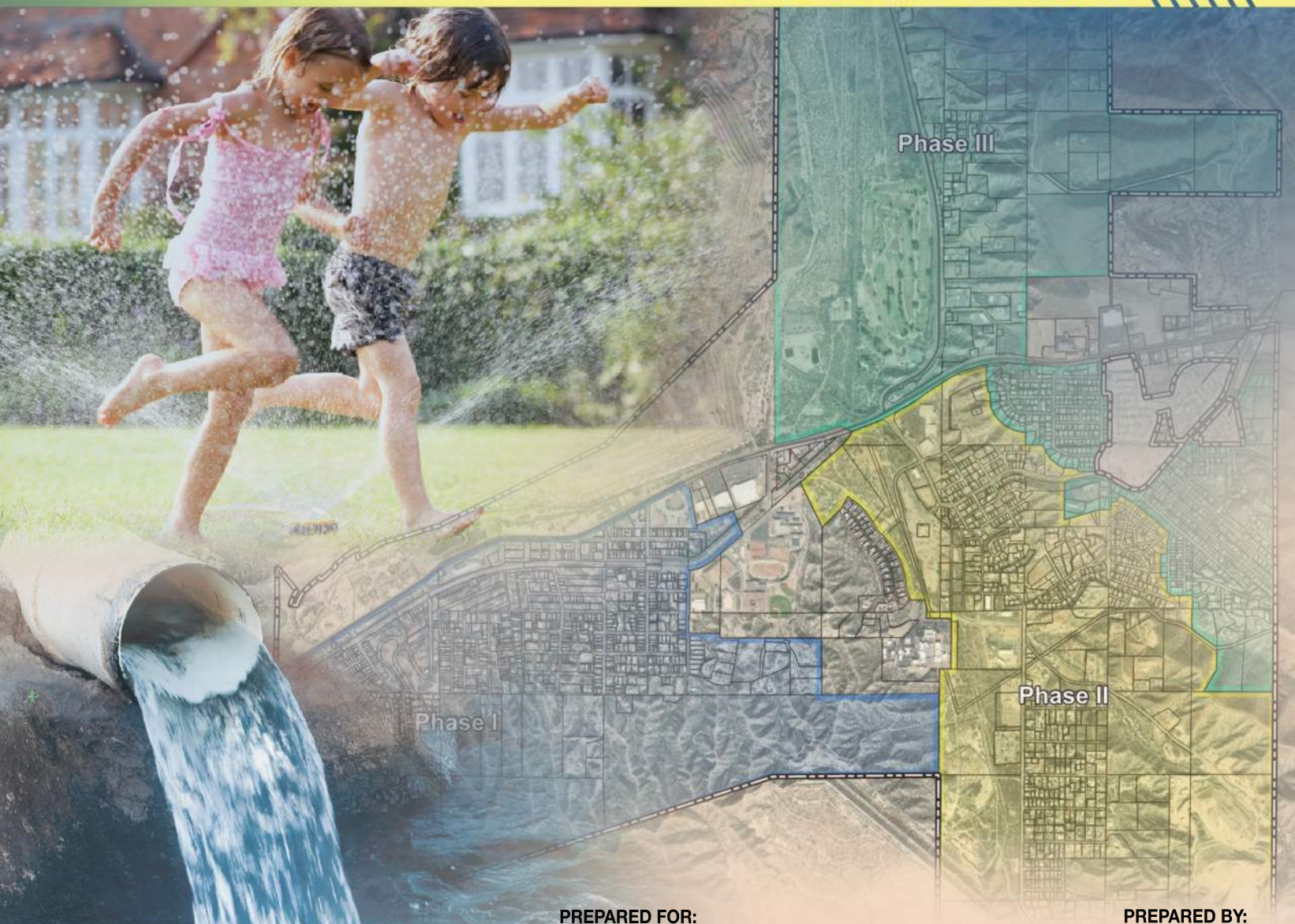
TRI-CITY REGIONAL SANITARY DISTRICT

PRELIMINARY ENGINEERING REPORT

FOR WASTEWATER COLLECTION AND TREATMENT SYSTEM

PHASE 2 & 3



PREPARED FOR:

TRI-CITY REGIONAL SANITARY DISTRICT
5515 S. APACHE AVE., SUITE 200
GLOBE, AZ 85501-4430

PREPARED BY:

PACE
Advanced Water Engineering

8723 E VIA DE COMMERICO #A-204
SCOTTSDALE, AZ 85258
480.991.3595 | WWW.PACEWATER.COM

#B406 | JUNE 2022
MARCH 2022 **(REVISED)**

Preliminary Engineering Report
Wastewater Infrastructure

Tri-City Regional Sanitary District
Wastewater Collection and Treatment Phase 2 & 3
Gila County, Arizona

June 2022
(March 2022 Revised)

Prepared For:

5515 S. Apache Ave., Suite 200
Globe, AZ 85501-4430

Prepared By:

Pacific Advanced Civil Engineering, Inc.
8723 E. Via de Commercio #A-204
Scottsdale, AZ 85258
(480) 991-3595

Expires 12/31/2023

Contact Persons:
Michael G. Krebs, PE
Duong Do, PE

PACE JN B406

Table of Contents

Tables

Figures

Exhibits

Appendices

Contact Information

Owner:	**Tri-City Regional Sanitary District** Robert Jacques, Board President 5515 S. Apache Ave., Suite 200 Globe, AZ 85501-4430 (512) 468-6957
General Counsel:	**Michael J. Harper** Harper Law Offices, PC 111 W Cedar Ln, Suite C Payson, AZ 85541 (928) 474-9230
Assessment District Attorney & Bond Counsel:	**Timothy A. Stratton, Attorney at Law** Gust Rosenfeld P.L.C. One East Washington Street, Suite 1600 Phoenix, AZ 85004-2553 (602) 257-7465
Financial Consultant:	**Leo V. Valdez, Managing Director** Municipal Capital Markets Group, Inc. PO Box 1587 Ohkay Owengih, NM 87566 (602) 538-0072
Project Civil Engineer:	**Michael G. Krebs, PE, VP of Environmental Water** Pacific Advanced Civil Engineering, Inc. (PACE) 8723 E Via de Commercio #A-204 Scottsdale, AZ 85258 (480) 991-3595

