

DRAFT

**Land Use Assumptions,
Infrastructure Improvements Plan,
and Development Fee Report**

**Prepared for:
Glendale, Arizona**

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EXECUTIVE SUMMARY

The City of Glendale, Arizona, contracted with TischlerBise to document land use assumptions, prepare the Water and Wastewater Facilities Infrastructure Improvements Plan (hereinafter referred to as the “IIP”), and update water and wastewater facilities development fees pursuant to Arizona Revised Statutes (“ARS”) § 9-436.05 (hereafter referred to as the “Enabling Legislation”). Municipalities in Arizona may assess development fees to offset infrastructure costs to a municipality for necessary public services. The development fees must be based on an Infrastructure Improvements Plan and Land Use Assumptions. The Water and Wastewater Facilities IIP located is in the middle section of this document, and the proposed water and wastewater facilities development fees are displayed in the Development Fee Report in the next section.

Development fees are one-time payments used to construct system improvements needed to accommodate new development. The fee represents future development’s proportionate share of infrastructure costs. Development fees may be used for infrastructure improvements or debt service for growth related infrastructure. In contrast to general taxes, development fees may not be used for operations, maintenance, replacement, or correcting existing deficiencies. This update of Glendale’s Water and Wastewater Facilities Infrastructure Improvements Plan and associated update to its water and wastewater facilities development fees includes all necessary elements required to be in full compliance with SB 1525.

ARIZONA DEVELOPMENT FEE ENABLING LEGISLATION

The Enabling Legislation governs how development fees are calculated for municipalities in Arizona.

Necessary Public Services

Under the requirements of the Enabling Legislation, development fees may only be used for construction, acquisition or expansion of public facilities that are necessary public services. “Necessary public service” means any of the following categories of facilities that have a life expectancy of three or more years and that are owned and operated on behalf of the municipality: water, wastewater, storm water, library, street, fire, police, and parks and recreational. Additionally, a necessary public service includes any facility that was financed before June 1, 2011, and that meets the following requirements:

1. Development fees were pledged to repay debt service obligations related to the construction of the facility.
2. After August 1, 2014, any development fees collected are used solely for the payment of principal and interest on the portion of the bonds, notes, or other debt service obligations issued before June 1, 2011, to finance construction of the facility.

Infrastructure Improvements Plan

Development fees must be calculated pursuant to an IIP. For each necessary public service that is the subject of a development fee, by law, the IIP shall include the following seven elements:

1. A description of the existing necessary public services in the service area and the costs to update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.
2. An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.
3. A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved Land Use Assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable.
4. A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial, and industrial.
5. The total number of projected service units necessitated by and attributable to new development in the service area based on the approved Land Use Assumptions and calculated pursuant to generally accepted engineering and planning criteria.
6. The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.
7. A forecast of revenues generated by new service units other than development fees, which shall include estimated state-shared revenue, highway users revenue, federal revenue, ad valorem property taxes, construction contracting or similar excise taxes and the capital recovery portion of utility fees attributable to development based on the approved Land Use Assumptions and a plan to include these contributions in determining the extent of the burden imposed by the development.

Qualified Professionals

The IIP must be developed by qualified professionals using generally accepted engineering and planning practices. A qualified professional is defined as “a professional engineer, surveyor, financial analyst or planner providing services within the scope of the person’s license, education, or experience.” TischlerBise is a fiscal, economic, and planning consulting firm specializing in the cost of growth services. Our services include development fees, fiscal impact analysis, infrastructure financing analyses, user fee/cost of service studies, capital improvement plans, and fiscal software. TischlerBise has prepared over 800 development fee studies over the past 30 years for local governments across the United States.

Conceptual Development Fee Calculation

In contrast to project-level improvements, development fees fund growth-related infrastructure that will benefit multiple development projects, or the entire service area (usually referred to as system improvements). The first step is to determine an appropriate demand indicator for the particular type of infrastructure. The demand indicator measures the number of service units for each unit of development. For example, an appropriate indicator of the demand for parks is population growth and the increase in population can be estimated from the average number of persons per housing unit. The second step in the development fee formula is to determine infrastructure improvement units per service unit, typically called level-of-service (LOS) standards. In keeping with the park example, a common LOS standard is improved park acres per thousand people. The third step in the development fee formula is the cost of various infrastructure units. To complete the park example, this part of the formula would establish a cost per acre for land acquisition and/ or park improvements.

