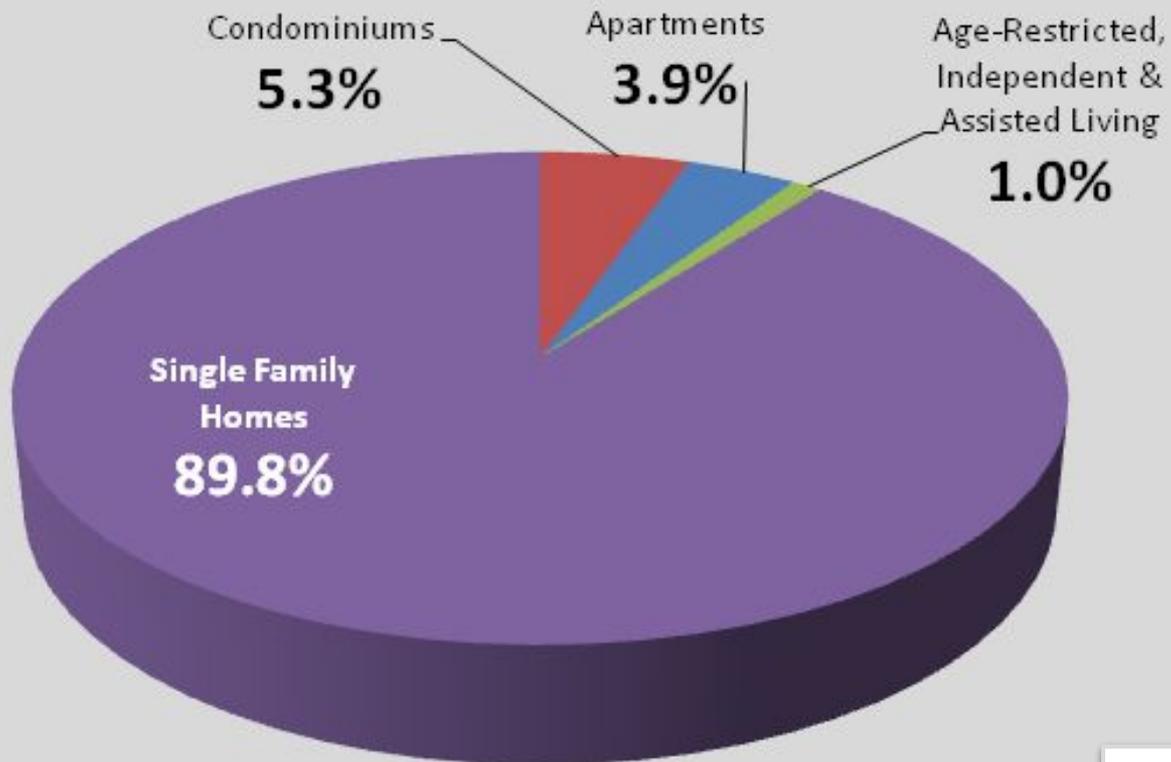
Percentage Breakdown of Total Call Volume (2014-2018)



Police: Total Residential Incidents (2014 - 2018)

Call for Service Origination	Five-Year Total Call Volume
Apartments	1,612
Condominiums	2,218
Single-family Homes	37,444
Age-Restricted, Independent, & Assisted Living	416
Commercial & Common Areas	143,634
Total Calls for Service	41,690

Percentage Breakdown of Incident Calls to Dwelling Units Only by Residential Type (2014-2018)



	Dwelling Unit Count	
	Sample	Actual
Apartments	1014	1014
Condominium	1198	1198
Single-Family*	2929	13148
Assisted Living	721	721
APPROX Totals	5862	16081

Residential INCIDENTS							
2014	2015	2016	2017	2018	5-Yr Totals	5-Yr Avg.	
278	360	384	306	284	1612	322	
380	534	439	458	407	2218	444	
7063	8411	7733	7582	6655	37444	7489	
69	81	98	88	80	416	83	
7790	9386	8654	8434	7426	41690	8338	

* Incident calculations for the total single family home population was estimated using findings from the sample set

	Dwelling Unit Count	
	Sample	Actual
Apartments	1014	1014
Condominium	1198	1198
Single-Family*	2929	13148
Assisted Living	721	721
APPROX Totals	5862	16081

Residential CRIMES							
2014	2015	2016	2017	2018	5-Yr Totals	5-Yr Avg.	
36	51	71	59	63	280	56	
48	82	77	74	63	344	69	
553	629	652	767	700	3302	660	
10	23	23	10	14	80	16	
647	785	823	910	840	4006	801	

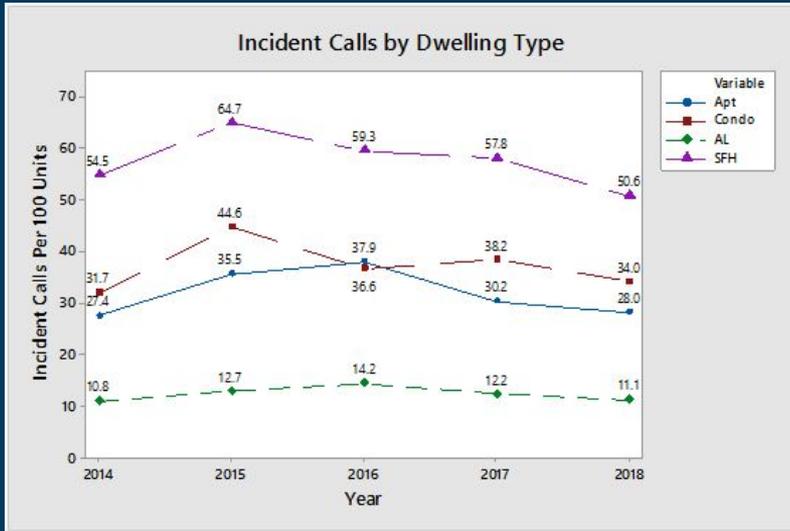
* Crime calculations for the total single family home population was estimated using findings from the sample set

Dwelling Type	Calls for Service		Approx # of incidents for 1 crime
	Incidents	Crimes	
Apartments	1612	280	5.76
Condominiums	2218	344	6.45
Single-family Homes*	37444	3302	11.34
Assisted Living	416	80	5.20

*Crime calculations for the total single-family home population was estimated using findings from the sample set

Dwelling Unit Type Analysis (2014 - 2018)

Is there a statistical difference between the number of calls for service (incidents) per unit by dwelling type?



Dwelling Type	Year	Calls for Service		Incident Calls Per 100 Units	Avg. Incident Calls per 100 Units
		Incidents	# of Units		
Apartments	2014	278	1014	27.4	31.8
	2015	360	1014	35.5	
	2016	384	1014	37.9	
	2017	306	1014	30.2	
	2018	284	1014	28.0	
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	2018	80	721	11.1	
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	2015	8411	13002	64.7	
	2016	7733	13047	59.3	
	2017	7582	13120	57.8	
	2018	6655	13148	50.6	

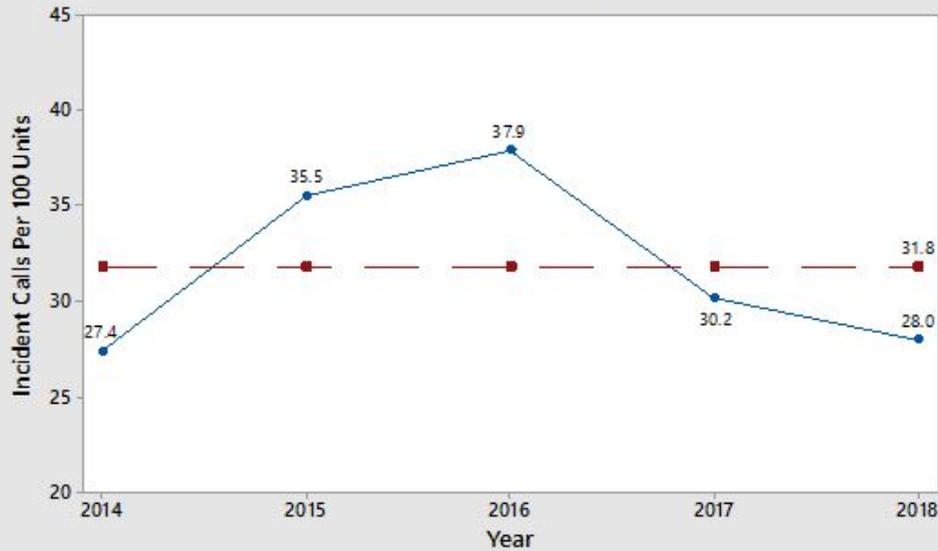
* Incident calculations for the total single-family home population was estimated using findings from the sample set

Existing Apartment Units Historical Analysis (2014 - 2018)

Is there a statistical difference in
incident calls by existing apartment
development?

Apartment	Calls for Service		# of Units	Incident Avg. per location
	Incidents	Crimes		
Farmington Gates	61	9	182	34.5
Farmington Gates	79	12	182	
Farmington Gates	68	17	182	
Farmington Gates	68	12	182	
Farmington Gates	38	10	182	
The Retreat	58	10	280	25.5
The Retreat	58	7	280	
The Retreat	99	20	280	
The Retreat	74	9	280	
The Retreat	68	12	280	
The Bridges	24	3	252	19.5
The Bridges	65	9	252	
The Bridges	65	7	252	
The Bridges	49	17	252	
The Bridges	43	11	252	
The Vineyards	42	5	200	29.7
The Vineyards	91	13	200	
The Vineyards	60	8	200	
The Vineyards	39	7	200	
The Vineyards	65	15	200	
Westminster	93	9	100	79.6
Westminster	67	10	100	
Westminster	92	19	100	
Westminster	76	14	100	
Westminster	70	15	100	

Incident Calls Per 100 Units - Apartments

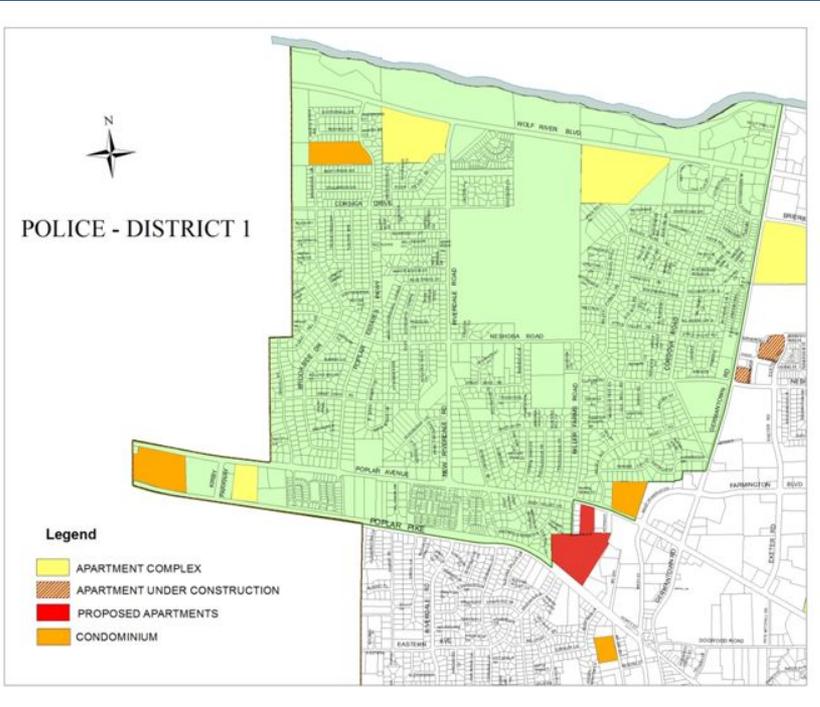


Apartment Incidents			
Year	Number of Calls To Apartments	Total Number of Apartment Units	Annual Calls Per 100 Units
2014	278	1014	27.4
2015	360	1014	35.5
2016	384	1014	37.9
2017	306	1014	30.2
2018	284	1014	28.0
Apartment Estimates			
Avg	322	1014	31.8

Police District Impact Analysis

POLICE DISTRICT	SmartCode Zoning	Apartments	Condominiums	Single Family Homes	Independent & Assisted Living	Dwelling Unit Totals by District
1	Yes	552	433	2,360	0	3,345
2	No	0	54	1,828	0	1,882
3	No	462	711	3,199	333	4,705
4	No	0	0	2,110	182	2,292
5	Yes	0	0	15	50	65
6	Yes	0	0	414	156	570
7	No	0	0	3,222	0	3,222
Dwelling Unit Totals by Type		1,014	1,198	13,148	721	16,081

Police District 1



Total Dwelling Unit Count:

3,345



Apartments

Condominiums

Single-Family

Age-Restricted, Independent, & Assisted Living

552

433

2360

0

	Dwelling Unit Count		Residential Incidents						
	Sample	Actual	2014	2015	2016	2017	2018	5-Yr Totals	5-Yr Avg.
Apartments	552	552	159	223	217	164	178	941	188
Condominium	433	433	228	341	258	272	241	1340	268
Single-Family*	581	2360	1515	2453	1743	1901	1645	9257	1851
Asisted Living	-	-	-	-	-	-	-	-	-
APPROX Totals	1566	3345	1902	3017	2218	2337	2064	11538	2308

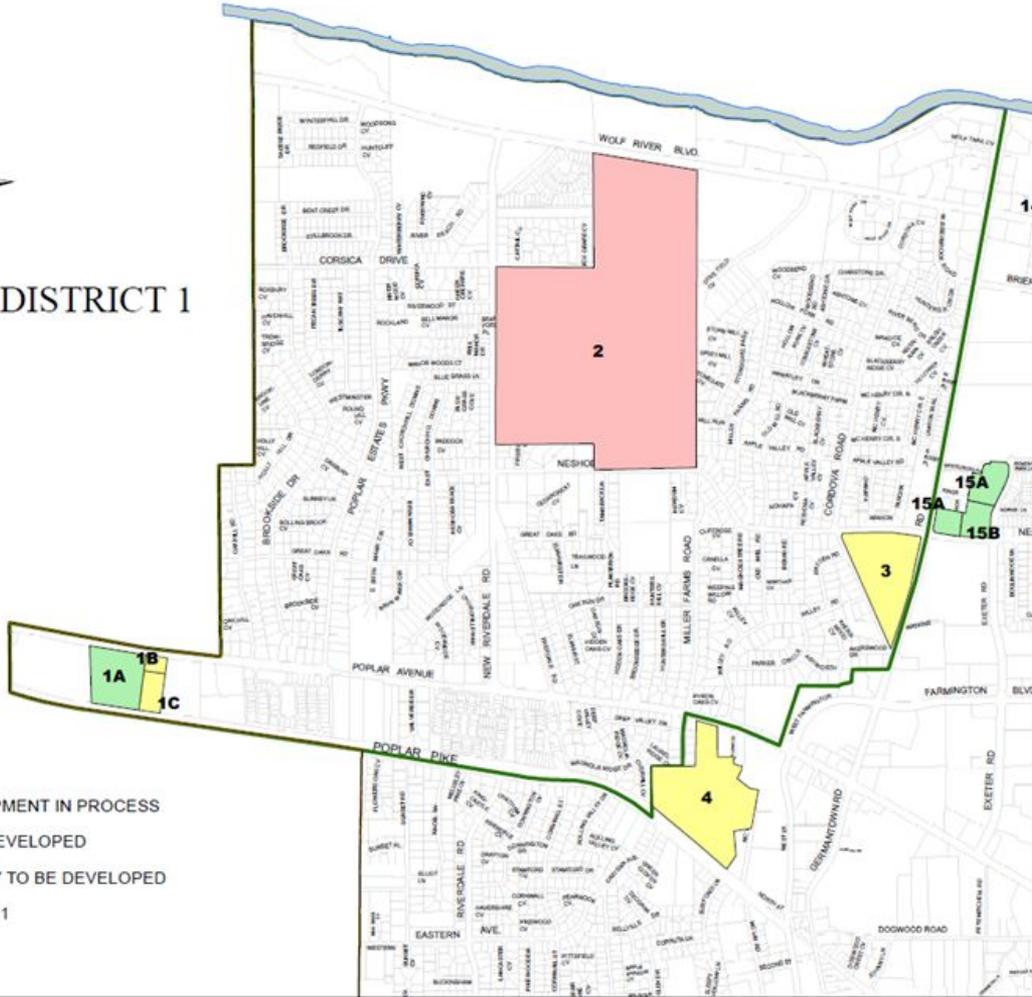
* District incident calculations for the total single family home population was estimated using findings from the sample set

	Dwelling Unit Count		Residential CRIMES						
	Sample	Actual	2014	2015	2016	2017	2018	5-Yr Totals	5-Yr Avg.
Apartments	552	552	17	32	34	38	41	162	32
Condominium	433	433	39	57	50	55	45	246	49
Single-Family*	581	2360	130	191	154	256	195	926	185
Asisted Living	-	-	-	-	-	-	-	-	-
APPROX Totals	1566	3345	186	280	238	349	281	1334	267

* District crime calculations for the total single family home population was estimated using findings from the sample set



POLICE - DISTRICT 1



Legend

- DEVELOPMENT IN PROCESS
- UNDERDEVELOPED
- UNLIKELY TO BE DEVELOPED
- STATION 1



POLICE DISTRICT #1	Calendar Year										
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Estimated Annual INCIDENTS From Existing Dwelling Units Within District	2308	2308	2308	2308	2308	2308	2308	2308	2308	2308	
Estimated Annual CRIMES From Existing Dwelling Units Within District	267	267	267	267	267	267	267	267	267	267	

Projected Annual Incidents Per 100 Units By Dwelling Type	Apartments	APT	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
	Single Family Homes	SFH	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4
	Condominiums	CO	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
	Age-Restricted, Ind. & Asst. Living	AL	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2

Property #	Project Name / Project Owner	Zoning Designation	Acreege	Dwelling Units Per Acre	# of units possible or approved	Dwelling Type	Additional Annual Incidents from New Residential Development												
Developments in Process																			
1A	Carrefour	T5/T6	10.12	20	0	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0
Underdeveloped Properties																			
1B	Bank of Bartlett	T6	1	20	20	APT	0	0	0	0	6	6	6	6	6	6	6	6	6
1C	Kirby Professional Buildings	T5/T6	2.64	15	40	APT	0	0	0	0	13	13	13	13	13	13	13	13	13
3	Owen Jack R Revocable Trust	R	13.6	2,904	39	SFH	0	0	0	0	22	22	22	22	22	22	22	22	22
Properties Unlikely To Be Developed < 10 Yrs																			
2	Fulmer Estate	R	190.62	2,904	554	SFH	0	0	0	0	0	0	0	0	0	0	0	0	0

Estimated Annual Residential INCIDENT Totals: District #1	2308	2308	2308	2308	2349	2349	2349	2349	2349	2349
Estimated Annual Residential CRIME Totals: District #1	267	267	267	267	272	272	272	272	272	272

By New Residential Development Type											
Apartments	Annual Incidents	0	0	0	0	19	19	19	19	19	19
	Annual Crimes (5.76:1)	0	0	0	0	3	3	3	3	3	3
Single Family Homes	Annual Incidents	0	0	0	0	22	22	22	22	22	22
	Annual Crimes (11.34:1)	0	0	0	0	2	2	2	2	2	2
Condominiums	Annual Incidents	0	0	0	0	0	0	0	0	0	0
	Annual Crimes (6.45:1)	0	0	0	0	0	0	0	0	0	0
Age-Restricted, Ind. & Asst. Living	Annual Incidents	0	0	0	0	0	0	0	0	0	0
	Annual Crimes (5.20:1)	0	0	0	0	0	0	0	0	0	0

Police District 1 - New Apartment Impact Analysis Summary

Apartment Impact

Police District #1

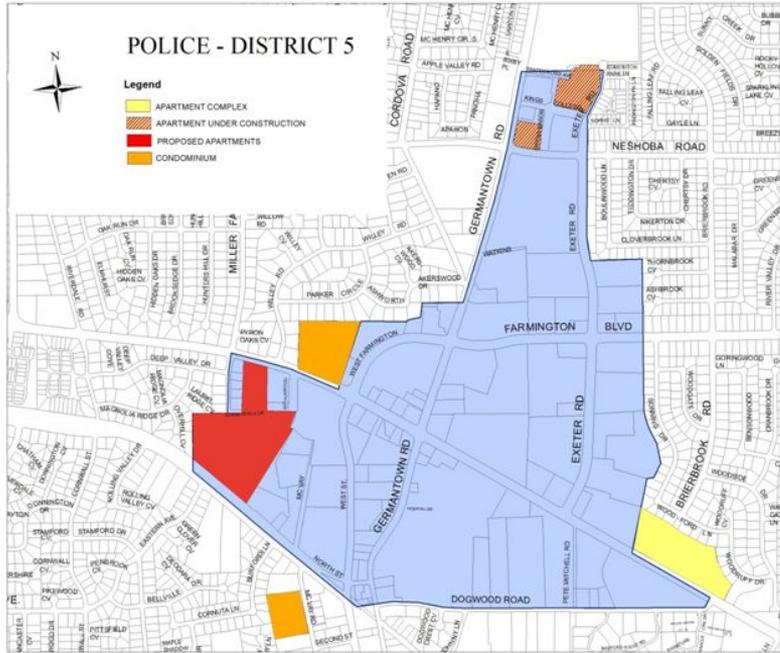
What are the likely impacts of future apartments and apartment building development on Police District #1?