Abbreviations

AAC ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
APN ..... Assessor's Parcel Number
APP ..... Aquifer Protection Permit
ARS ..... Arizona Revised Statutes
AZPDES ..... Arizona Pollutant Discharge Elimination System
CAG ..... Central Arizona Governments
CFR ..... Code of Federal Regulations
CST ..... Collection System Type
CVSD ..... Cobre Valley Sanitary District
CWA ..... Clean Water Act
DMA ..... Designated Management Agency/Area
EA ..... Environmental Assessment
EDU ..... Equivalent Dwelling Unit
EJSCREEN ..... Environmental Justice Screening and Mapping Tool
EPA ..... Environmental Protection Agency
GIS ..... Geographic Information System
Globe ..... City of Globe
GP ..... Grinder Pump
GPD ..... Gallons per Day
GPM ..... Gallons per Minute
HDPE ..... High-Density Polyethylene
IGA ..... Intergovernmental Agreement
IPR ..... Improvements on Possessory Rights
LF ..... Linear Foot/Feet
LOC ..... Letter of Conditions
MAG ..... Maricopa Association of Governments
MBR ..... Membrane Bioreactor
MCL ..... Maximum Contaminant Level
MGD ..... Million Gallons per Day
MHI ..... Median Household Income
Miami ..... Town of Miami
O&M ..... Operation and Maintenance
OMB ..... Office of Management and Budget
PACE ..... Pacific Advanced Civil Engineering, Inc.
PCWTF ..... Pinal Creek Wastewater Treatment Facility
PER ..... Preliminary Engineering Report
PPM ..... Parts per Million

PSD ..... Pinal Sanitary District
PVC ..... Polyvinyl Chloride
ROI ..... Resolution of Intention
ROW ..... Right-of-Way
RUS ..... Rural Utilities Service
SLAR ..... Short-Lived Asset Reserve
STEP ..... Septic Tank Effluent Pump
TRSD ..... Tri-City Regional Sanitary District
TSS ..... Total Suspended Solids
USACE ..... United States Army Corp of Engineers
USDA-RD ..... United States Department of Agriculture - Rural Development
UV ..... Ultraviolet
WIFA ..... Water Infrastructure Finance Authority of Arizona
WQMP ..... Water Quality Management Plan
WRF ..... Water Reclamation Facility
WT ..... Wastewater Treatment

Executive Summary

Tri-City Regional Sanitary District (TRSD) encompasses approximately 5.3 square miles located in Gila County, Arizona between the Town of Miami (Miami) and City of Globe (Globe). This area is located about 80 miles east of the City of Phoenix. TRSD, an Arizona Sanitary District established in 2011, was formed with a foundation and mission to improve quality of life for the Tri-City area of southern Gila County, Arizona by developing a plan to provide and manage a new wastewater collection and treatment system.

This wastewater collection and treatment system project planning has been in progress since 2011 working closely with the United States Department of Agriculture Rural Development (USDA-RD). Due to the magnitude (size and complexity) of the overall project, it encompasses a three-phase approach based on direction of USDA-RD related to the funding process.

At full buildout, approximately 4,000 residents will directly benefit from this new collection and treatment system and the entire community will begin to see some environmental and economical improvements in the area. This three-phase project consists of the installation of 150,000+/- linear feet (LF) of gravity mains, 15,000+/- LF of force main, 1,838 +/- residential service connections, and a new 0.50 million gallons per day (MGD) membrane bioreactor (MBR) water reclamation facility (WRF).

Phase 1 is being funded through grant/loan package provided by USDA-RD. In August of 2018, USDA-RD issued a Letter of Conditions (LOC) for Phase I funding offering a package consisting of a $12 million low-interest loan and $16 million in grant funds. Phase I design is currently underway and consists of the installation of 61,000+/- linear feet (LF) of gravity mains, 7,600+/- LF of force main, 658+/- residential service connections, main lift station and a 0.20 MGD MBR WRF.

This Preliminary Engineering Report (PER) will evaluate alternatives to install new collection mains to connect and treat additional generated flows for the approximately 1,358 people within the Phase 2 area and 1,105 people within the Phase 3 area. Phase 2 infrastructure consists of the installation of 51,000+/- LF of gravity main, 2,600+/- LF of force main and 643+/- residential service connections. Phase 3 infrastructure consists of the installation of 47,000+/- LF of gravity main, 5,500+/- LF of force main and 537+/- residential service connections.

Phase 2 and 3 are evaluated separately and the alternatives considered are as follows:

Phase/Element	Infeasible	Feasible
Phase 2 Collection System	No Action Collection System Alignments Piping Materials Septic Tank Effluent Pump	Collection System Type (CST) • Gravity System (1 Main Lift Station) • Grinder Pump System (Individual Homes) • Gravity System (8 Community Grinder Pumps)
Phase 2 Wastewater Treatment (WT)	No Action Flows conveyed to Globe PCWTF Flows Conveyed to Miami WRF	TRSD WRF Expansion
Phase 3 Collection System	No Action Collection System Alignments Piping Materials Septic Tank Effluent Pump	Collection System Type (CST) • Gravity System (1 Main Lift Station) • Grinder Pump System (Individual Homes) • Gravity System (5 Community Grinder Pumps)
Phase 3 Wastewater Treatment (WT)	No Action Flows Conveyed to Miami WRF Flows conveyed to Globe PCWTF	TRSD WRF Expansion

Through a life cycle cost analysis, alternatives were evaluated and following is a summary of selected alternatives for the Proposed Project.

- Phase 2
    - Phase 2 will consist of design and construction of a gravity collection system and the 0.15 MGD expansion of the TRSD WRF.
- Phase 3
    - Phase 3 will consist of design and construction of a gravity collection system in the southern portion, a combined gravity system with the use of community grinder pumps in the northern portion, and the 0.15 MGD expansion of the TRSD WRF.

The amount of USDA-RD funding being requested for the total project cost is estimated at:

Phase 2	$35,192,027
Phase 3	$35,454,729
Total Funding Request	$70,646,756

The cost estimates provided include the impact of Build America, Buy American compliance. It is anticipated that a waiver will need to be obtained for the water reclamation facility membranes as this technology is not currently produced in the United States.