Evaluation of Credits/Offsets

Regardless of the methodology, a consideration of credits/offsets is integral to the development of a legally defensible development fee. There are two types of credits/offsets that should be addressed in development fee studies and ordinances. The first is a revenue credit/offset due to possible double payment situations, which could occur when other revenues may contribute to the capital costs of infrastructure covered by the development fee. This type of credit/offset is integrated into the fee calculation, thus reducing the fee amount. The second is a site-specific credit or developer reimbursement for dedication of land or construction of system improvements. This type of credit is addressed in the administration and implementation of the development fee program. For ease of administration, TischlerBise normally recommends developer reimbursements for system improvements.

DEVELOPMENT FEE REPORT

METHODOLOGY

Development fees for the necessary public services made necessary by new development must be based on the same level of service (LOS) provided to existing development in the service area. There are three basic methodologies used to calculate development fees. They examine the past, present, and future status of infrastructure. The objective of evaluating these different methodologies is to determine the best measure of the demand created by new development for additional infrastructure capacity. Each methodology has advantages and disadvantages in a particular situation and can be used simultaneously for different cost components.

Reduced to its simplest terms, the process of calculating development fees involves two main steps: (1) determining the cost of development-related capital improvements and (2) allocating those costs equitably to various types of development. In practice, though, the calculation of development fees can become quite complicated because of the many variables involved in defining the relationship between development and the need for facilities within the designated service area. The following paragraphs discuss basic methodologies for calculating development fees and how those methodologies can be applied.

Cost Recovery (past improvements) - The rationale for recoupment, often called cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.

Incremental Expansion (concurrent improvements) - The incremental expansion methodology documents current LOS standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity in infrastructure. New development is only paying its proportionate share for growth-related infrastructure. Revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments to keep pace with development.

Plan-Based (future improvements) - The plan-based methodology allocates costs for a specified set of improvements to a specified amount of development. Improvements are typically identified in a long-range facility plan and development potential is identified by a land use plan. There are two basic options for determining the cost per demand unit: (1) total cost of a public facility can be divided by total demand units (average cost), or (2) the growth-share of the public facility cost can be divided by the net increase in demand units over the planning timeframe (marginal cost).

DEVELOPMENT FEE COMPONENTS

Figure 1 summarizes service areas, methodologies, and infrastructure cost components for each necessary public service.

Figure 1: Proposed Development Fee Service Areas, Methodologies, and Cost Components

