

4.0 WASTEWATER FLOW PROJECTIONS

4.1 PROJECTION METHODOLOGY

In collaboration with the City’s Planning Department and Water Utility Department, wastewater flow projections were developed for planning purposes for the 5-year (2030), 10-year (2035), and buildout periods. These projections include wastewater flows, equivalent population from both residential and non-residential connections. The growth projections exclude any redevelopment in areas that already have existing development and assuming that City’s wastewater CCN will not change in the future. Projections through 2035 are based on current planned developments. Projections through buildout are based on future land use designated from Aspire 2040 Comprehensive Plan.

To project future wastewater flow, three parameters are essential: land use types for future developments, wastewater service connections per acre, and wastewater flow per connection. The land use types within the City of Pflugerville’s wastewater CCN have been outlined in the City’s 2040 Comprehensive Plan (**Figure 4-1**), which includes existing developed areas, planned future developments, and the final buildout. However, the wastewater service connections per acre by land use type and the wastewater flow per connection are yet to be determined.

4.1.1 Determine Wastewater Flow per Connection per Day

To determine the representative value of wastewater flow per connection, historical data from 2014 to 2024 for the WWTP’s monthly average flow (MGD) and the total monthly wastewater connections were analyzed (**Appendix B**). The wastewater flow per connection, expressed in gallons per connection per day (gpcd), was calculated by dividing the average monthly flow by the total monthly wastewater connections.

To better reflect the recent reduction in wastewater flow, as discussed in Part 3.3, a weighted averaging method was adopted to determine the wastewater flow in gallon per connection per day (gpcd). The available flow data were divided into two distinct periods: the 8-year span from 2014 to 2021 and the 3-year span from 2022 to 2024. Rather than applying a simple average across all ten years—which would have placed disproportionate emphasis on the older, higher-flow data—equal weightings of 50% were assigned to each period. In this approach, each time frame was treated as an independent representation of system behavior. The average flow per connection was calculated separately for each period, and the final result was obtained by taking the mean of these two averages, giving equal influence on both. As shown in **Table 4-1**, the weighted average wastewater flow per connection is 218 gpcd, with a standard deviation of 35 gpcd. Statistically, this means there is a 68% probability that the actual flow falls within one standard deviation of the average (i.e., between 183 gpcd and 253 gpcd). To ensure a less conservative yet representative estimate, we rounded the upper bound (253 gpcd) to the nearest 10, resulting in 250 gpcd. This value captures the expected variability in wastewater flows, as it reflects the range where the majority (68%) of data points are likely to occur. Based on the equivalent population assumption of 2.85 people per connection provided by City, the corresponding wastewater flow is 88 gallons per capita per day. This value aligns with the range specified by the TCEQ Chapter 217, Figure: 30 TAC §217.32(a)(3), which states that residential daily wastewater flow typically falls between 75 and 100 gallons per person.

Table 4-1. Wastewater Flow Per Connection with Unit Gallon Per Connection Per Day