Unused Funding Availability Request

If funding is available in Phase 3 after the Proposed Project is complete, TRSD would like to request to use for the addition of an O&M building. The building would be between 2,500 and 3,000 SF in floor space and would include areas for operations and maintenance duties, including storage and a maintenance/repair shop. Other requests would be to use funding for the purchase of a vactor truck for the system operations.

1 Project Planning

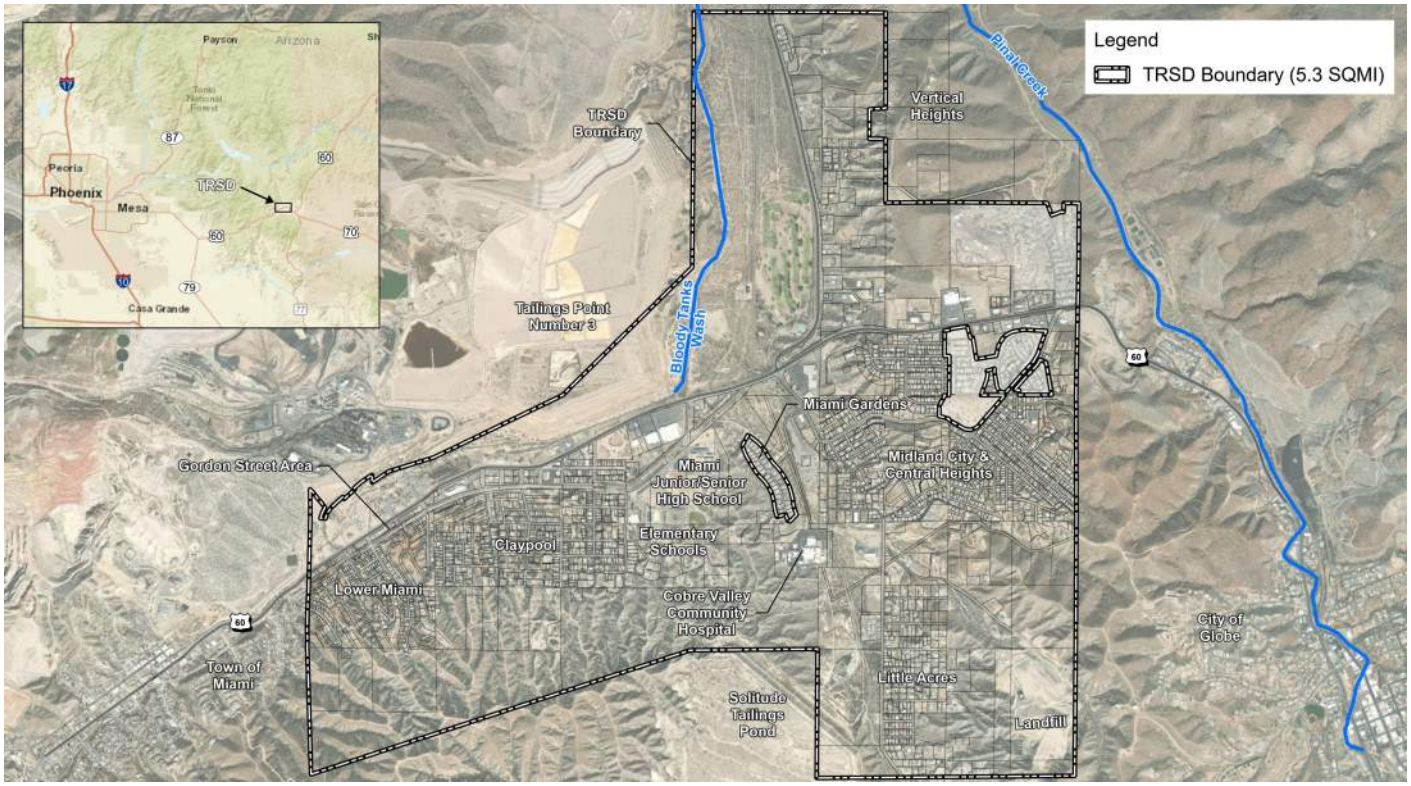
1.1 Location

Tri-City Regional Sanitary District (TRSD) encompasses approximately 5.3 square miles located in Gila County, Arizona between the Town of Miami (Miami) and City of Globe (Globe). This area is located about 80 miles east of the City of Phoenix. TRSD, an Arizona Sanitary District established in 2011, was formed with a foundation and mission to improve quality of life for the Tri-City area of southern Gila County, Arizona by developing a plan to provide and manage a new wastewater collection and treatment system.

TRSD was formed by a merger of two existing sanitary districts known as Cobre Valley Sanitary District (CVSD) and Pinal Sanitary District (PSD), established in 1969 and 1982, respectively. In 2011, the Gila County Board of Supervisors called for an election proposing the merger of these two sanitary districts for convenience and necessity to address area public health concerns. This election resulted in the formal merger whereby CVSD and PSD became TRSD. The TRSD boundary is shown in Figure 1 below and Exhibit 1 (Appendix A). Appendix B includes the following:

- 1969 Cobre Valley Sanitary District Formation Documents
- 1982 Pinal Sanitary District Formation Documents
- 2011 TRSD Formation Res 001 Merger of CVSD & PSD
- 2018 TRSD Boundary Legal Description & Recording