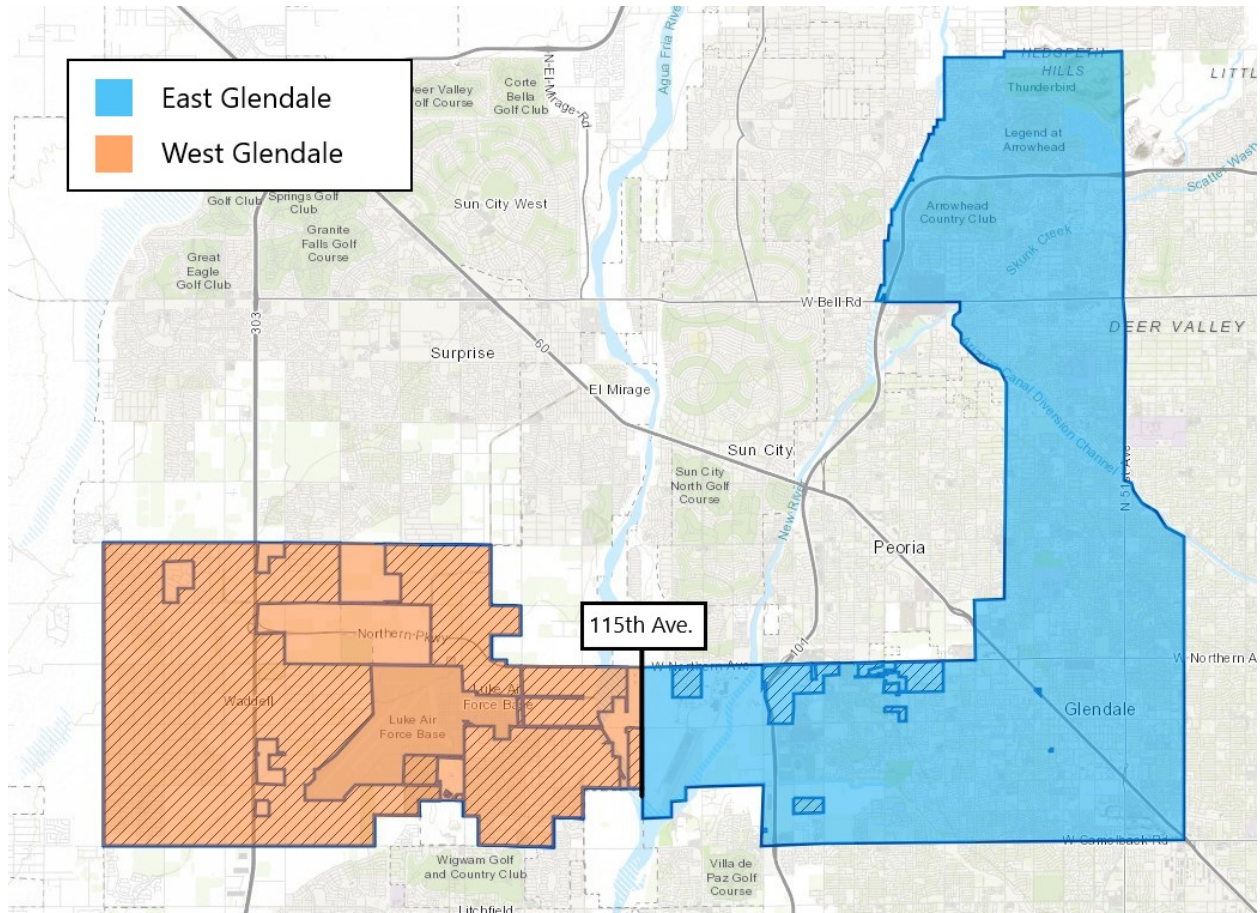
| Necessary Public Service | Service Area | Cost Recovery | Incremental Expansion | Plan-Based | Cost Allocation |
|--------------------------|---------------|----------------------|-----------------------|---|-----------------|
| Water Facilities | East Glendale | Water Treatment | N/A | Water Supply, Wells, Distribution Lines, Development Fee Report | Gallons |
| | West Glendale | N/A | N/A | N/A | N/A |
| Wastewater Facilities | East Glendale | Wastewater Treatment | N/A | Lift Station, Collection Lines, Development Fee Report | Gallons |
| | West Glendale | N/A | N/A | N/A | N/A |

Calculations throughout this report are based on an analysis conducted using Excel software. Most results are discussed in the report using two, three, and four decimal places, which represent rounded figures. However, the analysis itself uses figures carried to their ultimate decimal places; therefore, the sums and products generated in the analysis may not equal the sum or product if the reader replicates the calculation with the factors shown in the report (due to the rounding of figures shown, not in the analysis).

SERVICE AREAS

Shown below, Figure 2 illustrates the services areas used to develop the Water and Wastewater Facilities Infrastructure Improvements Plan. Since new development west of 115th Avenue will not connect to Glendale’s water and sewer systems, TischlerBise recommends using 115th Avenue as the border between the two service areas for water and wastewater facilities development fees. **Glendale will only assess water and wastewater facilities development fees to new development in East Glendale.**

Figure 2: Proposed Development Fee Service Areas



PROPOSED DEVELOPMENT FEES

Glendale will only assess water and wastewater development fees to development in East Glendale. Water and wastewater development fees will be assessed based on meter size. The proposed fees represent the maximum allowable fees. Glendale may adopt fees that are less than the amounts shown; however, a reduction in development fee revenue will necessitate an increase in other revenues, a decrease in planned capital improvements, and/or a decrease in Glendale’s LOS standards. All costs in the Development Fee Report represent current dollars with no assumed inflation over time. If costs change significantly over time, development fees should be recalculated.

Figure 3: Proposed Development Fees

| Fees per Meter | | | | | |
|----------------|-----------|------------|---------------|--------------|-----------------------|
| Meter Size | Water | Wastewater | Proposed Fees | Current Fees | Increase / (Decrease) |
| 0.75-inch | \$3,377 | \$4,494 | \$7,871 | \$4,532 | \$3,339 |
| 1.00-inch | \$5,639 | \$7,505 | \$13,144 | \$7,562 | \$5,582 |
| 1.50-inch | \$11,245 | \$14,965 | \$26,210 | \$15,068 | \$11,142 |
| 2.00-inch | \$17,998 | \$23,953 | \$41,951 | \$24,111 | \$17,840 |
| 3.00-inch | \$36,030 | \$47,950 | \$83,980 | \$48,256 | \$35,724 |
| 4.00-inch | \$56,291 | \$74,914 | \$131,205 | \$75,386 | \$55,819 |
| 6.00-inch | \$112,549 | \$149,783 | \$262,332 | \$150,715 | \$111,617 |
| 8.00-inch | \$180,085 | \$239,662 | \$419,747 | \$241,147 | \$178,600 |