Median	Weighted Average	Standard Deviation	Minimum	Maximum
225	218	35	161	345

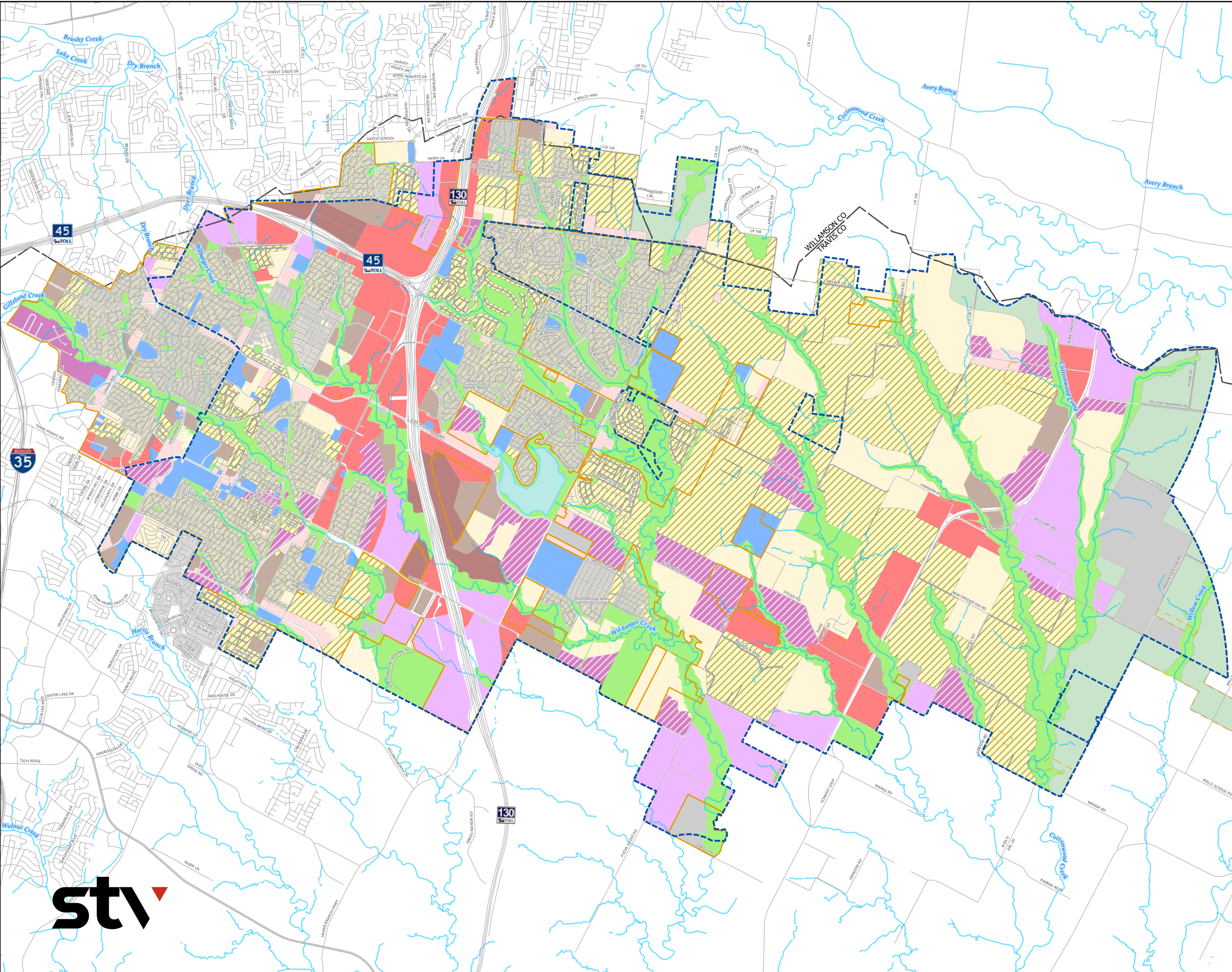


FIGURE 4-1
CITY OF PFLUGERVILLE
CITY COMPREHENSIVE PLAN LAND USE TYPE
WITH CURRENT AND FUTURE DEVELOPMENTS

- LEGEND**
- Wastewater Service Area
 - ETJ Boundary
 - County Boundary
 - City Limit
 - Parcel Boundary
 - Road
 - Stream
 - Lake
 - Rural Residential/Agriculture
 - Suburban Residential
 - Employment
 - Mixed-Use Commercial
 - Mixed-Use Neighborhood
 - Parks and Open Space
 - Neighborhood Retail/Office/Commercial
 - Institutional
 - Mixed-Density Neighborhood
 - Industrial
 - Innovation Centers
 - Traditional Neighborhood
 - Utilities

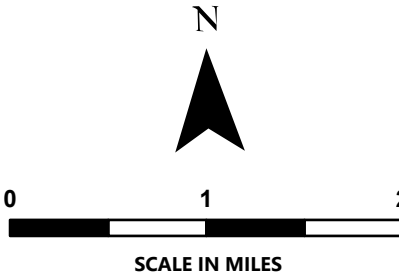
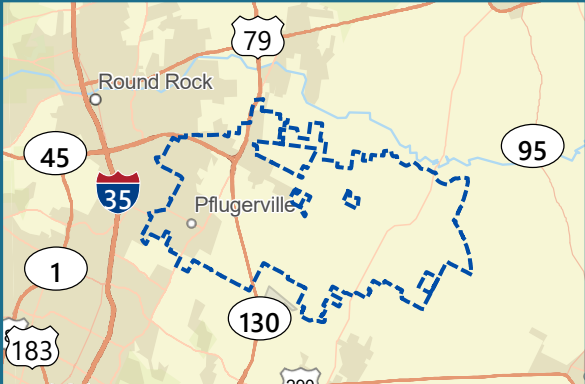


Table 4-2 also compares the estimated average daily wastewater flow per connection for neighboring municipalities. Pflugerville’s value of 250 gallons per connection per day falls within the mid-range of the values observed across Central Texas, suggesting it is a reasonable and representative estimate.

Table 4-2. Wastewater Flow Per Connection for Neighboring Municipalities

Municipalities	Gallon Per Connection Per Day	Source
City of Hutto	280	2022 Wastewater Master Plan
City of Round Rock	280	Round Rock Utility Criteria Manual
City of Manor	200	City of Manor 2024 Wastewater Master Plan
City of Austin	245	Austin Utilities Criteria Manual
City of Pflugerville	250	Current Master Plan

4.1.2 Determine Connections per Acre for Each Land Use Type

To determine the representative value of connections per acre for each land use type, the following process was followed, incorporating current developed areas (**Figure 4-1**), the number of existing connections, and flow metering data provided by RJN. The process adhered to two key criteria:

1. Total Connections:

Starting with the connections per acre for each land use type suggested by City Aspire 2040 Comprehensive Plan and City’s Unified Development Code (UDC) as a reference, the total number of connections for the existing developed areas was calculated to align with the 2023 connection count of 24,524, allowing for a variance of up to 1,226 connections (5% of the total). This was accomplished by merging the existing developed parcels with land use data from the City’s Aspire 2040 Comprehensive Plan and assigning land use categories to each developed area. The connections per acre by land use type, were then applied to determine the total connections for the existing developed areas.