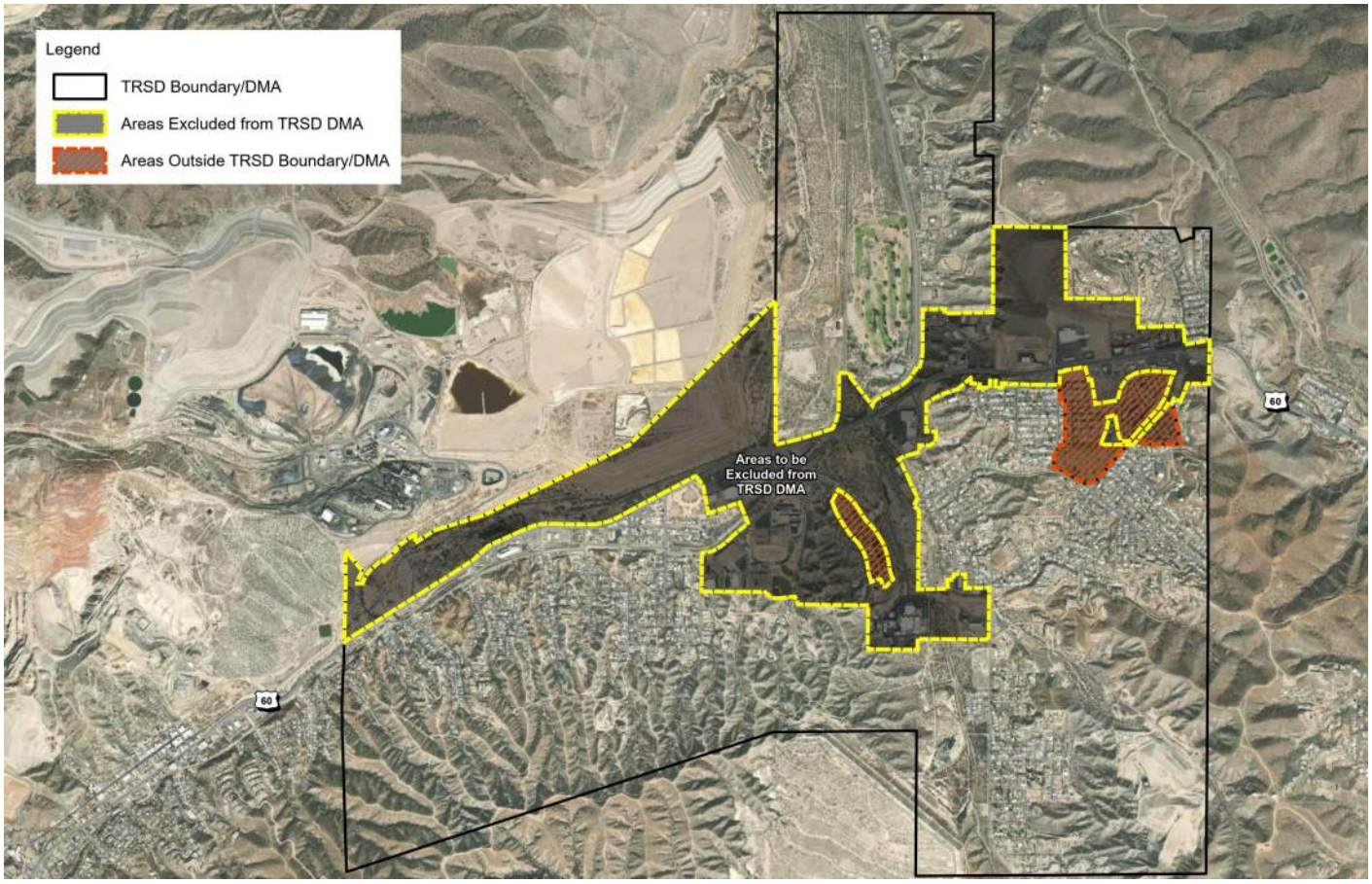
Figure 1 – Location Map



1.2 Designated Management Agency Status

Through the Central Arizona Governments (CAG) 208 Water Quality Management Plan (WQMP) amendment process, TRSD has been working closely with CAG and neighboring communities of Miami and Globe concerning negotiating specific areas of the respective designated management agency (DMA) boundaries. In commitment to providing a regional solution to wastewater treatment, TRSD has yielded areas of its DMA. These areas include ones that Miami is already servicing and other areas that lie within Globe city limits. Figure 2 below and Exhibit 2 (Appendix A) illustrate these exclusions. The formalized TRSD DMA service legal description and boundary with these exclusions are included in Appendix C. The CAG 208 process is completed and is approved by the Environmental Protection Agency (EPA).

Figure 2 - TRSD DMA Exclusions



Beyond DMA adjustments made with Miami and Globe, further regional actions will be taken to address some situations where there is some specific areas in Globe that TRSD will be servicing in the future. These situations will require implementation of intergovernmental agreements (IGAs) to define specific areas and entities providing service in which Globe has expressed interest.

