

**City Council Work Session:
Land Use Assumptions,
Water and Wastewater Infrastructure
Improvements Plan**

Glendale, Arizona

June 27, 2023

- **Development Fee Basics**
- **Land Use Assumptions**
- **Infrastructure Improvements Plan**
- **Fee Comparison**
- **Adoption Timeline**

- **Not a revenue raising mechanism, but a way to meet growth-related infrastructure needs**
 - It's a land use regulation
 - Provide infrastructure as growth occurs
- **New development's proportionate share of capital cost for system improvements**
 - Demographic analysis and development projections
 - Infrastructure needs and cost analysis
- **Fee payers must receive a benefit**
 - Geographic service areas
 - Accounting and expenditure controls

- **Cost Recovery Approach (Past)**
 - Future development is “buying in” to the cost the community has already incurred to provide growth-related capacity
 - Common in communities approaching buildout
- **Incremental Expansion Approach (Present)**
 - Formula-based approach based on existing levels of service
 - Fee is based on the current cost to replicate existing levels of service (i.e., replacement cost)
- **Plan-Based Approach (Future)**
 - Usually reflects an adopted CIP or master plan
 - Growth-related costs are more refined

Land Use Assumptions (East Glendale)

Projected housing units and employment based on MAG projections.

East Glendale is east of 115th Avenue

East Glendale	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	10-Year Increase
	Base Year	1	2	3	4	5	6	7	8	9	10	
Resident Population												
Single Family	181,749	182,552	183,355	183,751	184,146	184,542	184,937	185,333	185,502	185,671	185,840	4,090
Multi-Family	83,107	83,590	84,073	84,729	85,384	86,039	86,694	87,349	87,958	88,566	89,175	6,067
Total	264,857	266,143	267,429	268,480	269,530	270,581	271,632	272,682	273,460	274,237	275,014	10,158
Housing Units												
Single Family	57,051	57,306	57,561	57,686	57,812	57,937	58,063	58,189	58,242	58,296	58,349	1,299
Multi-Family	39,879	40,114	40,348	40,666	40,984	41,303	41,621	41,939	42,234	42,529	42,825	2,945
Total	96,930	97,420	97,909	98,353	98,796	99,240	99,684	100,127	100,476	100,825	101,174	4,244
Employment												
Industrial	8,250	8,448	8,646	8,855	9,064	9,272	9,481	9,690	9,826	9,962	10,097	1,848
Commercial	26,491	26,760	27,029	27,265	27,501	27,737	27,973	28,209	28,370	28,532	28,694	2,203
Office & Other Services	33,057	33,927	34,796	35,775	36,754	37,733	38,711	39,690	40,739	41,788	42,838	9,781
Institutional	10,987	11,113	11,239	11,319	11,398	11,478	11,558	11,637	11,763	11,889	12,015	1,028
Total	78,784	80,247	81,710	83,213	84,717	86,220	87,723	89,226	90,699	92,171	93,643	14,859
Nonres. Floor Area (x1,000)												
Industrial	7,128	7,299	7,470	7,651	7,831	8,011	8,192	8,372	8,489	8,607	8,724	1,596
Commercial	12,477	12,604	12,731	12,842	12,953	13,064	13,175	13,286	13,363	13,439	13,515	1,038
Office & Other Services	10,149	10,416	10,682	10,983	11,283	11,584	11,884	12,185	12,507	12,829	13,151	3,003
Institutional	3,626	3,667	3,709	3,735	3,761	3,788	3,814	3,840	3,882	3,923	3,965	339
Total	33,379	33,986	34,592	35,210	35,829	36,447	37,065	37,684	38,241	38,798	39,355	5,976



Water Infrastructure Improvements Plan

- **Service Area:** East Glendale
- **Components:**
 - Water Supply (Plan-Based)
 - Wells (Plan-Based)
 - Water Treatment (Cost Recovery)
 - Distribution Lines (Plan-Based)

Water Demand

Customer Type	Average Day Gallons	Accounts	Avg Day Gallons per Account
Residential	19,770,959	59,005	335
Nonresidential	14,244,266	4,463	3,192
Total	34,015,225	63,468	536

Current residential accounts demand 335 gallons per day.
 Current nonresidential accounts demand 3,192 gallons per day.