APARTMENTS - Police District #1 (2028)				Year	2028		
Projected Annual Call Volume per 100 Apartment Units				31.8			
Property #	Project Name / Project Owner	Zoning Designation	# of units possible or approved	Calls per Year	Calls per Month	Calls per Day	Crimes per Year
Underdeveloped Properties							
1B	Bank of Bartlett	T6	20	6	0.5	0.02	1
1C	Kirby Professional Buildings	T5/T6	40	13	1.1	0.04	2
Totals			60	19	1.6	0.05	3

POLICE DISTRICT #1: Residential Call Volume Analysis		Total Unit Count	Estimated Annual Call Volume (2028)	Residential Call Volume per Day
EXISTING DWELLING UNITS		3,345	2,308	6.32
Apartments*	Developments In Process	0	0	0.00
	Underdeveloped Properties	60	19	0.05
Condominiums	Developments In Process	0	0	0.00
	Underdeveloped Properties	0	0	0.00
Single-Family Homes	Developments In Process	0	0	0.00
	Underdeveloped Properties	39	22	0.06
Age-Restricted, Independent & Assisted Living	Developments In Process	0	0	0.00
	Underdeveloped Properties	0	0	0.00
Totals		3,444	2,349	6.44

*For the purposes of projecting call volume impact based on the maximum number of dwelling units possible, this study makes the assumption that all new multi-family development within Smart Code zoning districts will be applied for, approved, and developed as apartments over the next ten years.

Police District 5



Total Dwelling Unit Count:

65



Apartments

0



Condominiums

0



Single-Family

15



Age-Restricted, Independent, & Assisted Living

50

	Dwelling Unit Count		Residential INCIDENTS						
	Sample	Actual	2014	2015	2016	2017	2018	5-Yr Totals	5-Yr Avg.
Apartments	-	-	-	-	-	-	-	-	-
Condominium	-	-	-	-	-	-	-	-	-
Single-Family*	15	15	7	12	6	3	13	41	8
Assisted Living	50	50	4	8	7	4	8	31	6
Totals	65	65	11	20	13	7	21	72	14

* District incident calculations for the total single-family home population was estimated using findings from the sample set

	Dwelling Unit Count		Residential CRIMES						
	Sample	Actual	2014	2015	2016	2017	2018	5-Yr Totals	5-Yr Avg.
Apartments	-	-	-	-	-	-	-	-	-
Condominium	-	-	-	-	-	-	-	-	-
Single-Family*	15	15	0	1	0	1	1	3	1
Assisted Living	50	50	0	0	0	0	4	4	1
Totals	65	65	0	1	0	1	5	7	1

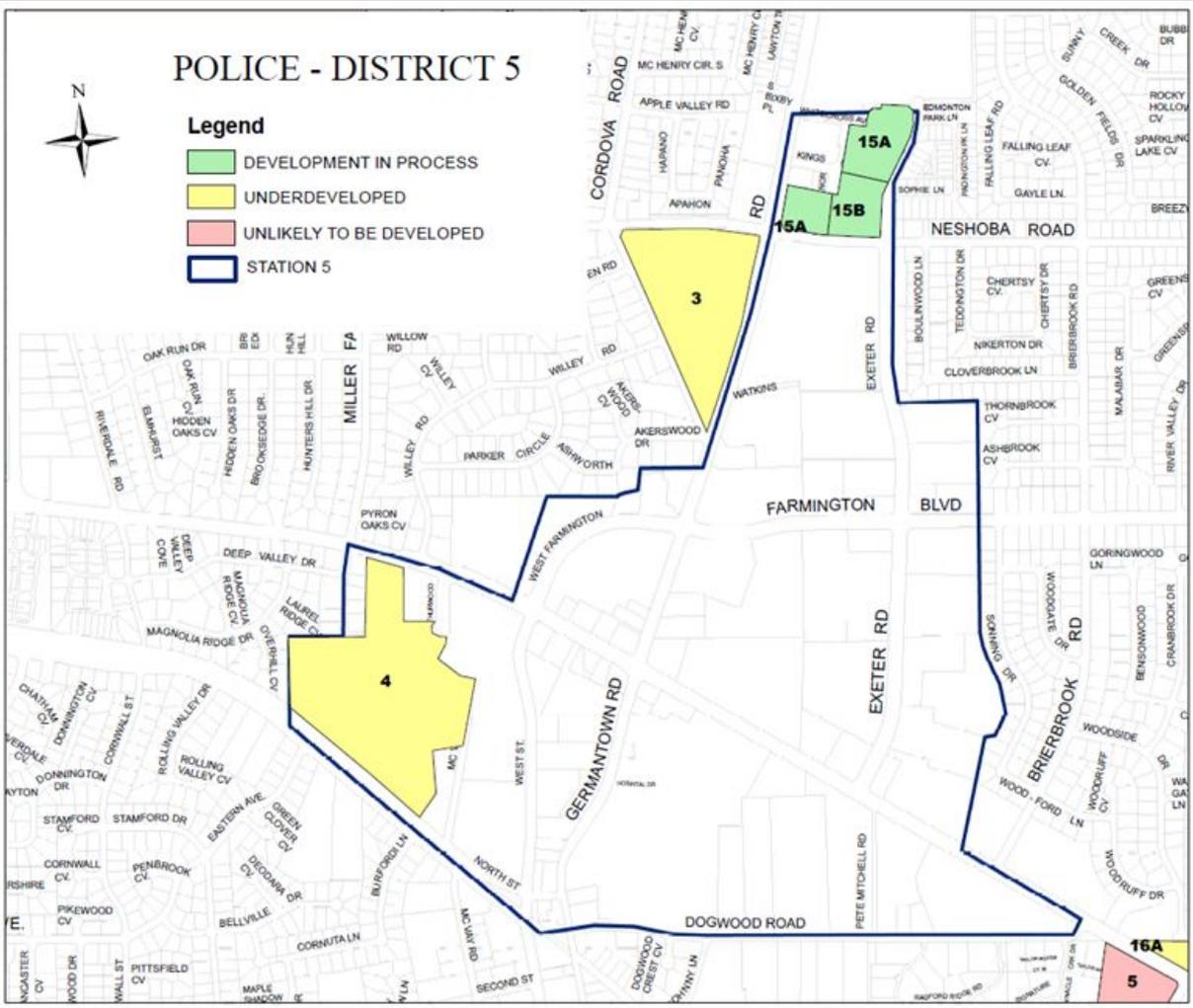
* District crime calculations for the total single family home population was estimated using findings from the sample set

POLICE - DISTRICT 5



Legend

- DEVELOPMENT IN PROCESS
- UNDERDEVELOPED
- UNLIKELY TO BE DEVELOPED
- STATION 5



Police District 5 - New Apartment Impact Analysis Summary

Apartment Impact

Police District #5

What are the likely impacts of future apartments and apartment building development on Police District #5?

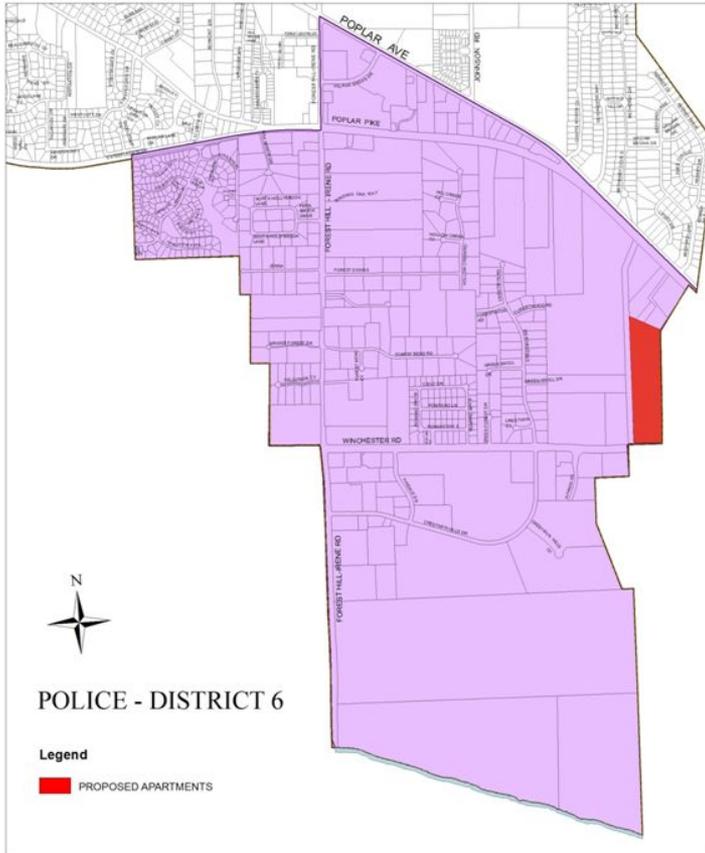
Central Business District

APARTMENTS - Police District #5 (2028)				Year	2028			
Projected Annual Call Volume per 100 Apartment Units				31.8				
Property #	Project Name / Project Owner	Zoning Designation	# of units possible or approved	Calls per Year	Calls per Month	Calls per Day	Crimes per Year	
Developments in Process								
15A	TW Residences & Market Row Lofts	T5	276	88	7.3	0.24	15	
15B	Thornwood (Undeveloped Lot 5)	T5	294	93	7.8	0.26	16	
Underdeveloped Properties								
4	Arthur Tract	T5	302	96	8.0	0.26	17	
Totals				872	277	23.1	0.76	48

POLICE DISTRICT #5: Residential Call Volume Analysis		Total Unit Count	Estimated Annual Call Volume (2028)	Residential Call Volume per Day
EXISTING DWELLING UNITS		65	14	0.04
Apartments*	Developments In Process	570	181	0.50
	Underdeveloped Properties	302	96	0.26
Condominiums	Developments In Process	0	0	0.00
	Underdeveloped Properties	0	0	0.00
Single-Family Homes	Developments In Process	0	0	0.00
	Underdeveloped Properties	0	0	0.00
Age-Restricted, Independent & Assisted Living	Developments In Process	0	0	0.00
	Underdeveloped Properties	0	0	0.00
Totals		937	291	0.80

*For the purposes of projecting call volume impact based on the maximum number of dwelling units possible, this study assumes that all new multi-family development within Smart Code zoning districts will be applied for, approved, and developed as apartments over the next ten years.

Police District 6



Total Dwelling Unit Count:

570



Apartments

0

Condominiums

0

Single-Family

414

Age-Restricted,
Independent,
& Assisted Living

156

	Dwelling Unit Count	
	Sample	Actual
Apartments	-	-
Condominium	-	-
Single-Family*	223	414
Assisted Living	156	156
APPROX Totals	379	570

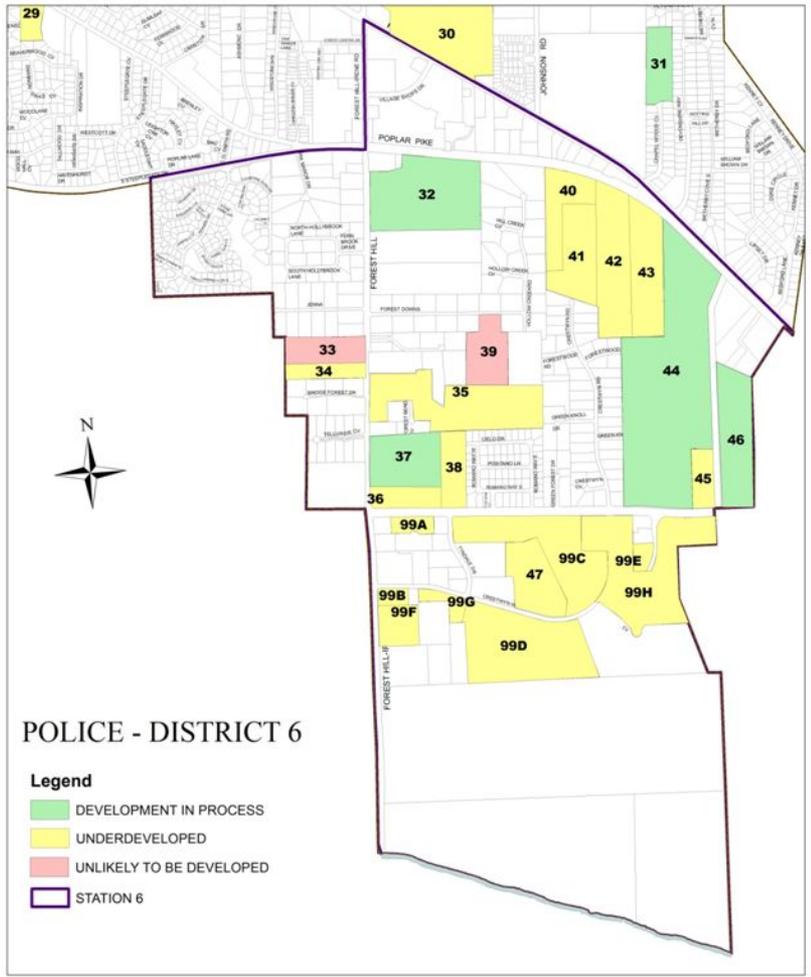
	Residential INCIDENTS						
	2014	2015	2016	2017	2018	5-Yr Totals	5-Yr Avg.
Apartments	-	-	-	-	-	-	-
Condominium	-	-	-	-	-	-	-
Single-Family*	113	124	156	158	180	731	146
Assisted Living	19	12	28	12	18	89	18
APPROX Totals	132	136	184	170	198	820	164

* District incident calculations for the total single family home population was estimated using findings from the sample set

	Dwelling Unit Count	
	Sample	Actual
Apartments	-	-
Condominium	-	-
Single-Family*	223	414
Assisted Living	156	156
APPROX Totals	379	570

	Residential CRIMES						
	2014	2015	2016	2017	2018	5-Yr Totals	5-Yr Avg.
Apartments	-	-	-	-	-	-	-
Condominium	-	-	-	-	-	-	-
Single-Family*	9	22	7	20	22	82	16
Assisted Living	3	5	5	4	2	19	4
APPROX Totals	12	27	12	24	24	101	20

* District crime calculations for the total single family home population was estimated using findings from the sample set



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Police District 6 - New Apartment Impact Analysis Summary

Apartment Impact

Police District #6

What are the likely impacts of future apartments and apartment building development on Police District #6?

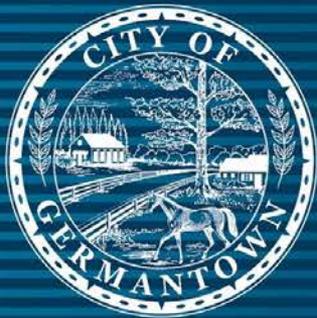
Forest Hill Heights District

APARTMENTS - Police District #6 (2028)				Year	2028			
Projected Annual Call Volume per 100 Apartment Units					31.8			
Property #	Project Name / Project Owner	Zoning Designation	# of units possible or approved	Calls per Year	Calls per Month	Calls per Day	Crimes per Year	
Developments in Process								
46	Viridian Apartments	T4	299	95	7.9	0.26	17	
Underdeveloped Properties								
47	Forest Hill Associates - Phase 19	T5	310	99	8.2	0.27	17	
99C	Forest Hill Associates	T5	300	95	8.0	0.26	17	
99D	Forest Hill Associates	T5	300	95	8.0	0.26	17	
Totals				1,209	384	32.0	1.05	67

POLICE DISTRICT #6: Residential Call Volume Analysis		Total Unit Count	Estimated Annual Call Volume (2028)	Residential Call Volume per Day
EXISTING DWELLING UNITS		570	164	0.45
Apartments*	Developments In Process	299	95	0.26
	Underdeveloped Properties	910	289	0.79
Condominiums	Developments In Process	0	0	0.00
	Underdeveloped Properties	137	51	0.14
Single-Family Homes	Developments In Process	343	183	0.50
	Underdeveloped Properties	214	123	0.34
Age-Restricted, Independent & Assisted Living	Developments In Process	0	0	0.00
	Underdeveloped Properties	0	0	0.00
Totals		2,473	905	2.48

*For the purposes of projecting call volume impact based on the maximum number of dwelling units possible, this study assumes that all new multi-family development within Smart Code zoning districts will be applied for, approved, and developed as apartments over the next ten years.

CITY-WIDE SUMMARY



**GERMANTOWN
TENNESSEE**

Apartment Impact

All Police Districts

What are the likely impacts of future apartments and apartment building development on the services of the Police Department?

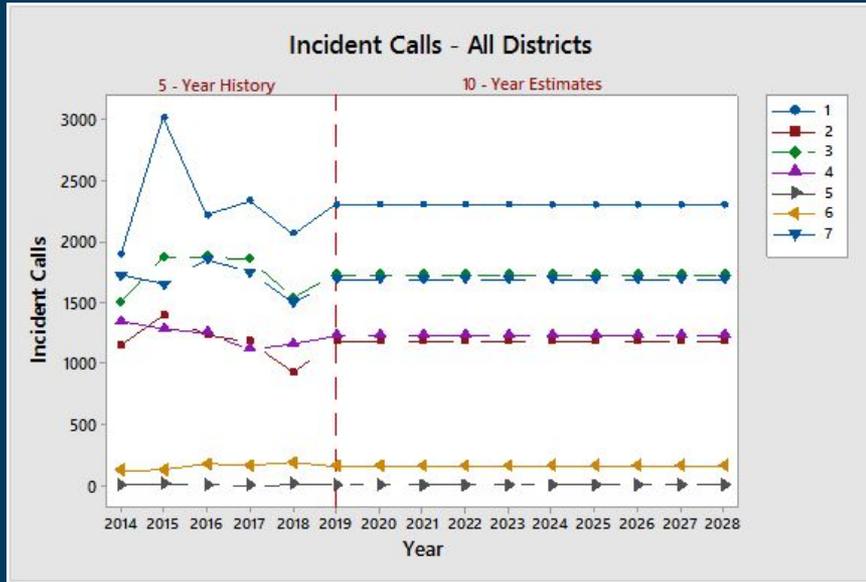
APARTMENTS - ALL POLICE DISTRICTS (2028)				Year	2028			
Projected Annual Call Volume per 100 Apartment Units				31.8				
Property #	Project Name / Project Owner	Zoning Designation	# of units possible or approved	Calls per Year	Calls per Month	Calls per Day	Crimes per Year	
Developments in Process								
15A	TW Residences & Market Row Lofts	T5	276	88	7.3	0.24	15	
15B	Thornwood (Undeveloped Lot 5)	T5	294	93	7.8	0.26	16	
46	Viridian Apartments	T4	299	95	7.9	0.26	17	
Underdeveloped Properties								
1B	Bank of Bartlett	T6	20	6	0.5	0.02	1	
1C	Kirby Professional Buildings	T5/T6	40	13	1.1	0.03	2	
4	Arthur Tract	T5	302	96	8.0	0.26	17	
47	Forest Hill Associates - Phase 19	T5	310	99	8.2	0.27	17	
99C	Forest Hill Associates	T5	300	95	8.0	0.26	17	
99D	Forest Hill Associates	T5	300	95	8.0	0.26	17	
Totals				2,141	680	56.7	1.87	118

ALL POLICE DISTRICTS Residential Call Volume Analysis		Total Unit Count	Estimated Annual Call Volume (2028)	Residential Call Volume per Day	
EXISTING DWELLING UNITS		16,081	8,338	22.84	
Apartments*	Developments In Process	869	276	0.76	1.87
	Underdeveloped Properties	1,272	404	1.11	
Condominiums	Developments In Process	0	0	0.00	0.14
	Underdeveloped Properties	137	51	0.14	
Single-Family Homes	Developments In Process	423	228	0.62	1.76
	Underdeveloped Properties	779	416	1.14	
Age-Restricted, Independent & Assisted Living	Developments In Process	162	20	0.05	0.05
	Underdeveloped Properties	0	0	0.00	
Totals		19,723	9,733	26.67	3.82

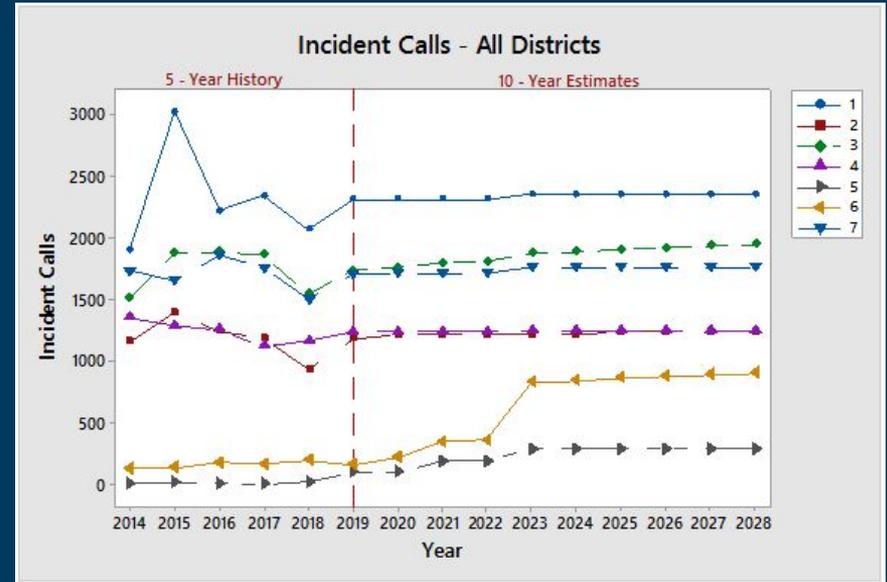
*For the purposes of projecting call volume impact based on the maximum number of dwelling units possible, this study assumes that all new multi-family development within Smart Code zoning districts will be applied for, approved, and developed as apartments over the next ten years.