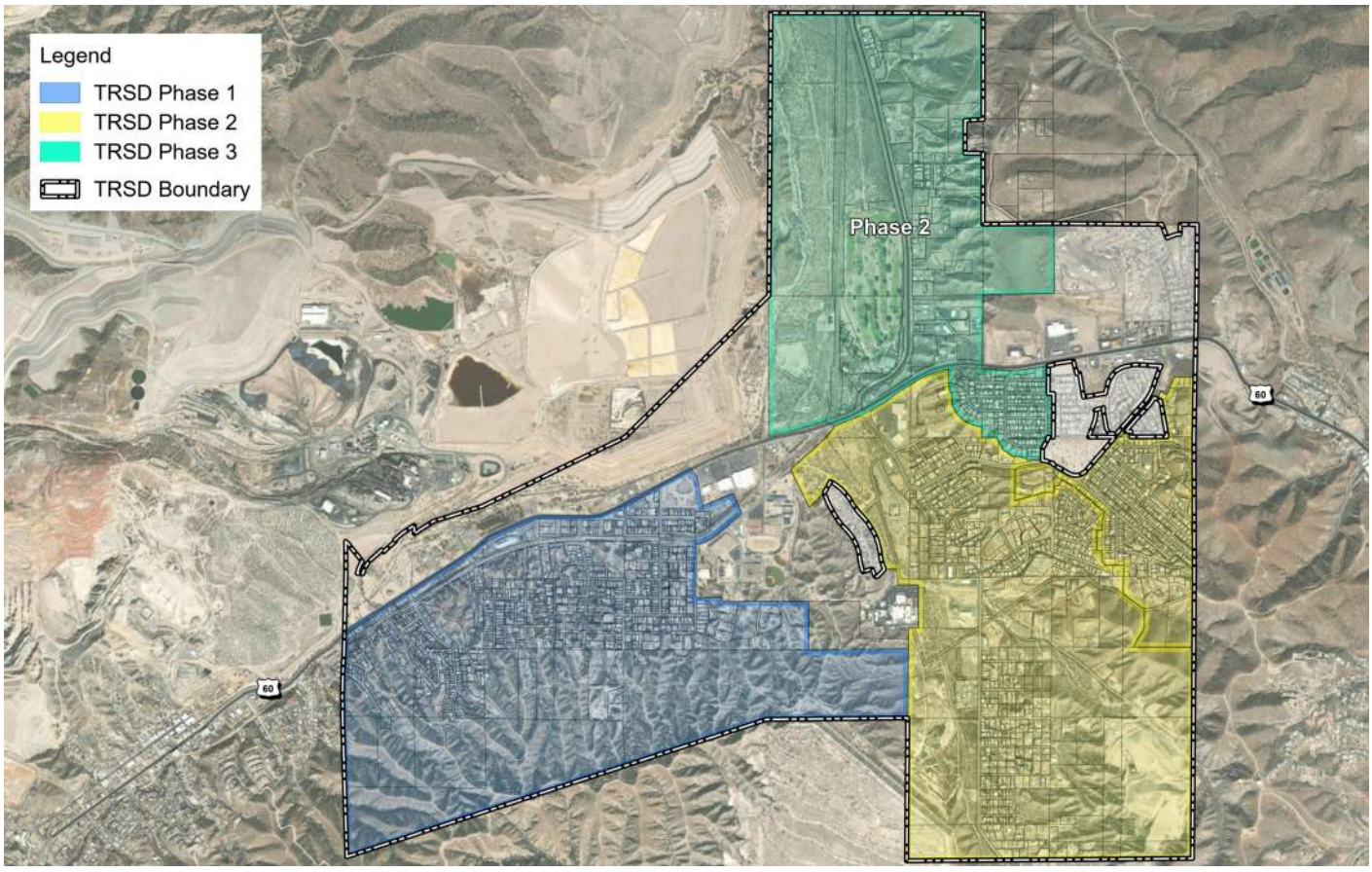
1.3 Project Phasing

1.3.1 TRSD Phasing

This wastewater collection and treatment system project planning has been in progress since 2011 working closely with the United States Department of Agriculture Rural Development (USDA-RD). Due to the magnitude (size and complexity) of the overall project, it encompasses a three-phase approach based on direction of USDA-RD related to the funding process. See Figure 3 below and Exhibit 3 (Appendix A).

At full buildout, approximately 4,000 residents will directly benefit from this new collection and treatment system and the entire community will begin to see some environmental and economical improvements in the area. This project consists of the installation of 150,000+/- linear feet (LF) of gravity mains, 15,000+/- LF of force main, and 1,838+/- service residential connections.

Figure 3 - TRSD Phasing Plan



1.3.2 TRSD Phase 1

Phase I design is currently underway and consists of the installation of 61,000+/- LF of gravity mains, 7,600+/- LF of force main, 751+/- new service connections, main lift station and a 0.20 MGD membrane bioreactor (MBR) water reclamation facility (WRF).

1.3.3 TRSD Phase 2

This PER will evaluate alternatives to install new collection mains to connect and treat additional generated flows for the approximately 1,358 people within the Phase 2 area. Phase 2 infrastructure consists of the installation of 51,000+/- LF of gravity main, 2,600+/- LF of force main and 643+/- residential connections.

1.3.4 TRSD Phase 3

This PER will evaluate alternatives to install new collection mains to connect and treat additional generated flows for the approximately 1,105 people within the Phase 3 area. Phase 3 infrastructure consists of the installation of 47,000+/- LF of gravity main, 5,500+/- LF of force main and 537+/- residential service connections.

1.4 Environmental Resources Present

TRSD lies within the Upper Pinal Creek watershed, Russell Gulch watershed, Bloody Tanks Wash watershed, and Miami Wash watershed at approximately 3,400 feet above mean sea level. The major stream drainages in the area are the Bloody Tanks wash (southwestern to northeastern flow) and the Miami wash watershed (flows north of the Bloody Tanks Wash and is east of Miami).

The Miami, Globe and TRSD areas were originally established due to the rich bodies of copper ore discovered within the surrounding Webster, Granite, and Pinal Mountains in the late 1800s. Globe was founded in 1876 and incorporated in 1907, while Miami was established in 1907 and incorporated in 1918. The main economy of the Globe-Miami area remains heavily involved in the mining industry with over 20 percent of its employment related to mining and copper production (Arizona Department of Commerce 2014).

Mean temperatures in Miami range from 49° F in January to 86° F in July. Globe mean temperatures range from 44° F in January to 82° F in July. Annual precipitation within the TRSD area averages about 19 inches with a majority of the precipitation occurring in December through March and July through September.

An Environmental Assessment (EA) has been prepared by Logan Simpson Design, Inc. to assess the environmental impacts related to this proposed project (Appendix K). Following is a summary of resources present. The environmental resources present are more fully described in the EA that has been submitted with a funding application.

1.4.1 Land Use and Ownership/Jurisdiction

The Logan Simpson EA (2022) describes:

> According to the Gila County Community Land Use Plan, land use within the project area predominately consists of medium-to-high density residential (2-10 dwelling units/acre [du/ac]), with the remainder of the TRSD service area comprised of mixed use, community commercial, light industrial and heavy industrial (Gila County 2012). The dominant land use of the areas surrounding the TRSD service area are light and heavy industrial, primarily consisting of the numerous copper mines and smelting operations, as well as light-density residential (less than 2 du/ac) and the incorporated communities of Miami and Globe (Gila County 2003). (p.11)

> No actively cultivated fields or agricultural operations were identified within the Phases 2 and 3 areas. A review of the USDA Natural Resources Conservation Service's (NRCS) Web Soil Survey indicates that no prime farmland, unique farmland, or farmland of statewide or local importance are located within or adjacent to the Phase 2 and 3 (NRCS 2021). (p.12)

> The majority of the Phase 2 and 3 areas consists of private land and ADOT and Gila County ROW. Adjacent to the TRSD service area, there are state trust lands and lands which are administered by BLM, but these lands have not been given special protection through formal legislative designation. (p. 12)

1.4.2 Floodplains

The Logan Simpson EA (2022) states:

> A review of FEMA National Flood Hazard Layer dated 2019 indicates that Phases 2 and 3 of the TRSD service area includes areas of 100-year floodplain associated with two major drainages (Bloody Tanks Wash and Russell Gulch), as well as numerous tributaries to these waterways (Figure 3). Areas of 500-year floodplain were not identified within Phase 2 and 3 of the TRSD service area. Considerable residential, commercial, and industrial development presently occurs within the 100-year floodplain. (p. 13)