2. Gallons per Connection per Day (gpCd):

The average daily flow data from the eight flow meter basins, provided by RJN, was used to calculate the gpCd for each basin. By analyzing the number of connections within each flow meter basin, the corresponding gpCd was determined by dividing the average daily flow by the number of connections in each basin. The goal was for the calculated gpCd to fall within the 95% probability range of 161 to 345 gpCd from the analysis in part 4.1.1.

If the calculated connections per acre by land use did not satisfy both criteria, the values were adjusted. This involved recalculating the total current connections and the gpCd values until both fell within the acceptable ranges. The final connections per acre by land use type, after adjustments, are summarized in **Table 4-3**.

Table 4-3. Connections/Acre by Land Use Types

Land Use Category	Connections/Acre
Rural Residential/Agriculture	0.5
Suburban Residential	3
Traditional Neighborhood	5
Mixed-Density Neighborhood	10
Mixed-Use Neighborhood	3
Neighborhood Retail/Office/Commercial	3
Mixed-Use Commercial	5
Innovation Centers	3
Employment	3
Industrial	4
Institutional	1.5
Parks and Open Space	0
Utilities	0
Mixed Use (Zone CL5)	45
Mixed Use (Zone CL4)	37.5
Mixed Use (Zone CL3)	10

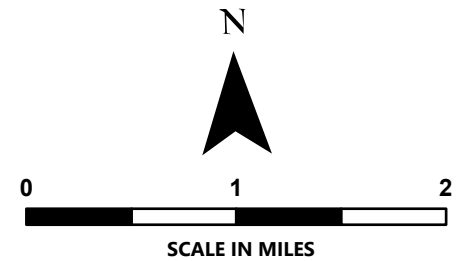
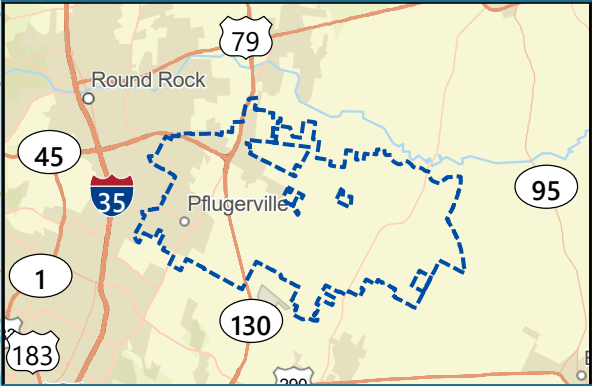
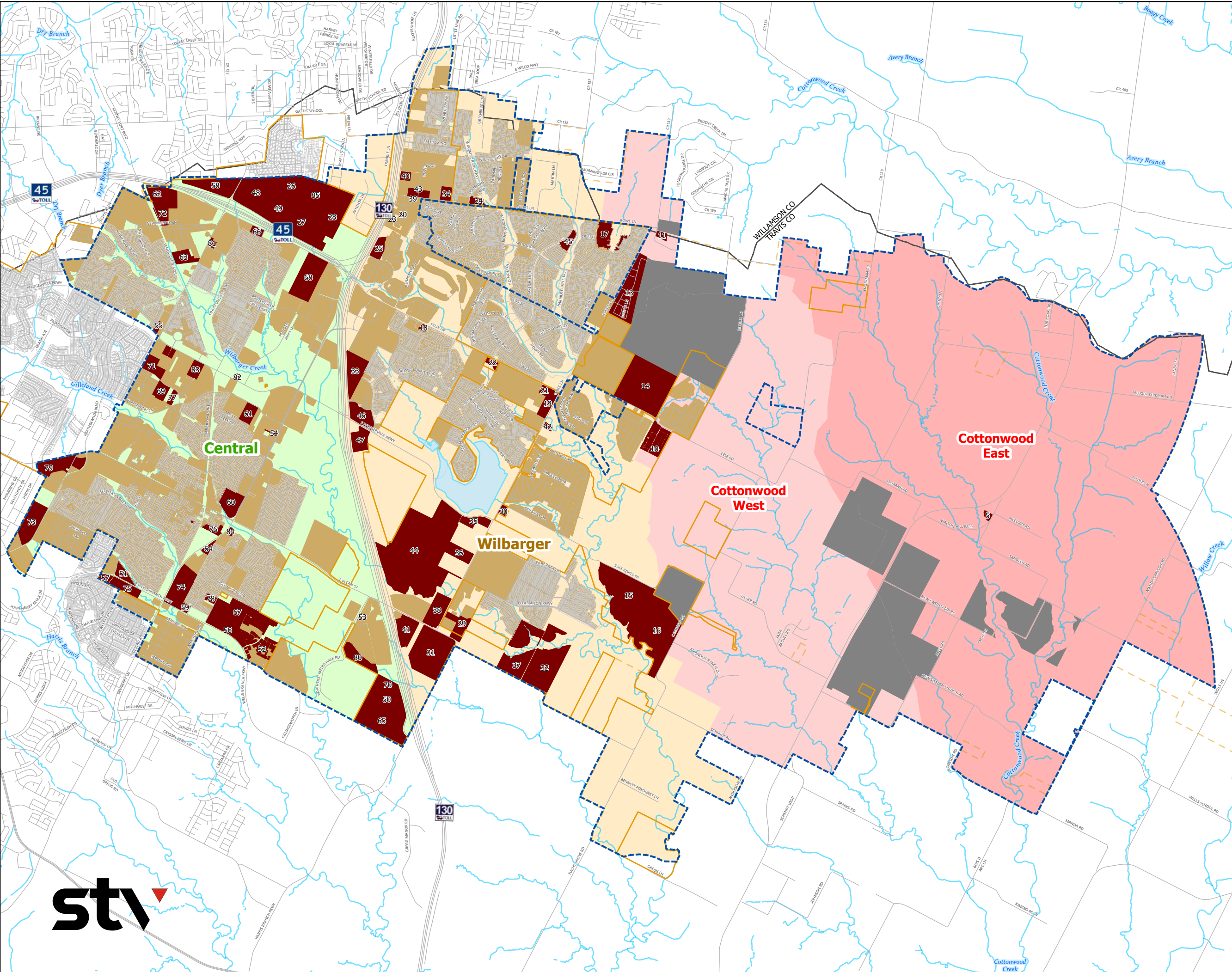
4.1.3 Determine Planned Future Developments within the Wastewater CCN