Source: Glendale Water Services Department, 2022

Year	Average Day Gallons	Total Accounts	Annual Increase			
			Residential		Nonresidential	
			Gallons	Accounts	Gallons	Accounts
2022	34,015,225	63,468				
Base 2023	34,364,299	63,806	85,410	255	263,664	83
1 2024	34,713,372	64,143	85,410	255	263,664	83
2 2025	35,062,446	64,481	85,410	255	263,664	83
3 2026	35,373,235	64,690	42,057	126	268,732	84
4 2027	35,684,024	64,900	42,057	126	268,732	84
5 2028	35,994,813	65,110	42,057	126	268,732	84
6 2029	36,305,601	65,320	42,057	126	268,732	84
7 2030	36,616,390	65,529	42,057	126	268,732	84
8 2031	36,876,494	65,659	17,965	54	242,139	76
9 2032	37,136,598	65,788	17,965	54	242,139	76
10 2033	37,396,701	65,918	17,965	54	242,139	76
10-Year Increase	3,032,403	2,112	435,000	1,299	2,597,403	814

We project future gallons using existing demand factors and projected development in East Glendale.

Note: Glendale classifies connections as either residential or commercial. Residential connections include 0.75-inch meters used for single-family units, and commercial connections include all nonresidential meters and multi-family meters larger than 0.75 inches. The model uses single-family units as a proxy for residential connections and nonresidential floor area as a proxy for nonresidential connections.

Water Components

Water Supply (Plan-Based)

Glendale will use development fees to acquire additional water supply.

Water Supply	Cost
White Mountain Apache Lease Purchase	\$8,000,000
- Development Fee Revenue Collections	(\$4,459,473)
Adjusted Cost	\$3,540,527
÷ Total Capacity (Average Day Gallons)	983,000
Cost per Gallon	\$3.60

Water Treatment (Cost Recovery)

Glendale will use development fees to pay debt service.

Water Treatment	Cost
Cholla Water Treatment Plant	\$77,560,000
Oasis Water Treatment Plant	\$82,625,598
Pyramid Peak Water Treatment Plant	\$47,810,693
Total (Original Cost)	\$207,996,291
÷ Total Capacity (Average Day Gallons)	85,000,000
Cost per Gallon	\$2.45
10-Year Increase in Gallons	3,032,403
10-Year Revenue Collections	\$7,429,387

Wells (Plan-Based)

Glendale will use development fees to construct additional wells.

Wells	Cost
New Site COG 50 and COG 51	\$14,000,000
Future Well	\$8,000,000
Future Well	\$8,000,000
Total Cost	\$30,000,000
÷ Total Capacity (Average Day Gallons)	9,300,000
Cost per Gallon	\$3.23
10-Year Increase in Gallons	3,032,403
10-Year Revenue Collections	\$9,794,661

Distribution Lines (Plan-Based)

Glendale will use development fees to oversize / extend distribution lines to serve future development.

Cost Factors	
Distribution Line Annual Cost	\$240,000
10-Year Total Cost	\$2,400,000
10-Year Increase in Gallons	3,032,403
Cost per Gallon	\$0.79

Proposed Water Fees

Fee Component	Cost per Gallon
Water Supply	\$3.60
Wells	\$3.23
Water Treatment	\$2.45
Distribution Lines	\$0.79
Development Fee Report	\$0.01
Total	\$10.08