1.4.3 Wetlands

The Logan Simpson EA (2022) states:

> A review of the online National Wetlands Inventory maintained by the United States Fish and Wildlife Service (USFWS) indicates that there are no wetlands within the Phase 2 and 3 project area. (p.14)

1.4.4 Cultural Resources

The Logan Simpson EA (2022) states:

> An assessment of cultural resources was completed for this project and is documented within the report titled, *A Class III Cultural Resources Survey and Historic Building Reconnaissance Survey for Phases II and III of the Tri-City Regional Sanitary District Project, Gila County, Arizona* (Levstik 2022). The Class III cultural resources survey conducted within the Phases 2 and 3 area resulted in the identification of three previously recorded sites, AZ V:9:392(ASM)/Arizona Eastern Railroad, AZ V:2:101(ASM)/US Highway 60, AZ V:5:197(ASM)/State Road 188; one newly recorded site, AZ V:9:687(ASM); and one Isolated Occurrence. The historic building reconnaissance survey conducted during both phases resulted in the documentation of portions of seven subdivisions, five of which are historic in age, which consist of residential and commercial buildings along SR 188, as well as one IO. One of the subdivisions is recommended eligible for the NRHP. The IO is recommended not eligible for inclusion in the NRHP, and no additional research or preservation is required. (p. 19)

1.4.5 Biological Resources

The Logan Simpson EA (2022) states:

> Phases 2 and 3 are within the Semidesert Grassland Biotic Community (Brown 1994), which is typically characterized by the presence of perennial grasses in an otherwise scrub-dominated landscape. Stem and leaf succulents are also well-represented. Vegetation in this particular area is transitional, with many plant species present that are more indicative of lower-elevation desert scrub communities and higher-elevation chaparral communities. There is a general lack of native vegetation within most of Phases 2 and 3, as the proposed improvements are primarily located within previously disturbed urban areas such as roadway ROWs. (p. 22)

> Due to the high level of urban disturbance, it was determined that there is no suitable habitat within the Phases 2 and 3 area for federally listed species. The project area was also surveyed for the presence of protected native plants and the following plants protected under the Arizona Native Plant Law were found within the project area: foothills paloverde (*Parkinsonia microphylla*), blue paloverde (*Parkinsonia florida*), soaptree yucca (*Ucca elata*), and velvet mesquite (*Prosopis velutina*). (p. 23)

> Based on the field survey conducted, bird nests were noted within the project area. There are records of both bald and golden eagles in Gila County; however, no suitable habitat for bald or golden eagles was observed in the Phases 2 and 3 area during the site visit. (p. 23)

1.5 Population Trends

Precise population records for TRSD are not available because the boundary encompasses a collection of unincorporated community areas unrecognized by the United States Census Bureau (USCB). To develop reasonable estimates of affected population for trends and growth within TRSD Phases 2 and 3, the Environmental Justice Screening and Mapping Tool (EJSCREEN) provided by the EPA was used.

1.5.1 TRSD Estimated Affected Population and Growth Projections

According to the USCB, the state of Arizona has seen a population growth of approximately 14% from 2010 through 2019 and Gila County has seen approximately 0.8% growth over the same time period.

Due to lack of specific recorded population information because TRSD encompasses only portions of several communities, USDA-RD recommends using the Environmental Justice Screening and Mapping Tool (EJSCREEN) provided by the EPA. This tool allows the user to draw a freestyle boundary to select a specific area. This action was completed independently for TRSD Phase 2 and Phase 3. Appendix D includes the reports of each phase boundary with detailed population estimates. The EJSCREEN data includes the 2010 Census to determine population for the last decade and US Census Bureau American Community Survey (ACS) information to estimate growth from 2014 to 2018.

The following Table 1 summarizes figures obtained from EJSCREEN to determine the population growth estimate. Using 2010 Census data, the overall population for Phases 2 and 3 was approximately 2,264 (Line 1). The ACS 2014-2018 population estimates (Line 4) were then used to calculate the Growth Estimate (Line 7), Growth Estimate percentage (Line 8) and the Growth Estimate percentage annually (Line 9).

Table 1 – Population Annual Growth Estimates

Line	Data Description	TRSD Phase 2	TRSD Phase 3	Project Total
1	Census 2010 Population	1,254	1,010	2,264
2	Census 2010 Housing Units	567	509	1,076
3	Census 2010 Persons/Housing Units	2.21	1.98	2.10
4	ACS 2014-2018 Population Estimate	1,337	1,082	2,419
5	ACS 2014-2018 Housing Units Estimate	700	691	1,391
6	ACS 2014-2018 Persons/Housing Units Estimate	1.91	1.57	1.74
7	Population Growth Estimate (Line 4 – Line 1)	83	72	155
8	Population Growth Estimate % (Line 7 / Line 1)	7%	7%	7%
9	Population Growth Estimate % per Year (Line 8 / 8)	0.8%	0.9%	0.9%

Future population projections were calculated by using EJSCREEN estimated population annual growth of 0.9%. The useful life of the system is 40 years so the planning period of the project is 50 years; the population estimates for the next four decades are summarized in Table 2 below.

Table 2 - Future Population Projections

Population Year	Source / Estimate	TRSD Phase 2	TRSD Phase 3	Project Total
2010	US Census	1,254	1,010	2,264
2020	Present Estimate	1,358	1,105	2,463
2030	10-Year Estimate	1,471	1,208	2,679
2040	20-Year Estimate	1,593	1,321	2,914
2050	30-Year Estimate	1,725	1,445	3,170
2060	40-Year Estimate	1,868	1,581	3,449
2070	50-Year Estimate	2,023	1,729	3,752

1.5.2 Equivalent Dwelling Units

1.5.2.1 Methodology

To develop an accurate estimate of future wastewater flows some assumptions were made. The most updated parcel data was obtained from the Gila County Assessor's office in late 2018. Parcel information included Assessor's Parcel Numbers (APN), land use, lot size, parcel maps, owner information, and number of structures. Parcel data and aerial photography were used to further understand current conditions and locate occupied parcels. Parcels were evaluated to determine feasibility of connection to the TRSD wastewater collection system. To evaluate areas receiving new service in more depth, aerial imagery was used in conjunction with geographic information system (GIS) software to review each parcel.