Growth projections from 2025 to 2035 were established by analyzing known developments data from Pflugerville Development Activity, Pflugerville Active Construction and City of Pflugerville Residential Units Completed by Year over the next 10 years as well as City Staff input. This included examining location, land use type, and area to project future wastewater flows within the City's wastewater CCN. **Figure 4-2** and **Figure 4-3** shows the planned developments in the 5-year and 10-year planning period, respectively. **Table 4-4** listed all the details of planned future developments.

FIGURE 4-2
CITY OF PFLUGERVILLE
5 - YEAR DEVELOPMENT

LEGEND

- Wastewater Service Area
- ETJ Boundary
- County Boundary
- City Limit
- Road
- Stream
- Lake
- Existing Development
- Future Development
- 5-Year 100% Developed
- Central
- Wilbarger
- Cottonwood West
- Cottonwood East



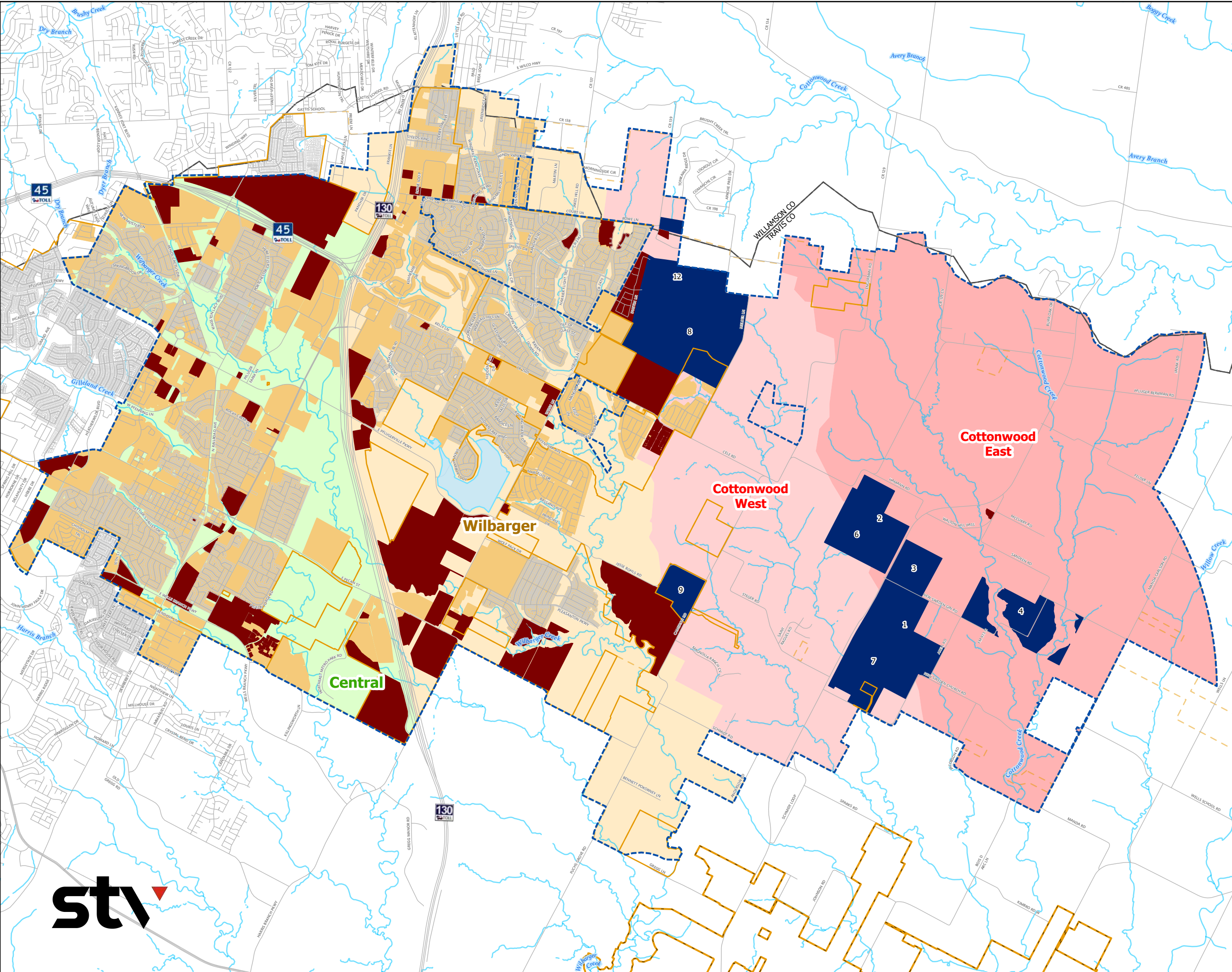


FIGURE 4-3
CITY OF PFLUGERVILLE
10 - YEAR DEVELOPMENT

- LEGEND**
- Wastewater Service Area
 - ETJ Boundary
 - County Boundary
 - City Limit
 - Road
 - Stream
 - Lake
 - Existing Development
 - 10-Year 100% Developed
 - 5-Year 100% Developed
 - Central
 - Wilbarger
 - Cottonwood West
 - Cottonwood East

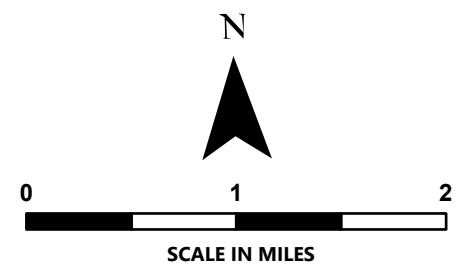
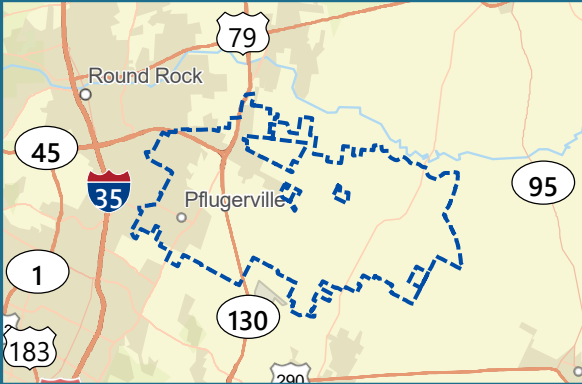


Table 4-4. List of Future Developments.

ID	Development Name	Area (acres)	Status	Basin
1	New Sweden #1	193.4	Preliminary Plat	Cottonwood East
2	New Sweden #2	150.3	Preliminary Plat	Cottonwood East
3	New Sweden #2	118.4	Preliminary Plat	Cottonwood East
4	Olson Farms Subdivision	215.8	Preliminary Plat	Cottonwood East
5	Walton Hill Pass	3.0	Final Plat	Cottonwood East
6	New Sweden #2	155.5	Preliminary Plat	Cottonwood West