Existing Residential Dwelling Units

With New Residential Dwelling Units with Maximum Build-Out Scenario



P-85



P-89

Current

	Number of Units	% of Total Units	Police	
			Incidents*	% of Residential Impact
Apartments	1014	6.3%	31.8	3.9%
Condominiums	1198	7.4%	37	5.3%
Age-Restricted, Independent and Assisted Living	721	4.5%	12.2	1.0%
Single-Family Homes	13148	81.8%	57.4	89.8%

*Results are shown per 100 units for each dwelling type.

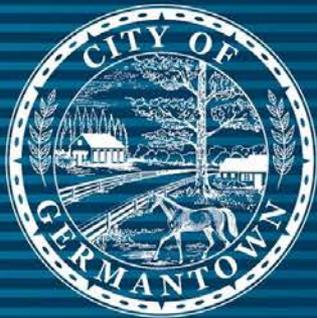
Forecasted

	Number of Units	% of Total Units	Police	
			Incidents*	% of Residential Impact
Apartments	3155	16.0%	31.8	10.2%
Condominiums	1335	6.8%	37	5.0%
Age-Restricted, Independent and Assisted Living	883	4.5%	12.2	1.1%
Single-Family Homes	14350	72.8%	57.4	83.7%

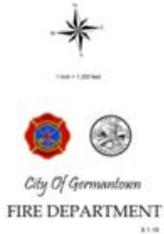
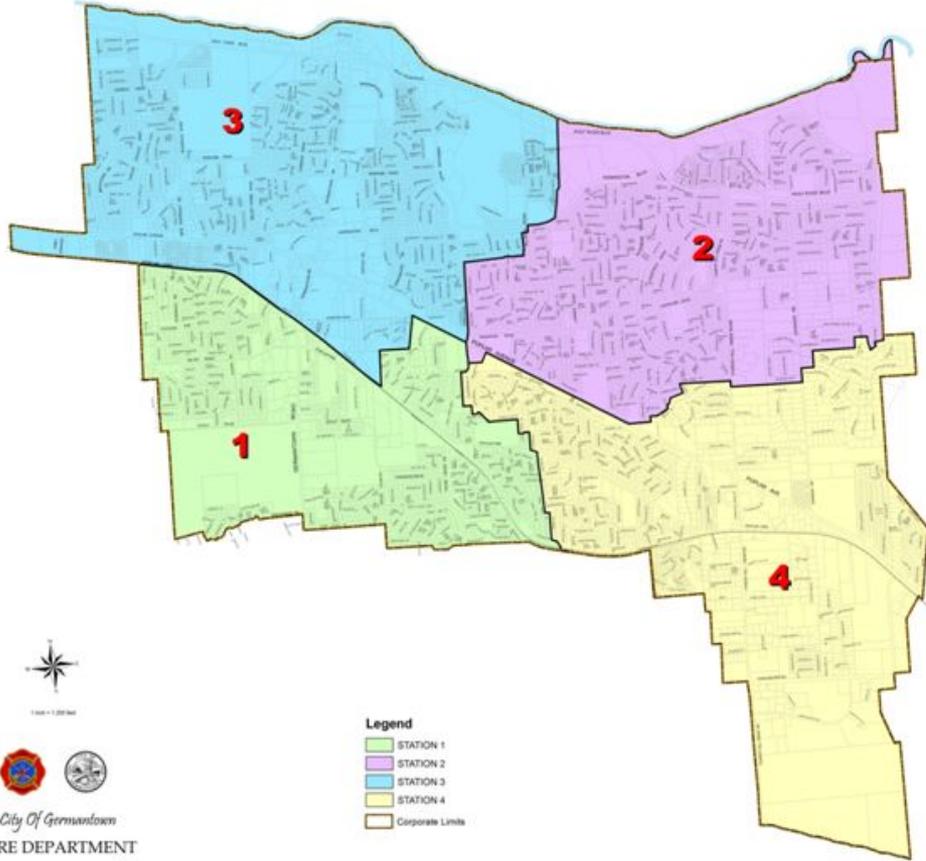
*Results are shown per 100 units for each dwelling type.



GERMANTOWN FIRE DEPARTMENT IMPACT ANALYSIS



GERMANTOWN
TENNESSEE



Categorizing Calls for Service



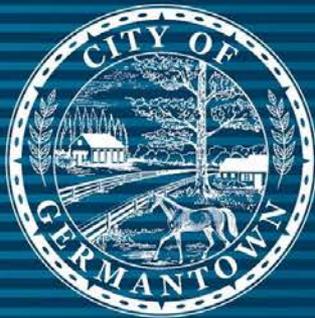
Emergency Medical Services (EMS)

- Medical in nature - usually involving a person in need of treatment who has been reported to be injured or sick

Non-Emergency Medical Services (Non-EMS)

- All other incidents requiring the response of the fire department
- Structure fires, fire alarms, false calls, etc.

STATISTICAL ANALYSIS

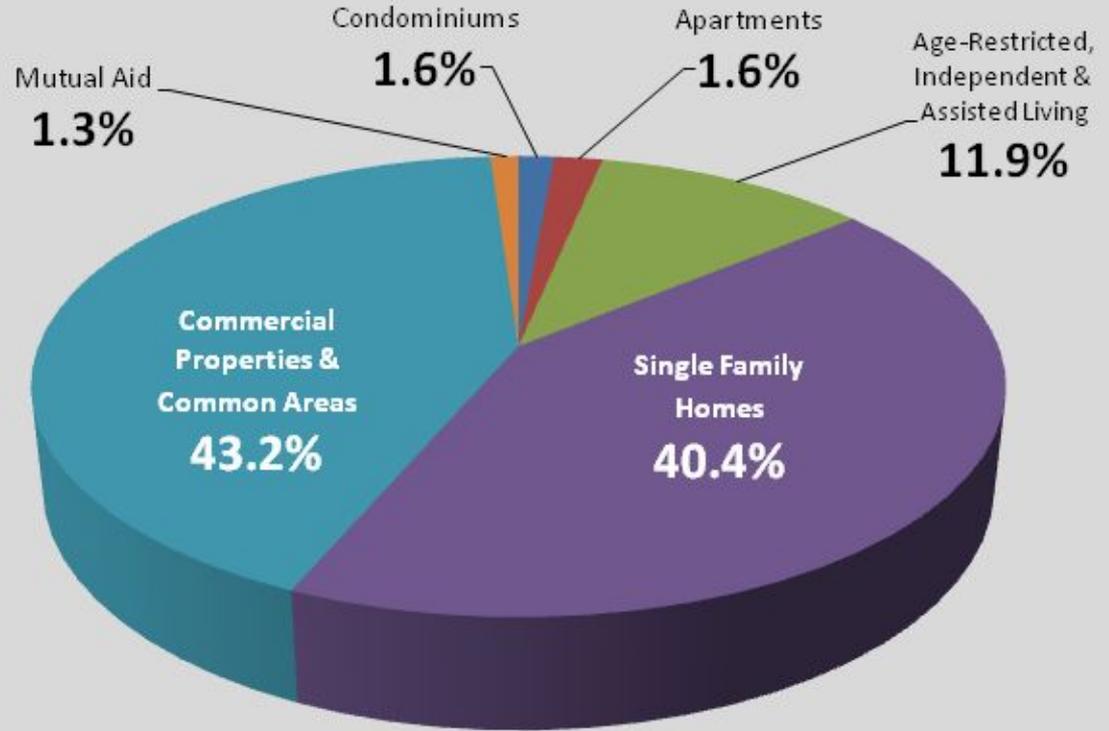


GERMANTOWN
TENNESSEE

Fire: Total Call Volume (2014 - 2018)

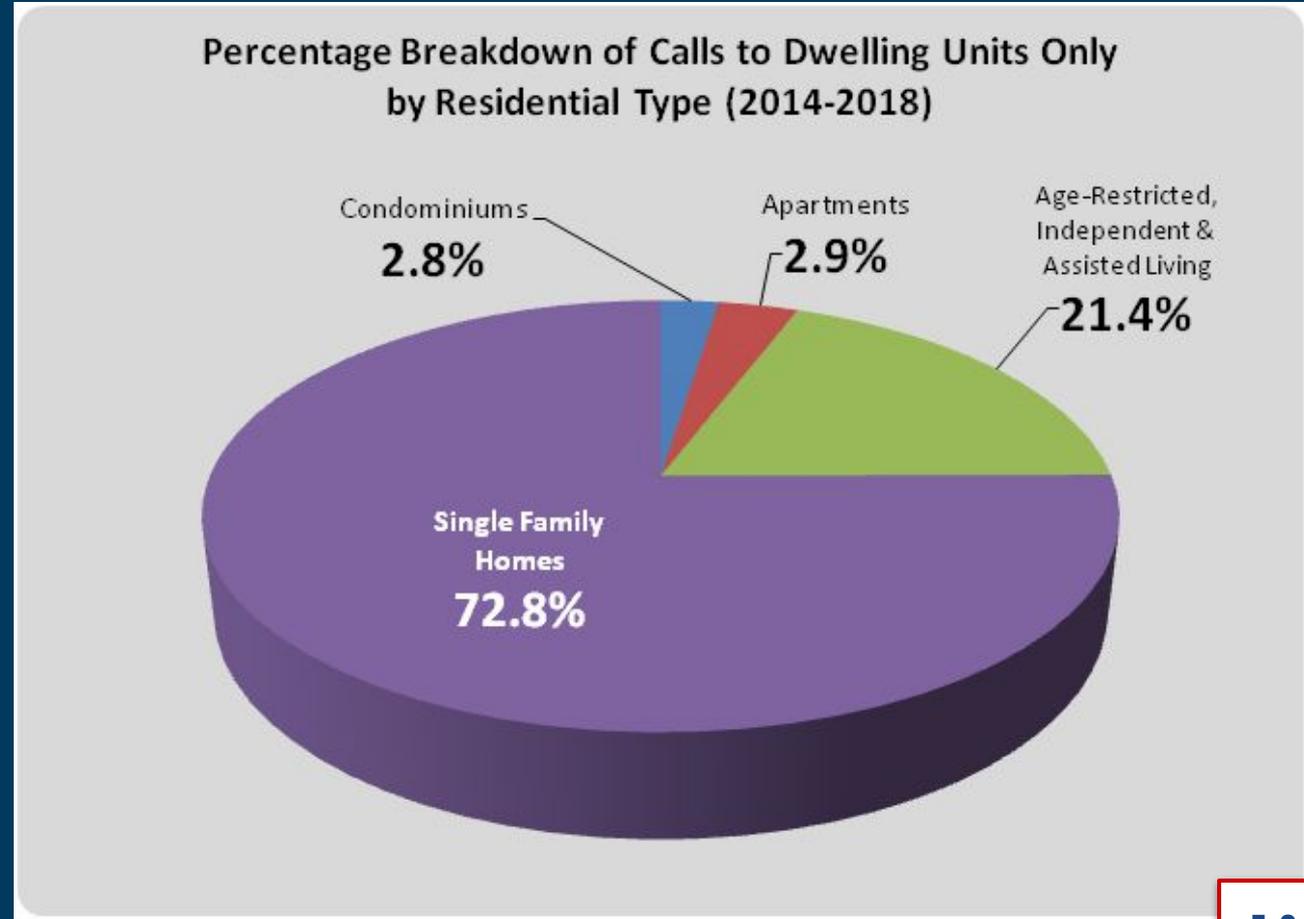
Call for Service Origination	Five-Year Total Call Volume
Apartments	325
Condominiums	313
Single-family Homes	8,066
Age-Restricted, Independent, & Assisted Living	2,372
Commercial & Common Areas	8,626
Mutual Aid	255
Total Calls for Service	19,957

Percentage Breakdown of Total Call Volume (2014-2018)



Fire: Total Residential Call Volume (2014 - 2018)

Call for Service Origination	Five-Year Total Call Volume
Apartments	325
Condominiums	313
Single-family Homes	8,066
Age-Restricted, Independent, & Assisted Living	2,372
Commercial & Common Areas	8,626
Mutual Aid	255
Total Calls for Service	11,076



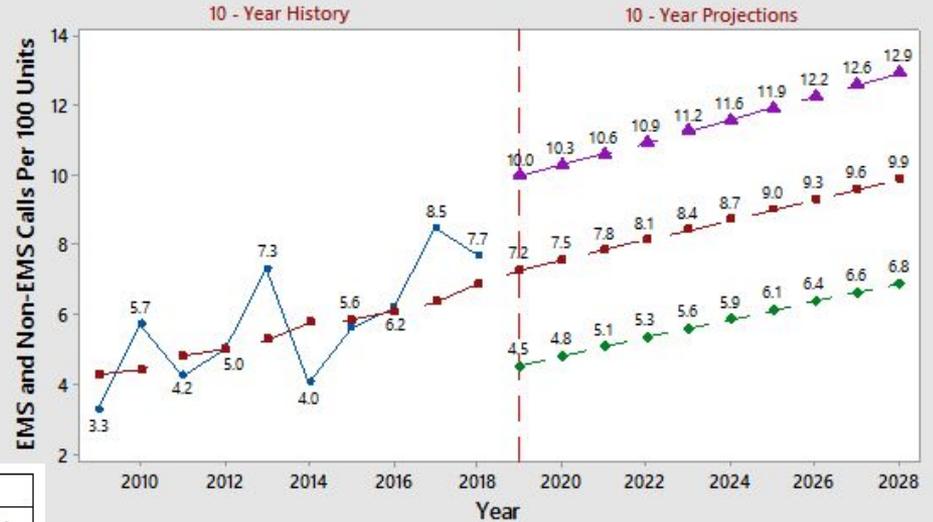
Dwelling Unit Type Analysis (2014 - 2018)

Is there a statistical difference between the number of calls for service per unit by dwelling type?

Dwelling Type	Year	Calls for Service			# of Units	Total per 100 units	Avg. EMS Calls per 100 units	Avg. Non-EMS Calls per 100 units	Avg. Total Annual Calls per 100 units
		EMS	Non-EMS	Total					
Apartments	2014	21	20	41	1014	4.0	4.1	2.3	6.4
	2015	35	22	57	1014	5.6			
	2016	40	23	63	1014	6.2			
	2017	53	33	86	1014	8.5			
	2018	58	20	78	1014	7.7			
Age-Restricted, Independent & Assisted Living	2014	331	68	399	636	62.7	58.4	11.1	69.5
	2015	374	84	458	636	72.0			
	2016	342	87	429	689	62.3			
	2017	435	73	508	721	70.5			
	2018	515	63	578	721	80.2			
Condominiums	2014	23	13	36	1198	3.0	3.3	1.9	5.2
	2015	29	20	49	1198	4.1			
	2016	39	24	63	1198	5.3			
	2017	44	27	71	1198	5.9			
	2018	64	30	94	1198	7.8			
Single-Family Homes	2014	949	576	1525	12956	11.8	7.8	4.6	12.4
	2015	1074	567	1641	13002	12.6			
	2016	1003	528	1531	13047	11.7			
	2017	1078	634	1712	13120	13.0			
	2018	977	680	1657	13148	12.6			

Existing Apartment Analysis

EMS and Non-EMS Calls Per 100 Units - Apartments



10 - Year Trend Data			
Year	Number of Calls To Apartments	Total Number of Apartment Units	Annual Calls per 100 Units
2009	33	1014	3.3
2010	58	1014	5.7
2011	43	1014	4.2
2012	53	1014	5.2
2013	74	1014	7.3
2014	41	1014	4.0
2015	57	1014	5.6
2016	63	1014	6.2
2017	86	1014	8.5
2018	78	1014	7.7

10 - Year Projections			
Year	Number of Calls To Apartments	Total Number of Apartment Units	Annual Calls per 100 Units
2019	73	1014	7.2
2020	76	1014	7.5
2021	79	1014	7.8
2022	82	1014	8.1
2023	85	1014	8.4
2024	88	1014	8.7
2025	91	1014	9.0
2026	94	1014	9.3
2027	97	1014	9.6
2028	100	1014	9.9

Existing Apartment Units Historical Analysis (2014 - 2018)

Year	Apartment	Calls for Service			# of Units	Total Avg. per 100 units	100 unit Avg. per location
		EMS	Non-EMS	Total			
2014	The Bridges	4	6	10	252	3.97	4.76
2015	The Bridges	5	4	9	252	3.57	
2016	The Bridges	9	6	15	252	5.95	
2017	The Bridges	7	7	14	252	5.56	
2018	The Bridges	9	3	12	252	4.76	
2014	Farmington Gates	8	6	14	182	7.69	9.78
2015	Farmington Gates	14	1	15	182	8.24	
2016	Farmington Gates	12	3	15	182	8.24	
2017	Farmington Gates	20	3	23	182	12.64	
2018	Farmington Gates	19	3	22	182	12.09	
2014	The Retreat	2	3	5	280	1.79	4.93
2015	The Retreat	7	10	17	280	6.07	
2016	The Retreat	6	4	10	280	3.57	
2017	The Retreat	8	5	13	280	4.64	
2018	The Retreat	16	8	24	280	8.57	
2014	The Vineyards	1	2	3	200	1.50	5.60
2015	The Vineyards	5	7	12	200	6.00	
2016	The Vineyards	3	7	10	200	5.00	
2017	The Vineyards	8	6	14	200	7.00	
2018	The Vineyards	11	6	17	200	8.50	
2014	Westminster	6	3	9	100	9.00	10.20
2015	Westminster	4	0	4	100	4.00	
2016	Westminster	10	3	13	100	13.00	
2017	Westminster	10	12	22	100	22.00	
2018	Westminster	3	0	3	100	3.00	

Is there a statistical difference in calls for service by apartment development?