WATER FACILITIES IIP

ARS § 9-463.05 (T)(7)(a) defines the facilities and assets that can be included in the Water Facilities IIP:

“Water facilities, including the supply, transportation, treatment, purification and distribution of water, and any appurtenances for those facilities.”

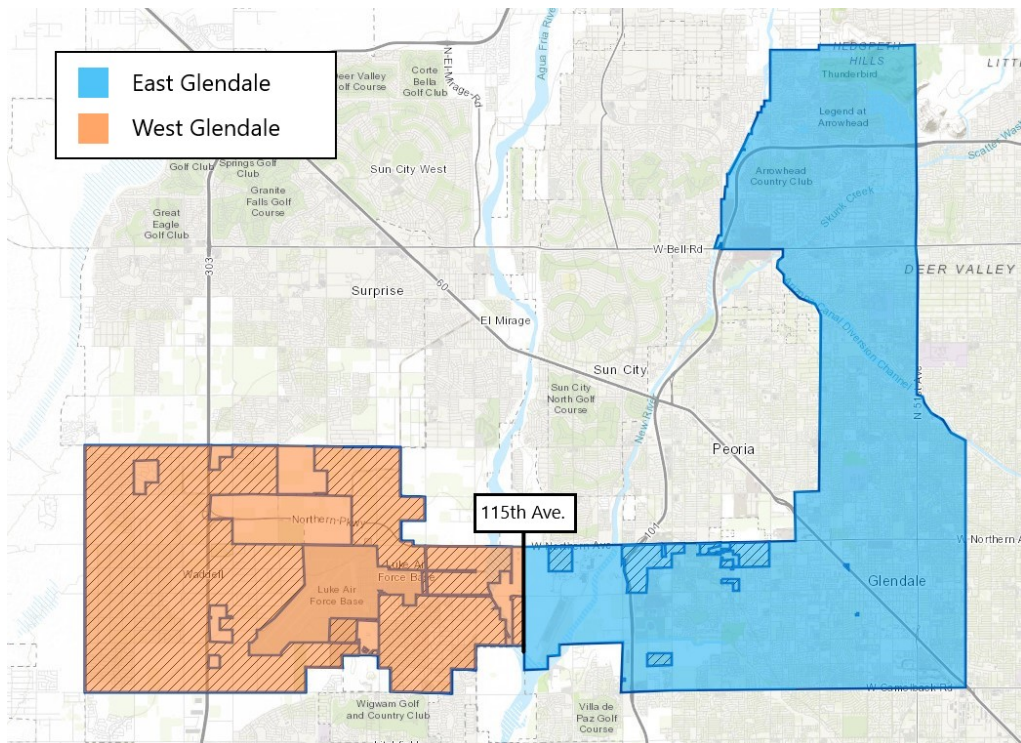
The Water Facilities IIP includes components for water supply, wells, water treatment, distribution lines, and the cost of preparing the Water Facilities IIP and related Development Fee Report. The cost recovery methodology is used to calculate the water supply component. The plan-based methodology is used for water supply, wells, distribution lines, and the Development Fee Report.

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. The Water Facilities IIP and development fees will allocate the cost of necessary public services between both residential and nonresidential development using average day demand factors.

Service Area

Since new development west of 115th Avenue will not connect to Glendale’s water system, TischlerBise recommends using 115th Avenue as the border between the two service areas for water facilities development fees. **Glendale will only assess water facilities development fees to new development in East Glendale.**



RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Water development fees are assessed by meter size, and the analysis uses average day demand from existing single-family units of 335 gallons as the demand factor for a 0.75-inch meter. For meters larger than 0.75 inches, average day demand is calculated by multiplying average day demand from existing single-family units by the capacity ratio for the corresponding meter size.