7	New Sweden #1	348.3	Preliminary Plat	Cottonwood West
8	Lakeside WCID #5	595.0	Preliminary Plat	Cottonwood West
9	Meadowlark Preserve	105.2	Preliminary Plat	Cottonwood West
10	Enclave at Cele	31.1	Construction	Cottonwood West
11	Rowe Ln Estates Sec 2 Lot 8 Repla	4.1	Final Plat	Cottonwood West
12	The Ridge at Blackhawk Ph 2(Black	157.4	Preliminary Plat	Cottonwood West
13	Ridge at Blackhawk	73.1	Construction	Cottonwood West
14	Grove at Blackhawk	149.6	Final Plat	Cottonwood West
15	Camel	136.9	Construction	Wilbarger
16	Carmel East	139.4	Final Plat	Wilbarger
17	Blackhawk	26.2	Construction	Wilbarger
18	Kelly Retail Center	2.6	Final Plat	Wilbarger
19	Weiss Kelly Subdivision	17.4	Preliminary Plat	Wilbarger
20	Layth Auto Service	0.5	Final Plat	Wilbarger
21	Heritage Lakes Skilled Nursing	4.4	Final Plat	Wilbarger
22	Kelly Retail Center	5.8	Final Plat	Wilbarger
23	1702 Dalshank St Parking Lot	0.5	Final Plat	Wilbarger
24	Rowe Lane Retail Center	6.1	Final Plat	Wilbarger
25	Pflugerville US TX 5747	13.2	Final Plat	Wilbarger
26	Deck & Wilke Tract 2	33.8	Final Plat	Wilbarger
27	Wilke Lane Timmerman East Tract 1	66.2	Preliminary Plat	Central/Wilbarger
28	Chisholm Station	81.4	Preliminary Plat	Central/Wilbarger
29	Pecan Estates	22.5	Preliminary Plat	Wilbarger
30	Weiss Ln Service Station	4.7	Final Plat	Wilbarger
31	Pecan & Cameron	104.5	Final Plat	Wilbarger
32	Murchison Tract Ph 1	95.9	Final Plat	Wilbarger
33	Northpointe East Tract Ph 1	37.9	Final Plat	Wilbarger
34	Mixed-Density Neighborhood	14.3	Construction	Wilbarger
35	Tacara at Weiss Ranch	14.6	Construction	Wilbarger
36	Weiss Ln Multi-Use	19.7	Final Plat	Wilbarger
37	Cameron 96/Urbana	70.1	Final Plat	Wilbarger
38	Lakeside Meadows Industrial Ph 2	33.8	Final Plat	Wilbarger