Age-Restricted, Independent, and Assisted-Living Analysis

EMS and Non-EMS Calls Per 100 Units - Independent and Assisted Living



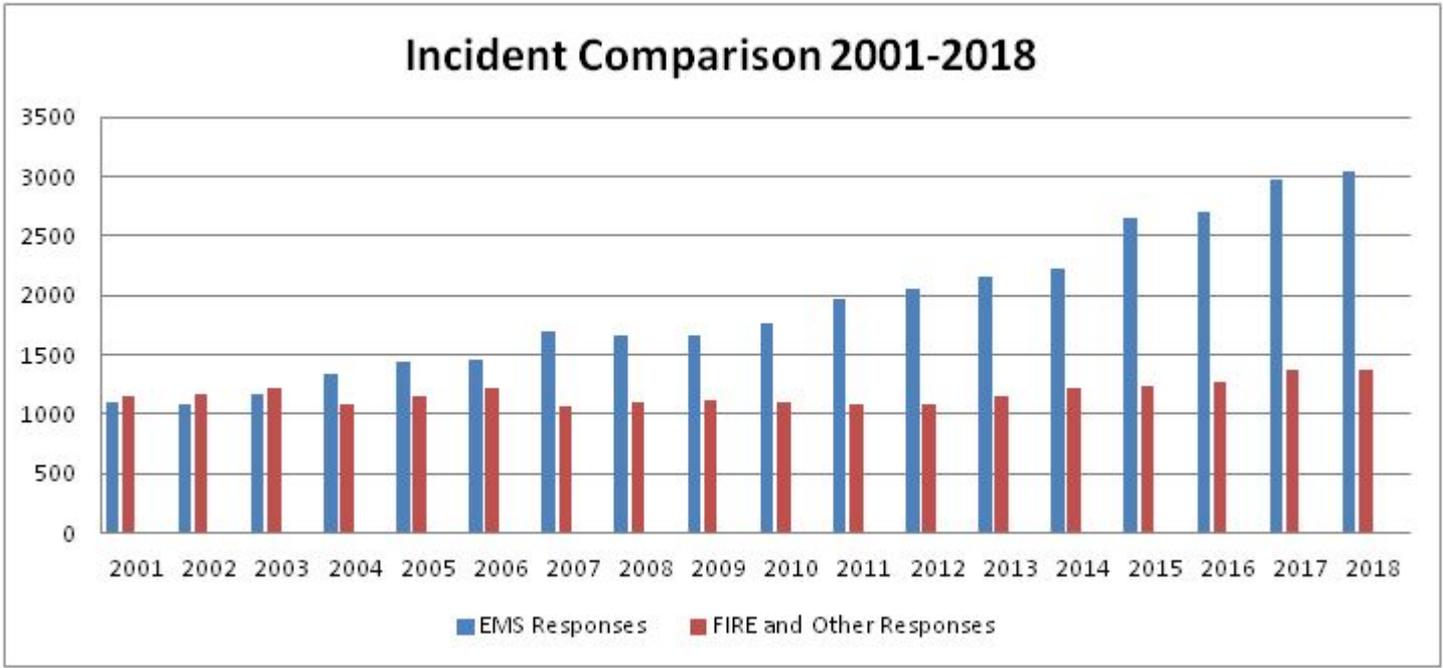
10 - Year Trend Data

Year	Number of Calls to Assisted Living	Total Number of Assisted Living Units	Annual Calls Per 100 Units
2009	117	406	28.8
2010	147	454	32.4
2011	208	454	45.8
2012	195	454	43.0
2013	277	636	43.6
2014	399	636	62.7
2015	458	636	72.0
2016	429	689	62.3
2017	508	721	70.5
2018	578	721	80.2

10 - Year Projections

Year	Number of Calls to Assisted Living	Total Number of Assisted Living Units	Annual Calls Per 100 Units
2019	618	721	85.7
2020	659	721	91.4
2021	700	721	97.1
2022	742	721	102.9
2023	783	721	108.6
2024	824	721	114.3
2025	865	721	120.0
2026	906	721	125.7
2027	948	721	131.4
2028	989	721	137.1

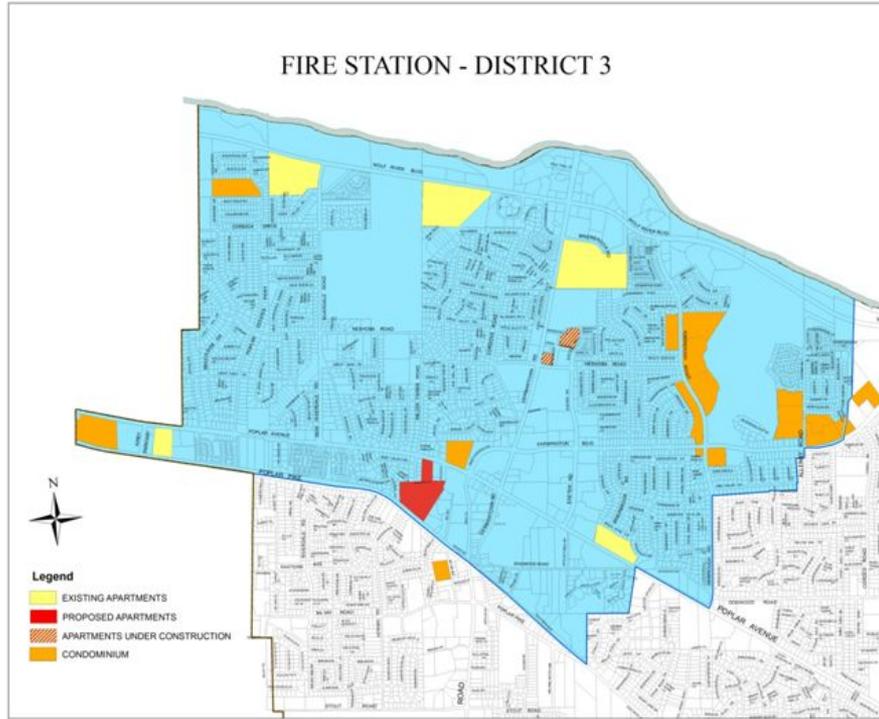
EMS vs. Non-EMS Comparison



Residential Dwelling Units by Fire District

FIRE DISTRICT	SmartCode Zoning	Apartments	Condominiums	Single Family Homes	Independent & Assisted Living	Dwelling Unit Totals by District
1	No	0	54	2,439	0	2,493
2	No	0	32	4,241	182	4,455
3	Yes	1,014	1,112	4,021	383	6,530
4	Yes	0	0	2,447	156	2,603
Dwelling Unit Totals by Type		1,014	1,198	13,148	721	16,081

Fire Station - District 3



Total Dwelling Unit Count:

6,530



Apartments

1,014



Condominiums

1,112



Single-Family

4,021

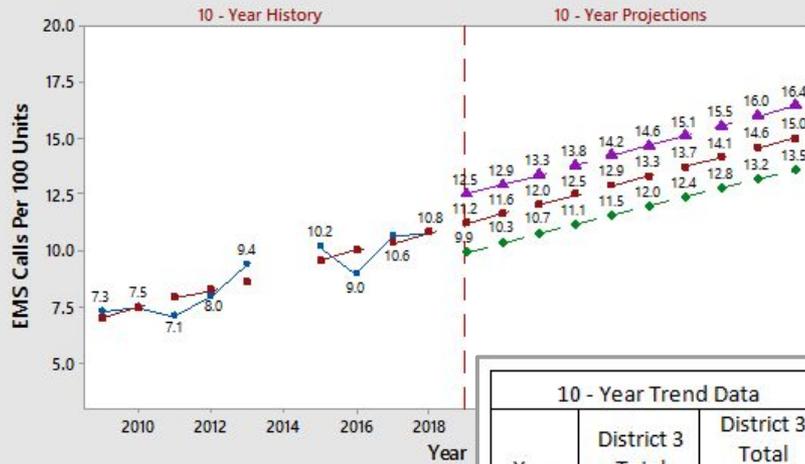


Age-Restricted,
Independent, &
Assisted Living

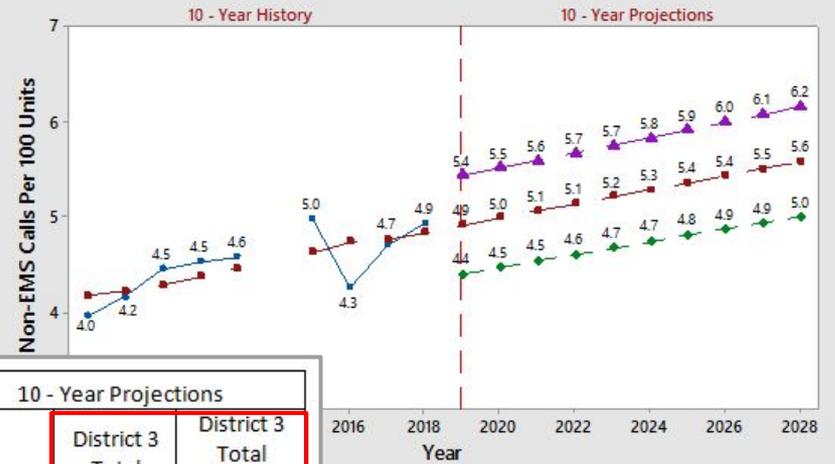
383



EMS Calls Per 100 Units - District 3



Non-EMS Calls Per 100 Units - District 3



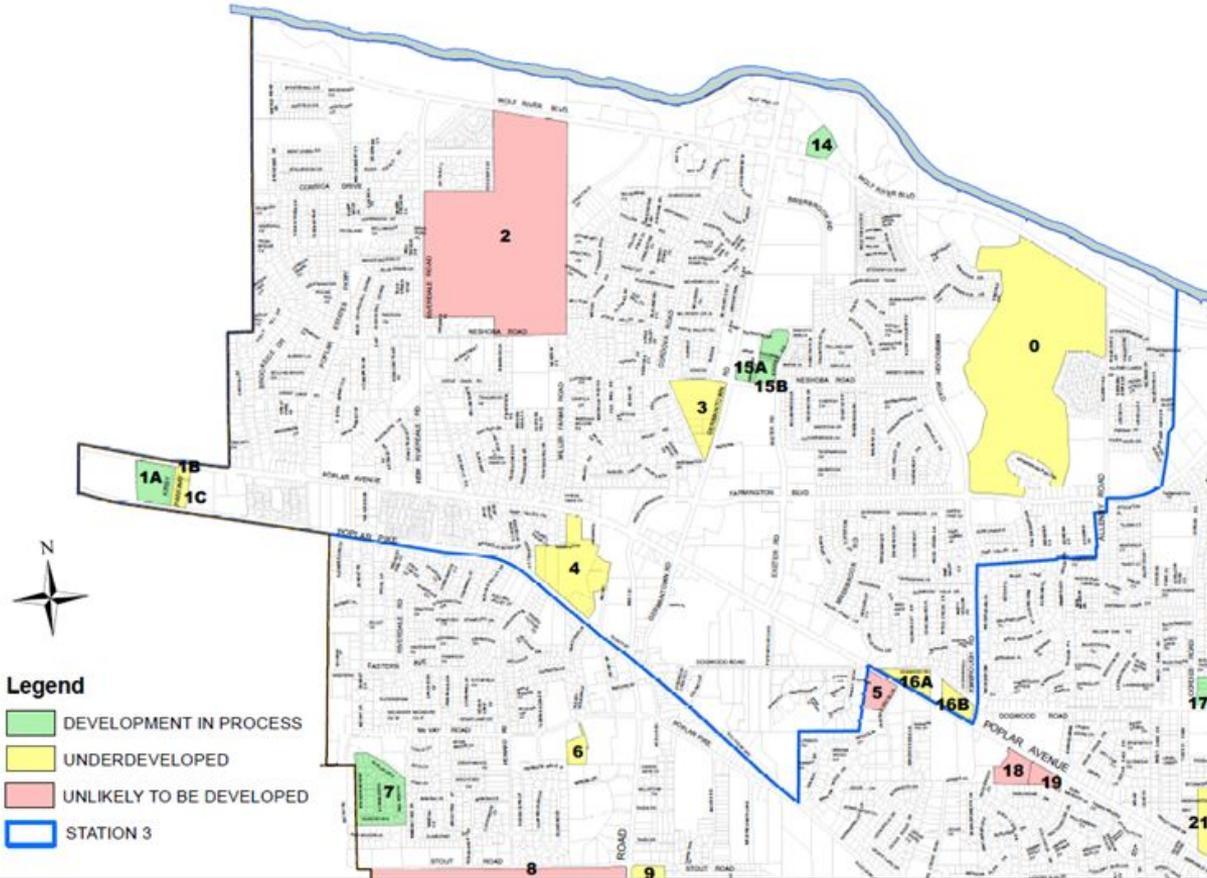
10 - Year Trend Data

Year	District 3 Total EMS Calls	District 3 Total Non-EMS Calls
2009	470	255
2010	482	268
2011	457	287
2012	515	292
2013	604	295
2014	n/a	n/a
2015	656	321
2016	583	277
2017	695	307
2018	704	322

10 - Year Projections

Year	District 3 Total EMS Calls	District 3 Total Non-EMS Calls
2019	731	321
2020	759	326
2021	786	330
2022	813	335
2023	841	340
2024	868	345
2025	896	350
2026	923	354
2027	951	359
2028	978	364

FIRE STATION - DISTRICT 3



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FIRE DISTRICT #3		Calendar Year						2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Projected Annual Call Volume From Existing Dwelling Units		EMS		704	731	759	786	813	841	868	896	923	951	978				
		Non-EMS		322	321	326	330	335	340	345	350	354	359	364				
		SUBTOTAL		1026	1052	1085	1116	1148	1181	1213	1246	1277	1310	1342				
Projected Annual Call Volume Per 100 Units By Dwelling Type		Apartments	APT	7.7	7.2	7.5	7.8	8.1	8.4	8.7	9.0	9.3	9.6	9.9				
		Single-Family Homes	SFH	12.6	13.4	13.7	14.0	14.3	14.6	15.0	15.3	15.6	15.9	16.2				
		Condominiums	CO	7.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7				
		Age-Restricted, Ind. & Asst. Living	SL	80.2	81.3	87.1	92.9	98.8	104.6	110.5	116.3	122.1	128.0	133.8				
Property #	Project Name / Project Owner	Zoning Designation	Acreage	Dwelling Units Per Acre	#ofunits possible or approved	Dwelling Type	Additional Annual Calls for Service from New Residential Development											
Developments in Process																		
1A	Carrefour	T5/T6	10.12	20	0	n/a	0	0	0	0	0	0	0	0	0	0	0	0
14	Avenida Senior Living Apartments	R-H	5.3	31	162	AL	0	0	141	150	160	169	179	188	198	207	217	
15A	TW Residences & Market Row Lofts	T5	7.09	39	276	APT	0	20	21	22	22	23	24	25	26	26	27	
15B	Thornwood (Undeveloped Lot 5)	T5	2.98	99	294	APT	0	0	0	23	24	25	26	26	27	28	29	
Underdeveloped Properties																		
0	Germantown Country Club	R	178.6	2.904	261	SFH	0	0	0	4	7	11	16	20	24	29	34	
1B	Bank of Bartlett	T6	1	20	20	APT	0	0	0	0	0	2	2	2	2	2	2	
1C	Kirby Professional Buildings	T5/T6	2.64	15	40	APT	0	0	0	0	0	3	3	4	4	4	4	
3	Owen Jack R Revocable Trust	R	13.6	2.904	39	SFH	0	0	0	0	0	6	6	6	6	6	6	
4	Arthur Tract	T5	32.86	15	302	APT	0	0	0	0	0	25	26	27	28	29	30	
16A	Patel	R	6.46	2.904	18	SFH	0	0	0	3	3	3	3	3	3	3	3	
16B	Dogwood Manor	R	4.88	2.904	14	SFH	0	0	0	2	2	2	2	2	2	2	2	
Properties Unlikely To Be Developed < 10 Yrs																		
2	Fulmer Estate	R	190.62	2.904	554	SFH	0	0	0	0	0	0	0	0	0	0	0	
Projected Annual Totals for EMS/Non-EMS Residential Call Volume: District 3							1026	1072	1247	1319	1366	1450	1499	1549	1597	1647	1696	

Fire District 3 - New Apartment Impact Analysis Summary

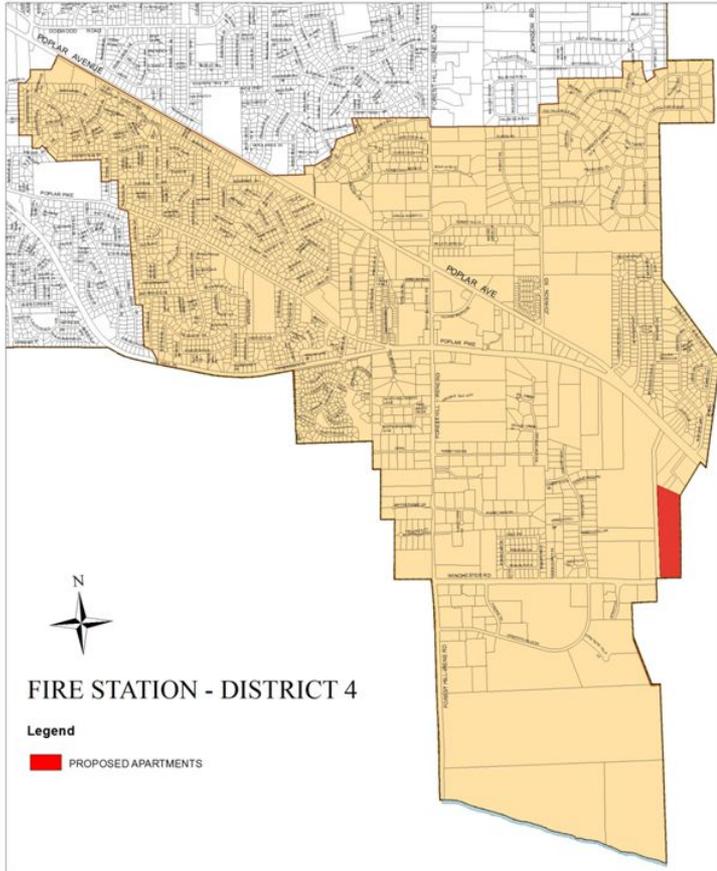
APARTMENTS - Fire District #3 (2028)				Year	2028		
Projected Annual Call Volume per 100 Apartment Units				9.9			
Property #	Project Name / Project Owner	Zoning Designation	# of units possible or approved	Calls per Year	Calls per Month	Calls per Day	
Developments in Process							
15A	TW Residences & Market Row Lofts	T5	276	27	2.3	0.07	
15B	Thornwood (Undeveloped Lot 5)	T5	294	29	2.4	0.08	
Underdeveloped Properties							
1B	Bank of Bartlett	T6	20	2	0.2	0.01	
1C	Kirby Professional Buildings	T5/T6	40	4	0.3	0.01	
4	Arthur Tract	T5	302	30	2.5	0.08	
Totals				932	92	7.7	0.25

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total residential calls per day	2.81	2.94	3.42	3.61	3.74	3.97	4.11	4.24	4.38	4.51	4.65

District 3: Call Volume Projection Analysis		Total Unit Count	Annual Calls for Service (2018-2028)			Added Call Volume per Day
			Current (2018)	Projected (2028)	Variance	
EXISTING DWELLING UNITS		6,530	1,026	1,342	316	0.87
Apartments*	Developments In Process	570	0	56	56	0.15
	Underdeveloped Properties	362	0	36	36	0.10
Single-Family Homes	Developments In Process	0	0	0	0	0.00
	Underdeveloped Properties	332	0	45	45	0.12
Age-Restricted, Independent & Assisted Living	Developments In Process	162	0	217	217	0.59
	Underdeveloped Properties	0	0	0	0	0.00
Totals		7,956	1,026	1,696	670	1.84

*For the purposes of projecting call volume impact based on the maximum number of dwelling units possible, this study assumes that all new multi-family development within Smart Code zoning districts will be applied for, approved, and developed as apartments over the next ten years.