Figure W1: Water Ratio of Service Unit to Development Unit

| Average Day Demand (Gallons) | |
|------------------------------|-----|
| Single-Family Unit | 335 |

| Meter Size | Capacity Ratio ¹ |
|------------|-----------------------------|
| 0.75-inch | 1.00 |
| 1.00-inch | 1.67 |
| 1.50-inch | 3.33 |
| 2.00-inch | 5.33 |
| 3.00-inch | 10.67 |
| 4.00-inch | 16.67 |
| 6.00-inch | 33.33 |
| 8.00-inch | 53.33 |

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

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Existing Demand

Average day demand from Glendale water customers was 34,015,225 gallons in 2022. Residential customers represented 58 percent of average day demand, 93 percent of accounts, and consumed 335 gallons per day per account. Nonresidential customers represented 42 percent of average day demand, seven percent of accounts, and consumed 3,192 gallons per day per account.

Figure W2: Existing Demand

| Customer Type | Annual Gallons | Average Day Gallons | Accounts | Avg Day Gallons per Account |
|----------------|----------------|---------------------|----------|-----------------------------|
| Residential | 7,216,400,000 | 19,770,959 | 59,005 | 335 |
| Nonresidential | 5,199,157,000 | 14,244,266 | 4,463 | 3,192 |
| Total | 12,415,557,000 | 34,015,225 | 63,468 | 536 |

Source: Glendale Water Services Department, 2022

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

Projected Demand

Shown below, Figure W3 includes projections of water accounts and water demand. Projected residential accounts include all new single-family units in East Glendale. Projected nonresidential accounts maintain the 2022 ratio of nonresidential accounts per thousand square feet (KSF) of nonresidential development (4,463 accounts / 32,772 KSF = 0.136 accounts per KSF). Over the next 10 years, projections include an increase of 1,299 residential accounts and 814 nonresidential accounts.

To project future water demand, the analysis applies the average day gallons per account factors shown in Figure W2 to the projected accounts shown in Figure W3. Projected average day demand will increase by 435,000 gallons for residential development and 2,597,403 gallons for nonresidential development. As shown in Figure W3, projected water demand in East Glendale will increase by 3,032,403 gallons.

Figure W3: Projected Demand

| 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 |

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 Supply – Plan-Based

The City of Glendale plans to increase its water supply through a lease purchase of 1,100 acre-feet of water from the White Mountain Apache Tribe. The lease purchase will be used to meet demand from future development. As shown in Figure W4, the cost to acquire 983,000 gallons (1,100 acre-feet) is \$8,000,000. After deducting existing development fee revenue collections of \$4,459,473, the adjusted cost is \$3,540,527. For water supply, the cost is \$3.60 per gallon. Since the lease purchase will be used to meet additional demand from new development, and the additional 10-year demand of 3,032,403 gallons exceeds the added capacity of the lease purchase, Glendale will need to eliminate the water supply portion of the water facilities development fee in approximately 2026 unless additional water supply projects are identified in the next development fee update.

Figure W4: Cost Factors

| 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 |

Wells – Plan-Based

The City of Glendale plans to activate additional wells over the next 10 years to meet demand from future development. The cost to increase well capacity by 9,300,000 gallons per day is \$30,000,000. Dividing the total cost by the total capacity yields a cost of \$3.23 per gallon. With an estimated increase in daily water demand of 3,032,403 gallons, the 10-year revenue collections equal \$9,794,661, or approximately 33 percent of the planned costs.

Figure W5: Cost Factors

| 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 |

Water Treatment – Cost Recovery

The City of Glendale operates four water treatment plants, and three of the treatment plants have outstanding debt. Since these three facilities have excess capacity to serve future development, Glendale will use development fees to repay a portion of the outstanding debt.

| Description | Average Day Capacity |
|--|----------------------|
| Cholla Water Treatment Plant | 30,000,000 |
| Oasis Water Treatment Plant ¹ | 25,000,000 |
| Pyramid Peak Water Treatment Plant | 30,000,000 |
| Total | 85,000,000 |

1. Includes a surface water treatment plant and a groundwater treatment plant

The City of Glendale spent \$207,996,291 to provide 85,000,000 gallons of water treatment capacity, and the outstanding principal balance is \$56,655,445. Dividing the total cost by the total capacity yields a cost of \$2.45 per gallon. With an estimated increase in daily water demand of 3,032,403 gallons, the 10-year revenue collections equal \$7,429,387, or approximately 13 percent of the remaining principal balance.