Demand Indicator	
Residential Gallons per Day	335

Fees per Meter				
Meter Size	Capacity Ratio ¹	Proposed Fees	Current Fees	Increase / (Decrease)
0.75-inch	1.00	\$3,377	\$2,923	\$454
1.00-inch	1.67	\$5,639	\$4,878	\$761
1.50-inch	3.33	\$11,245	\$9,722	\$1,523
2.00-inch	5.33	\$17,998	\$15,558	\$2,440
3.00-inch	10.67	\$36,030	\$31,139	\$4,891
4.00-inch	16.67	\$56,291	\$48,647	\$7,644
6.00-inch	33.33	\$112,549	\$97,259	\$15,290
8.00-inch	53.33	\$180,085	\$155,617	\$24,468

1. AWWA Manual of Water Supply Practices M-1, 7th Edition

- **Service Area:** East Glendale
- **Components:**
 - Wastewater Treatment (Cost Recovery)
 - Lift Station (Plan-Based)
 - Collection Lines (Plan-Based)

Wastewater Flow

Customer Type	Average Day Gallons	Accounts	Avg Day Gallons per Account
Residential	16,038,803	55,548	289
Nonresidential	3,405,586	3,556	958
Total	19,444,389	59,104	329

Current residential accounts generate 289 gallons per day.
Current nonresidential accounts generate 958 gallons per day.

Source: Glendale Water Services Department, 2022

Year	Average Day Gallons	Total Accounts	Annual Increase			
			Residential		Nonresidential	
			Gallons	Accounts	Gallons	Accounts
2022	19,444,389	59,104				
Base 2023	19,581,109	59,425	73,682	255	63,038	66
1 2024	19,717,829	59,746	73,682	255	63,038	66
2 2025	19,854,549	60,066	73,682	255	63,038	66
3 2026	19,955,081	60,259	36,282	126	64,250	67
4 2027	20,055,613	60,452	36,282	126	64,250	67
5 2028	20,156,144	60,644	36,282	126	64,250	67
6 2029	20,256,676	60,837	36,282	126	64,250	67
7 2030	20,357,208	61,029	36,282	126	64,250	67
8 2031	20,430,597	61,144	15,498	54	57,892	60
9 2032	20,503,987	61,258	15,498	54	57,892	60
10 2033	20,577,377	61,372	15,498	54	57,892	60
10-Year Increase	996,268	1,947	375,269	1,299	620,999	648

We project future gallons using existing flow factors and projected development in East Glendale.

Note: Glendale classifies connections as either residential or commercial. Residential connections include 0.75-inch meters used for single-family units, and commercial connections include all nonresidential meters and multi-family meters larger than 0.75 inches. The model uses single-family units as a proxy for residential connections and nonresidential floor area as a proxy for nonresidential connections.

Wastewater Components

Wastewater Treatment (Cost Recovery)

Glendale will use development fees to pay debt service.

Wastewater Treatment	Cost
Arrowhead Water Reclamation Facility	\$42,725,000
West Area Water Reclamation Facility	\$114,890,000
91st Ave Wastewater Treatment Plant	\$51,074,000
Total (Original Cost)	\$208,689,000
÷ Total Capacity (Average Day Gallons)	29,200,000
Cost per Gallon	\$7.15
10-Year Increase in Gallons	996,268
10-Year Revenue Collections	\$7,123,316

Water Treatment	Remaining Principal
Arrowhead Water Reclamation Facility	\$5,380,647
West Area Water Reclamation Facility	\$9,061,417
91st Ave Wastewater Treatment Plant	\$25,355,436
Total Remaining Principal	\$39,797,500
10-Year Revenue Collections	\$7,123,316

Lift Station (Plan-Based)

Glendale will use development fees to construct an additional lift station.

Lift Station	Cost
Expand 67th Ave and ACDC Lift Station	\$4,500,000
÷ Additional Capacity (Gallons)	3,348,000
Cost per Gallon	\$1.34
10-Year Increase in Gallons	996,268
10-Year Revenue Collections	\$1,334,999

Collection Lines (Plan-Based)

Glendale will use development fees to oversize / extend collection lines to serve future development.