1.5.2.2 Equivalent Dwelling Unit Assessment

Each parcel was reviewed in conjunction with the preliminary collection system layout and given a category description to help determine equivalent dwelling units (EDUs) and number of service connections, (the EDU count does not always equal the number of new connections). Descriptions of categories and guidelines used in the calculations are described in Table 3 below.

Table 3 – Equivalent Dwelling Unit Assessment Categories

Category	Descriptions
Residential	Residential parcels will include all parcels listed as single-family residential and multi-family residential land use. EDU count for residential parcels was evaluated based on amount of service connections needed for each parcel. For each service connection required, 1 EDU was counted for the parcel, regardless of parcel. Parcels with multiple homes or multi-unit buildings were counted with multiple EDUs based on number of individual homes or units.
Non-Residential	Non-residential parcels include all parcel types listed as commercial, industrial, school, reservoir, church or open space/recreational land. Using AAC Title 18, Chapter 9 Department of Environmental Quality standards found in Table 1. Unit Design Flows, typical design flows were estimated. Research was conducted as to what type of wastewater source was located on each parcel and the corresponding design flow was calculated in accordance with these standards. EDU count was then generated based on conversion of 1 EDU per 175 gallons per day (GPD) of calculated flow (see 1.5.2.3 Wastewater Calculations).
Vacant	Vacant parcels are uninhabited parcels adjacent to or within a specified distance of the proposed collection line (distance to be determined in forthcoming TRSD policies and procedures). Future development of the parcel cannot be predicted, so these were accessed as 1 EDU regardless of parcel size.

1.5.2.2.1 Land Use Type

Using the methodology described above, EDU estimates for all included parcels were summarized by land use type in following Table 4.

Table 4 – TRSD Estimated EDU by Land Use Type

Land Use Type	Phase 1 EDUs	Phase 2 EDUs	Phase 3 EDUs	Total EDUs
Residential	658	643	537	1,838
Non-Residential	93	79	176	348
Vacant	324	147	135	606
Totals	**1,075**	**869**	**848**	**2,792**

1.5.2.2.2 Assessment Type

All active connections (occupied parcels) and vacant parcels will be assessed to repay the debt incurred for this project completion. Per Arizona Revised Statutes (ARS) 48-2027(G)(5) an availability fee may be charged to the vacant parcels. This fee is limited to 50% of the user fee. Therefore, vacant parcel sewer rates (system operations and maintenance (O&M) portion) are calculated at 50% of the fee for occupied parcels.

Table 5 – TRSD Estimated EDU by Assessment Type

Phase	Residential	Non-Residential	Vacant	Total Debt EDUs	Total O&M EDUs
Phase 1	658	93	324	1,075	913
Phase 2	643	79	147	869	796
Phase 3	537	176	135	848	781
Totals	**1,075**	**869**	**848**	**2,792**	**2,489**

1.5.3 Wastewater Flow Calculations

1.5.3.1 Design Flow

Arizona Department of Environmental Quality (ADEQ) requires a value of 80 gallons per day per individual residing in a dwelling for a wastewater collection system under Arizona Administrative Code (AAC) R18-9-E301(D) and AAC R18-9-B301(K), excluding peaking factors. Using this value and the Census 2010 Persons/Housing Units value of 2.10 (Table 2, Line 3, Total Project), provides a calculation of about 172 GPD/EDU as show below:

80 GPD x 2.10 Persons/Housing Units = 168 GPD/EDU

Similar to the TRSD Phase 1 PER and planning, to account for any possible variance due to the methodology applied, a buffer is being included. While the parcel research method accounts for Gila County data and aerial surveys, there is the possibility of variances when only working with conceptual planning information for 3,000+ parcels. So, to estimate projected wastewater flows, a design capacity of 175 GPD/EDU is used.

1.5.3.2 Future Wastewater Flow Projections

Table 6 below shows a summary of projected EDUs, flow projections and the estimated population that will be served for each phase of the TRSD wastewater collection and treatment system.

Table 6 - Wastewater Flow Projections by Phase

Phase	EDU	Flow Capacity (GPD)	Estimated Population
Phase 1	1,075	188,168	1,400
Phase 2	869	152,075	1,427
Phase 3	848	148,400	1,161
Totals at Full Buildout	**2,792**	**488,643**	**3,819**

1.6 Community Engagement

1.6.1 TRSD Board Action

As a sanitary district, TRSD has authority, with formal support of its users, to incur debt and levy a tax for providing a community service to those within its boundaries. The TRSD Board performs all actions according to applicable Arizona regulations regarding sanitary districts. Public TRSD Board meetings are held on a regular basis to address both general TRSD business and specific items related to this wastewater collection and treatment system project. The TRSD Board has recently acquired an administration office in order to provide management services for its customers.

1.6.2 Assessment District Process

In order to facilitate this project, TRSD implemented an Assessment District Process per ARS Title 48. In late 2018, TRSD publically issued a Resolution of Intention (ROI) created to introduce proposed improvements, engineer's best estimate of cost, project financing, estimated user rates and assessment costs. The ROI process required TRSD to post signs conspicuously along the proposed improvements and not more than 300 feet apart and send letters to land orders notifying them of the proposed improvements. This process included all three phases of the project. After the ROI issuance, property owners able to be served by TRSD had an opportunity to protest the project. To stop the project from being developed through this process, a 51% protest would be necessary. The percentage is calculated by the amount of linear footage of main collection line that runs along a property compared to the total number of linear footage of the whole project. In early 2019, the protest results came back with only 4.6% protesting.

The results of this Assessment District Process limits the amount of debt that TRSD can go into based on the information provided to the public in the ROI (Appendix E). These limits are:

- Phase 2 $9,688,000 Maximum Debt Limit
- Phase 3 $10,858,000 Maximum Debt Limit

Along with these requirements and prior to the protest period, TRSD carried out voluntary community outreach efforts to bring awareness of project details to the area. The community was informed about all project aspects through a series of presentations, meetings, open discussion meetings, handouts, posters, articles, and flyers. The outreach efforts included conveying current conditions of wastewater treatment within the TRSD boundaries, need for the proposed project and strategy to employ the project.