Figure W6: Cost Factors

| 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 |

| Water Treatment | Remaining Principal |
|------------------------------------|---------------------|
| Cholla Water Treatment Plant | \$20,381,567 |
| Oasis Water Treatment Plant | \$27,701,764 |
| Pyramid Peak Water Treatment Plant | \$8,572,114 |
| Total Remaining Principal | \$56,655,445 |
| 10-Year Revenue Collections | \$7,429,387 |

Distribution Lines – Plan-Based

The City of Glendale plans to spend \$240,000 per year to oversize and/or extend water distribution lines to serve future development. Dividing the total cost of \$2,400,000 by the 10-year demand increase of 3,032,403 gallons yields a cost of \$0.79 per gallon.

Figure W7: Cost Factors

| 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 |

Development Fee Report – Plan-Based

The cost to prepare the Water Facilities IIP and the related Development Fee Report totals \$19,120. Glendale plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of water demand, the cost is \$0.01 per gallon.

Figure W8: IIP and Development Fee Report

| Necessary Public Service | Cost | Proportionate Share | Service Unit | 5-Year Change | Cost per Service Unit |
|--------------------------|-----------------|----------------------|--------------|---------------|-----------------------|
| Water Facilities | \$19,120 | All Development 100% | Gallons | 1,630,514 | \$0.01 |
| Wastewater Facilities | \$19,120 | All Development 100% | Gallons | 575,035 | \$0.03 |
| Total | \$38,240 | | | | |

WATER FACILITIES DEVELOPMENT FEES

Revenue Credit/Offset

A revenue credit/offset is not necessary for water facilities development fees, because costs generated by projected development exceed revenues generated by projected development. Appendix A includes a detailed explanation of the revenue credit/offset for water facilities development fees.

Water Facilities Development Fees

The cost per service unit is \$10.08 per gallon for water facilities development fees, and Glendale will assess water facilities development fees by meter size to new development in East Glendale. The base 0.75-inch meter is equivalent to a single-family unit, and a capacity ratio is used to convert the base meter fee proportionately for larger meters. The capacity ratios are calculated based on data published in *AWWA Manual of Water Supply Practices M-1, 7th Edition*.

Water facilities development fees are calculated by multiplying the cost per gallon by the average day gallons per EDU (single-family unit) and the associated capacity ratio. For example, the single-family fee of \$3,377 is calculated using a cost per service unit of \$10.08 per gallon, multiplied by 335 average day gallons, multiplied by a capacity ratio of 1.00. For a 2.00-inch meter, the fee of \$17,998 is calculated using a cost per service unit of \$10.08 per gallon, multiplied by 335 average day gallons, multiplied by a capacity ratio of 5.33.

Figure W9: Water Facilities Development 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

WATER FACILITIES DEVELOPMENT FEE REVENUE

Appendix A contains revenue forecasts required by Arizona’s Enabling Legislation (ARS § 9-463.05(E)(7)). Projected fee revenue shown in Figure W10 is based on projected water accounts in Figure W3 and the updated water facilities development fees. For nonresidential development, the analysis uses a 2.00-inch meter. If development occurs faster than projected, the demand for infrastructure will increase along with development fee revenue. If development occurs slower than projected, the demand for infrastructure will decrease and development fee revenue will decrease at a similar rate. Projected development fee revenue equals \$19,032,117 and projected expenditures equal \$23,183,695. Based on the actual mix of meter sizes used by future nonresidential accounts, the projected development fee revenue shown below will change.

Figure W10: Water Facilities Development Fees Revenue

| Fee Component | Growth Share |
|------------------------|---------------------|
| Water Supply | \$3,540,527 |
| Wells | \$9,794,661 |
| Water Treatment | \$7,429,387 |
| Distribution Lines | \$2,400,000 |
| Development Fee Report | \$19,120 |
| Total | \$23,183,695 |

| | | Single-Family \$3,377 per meter | Nonresidential \$17,998 per meter |
|-------------------|------|---------------------------------------|---|
| Year | | Accounts | Accounts |
| Base | 2023 | 59,260 | 4,546 |
| Year 1 | 2024 | 59,515 | 4,628 |
| Year 2 | 2025 | 59,770 | 4,711 |
| Year 3 | 2026 | 59,895 | 4,795 |
| Year 4 | 2027 | 60,021 | 4,879 |
| Year 5 | 2028 | 60,146 | 4,963 |
| Year 6 | 2029 | 60,272 | 5,048 |
| Year 7 | 2030 | 60,398 | 5,132 |
| Year 8 | 2031 | 60,451 | 5,208 |
| Year 9 | 2032 | 60,505 | 5,284 |
| Year 10 | 2033 | 60,558 | 5,359 |
| 10-Year Increase | | 1,299 | 814 |
| Projected Revenue | | \$4,385,060 | \$14,647,057 |

| | |
|------------------------------|---------------------|
| Projected Fee Revenue | \$19,032,117 |
|------------------------------|---------------------|

RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Wastewater development fees are assessed by meter size, and the analysis uses average day flow from existing single-family units of 289 gallons as the demand factor for a 0.75-inch meter. For meters larger than 0.75 inches, average day flow is calculated by multiplying average day flow from existing single-family units by the capacity ratio for the corresponding meter size.