ID	Development Name	Area (acres)	Status	Basin
39	6966 Commercial Park Additon	0.5	Final Plat	Wilbarger
40	United Fleet Management	5.0	Final Plat	Wilbarger
41	Pecan Street Subdivision	29.8	Final Plat	Wilbarger
42	Pflugerville Industrial Park	2.5	Final Plat	Wilbarger
43	Rowe Loop Commercial	5.0	Final Plat	Wilbarger
44	Lakeside Meadows	325.4	Preliminary Plat	Wilbarger
45	Jakes Hill Condominiums	9.6	Construction	Wilbarger
46	BSW Hospital Expansion	26.4	Construction	Wilbarger
47	HEB	22.1	Construction	Wilbarger
48	Heatherwilde & SH45	74.9	Preliminary Plat	Central
49	Deck & Wilke Tract 1	50.5	Final Plat	Central
50	Scannell Pflugerville	43.1	Preliminary Plat	Central
51	BASIS Ph 2	11.3	Construction	Central
52	Lisso	25.7	Construction	Central
53	Residence Inn	2.3	Final Plat	Central
54	Pollo Rico	1.1	Final Plat	Central
55	Way of Life Church New Sanctuary	3.2	Final Plat	Central
56	Wells Branch and Immanuel Rd	22.9	Preliminary Plat	Central
57	Wells Branch Retail Center	5.8	Final Plat	Central
58	Pflugerville Commons PUD	44.0	Preliminary Plat	Central
59	Olympic Retail Center	4.0	Preliminary Plat	Central
60	Downtown East	29.6	Preliminary Plat	Central
61	Pfennig Place	14.6	Preliminary Plat	Central
62	Pflugerville Business Park	35.7	Final Plat	Central
63	The Pfarm	15.7	Final Plat	Central
64	Wuthrich Hill Farms Lot 1 Blk A R	4.6	Final Plat	Central
65	15000 Cameron Road	87.4	Preliminary Plat	Central
66	Victory Church Phase II	5.8	Construction	Central
67	Lisso Ph 5	77.2	Final Plat	Central
68	Lifestyle Communities	63.8	Final Plat	Central
69	901 Black Locust Drive East	12.3	Final Plat	Central
70	Impact Way Phase IV	17.4	Final Plat	Central
71	Parkway Bible Church Playground a	23.0	Final Plat	Central
72	SkyBox Phase 2	12.7	Construction	Central
73	Heatherwilde Multi-Family	42.2	Final Plat	Central
74	Wuthrich Hills Farms (w/ Olympic	48.5	Construction	Central
75	Village at Wells Branch	18.3	Construction	Central
76	Townhomes of Old Town East	7.2	Construction	Central
77	Paradise Cove Condos	4.6	Final Plat	Central
78	Mountain Creek Ranch Condominiums	5.0	Final Plat	Central

ID	Development Name	Area (acres)	Status	Basin
79	The Commons at Heatherwilde	35.4	Construction	Central
80	EVS Metals	24.4	Construction	Central
81	Crux Climbing Center	3.0	Construction	Central
82	Medical Office	1.4	Construction	Central
83	Kuempel Townhomes	11.4	Construction	Central
84	Dessau Creekside Mixed Use	2.3	Preliminary Plat	Central
85	Wilke Lane Timmerman East Tract 2	56.2	Preliminary Plat	Wilbarger

4.1.4 Determine Buildout Developments within the Wastewater CCN

All future growth through buildout was assumed to take place on those parcels within the wastewater CCN which are not identified in the existing developed and 5-year and 10-year developments. These parcels were categorized according to the City's Aspire Pflugerville 2040 Comprehensive Plan. **Figure 4-4** shows the parcels identified to develop in buildout planning period.