Cost Factors	
Collection Line Annual Cost	\$700,000
10-Year Total Cost	\$7,000,000
10-Year Increase in Gallons	996,268
Cost per Gallon	\$7.03

Proposed Wastewater Fees

Fee Component	Cost per Gallon
Wastewater Treatment	\$7.15
Lift Station	\$1.34
Collection Lines	\$7.03
Development Fee Report	\$0.03
Total	\$15.55

Demand Indicator	
Residential Gallons per Day	289

Fees per Meter				
Meter Size	Capacity Ratio ¹	Proposed Fees	Current Fees	Increase / (Decrease)
0.75-inch	1.00	\$4,494	\$1,609	\$2,885
1.00-inch	1.67	\$7,505	\$2,684	\$4,821
1.50-inch	3.33	\$14,965	\$5,346	\$9,619
2.00-inch	5.33	\$23,953	\$8,553	\$15,400
3.00-inch	10.67	\$47,950	\$17,117	\$30,833
4.00-inch	16.67	\$74,914	\$26,739	\$48,175
6.00-inch	33.33	\$149,783	\$53,456	\$96,327
8.00-inch	53.33	\$239,662	\$85,530	\$154,132

1. AWWA Manual of Water Supply Practices M-1, 7th Edition

Fee Comparison – Single Family

Single Family (Base Meter)	Water	Water Resource	Waste-water	Total
Apache Junction	\$6,994	\$3,486	\$4,295	\$14,775
Buckeye - Central	\$7,675	\$0	\$4,214	\$11,889
Buckeye - Tartesso West	\$3,717	\$0	\$7,670	\$11,388
Goodyear - South (Updating)	\$503	\$7,843	\$2,538	\$10,884
Goodyear - North (Updating)	\$503	\$7,553	\$2,818	\$10,874
Gilbert	\$4,924	\$3,112	\$2,586	\$10,622
Fountain Hills	\$0	\$0	\$10,000	\$10,000
Phoenix - Northeast	\$6,330	\$0	\$3,303	\$9,633
Avondale (Updating)	\$3,822	\$0	\$5,808	\$9,630
Peoria - West (Updating)	\$4,725	\$730	\$3,157	\$8,612
Surprise - SPA 2 (Updating)	\$2,836	\$3,023	\$2,544	\$8,403
Chandler	\$3,397	\$837	\$4,024	\$8,258
Surprise - SPA 1 (Updating)	\$2,985	\$3,023	\$2,192	\$8,200
Glendale - East (Proposed)	\$3,377	\$0	\$4,494	\$7,871
Buckeye - North	\$7,076	\$0	\$0	\$7,076
Scottsdale	\$3,908	\$0	\$2,609	\$6,517
Peoria - East (Updating)	\$3,745	\$730	\$1,913	\$6,388
Surprise - SPA 3 (Updating)	\$2,486	\$3,023	\$0	\$5,509
Queen Creek	\$2,382	\$0	\$2,901	\$5,283
Mesa	\$2,220	\$0	\$2,659	\$4,879
Casa Grande - Zone A (Updating)	\$0	\$0	\$4,557	\$4,557
Glendale - East (Current)	\$2,923	\$0	\$1,609	\$4,532
Tempe - South	\$2,496	\$0	\$2,001	\$4,497
Tempe - North	\$2,472	\$0	\$1,994	\$4,466
Casa Grande - Zone B (Updating)	\$0	\$0	\$4,443	\$4,443
Glendale - West (Current)	\$0	\$0	\$0	\$0
Glendale - West (Proposed)	\$0	\$0	\$0	\$0

Adoption Timeline

- **May 17, 2022:** Kick-Off Meeting
- **June 27, 2023:** City Council Work Session
- **July 5:** LUA & IIP - Advertise (60 days)
- **TBD:** Stakeholder Outreach
- **Sept 12:** LUA & IIP - Public Hearing (30 days)
- **Oct 24:** LUA & IIP - Adoption
- **Oct 25:** Development Fees - Advertise (30 days)
- **Nov 28:** Development Fees - Public Hearing (30 days)
- **Jan 9, 2024:** Development Fees - Adoption (75 days)
- **March 25:** Development Fees - Effective