Figure WW1: Wastewater Ratio of Service Unit to Development Unit

| Average Day Flow (Gallons) | |
|----------------------------|-----|
| Single-Family Unit | 289 |

| Meter Size | Capacity Ratio ¹ |
|------------|-----------------------------|
| 0.75-inch | 1.00 |
| 1.00-inch | 1.67 |
| 1.50-inch | 3.33 |
| 2.00-inch | 5.33 |
| 3.00-inch | 10.67 |
| 4.00-inch | 16.67 |
| 6.00-inch | 33.33 |
| 8.00-inch | 53.33 |

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

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Existing Flow

Average day flow from Glendale wastewater customers was 19,444,389 gallons in 2022. Residential customers represented 82 percent of average day flow, 94 percent of accounts, and generated 289 gallons per day per account. Nonresidential customers represented 18 percent of average day flow, six percent of accounts, and generated 958 gallons per day per account.

Figure WW2: Existing Flow

| Customer Type | Annual Gallons | Average Day Gallons | Accounts | Avg Day Gallons per Account |
|----------------|----------------|---------------------|----------|-----------------------------|
| Residential | 5,854,163,000 | 16,038,803 | 55,548 | 289 |
| Nonresidential | 1,243,039,000 | 3,405,586 | 3,556 | 958 |
| Total | 7,097,202,000 | 19,444,389 | 59,104 | 329 |

Source: Glendale Water Services Department, 2022

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

Projected Flow

Shown below, Figure WW3 includes projections of wastewater accounts and wastewater flow. Projected residential accounts include all new single-family units in East Glendale. Projected nonresidential accounts maintain the 2022 ratio of nonresidential accounts per thousand square feet (KSF) of nonresidential development (3,556 accounts / 32,772 KSF = 0.109 accounts per KSF). Over the next 10 years, projections include an increase of 1,299 residential accounts and 648 nonresidential accounts.

To project future wastewater flow, the analysis applies the average day gallons per account factors shown in Figure WW2 to the projected accounts shown in Figure WW3. Projected average day flow will increase by 375,269 gallons for residential development and 620,999 gallons for nonresidential development. As shown in Figure WW3, projected wastewater flow in East Glendale will increase by 996,268 gallons.

Figure WW3: Projected Flow

| 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 |

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 Treatment – Cost Recovery

The City of Glendale operates three wastewater treatment plants, and these treatment plants have outstanding debt. Since these facilities have excess capacity to serve future development, Glendale will use development fees to repay a portion of the outstanding debt.

| Description | Average Day Capacity |
|--------------------------------------|----------------------|
| Arrowhead Water Reclamation Facility | 4,500,000 |
| West Area Water Reclamation Facility | 11,500,000 |
| 91st Ave Wastewater Treatment Plant | 13,200,000 |
| Total | 29,200,000 |

The City of Glendale spent \$208,689,000 to provide 29,200,000 gallons of wastewater treatment capacity, and the outstanding principal balance is \$39,797,500. Dividing the total cost by the total capacity yields a cost of \$7.15 per gallon. With an estimated increase in daily wastewater flow of 996,268 gallons, the 10-year revenue collections equal \$7,123,316, or approximately 18 percent of the remaining principal balance.

Figure WW4: Cost Factors

| 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

The City of Glendale plans to expand an existing lift station within the next 10 years to serve future development. The cost to expand the lift station capacity by 3,348,000 gallons per day is \$4,500,000. Dividing the expansion cost by the additional capacity yields a cost of \$1.34 per gallon. With an estimated increase in daily wastewater flow of 996,268 gallons, the 10-year revenue collections equal \$1,334,999, or approximately 30 percent of the planned costs.

Figure WW5: Cost Factors

| 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

The City of Glendale plans to spend \$700,000 per year to oversize and/or extend wastewater collection lines to serve future development. Dividing the total cost of \$7,000,000 by the 10-year flow increase of 996,268 gallons yields a cost of \$7.03 per gallon.