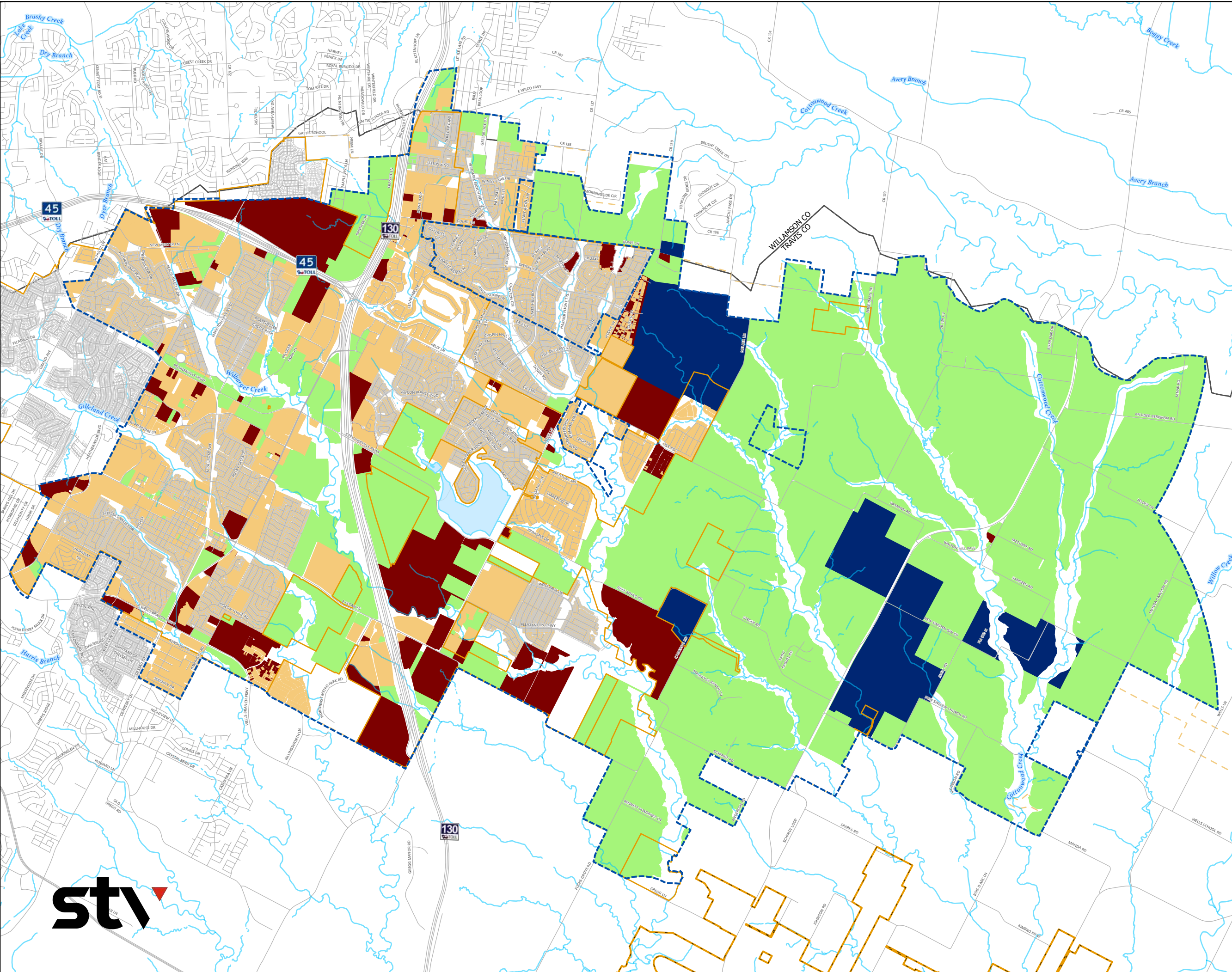
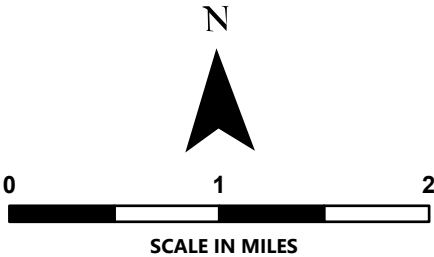
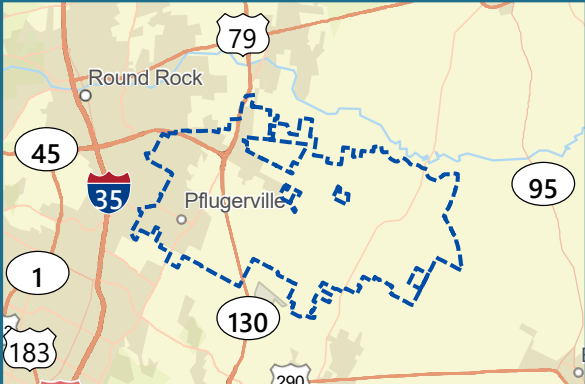


FIGURE 4-3
CITY OF PFLUGERVILLE
BUILDOUT DEVELOPMENTS

- LEGEND**
- Wastewater Service Area
 - ETJ Boundary
 - County Boundary
 - City Limit
 - Parcel Boundary
 - Road
 - Stream
 - Lake
 - Existing Development
 - Buildout Development
 - 10-Year 100% Developed
 - 5-Year 100% Developed



4.1.5 Determine the Development Completed Percentage within the Wastewater CCN

In coordination with the City, the development percentage for the planned developments identified in Section 4.1.3 and the buildout developments in Section 4.1.4 was determined based on each development's status (Preliminary Plat, Final Plat, or Construction) and its location within specific basins, as summarized in **Table 4-5**.

Table 4-5. Future Development Percentages

Basin	Planning Year	Developments	2030	2035	Buildout
Central, Wilbarger	2025-2030	Planned Future Developments with Preliminary Plat, Final Plat/Construction Status	100%		
	2030 - 2035	30 % of Buildout Developments		100%	
	2035 - Buildout	70 % of Buildout Developments			100%
Cottonwood West, Cottonwood East	2025-2030	Planned Future Developments with Final Plat/Construction Status	100%		
	2030 - 2035	Planned Future Developments with Preliminary Plat Status		100%	
	2035 - Buildout	Buildout Developments			100%

4.2 WASTEWATER CONNECTIONS PROJECTIONS

The total number of connections for all developed parcels was calculated for each planning period, considering factors such as acreage, development percentage, land use type, and the density values provided in **Table 4-6**. The equivalent population was then determined using the City's assumption of 2.85 people per connection. The growth projections do not include redevelopment in any areas that have existing development.