Fire Station - District 4



Total Dwelling Unit Count:

2,603



Apartments

0



Condominiums

0



Single-Family

2,447

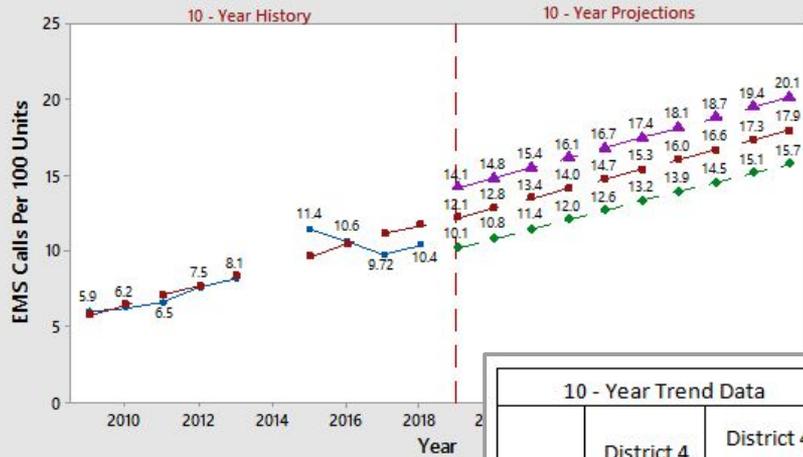


Age-Restricted,
Independent, &
Assisted Living

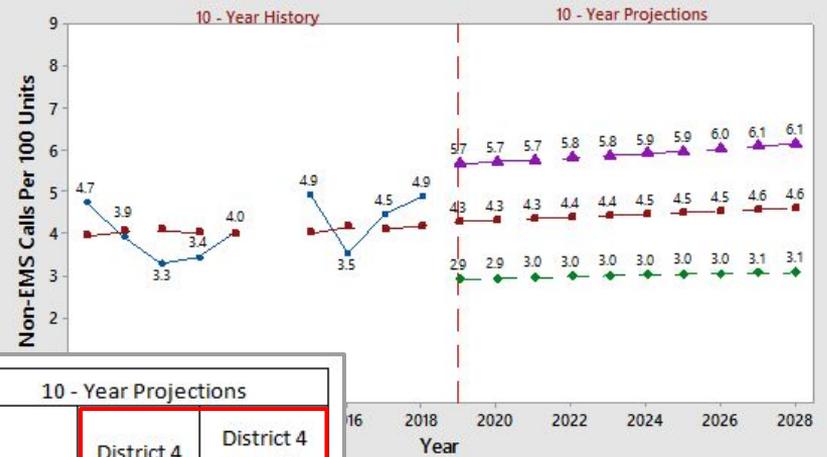
156



EMS Calls Per 100 Units - District 4



Non-EMS Calls Per 100 Units - District 4

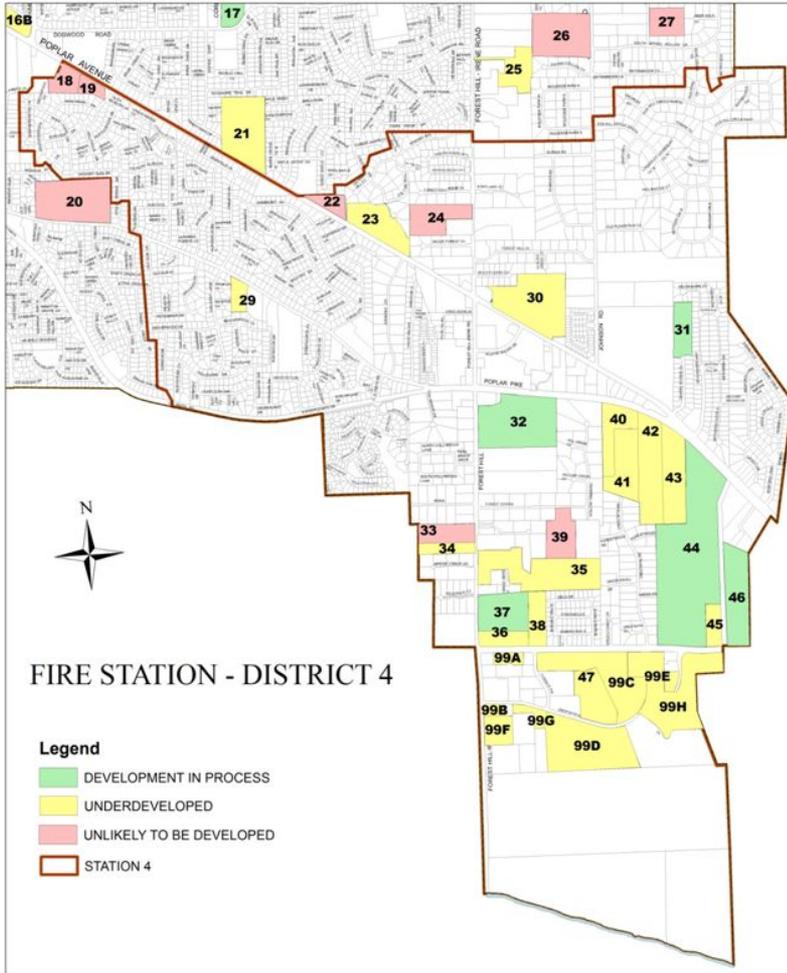


10 - Year Trend Data

Year	District 4 Total EMS Calls	District 4 Total Non-EMS Calls
2009	152	121
2010	162	102
2011	185	82
2012	211	91
2013	224	104
2014	n/a	n/a
2015	299	124
2016	262	89
2017	243	122
2018	270	127

10 - Year Projections

Year	District 4 Total EMS Calls	District 4 Total Non-EMS Calls
2019	316	111
2020	332	112
2021	349	113
2022	366	114
2023	382	115
2024	399	116
2025	416	117
2026	432	118
2027	449	119
2028	466	120



Fire District 4 - New Apartment Impact Analysis Summary

APARTMENTS - Fire District #4 (2028)				Year	2028		
Projected Annual Call Volume per 100 Apartment Units				9.9			
Property #	Project Name / Project Owner	Zoning Designation	# of units possible or approved	Calls per Year	Calls per Month	Calls per Day	
Developments in Process							
46	Viridian Apartments	T4	299	30	2.5	0.08	
Underdeveloped Properties							
47	Forest Hill Associates - Phase 19	T5	310	31	2.6	0.08	
99C	Forest Hill Associates	T5	300	30	2.5	0.08	
99D	Forest Hill Associates	T5	300	30	2.5	0.08	
Totals				1,209	120	10.0	0.33

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total residential calls per day	1.09	1.17	1.26	1.40	1.46	1.85	1.93	2.01	2.08	2.15	2.22

District 4: Call Volume Projection Analysis		Total Unit Count	Annual Calls for Service (2018-2028)			Added Call Volume per Day
			Current (2018)	Projected (2028)	Variance	
EXISTING DWELLING UNITS		2,603	397	586	189	0.52
Apartments*	Developments In Process	299	0	30	30	0.08
	Underdeveloped Properties	910	0	90	90	0.25
Condominiums	Developments In Process	0	0	0	0	0.00
	Underdeveloped Properties	137	0	6	6	0.02
Single-Family Homes	Developments In Process	365	0	51	51	0.14
	Underdeveloped Properties	278	0	45	45	0.12
Totals		4,592	397	809	412	1.13

*For the purposes of projecting call volume impact based on the maximum number of dwelling units possible, this study assumes that all new multi-family development within Smart Code zoning districts will be applied for, approved, and developed as apartments over the next ten years.

CITY-WIDE SUMMARY



**GERMANTOWN
TENNESSEE**

City-Wide New Apartment Impact Analysis Summary

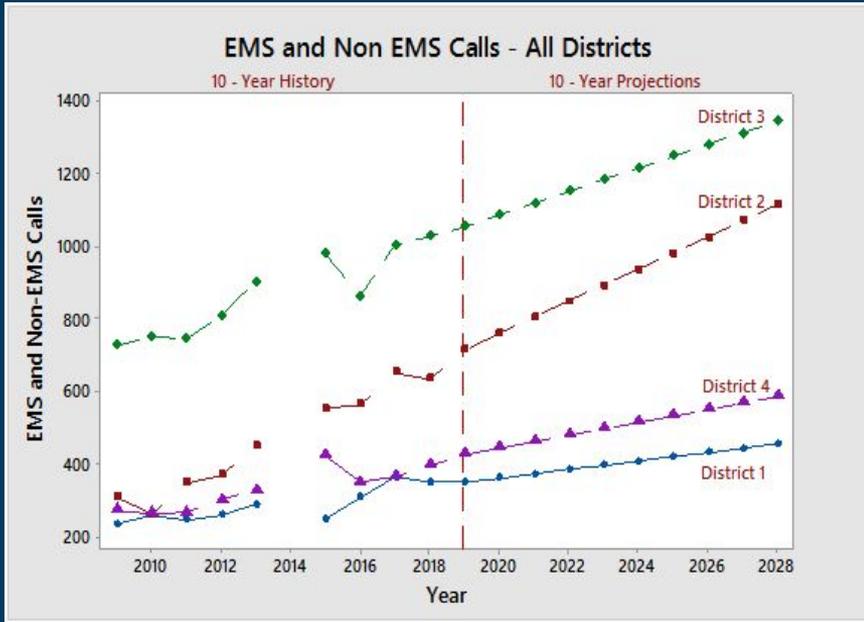
APARTMENTS - ALL FIRE DISTRICTS (2028)				Year	2028		
Projected Annual Call Volume per 100 Apartment Units				9.9			
Property #	Project Name / Project Owner	Zoning Designation	# of units possible or approved	Calls per Year	Calls per Month	Calls per Day	
Developments in Process							
15A	TW Residences & Market Row Lofts	T5	276	27	2.3	0.07	
15B	Thornwood (Undeveloped Lot 5)	T5	294	29	2.4	0.08	
46	Viridian Apartments	T4	299	30	2.5	0.08	
Underdeveloped Properties							
1B	Bank of Bartlett	T6	20	2	0.2	0.01	
1C	Kirby Professional Buildings	T5/T6	40	4	0.3	0.01	
4	Arthur Tract	T5	302	30	2.5	0.08	
47	Forest Hill Associates - Phase 19	T5	310	31	2.6	0.08	
99C	Forest Hill Associates	T5	300	30	2.5	0.08	
99D	Forest Hill Associates	T5	300	30	2.5	0.08	
Totals				2,141	212	17.7	0.58

Calendar Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total residential calls per day	6.59	7.02	7.77	8.25	8.60	9.43	9.79	10.18	10.54	10.90	11.26

ALL FIRE DISTRICTS: Call Volume Projection Analysis		Total Unit Count	Annual Calls for Service (2018-2028)			Added Call Volume per Day	
			Current (2018)	Projected (2028)	Variance		
EXISTING DWELLING UNITS		16,081	2,407	3,496	1,089	2.98	
Apartments*	Developments In Process	869	0	86	86	0.24	0.58
	Underdeveloped Properties	1,272	0	126	126	0.35	
Condominiums	Developments In Process	0	0	0	0	0.00	0.02
	Underdeveloped Properties	137	0	6	6	0.02	
Single-Family Homes	Developments In Process	423	0	61	61	0.17	0.49
	Underdeveloped Properties	779	0	118	118	0.32	
Age-Restricted, Independent & Assisted Living	Developments In Process	162	0	217	217	0.59	0.59
	Underdeveloped Properties	0	0	0	0	0.00	
Totals		19,723	2,407	4,110	1,703	4.66	1.68

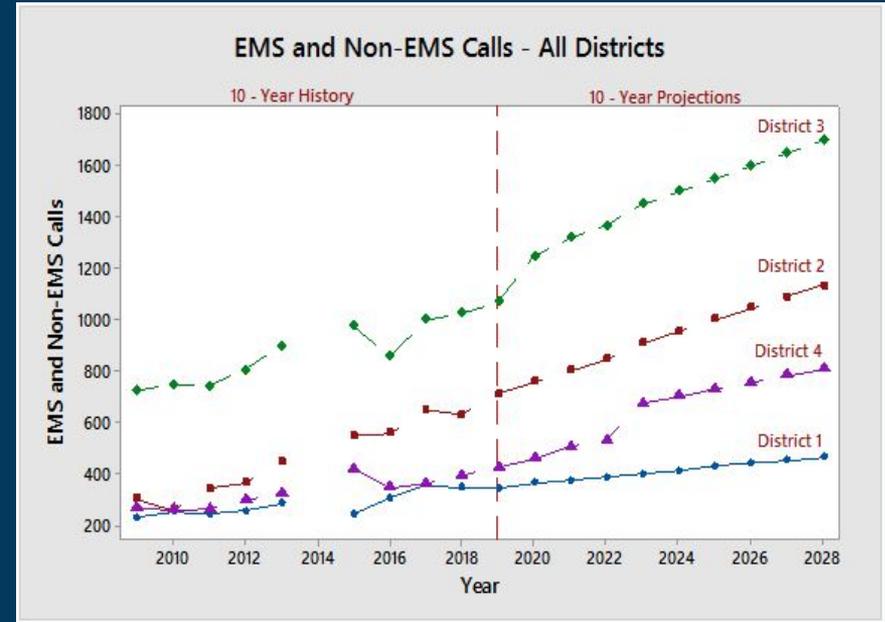
*For the purposes of projecting call volume impact based on the maximum number of dwelling units possible, this study makes the assumption that all new multi-family development within Smart Code zoning districts will be applied for, approved, and developed as apartments over the next ten years.

Existing Residential Dwelling Units



F-70

With New Residential Dwelling Units with Maximum Build-Out Scenario



F-72

Current

	Number of Units	% of Total Units	Fire	
			Calls for Service*	% of Residential Impact
Apartments	1014	6.3%	6.4	2.9%
Condominiums	1198	7.4%	5.2	2.8%
Age-Restricted, Independent and Assisted Living	721	4.5%	69.5	21.4%
Single-Family Homes	13148	81.8%	12.4	72.8%

*Results are shown per 100 units for each dwelling type.

Forecasted

	Number of Units	% of Total Units	Fire	
			Calls for Service*	% of Residential Impact
Apartments	3155	16.0%	9.9	8.0%
Condominiums	1335	6.8%	4.7	1.6%
Age-Restricted, Independent and Assisted Living	883	4.5%	133.8	30.4%
Single-Family Homes	14350	72.8%	16.2	59.9%

*Results are shown per 100 units for each dwelling type.

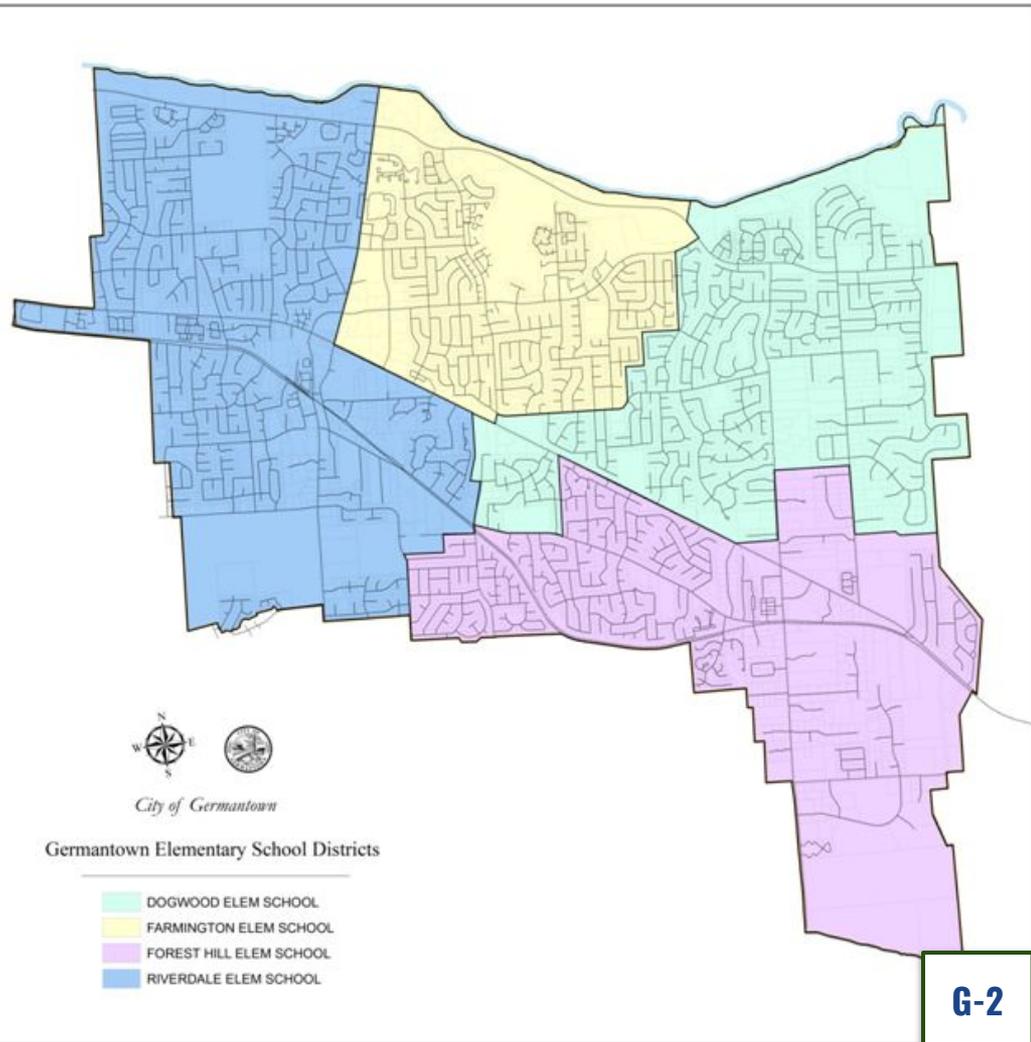


GMSD IMPACT ANALYSIS



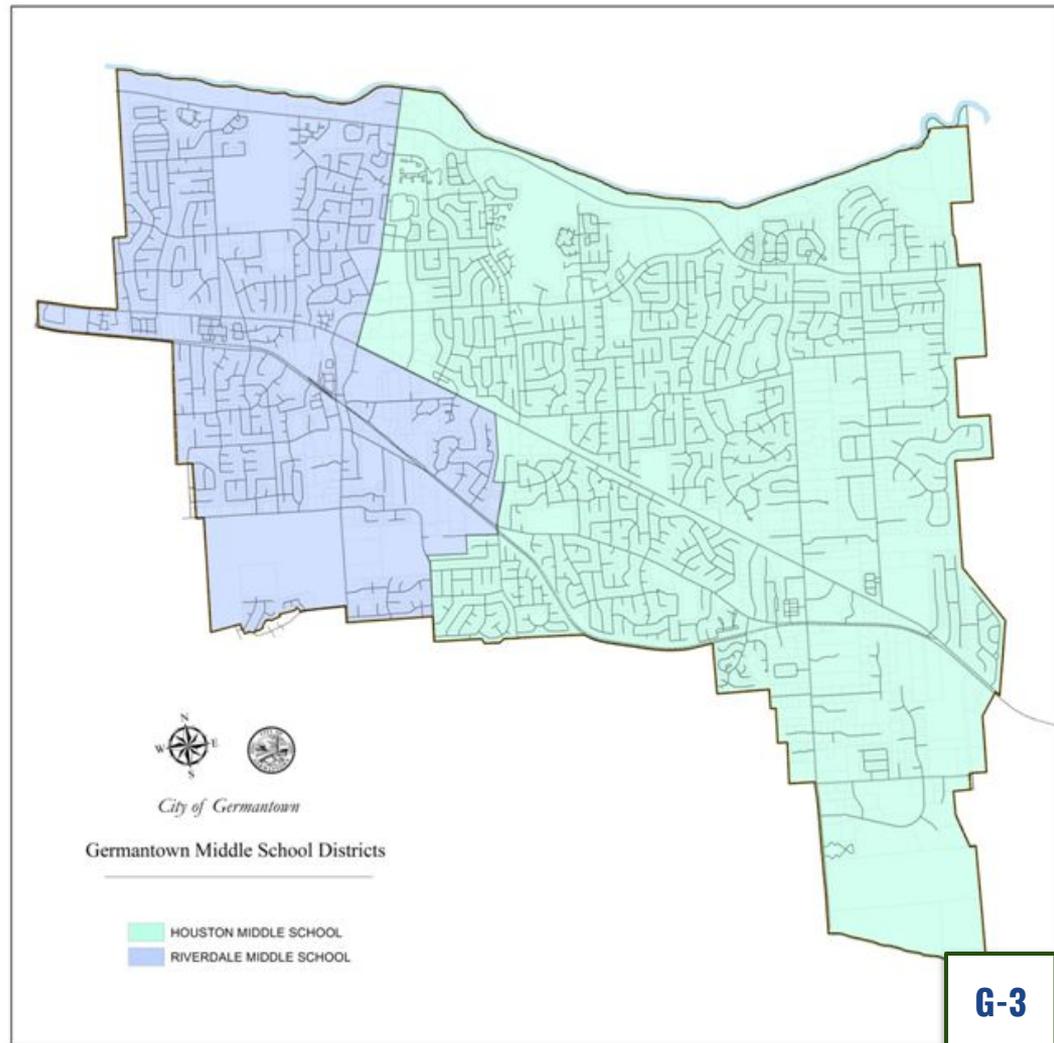
**GERMANTOWN
TENNESSEE**

GMSD Elementary



GMSD Middle

GMSD School	Programmatic Capacity	
	School Year 2018-19 Actual	School Year 2019-20 Projected
Dogwood Elementary	790	790
Farmington Elementary	720	720
Forest Hill Elementary	n/a	815
Riverdale Elementary	800	800
Riverdale Middle	510	510
Houston Middle	930	930
Houston High	2,100	2,100
Total Capacity	5,850	6,665