Figure WW6: Cost Factors

| 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 |

Development Fee Report – Plan-Based

The cost to prepare the Wastewater Facilities IIP and the related Development Fee Report totals \$19,120. Glendale plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of wastewater flow, the cost is \$0.03 per gallon.

Figure WW7: IIP and Development Fee Report

| Necessary Public Service | Cost | Proportionate Share | Service Unit | 5-Year Change | Cost per Service Unit |
|--------------------------|----------|----------------------|--------------|---------------|-----------------------|
| Water Facilities | \$19,120 | All Development 100% | Gallons | 1,630,514 | \$0.01 |
| Wastewater Facilities | \$19,120 | All Development 100% | Gallons | 575,035 | \$0.03 |
| Total | \$38,240 | | | | |

WASTEWATER FACILITIES DEVELOPMENT FEES

Revenue Credit/Offset

A revenue credit/offset is not necessary for wastewater facilities development fees, because costs generated by projected development exceed revenues generated by projected development. Appendix A includes a detailed explanation of the revenue credit/offset for wastewater facilities development fees.

Wastewater Facilities Development Fees

The cost per service unit is \$15.55 per gallon for wastewater facilities development fees, and Glendale will assess wastewater facilities development fees by meter size to new development in East Glendale. The base 0.75-inch meter is equivalent to a single-family unit, and a capacity ratio is used to convert the base meter fee proportionately for larger meters. The capacity ratios are calculated based on data published in *AWWA Manual of Water Supply Practices M-1, 7th Edition*.

Wastewater facilities development fees are calculated by multiplying the cost per gallon by the average day gallons per EDU (single-family unit) and the associated capacity ratio. For example, the single-family fee of \$4,494 is calculated using a cost per service unit of \$15.55 per gallon, multiplied by 289 average day gallons, multiplied by a capacity ratio of 1.00. For a 2.00-inch meter, the fee of \$23,953 is calculated using a cost per service unit of \$15.55 per gallon, multiplied by 289 average day gallons, multiplied by a capacity ratio of 5.33

Figure WW8: Wastewater Facilities Development 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

WASTEWATER FACILITIES DEVELOPMENT FEE REVENUE

Appendix A contains revenue forecasts required by Arizona’s Enabling Legislation (ARS § 9-463.05(E)(7)). Projected fee revenue shown in Figure WW9 is based on projected wastewater accounts in Figure WW3 and the updated wastewater facilities development fees. For nonresidential development, the analysis uses a 2.00-inch meter. If development occurs faster than projected, the demand for infrastructure will increase along with development fee revenue. If development occurs slower than projected, the demand for infrastructure will decrease and development fee revenue will decrease at a similar rate. Projected development fee revenue equals \$21,367,261 and projected expenditures equal \$15,477,435. Based on the actual mix of meter sizes used by future nonresidential accounts, the projected development fee revenue shown below will change.

Figure WW9: Wastewater Facilities Development Fees Revenue

| Fee Component | Growth Share |
|------------------------|---------------------|
| Wastewater Treatment | \$7,123,316 |
| Lift Station | \$1,334,999 |
| Collection Lines | \$7,000,000 |
| Development Fee Report | \$19,120 |
| Total | \$15,477,435 |

| | | Single-Family \$4,494 per meter | Nonresidential \$23,953 per meter |
|-------------------|------|---------------------------------------|---|
| Year | | Accounts | Accounts |
| Base | 2023 | 55,803 | 3,622 |
| Year 1 | 2024 | 56,058 | 3,688 |
| Year 2 | 2025 | 56,313 | 3,753 |
| Year 3 | 2026 | 56,438 | 3,821 |
| Year 4 | 2027 | 56,564 | 3,888 |
| Year 5 | 2028 | 56,689 | 3,955 |
| Year 6 | 2029 | 56,815 | 4,022 |
| Year 7 | 2030 | 56,941 | 4,089 |
| Year 8 | 2031 | 56,994 | 4,149 |
| Year 9 | 2032 | 57,048 | 4,210 |
| Year 10 | 2033 | 57,101 | 4,270 |
| 10-Year Increase | | 1,299 | 648 |
| Projected Revenue | | \$5,835,493 | \$15,531,768 |

| | |
|------------------------------|---------------------|
| Projected Fee Revenue | \$21,367,261 |
|------------------------------|---------------------|