Table 4-6. Wastewater Service Area Connections Growth Projections

Planning Period	Wastewater Service Area Connections	Total WW Service Area Equivalent Population	Annual Growth Rate
2025	23,430	66,776	-
2030	34,130	97,270	7.8%
2035	47,902	136,522	7.0%
Buildout	103,204	294,133	-

Between 2025 and 2030, the annual growth rate for wastewater connections is projected to be 7.8%, adding 10,700 new connections. Between 2025 to 2035, the annual growth rate is anticipated to be 7.0%, resulting in an additional 13,772 connections. From 2035 to buildout, the number of connections is projected to increase from 47,902 to 103,204. Since no detailed development plans are available for this period, growth rates cannot be directly estimated. Therefore, an average population growth rate of 3.3% will be applied. Once 75% of the wastewater CCN is developed, the growth rate is assumed to decline to approximately 1.6%, reflecting the nearing buildout condition. Based on these assumptions, and assuming the wastewater CCN boundary remains unchanged, the system is anticipated to reach full buildout by 2068.

4.3 WASTEWATER FLOW PROJECTIONS

The development of projected wastewater flows for the 5-year (2030), 10-year (2035), and buildout periods, the gallon per connection (gpCd) in part 4.1.1 was used to calculate the average daily flow for each basin. The wastewater average daily flow projections for the 2030, 2035, and buildout planning periods are presented by wastewater basin in **Table 4-7**.

The Central basin, which currently has the largest share of connections and wastewater flow, will see steady but moderate growth over time. Its average daily flow is projected to increase from 3.32 MGD in 2025 to 7.53 MGD at buildout in 2068. However, the annual growth rate will decline from 5.7% (2025–2030) to 1.1 % (beyond 2035), reflecting a shift toward a more stabilized development pattern as the basin nears its capacity.

The Wilbarger basin also exhibits strong growth, with flows increasing from 2.38 MGD in 2025 to 7.07 MGD by buildout. This growth is driven by a robust annual rate of 10.0% between 2025 and 2030, which slows to 1.2% (beyond 2035). The declining growth trajectory indicates that Wilbarger basin, while initially expanding rapidly, will eventually follow a similar stabilization trend as Central basin.

The Cottonwood West basin and Cottonwood East basin stands out for its exponential growth. Starting with just 603 connections and a daily flow of 0.15 MGD in 2025, Cottonwood West basin will expand dramatically to 20,168 connections and an average daily flow of 5.04 MGD by buildout. The basin’s growth is fueled by an annual rate of 15.3% (2025–2030), which further increased to 34.1% (2030-2035). Starting with 0 connections in 2025, Cottonwood East basin will expand dramatically to 24,629 connections and an average daily flow of 6.16 MGD by buildout. This rapid development highlights the importance of the Cottonwood West and Cottonwood East basins as pivotal areas for future urban growth.

The total wastewater connections across all basins are expected to increase from 23,430 in 2025 to 103,204 by 2068, with equivalent population rising from 66,776 to 294,133 by 2068. The average daily flow will grow from 5.86 MGD to 25.80 MGD, representing an annual system-wide growth rate of 2.4% from 2025 to 2068.

Table 4-7. Wastewater Projected Flow by Basin

Basin	Wastewater CCN Connections	Total WW Service Area Equivalent Population	Average Daily Flow (MGD)	Annual Growth Rate
2025				
Central	13,296	37,894	3.32	-
Wilbarger	9,531	27,163	2.38	-
Cottonwood West	603	1,718	0.15	-
Cottonwood East	0	0	0.00	-
Total	23,430¹	66,776	5.86	-
2030				
Central	17,533	49,968	4.38	5.7%
Wilbarger	15,361	43,780	3.84	10.0%
Cottonwood West	1,227	3,497	0.31	15.3%
Cottonwood East	9	26	0.00	-
Total	34,130	97,270	8.53	7.8%
2035				
Central	21,314	60,745	5.33	4.0%
Wilbarger	19,234	54,817	4.81	4.6%
Cottonwood West	5,312	15,138	1.33	34.1%
Cottonwood East	2,043	5,822	0.51	195.7%
Total	47,902	136,522	11.98	7.0%
Buildout				
Central	30,138	85,892	7.53	1.1%
Wilbarger	28,270	80,570	7.07	1.2%
Cottonwood West	20,168	57,478	5.04	4.1%
Cottonwood East	24,629	70,193	6.16	7.8%
Total	103,204	294,133	25.80	2.4%²

¹: Calculated existing connections using Table 4-3.

²: Average annual growth rate calculated based on the buildout year 2068.

This highlights the need for phased and strategic infrastructure investments. The rapid developments of Cottonwood West basin and Cottonwood East basin will require prioritization of resources to support new growth, while the more stable growth in Central basin and Wilbarger basin presents opportunities for optimizing and upgrading existing systems. Balancing growth dynamics across basins and ensuring equitable infrastructure development will be critical for managing the city's long-term wastewater needs effectively.