STATISTICAL ANALYSIS



**GERMANTOWN
TENNESSEE**

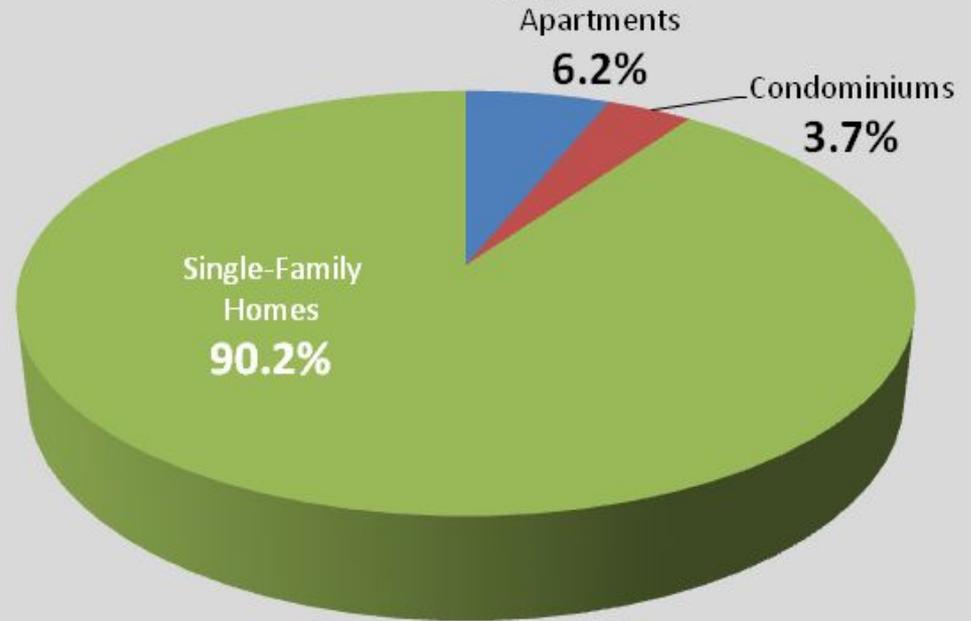
Total GMSD Resident Students 2018-19 School Year By Dwelling Type

Attendance Zone	Dwelling Type	Elementary	Middle	High
Dogwood Elementary	Apartments			
	Condominiums			
	Single-Family Homes	707		
Farmington Elementary	Apartments	66		
	Condominiums	54		
	Single-Family Homes	562		
Forest Hill Elementary	Apartments			
	Condominiums			
	Single-Family Homes	443		
Riverdale School	Apartments	94	45	
	Condominiums	37	13	
	Single-Family Homes	641	355	
Houston Middle	Apartments		47	
	Condominiums		40	
	Single-Family Homes		902	
Houston High	Apartments			87
	Condominiums			57
	Single-Family Homes			1,339
Totals	Apartments	160	92	87
	Condominiums	91	53	57
	Single-Family Homes	2,353	1,257	1,339
	All Dwelling Types	2,604	1,402	1,483

Total GMSD Resident Students 2018-19 School Year

Dwelling Type	School Year	# of Total GMSD Resident Students
Apartments	2018-19	339
Condominiums	2018-19	201
Single-family Homes	2018-19	4,949
Total	2018-19	5,489

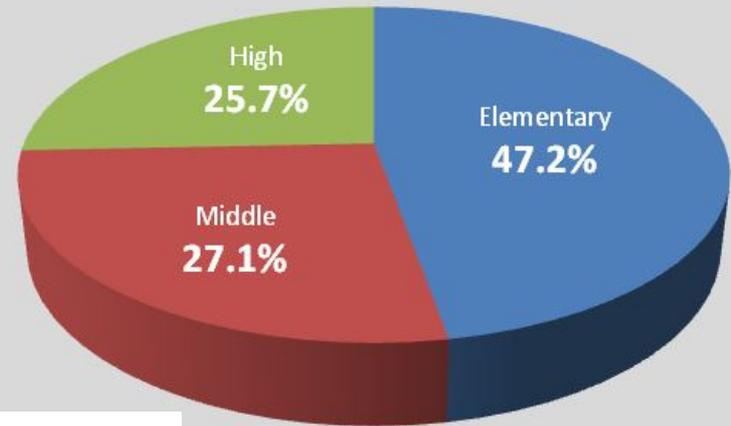
Percentage of GMSD Students from Residential Dwelling Types



Total GMSD Resident Students 2018-19 School Year



Percentage of GMSD Resident Students from Apartments (2018-19)



	Elementary Resident Students	%	Middle Resident Students	%	High School Resident Students	%	All GMSD Resident Students	% Totals
Apartments	160	47%	92	27%	87	26%	339	100%
Condominiums	91	45%	53	26%	57	28%	201	100%
Single-Family Homes	2,353	48%	1,257	25%	1,339	27%	4,949	100%
All Dwelling Units	2,604	47%	1,402	26%	1,483	27%	5,489	100%

Assumptions

- The GMSD study has made the assumption that there are no studio or one bedroom single-family homes within the City of Germantown.
- The GMSD study also assumes that no school-aged children currently reside or will reside in studio or one-bedroom apartments within the City of Germantown.
- Although possible, the likelihood of each is minimal and therefore, only apartments with two or more bedroom units were considered.

Dwelling Unit Type Analysis (2018-19)

Is there a statistical difference between the number of GMSD students per two or more bedroom unit by dwelling type?

Dwelling Type	School Year	# of Total GMSD Students	# of Total Units	# of 2+ Bedroom Units	2 + Bedroom to Student Ratio x 100
Apartments	2018-19	339	1,014	694	48.8
Condominiums	2018-19	201	1,198	1,136	17.7
Single-Family Homes	2018-19	4,949	13,148	13,148	37.6
Total	2018-19	5,489	15,360	14,978	35.7

Is there a statistical difference between the numbers of GMSD students per existing apartment development?

Apartment Development	Total Students	Number of Units	Number of 2 + Bedroom Units	2 + Bedroom to Student Ratio x 100
The Bridges	61	252	168	36.3
Farmington Gates	119	182	138	86.2
The Retreat	39	280	172	22.7
The Vineyards	32	200	116	27.6
Westminster	88	100	100	88.0

Apartment Development	Total Students	Number of Units	Number of 2 + Bedroom Units	2 + Bedroom to Student Ratio x 100	Average Monthly Rent	Avg. Monthly Rent - 2 + Bedroom Units
Bridges	61	252	168	36.3	\$1,400.85	\$1,515.33
Farmington Gates	119	182	138	86.2	\$1,073.48	\$1,177.58
Retreat	39	280	172	22.7	\$1,447.31	\$1,607.94
Vineyard	32	200	116	27.6	\$1,270.60	\$1,446.00
Westminster	88	100	100	88.0	\$1,141.50	\$1,141.50

Correlation Analysis:

Average Monthly Rent 2+ Bedroom Apartments vs. 2+ Bedroom Apartment Student Ratio

Pearson Correlation: -0.967
P-value: 0.007
R-Squared: 93.5%

GMSD Student to Unit Ratio vs. Average Monthly Rent



General New Apartment Product Types

Apartment **Type A**

- Vertically mixed-use, multi-family residential building
- Multi-family residential building, proposed as a component of a comprehensive mixed-use development application
- 50% studio or one-bedrooms / 50% two or more bedrooms

Apartment **Type B**

- Stand-alone, single-use, multi-family residential complex
- 40% studio or one-bedrooms / 60% two or more bedrooms

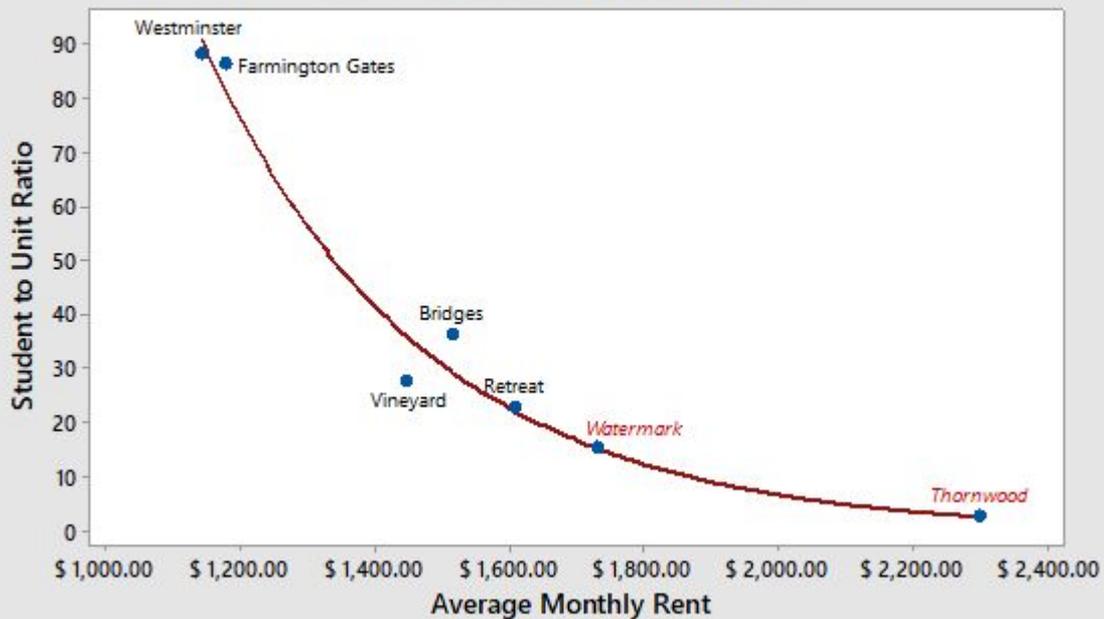
Projected GMSD Student to Unit Ratio by Average Monthly Rent

Apartment Development	Total Students	Number of Units	2 + Bedroom Units	2 + Bedroom to Student Ratio x 100	Avg. Monthly Rent - 2 + Bedroom Units
Bridges	61	252	168	36.3	\$1,515.33
Farmington Gates	119	182	138	86.2	\$1,177.58
Retreat	39	280	172	22.7	\$1,607.94
Vineyard	32	200	116	27.6	\$1,446.00
Westminster	88	100	100	88.0	\$1,141.50
Thornwood	4	276	138	2.7*	\$2,299.39
Watermark	29	310	190	15.3*	\$1,730.79

*Predicted values based upon regression equation

Average Monthly Rent - 2 & 3 Bedroom Apartments	Student to Unit Ratio x 100 - 2 & 3 Bedroom Apartments
\$1,000	139.8
\$1,100	103.3
\$1,200	76.3
\$1,300	56.3
\$1,400	41.6
\$1,500	30.7
\$1,600	22.7
\$1,700	16.8
\$1,800	12.4
\$1,900	9.2
\$2,000	6.8
\$2,100	5.0
\$2,200	3.7
\$2,300	2.7
\$2,400	2.0

GMSD Student to Unit Ratio vs. Average Monthly Rent
with Thornwood (A) and Watermark (B)



SCHOOL ATTENDANCE ZONE ANALYSIS



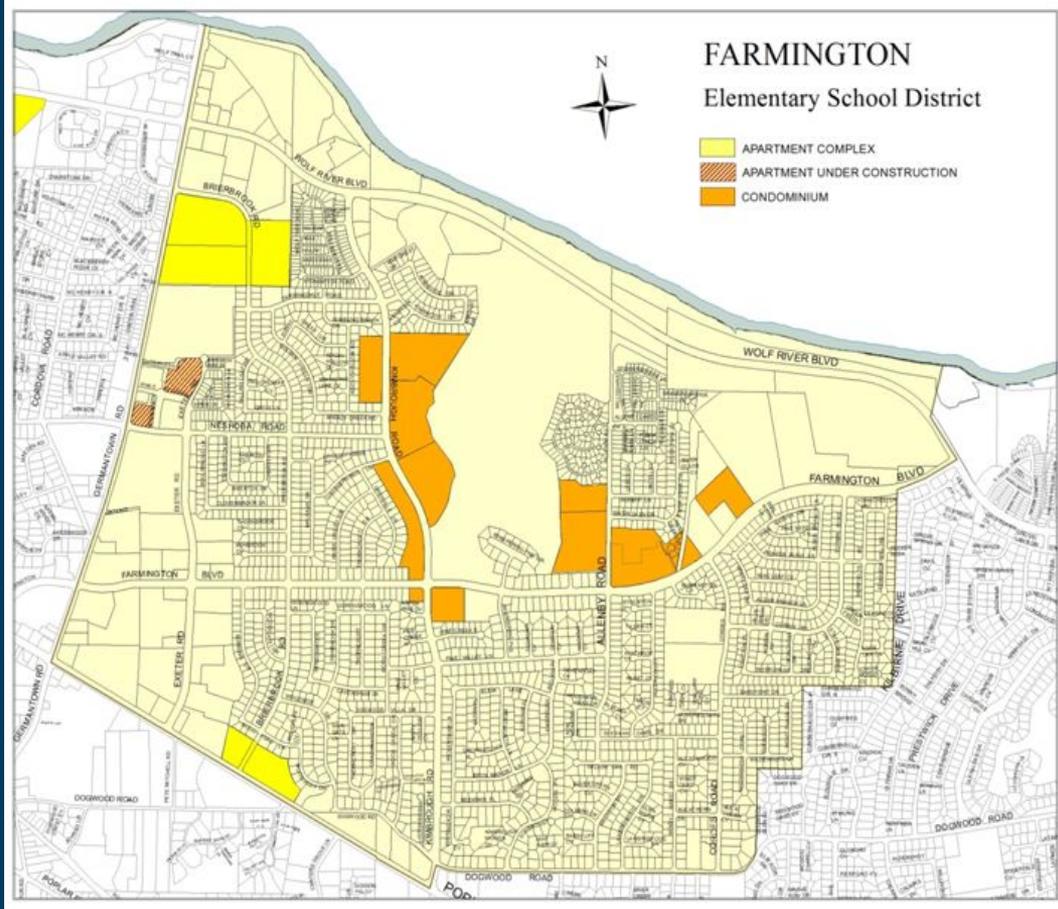
**GERMANTOWN
TENNESSEE**

Residential Dwelling Units by School Attendance Zone

Elementary School	SmartCode Zoning	Apartments	Condominiums	Single-family Homes	Dwelling Unit Totals by District
Dogwood	No	0	0	3,575	3,575
Farmington	Yes	462	711	2,682	3,855
Forest Hill	Yes	0	0	2,843	2,843
Riverdale	Yes	552	487	4,048	5,087
Dwelling Unit Totals by Type		1,014	1,198	13,148	15,360

Middle School	SmartCode Zoning	Apartments	Condominiums	Single-family Homes	Dwelling Unit Totals by District
Riverdale	Yes	552	487	4,048	5,087
Houston	Yes	462	711	9,100	10,273
Dwelling Unit Totals by Type		1,014	1,198	13,148	15,360

High School	SmartCode Zoning	Apartments	Condominiums	Single-family Homes	Dwelling Unit Totals by District
Houston	Yes	1,014	1,198	13,148	15,360
Dwelling Unit Totals by Type		1,014	1,198	13,148	15,360



Total Dwelling Unit Count:

3,855*



Apartments

Condominiums

Single-Family

462

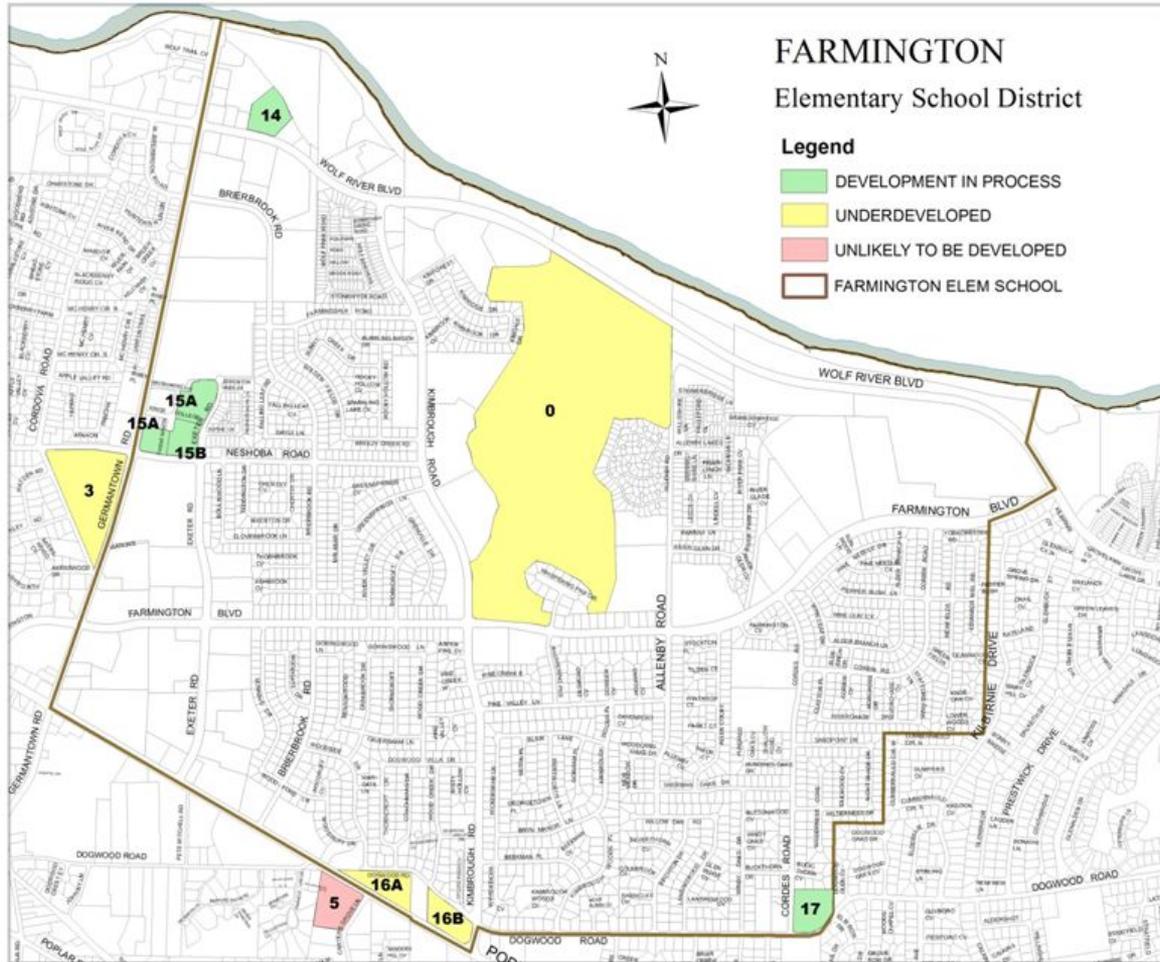
711

2,682

Resident Students

682

**Farmington
Elementary**

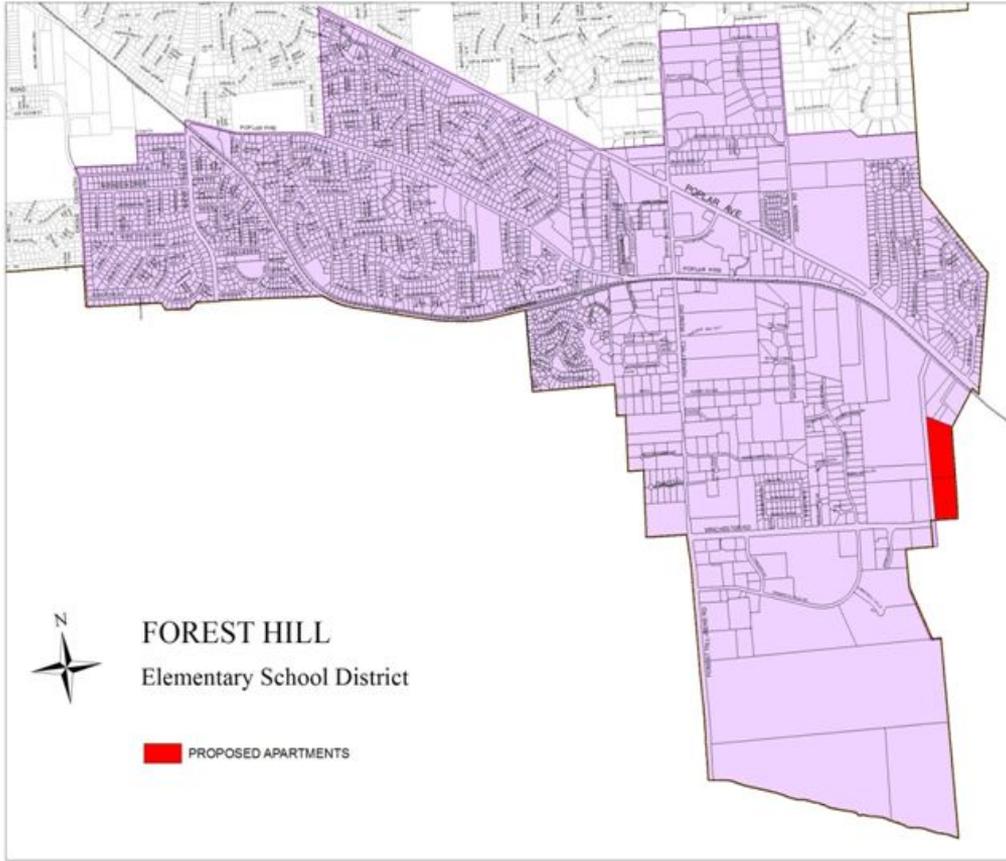


4

3

0

FARMINGTON ELEMENTARY			School Year					18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29						
Enrollment Projections from Existing Dwelling Units			Demographer Enrollment Forecast % Increase/Decrease					1.8%	1.3%	-1.4%	0.2%	-1.2%	-1.3%	-0.6%	-0.6%	-0.7%	0.0%	0.0%						
			Forecasted Enrollment using 18/19 Geocoding Actuals					682	691	681	683	674	666	662	658	653	653	653						
Enrollment Ratio Per 100 2+ Bedroom Units By Dwelling			Apartments A (2.7 x 47%)		APT A	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3							
			Apartments B (15.3 x 47%)		APT B	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2						
			Single Family Homes (Farmington SFH Ratio)		SFH	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0					
			Condominiums (17.7 x 45%)		CO	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0					
Property #	Project Name / Project Owner	Zoning Designation	Acreage	Dwelling Units Per Acre	# of units possible or approved	# of 2+ Bedroom Units	Dwelling Type	Additional Students from New Residential Development																
Developments in Process																								
14	Avenida Senior Living Apartments	R-H	5.3	31	162	-	AL	0	0	0	0	0	0	0	0	0	0	0						
15A	TW Residences & Market Row Lofts	T5	7.09	39	276	138	APT A	0	2	2	2	2	2	2	2	2	2	2						
15B	Thornwood (Undeveloped Lot 5)	T5	2.98	99	294	147	APT A	0	0	0	2	2	2	2	2	2	2	2						
17	Piper's Gardens	R	5.58	2,904	8	8	SFH	0	0	2	2	2	2	2	2	2	2	2						
Underdeveloped Properties																								
0	Germantown Country Club	R	178.6	2,904	261	261	SFH	0	0	0	5	11	16	22	27	33	38	44						
16A	Patel	R	6.46	2,904	18	18	SFH	0	0	0	4	4	4	4	4	4	4	4						
16B	Dogwood Manor	R	4.88	2,904	14	14	SFH	0	0	0	3	3	3	3	3	3	3	3						
Projected Number of Total Resident Students: Farmington Elementary								682	693	685	700	697	694	695	697	698	703	709						
Programmatic Capacity ----			720		Additional Capacity				27	35	20	23	26	25	23	22	17	11						
Change in Annual Student Enrollment		Existing Dwelling Units			9	-10	1	-8	-9	-4	-4	-5	0	0										
		New Residential Development			2	4	18	24	29	35	40	46	51	57										
Net increase/decrease in student population from 2018-19					11	3	18	15	12	13	15	16	21	27										
Additional Students By New Residential Development Type																								
		Apartments			0	2	2	4	4	4	4	4	4	4	4	4	4							
		Single-Family Homes			0	0	2	14	20	25	31	36	42	47	53									
		Condominiums			0	0	0	0	0	0	0	0	0	0	0	0								
		Annual Totals			0	2	4	18	24	29	35	40	46	51	57									



Total Dwelling Unit Count:

2,843*



Apartments

0



Condominiums

0



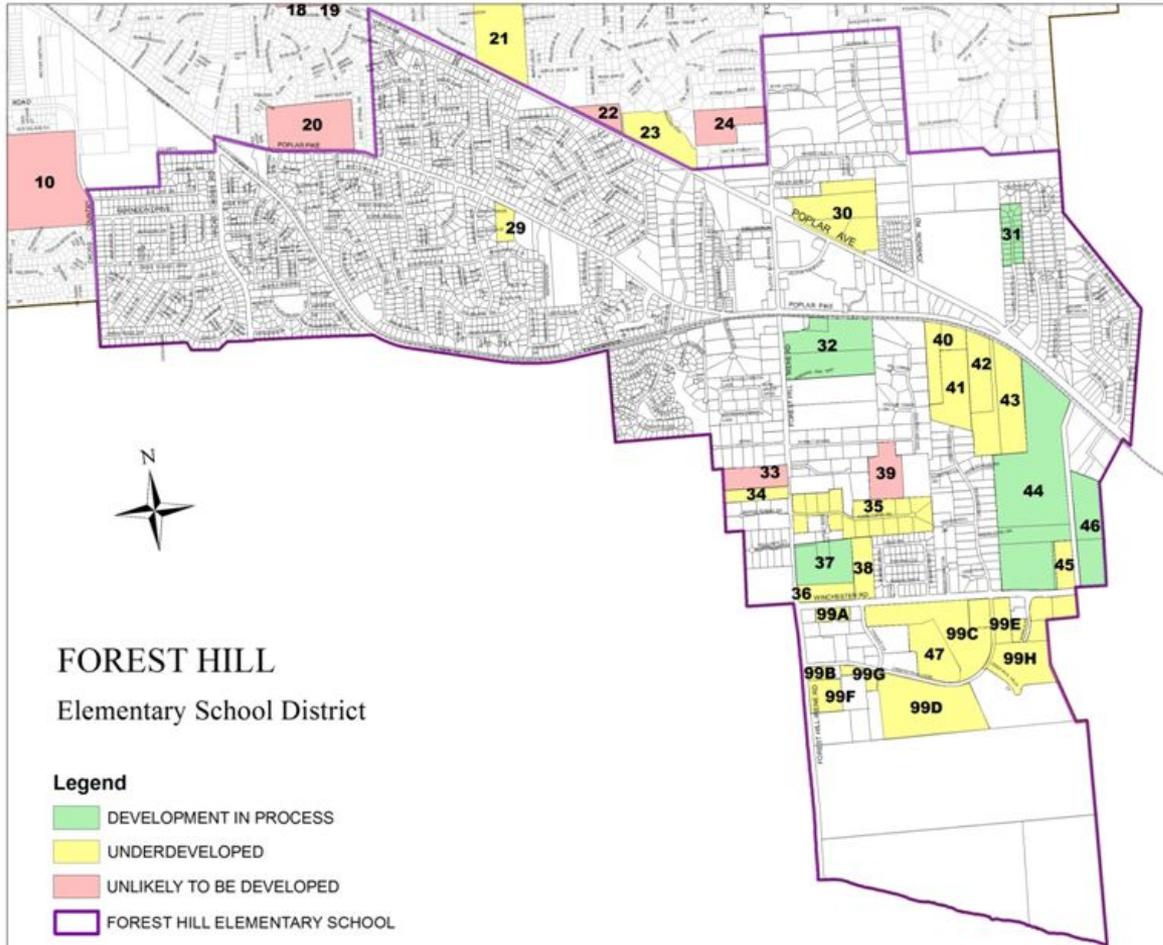
Single-Family

2,843

Resident Students

443

**Forest Hill
Elementary**



5

20

2

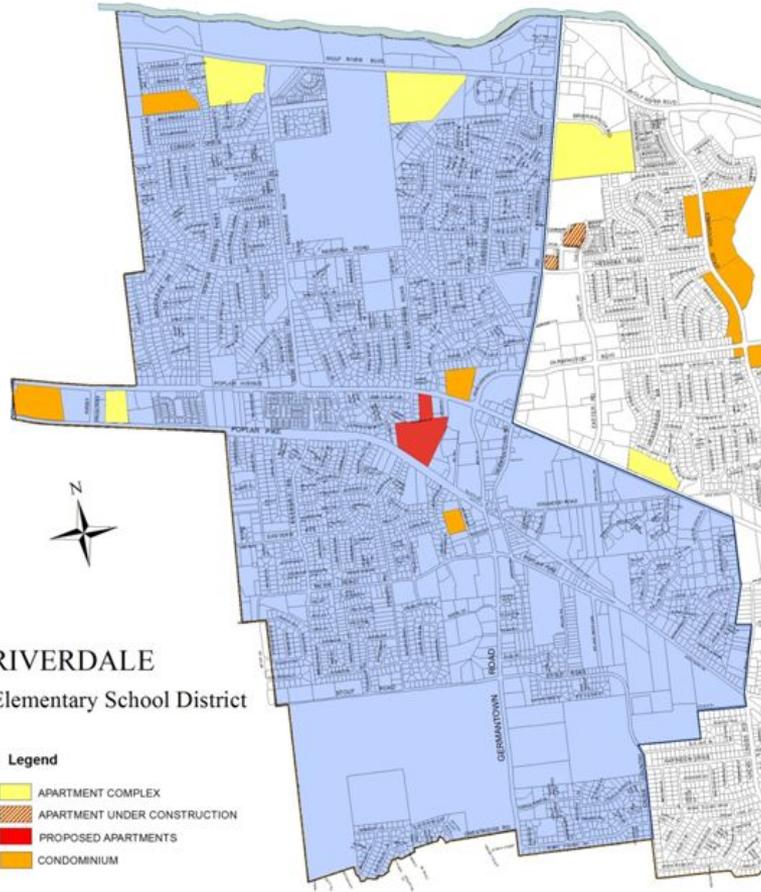
FOREST HILL ELEMENTARY	School Year											
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	
Enrollment Projections from Existing Dwelling Units	Demographer Enrollment Forecast % Increase/Decrease	2.0%	1.9%	2.2%	0.9%	-2.6%	-2.5%	-2.3%	-1.5%	-1.2%	0.0%	0.0%
	Forecasted Enrollment using 18/19 Geocoding Actuals	443	451	461	466	453	442	432	425	420	420	420

Enrollment Ratio Per 100 2+ Bedroom Units By Dwelling	Apartments A (2.7 x 47%)	APT A	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Apartments B (15.3 x 47%)	APT B	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
	Single Family Homes (Forest Hill SFH ratio)	SFH	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
	Condominiums (17.7 x 45%)	CO	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0

Projected Number of Total Resident Students: Forest Hill Elementary	443	451	486	506	498	574	567	567	566	569	573			
Programmatic Capacity ----	815	Additional Capacity		372	364	329	309	317	241	248	248	249	246	242

Change in Annual Student Enrollment	Existing Dwelling Units		8	10	4	-12	-11	-10	-6	-5	0	0
	New Residential Development		0	24	40	44	131	135	142	145	149	152
Net increase/decrease in student population from 2018-19			8	43	63	55	131	124	124	123	126	130

Additional Students By New Residential Development Type												
Apartments		0	0	0	13	13	53	53	53	53	53	53
Single-Family Homes		0	0	24	27	31	68	72	79	82	86	89
Condominiums		0	0	0	0	0	10	10	10	10	10	10
Annual Totals		0	0	24	40	44	131	135	142	145	149	152



RIVERDALE
Elementary School District

- Legend**
- APARTMENT COMPLEX
 - APARTMENT UNDER CONSTRUCTION
 - PROPOSED APARTMENTS
 - CONDOMINIUM

Total Dwelling Unit Count:

5,087*



Apartments

552



Condominiums

487



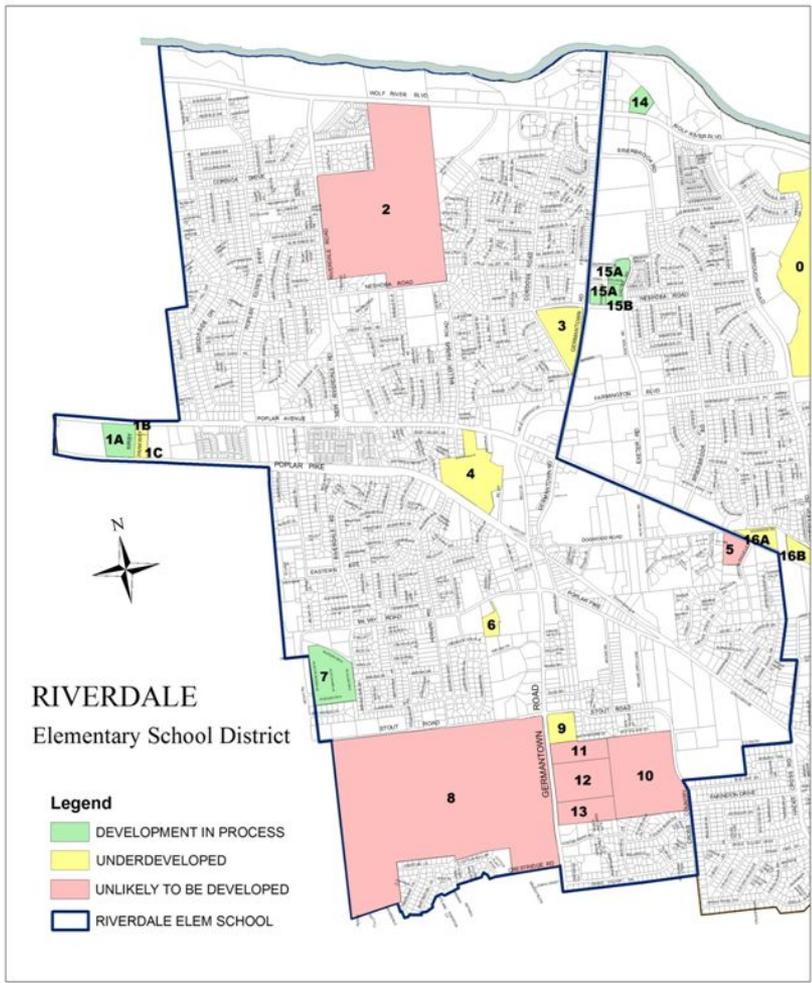
Single-Family

4,048

Resident Students

772

**Riverdale
Elementary**



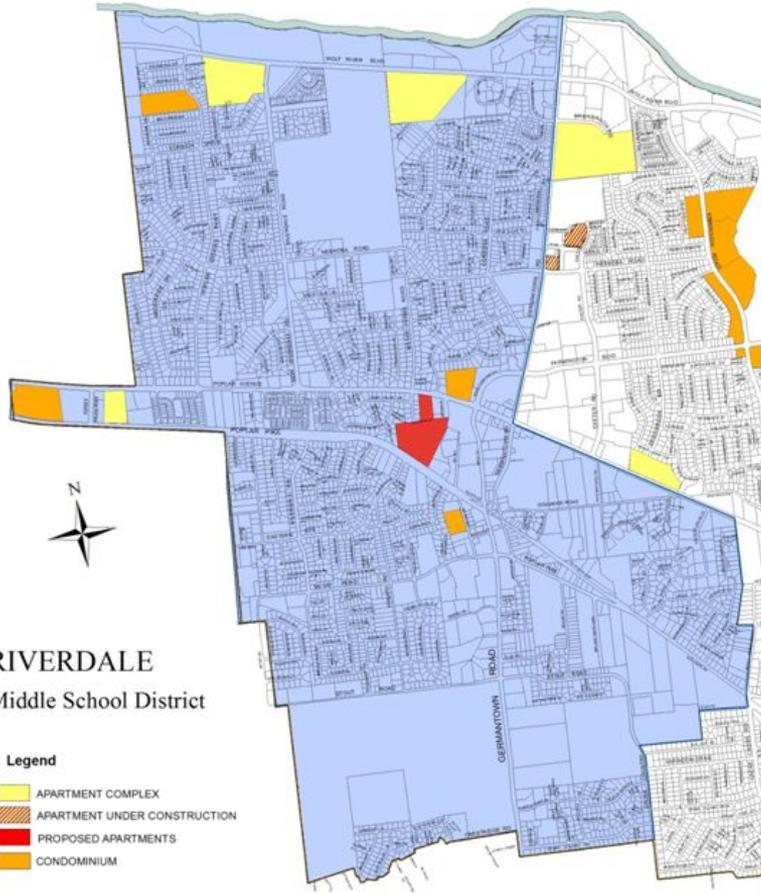
RIVERDALE ELEMENTARY (K-5)	SchoolYear	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
	Enrollment Projections from Existing Dwelling Units	Demographer Enrollment Forecast % Increase/Decrease	-0.4%	0.7%	0.3%	0.9%	-1.6%	-1.5%	-1.7%	-2.2%	-1.7%	0.0%
Forecasted Enrollment using 18/19 Geocoding Actuals		772	777	780	787	774	763	750	733	721	721	721

Enrollment Ratio Per 100 2+ Bedroom Units By Dwelling Type	Apartments A (2.7 x 47%)	APT A	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Apartments B (15.3 x 47%)	APT B	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
	Single Family Homes (Riverdale SFH ratio)	SFH	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
	Condominiums (17.7 x 45%)	CO	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0

Projected Number of Total Resident Students: Riverdale Elementary	772	777	788	795	782	779	766	756	743	743	743		
Programmatic Capacity ----	800	Additional Capacity			23	12	5	18	21	34	44	57	57

Change in Annual Student Enrollment	Existing Dwelling Units		5	2	7	-13	-12	-13	-16	-12	0	0
	New Residential Development		0	8	8	8	16	16	22	22	22	22
Net increase/decrease in student population from 2018-19			5	16	23	10	7	-6	-16	-29	-29	-29

Additional Students By New Residential Development Type												
Apartments		0	0	0	0	0	2	2	2	2	2	2
Single-Family Homes		0	0	8	8	8	14	14	20	20	20	20
Condominiums		0	0	0	0	0	0	0	0	0	0	0
Annual Totals		0	0	8	8	8	16	16	22	22	22	22



Total Dwelling Unit Count:

5,087*



Apartments

552



Condominiums

487



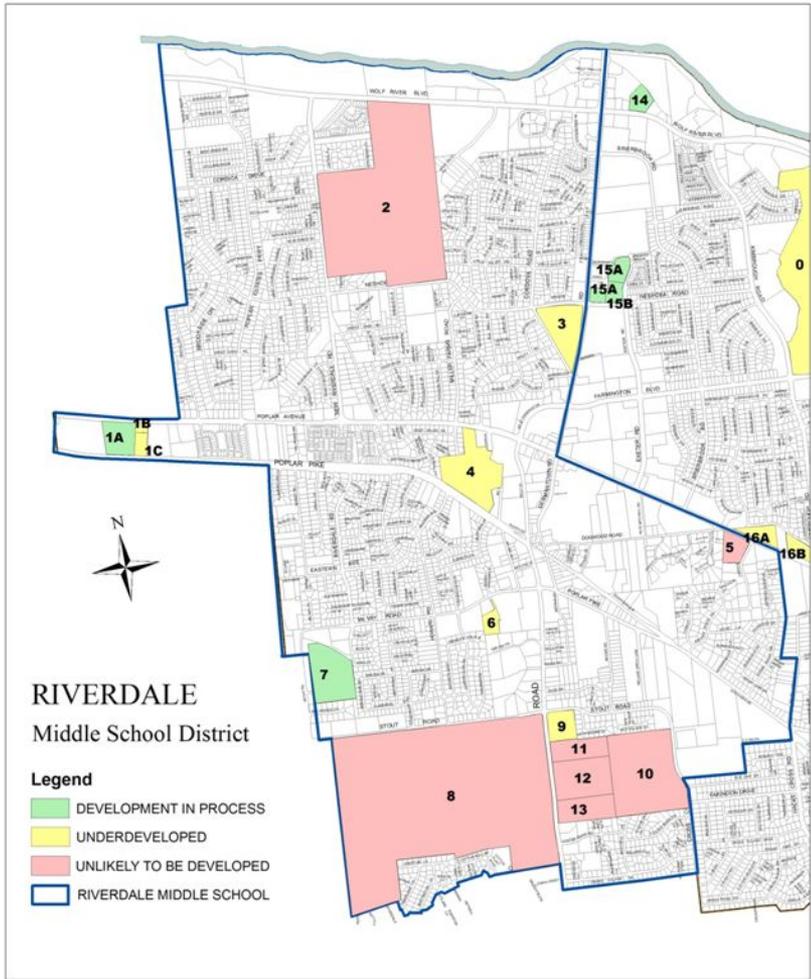
Single-Family

4,048

Resident Students

413

**Riverdale
Middle**



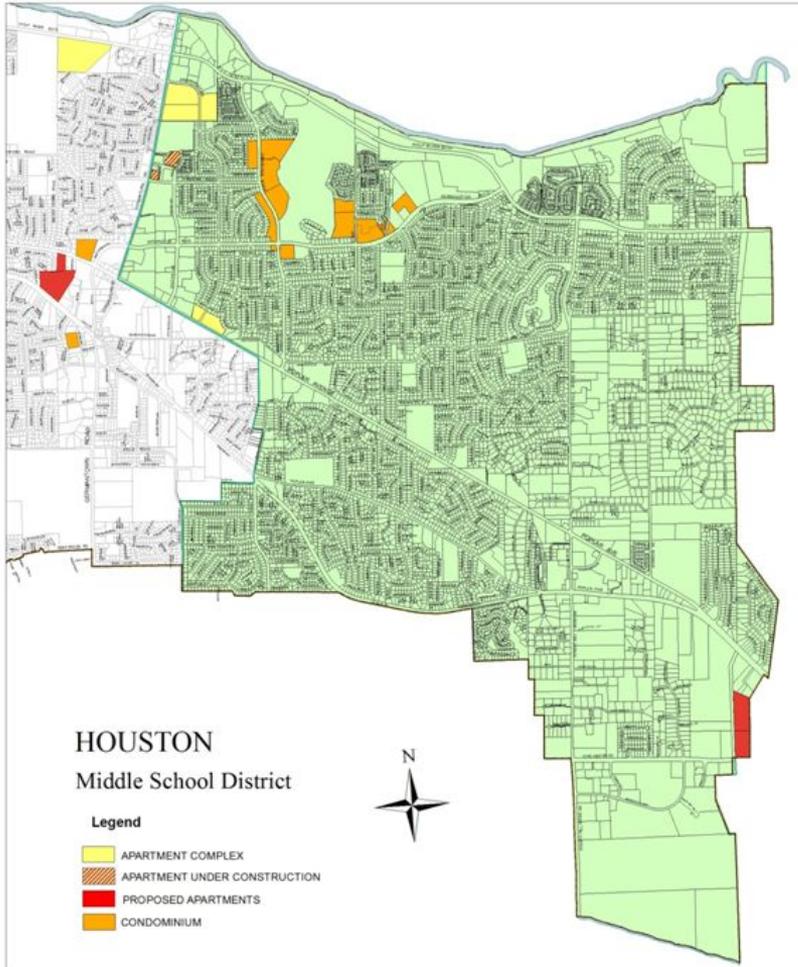
RIVERDALE MIDDLE (6-8)	School Year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
		Enrollment Projections from Existing Dwelling Units	Demographer Enrollment Forecast % Increase/Decrease	7.9%	5.5%	1.4%	-5.3%	2.3%	1.8%	3.0%	-1.7%	-2.0%
	Forecasted Enrollment using 18/19 Geocoding Actuals	413	436	442	418	428	436	449	441	432	432	432

Enrollment Ratio Per 100 2+ Bedroom Units By Dwelling Type	Apartments A (2.7 x 27%)	APTA	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	Apartments B (15.3 x 27%)	APT B	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
	Single Family Homes (Riverdale SFH ratio)	SFH	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
	Condominiums (17.7 x 26%)	CO	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6

Projected Number of Total Resident Students: Riverdale Middle	413	436	446	423	432	445	458	454	445	445	445	
Programmatic Capacity ----	510	Additional Capacity		74	64	87	78	65	52	56	65	65

Change in Annual Student Enrollment	Existing Dwelling Units		23	6	-23	10	8	13	-8	-9	0	0
	New Residential Development		0	4	4	4	8	8	11	11	11	11
Net increase/decrease in student population from 2018-19			23	33	10	19	32	45	41	32	32	32

Additional Students By New Residential Development Type												
Apartments		0	0	0	0	0	1	1	1	1	1	1
Single-Family Homes		0	0	4	4	4	7	7	10	10	10	10
Condominiums		0	0	0	0	0	0	0	0	0	0	0
Annual Totals		0	0	4	4	4	8	8	11	11	11	11



Total Dwelling Unit Count:

10,273*



Apartments

462



Condominiums

711



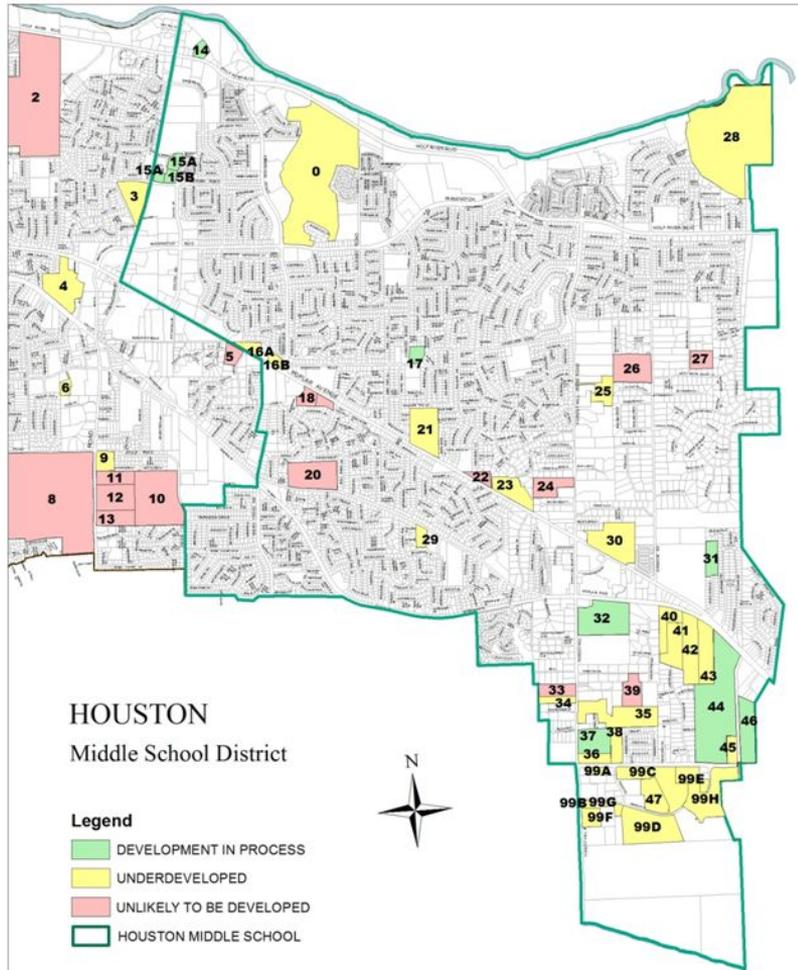
Single-Family

9,100

Resident Students

989

**Houston
Middle**



11

27

9

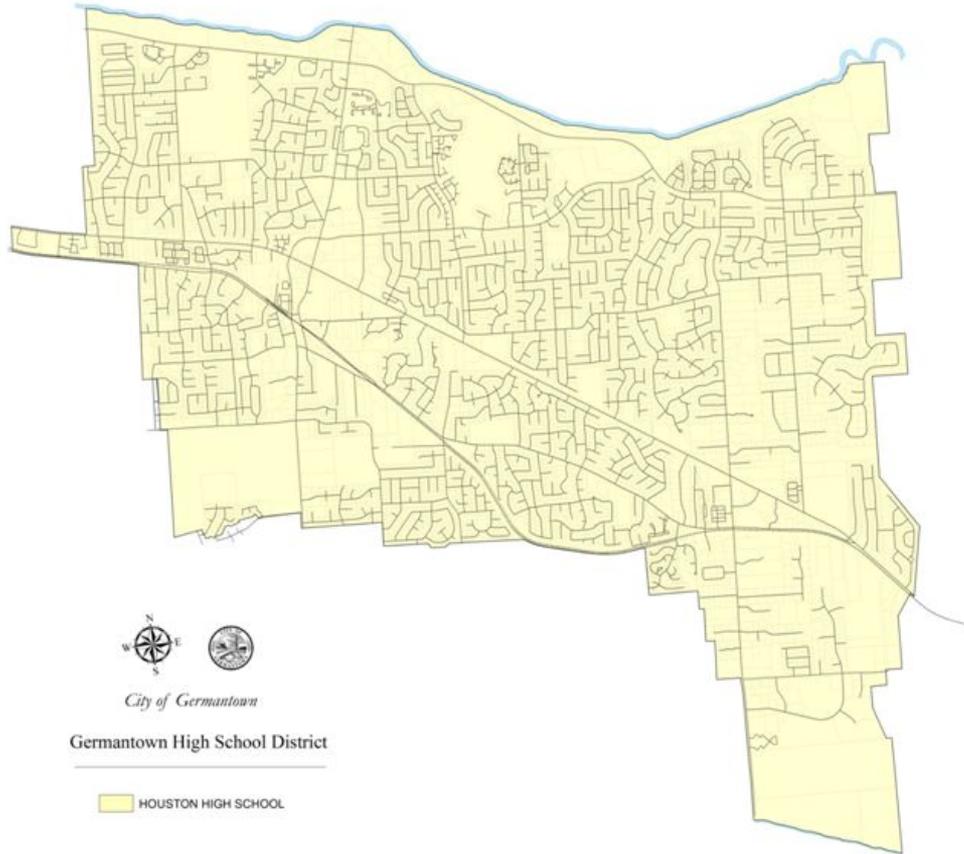
HOUSTON MIDDLE	School Year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
	Enrollment Projections from Existing Dwelling Units	Demographer Enrollment Forecast % Increase/Decrease	-0.3%	0.7%	-3.2%	-1.6%	3.1%	1.8%	2.3%	-1.1%	-0.8%	0.0%
Forecasted Enrollment using 18/19 Geocoding Actuals		989	996	964	949	978	996	1019	1007	999	999	999

Enrollment Ratio Per 100 2+ Bedroom Units By Dwelling	Apartments A (2.7 x 27%)	APTA	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Apartments B (15.3 x 27%)	APT B	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
	Single Family Homes (HMS SFH ratio)	SFH	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
	Condominiums (17.7 x 26%)	CO	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6

Projected Number of Total Resident Students: Houston Middle	989	997	981	983	1016	1105	1132	1129	1125	1130	1135			
Programmatic Capacity ----	930	Additional Capacity			-67	-51	-53	-86	-175	-202	-199	-195	-200	-205

Change in Annual Student Enrollment	Existing Dwelling Units		7	-32	-15	29	18	23	-11	-8	0	0
	New Residential Development		1	17	34	38	109	113	122	126	131	136
Net increase/decrease in student population from 2018-19			8	-8	-6	27	116	143	140	136	141	146

Additional Students By New Residential Development Type	
Apartments	0 1 1 9 9 31 31 31 31 31 31
Single-Family Homes	0 0 16 25 29 73 77 86 90 95 100
Condominiums	0 0 0 0 0 5 5 5 5 5 5
Annual Totals	0 1 17 34 38 109 113 122 126 131 136



Total Dwelling Unit Count:

15,360



Apartments

1,014



Condominiums

1,198



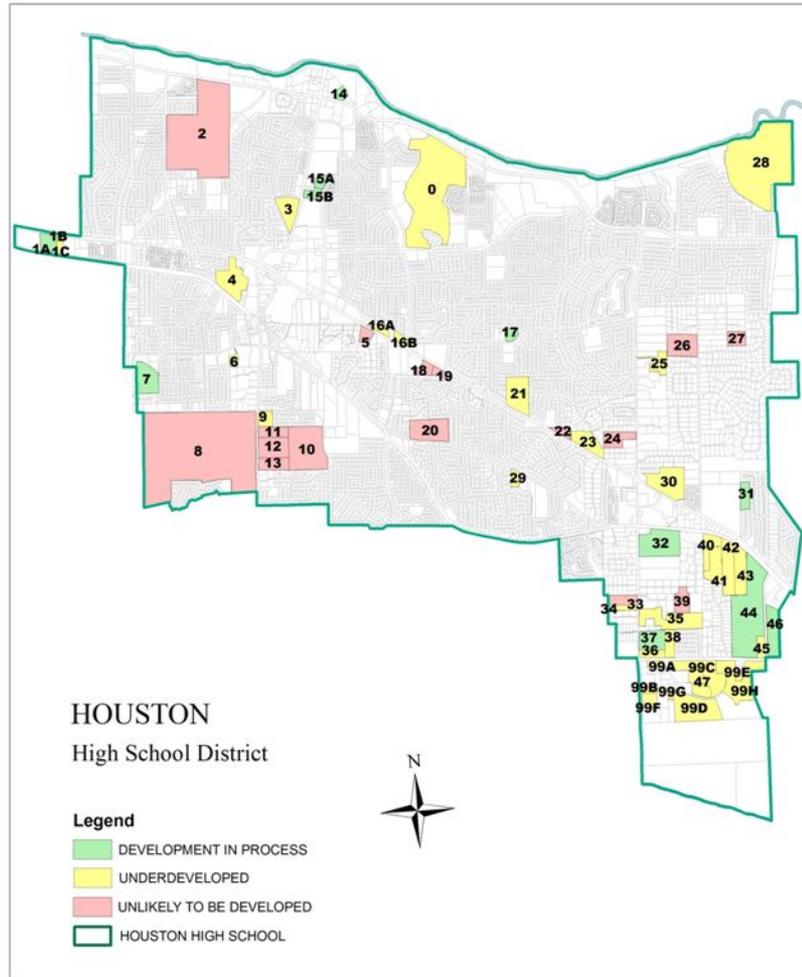
Single-Family

13,148

Resident Students

1,483

Houston High



11

33

16

HOUSTON HIGH	School Year	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Enrollment Projections from Existing Dwelling Units	Demographer Enrollment Forecast % Increase/Decrease	0.7%	1.2%	1.7%	2.3%	0.4%	1.3%	-2.3%	1.1%	1.6%	0.0%	0.0%
	Forecasted Enrollment using 18/19 Geocoding Actuals	1483	1501	1526	1561	1568	1588	1552	1569	1594	1594	1594
Enrollment Ratio Per 100 2+ Bedroom Units By Dwelling	Apartments A (2.7 x 26%)	APT A	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Apartments B (15.3 x 26%)	APT B	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Single Family Homes (HHS SFH ratio)	SFH	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
	Condominiums (17.7 x 28%)	CO	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

Projected Number of Total Resident Students: Houston High		1483	1502	1548	1605	1616	1712	1682	1710	1740	1746	1750
Programmatic Capacity ----	2100	Additional Capacity	598	552	495	484	388	418	390	360	354	350
Change in Annual Student Enrollment	Existing Dwelling Units		18	26	35	6	20	-37	17	25	0	0
	New Residential Development		1	22	44	48	124	130	141	146	152	156
Net increase/decrease in student population from 2018-19			19	65	122	133	229	199	227	257	263	267
Additional Students By New Residential Development Type												
Apartments		0	1	1	10	10	32	32	32	32	32	32
Single-Family Homes		0	0	21	34	38	84	90	101	106	112	116
Condominiums		0	0	0	0	0	8	8	8	8	8	8
Annual Totals		0	1	22	44	48	124	130	141	146	152	156

ALL GMSD SUMMARY



**GERMANTOWN
TENNESSEE**



GERMANTOWN

MUNICIPAL SCHOOL DISTRICT

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ALL GMSD	School Year										
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Total GMSD Resident Students Combined Existing Dwelling Units	From 5489	5573	5591	5606	5599	5595	5551	5512	5490	5490	5490
Projected Number of Total Resident Students: ALL GMSD	5489	5577	5670	5767	5778	6046	6022	6025	6021	6041	6059
Programmatic Capacity ----	6665	Additional Capacity									
Change in Annual Student Enrollment	Existing Dwelling Units										
	New Residential Development										
Net increase/decrease in student population from 2018-19	88	181	278	289	557	533	536	532	552	570	
Additional Students By New Residential Development Type											
Apartments											
Single-Family Homes											
Condominiums											
Annual Totals	0	4	79	161	179	451	471	513	531	551	569



GERMANTOWN

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APARTMENTS - ALL ATTENDANCE ZONES (2028)				School Year		GMSD Student Enrollment (2028)			
Property #	Project Name / Project Owner	# of units possible or approved	# of 2+ Bedroom Units	Dwelling Type	ELEMENTARY	MIDDLE	HIGH	TOTAL	
Developments in Process									
15A	TW Residences & Market Row Lofts	276	138	APT A	2	1	1	4	
15B	Thornwood (Undeveloped Lot 5)	294	147	APT A	2	1	1	4	
46	Viridian Apartments	299	179	APT B	13	7	7	27	
Underdeveloped Properties									
1B	Bank of Bartlett	20	10	APT A	0	0	0	0	
1C	Kirby Professional Buildings	40	20	APT A	0	0	0	0	
4	Arthur Tract	302	151	APT A	2	1	1	4	
47	Forest Hill Associates - Phase 19	310	190	APT B	14	8	8	30	
99C	Forest Hill Associates	300	180	APT B	13	7	7	27	
99D	Forest Hill Associates	300	180	APT B	13	7	7	27	
		2,141	1,195		59	32	32	123	

Current

	Number of Units	2+ Bedroom Units	% of Total Units	GMSD	
				Students*	% of Residential Impact
Apartments	1014	694	4.6%	48.8	6.2%
Condominiums	1198	1136	7.6%	17.7	3.7%
Age-Restricted, Independent and Assisted Living	721	n/a	n/a	0	0.0%
Single-Family Homes	13148	13148	87.8%	37.6	90.2%

*GMSD results only include two or more bedroom in all multi-family dwelling units

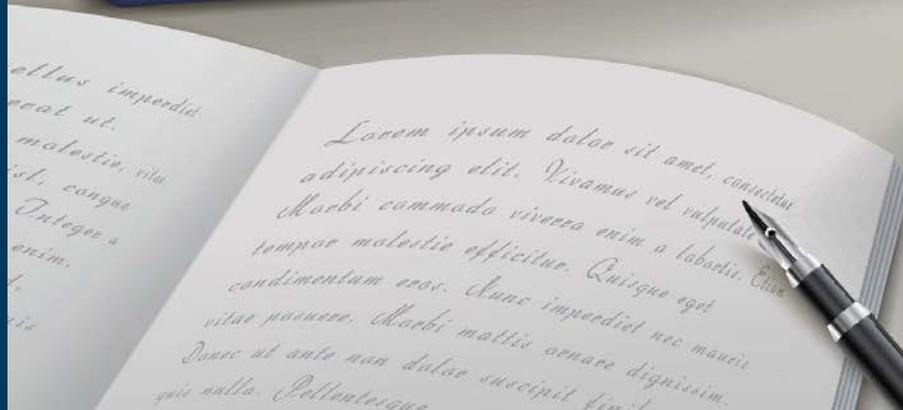
Forecasted

	Number of Units	2+ Bedroom Units	% of Total Units	GMSD	
				Students*	% of Residential Impact
Apartments	3155	1889	10.8%	24.5	7.6%
Condominiums	1335	1273	7.3%	17.6	3.7%
Age-Restricted, Independent and Assisted Living	883	n/a	n/a	0	0.0%
Single-Family Homes	14350	14350	81.9%	37.4	88.7%

*GMSD results only include two or more bedroom in all multi-family dwelling units

Questions

Answers



APARTMENT MORATORIUM REPORT

Germantown Board of Mayor and Aldermen



**GERMANTOWN
TENNESSEE**