1.6.3 Neighboring Communities

Besides those who will potentially be served by this project, other stakeholders that were made aware of the project are businesses, industries and neighboring communities. Letters of support have been received from Globe and Miami (Appendix F).

2 Existing Facilities

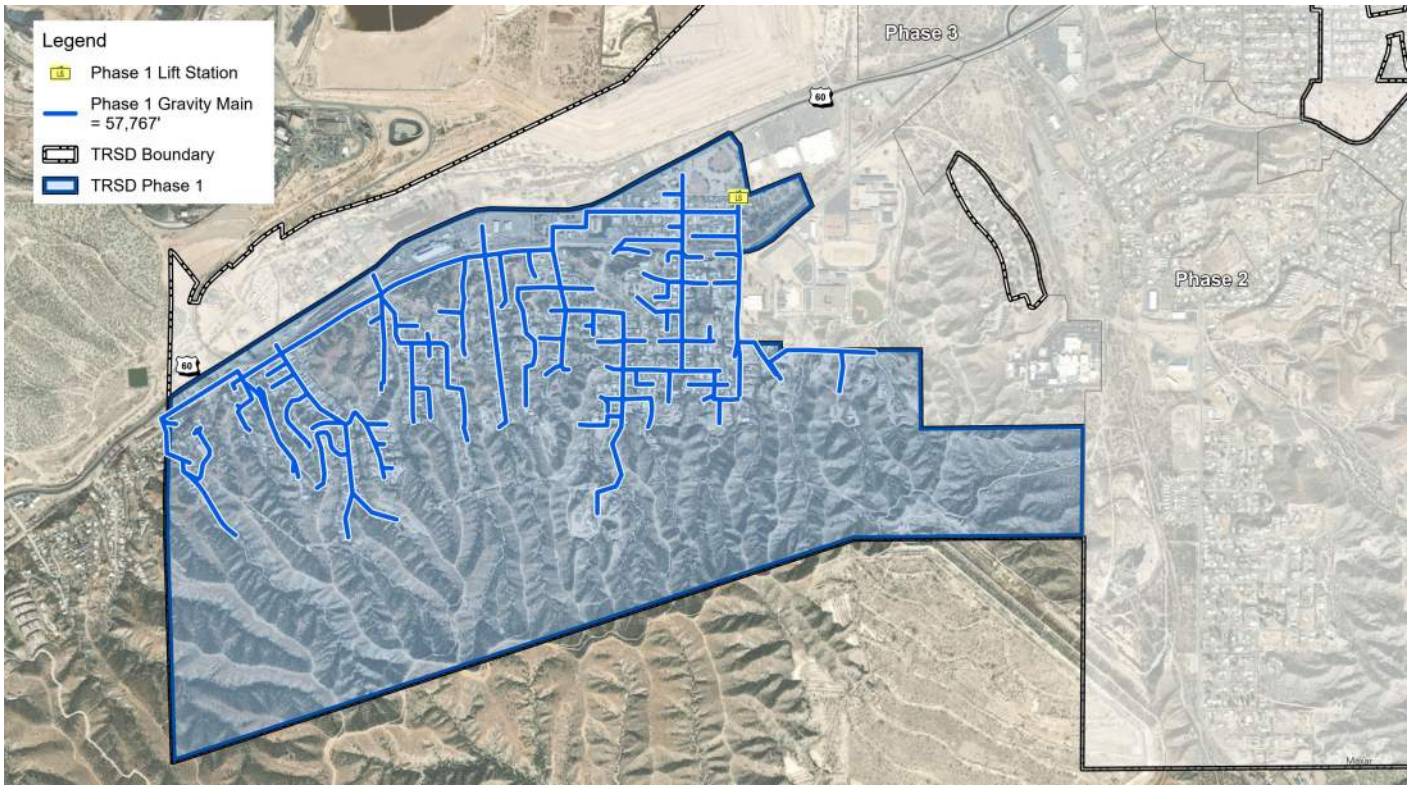
2.1 Existing Facilities

2.1.1 TRSD Existing Facilities

Currently, a majority of properties that can be served by TRSD use cesspools and septic systems for onsite treatment. Conditions of these existing onsite systems are discussed further in section 2.2.1 Existing Conditions of TRSD. No TRSD wastewater collection or treatment infrastructure physically exists at this time. However, design of Phase 1 infrastructure is shown in Figure 4 below and consists of the installation of 61,000+/- LF of gravity mains, 7,600+/- LF of force main, 650+/- residential lateral service connections, a new main lift station and a new WRF.

The Phase 1 TRSD WRF facility utilizes a membrane bio-reactor treatment process, followed by ultraviolet (UV) disinfection, to treat an average day flow of 0.20 MGD to meet Class A+ requirements for unrestricted reuse of recycled water. Effluent from the facility will discharge to Russell Gulch, a contributor to Pinal Creek and the facility will continue to meet Class A+ Reclaimed Water Standards, which is the highest effluent quality classification for the State of Arizona detailed in AAC Title 18 Environmental Quality. Biosolids produced at the WRF will continue to be dewatered, stored, and hauled offsite for disposal in a landfill. The Phase 1 TRSD Lift Station is located near the athletic fields at the intersection of Old Oak Rd. and US Highway 60. The Lift Station collects sewage from the western service area and conveys it to the TRSD WRF, approximately 3,500 feet away, for treatment.

Figure 4 – Existing Phase 1 Facilities



2.2 Condition of Existing Facilities

2.2.1 Existing Conditions of TRSD

Many of existing septic systems and cesspools within TRSD are in poor and failing condition. Based on discussions with Gila County during the planning process, an analysis of residential properties within TRSD indicates 89% of the existing facilities are in violation of the Clean Water Act (CWA) and AAC. A study was conducted in 2012 by Gila County to assess sewage treatment within TRSD named “Sewage Treatment Study, Tri-City Regional Sanitary District” dated November 2012 (Appendix G). This study discusses the extensive use of cesspools or substandard septic systems for sewage disposal within TRSD.

Gila County has documented development of residential homes including real property, Improvements on Possessory Rights (IPR), and motor homes since 1905. Most homes constructed from 1905 to 1970 used cesspools as primary means of sewage disposal. In the 1970's, construction of cesspools was prohibited in the United States due to their inability to treat wastewater before discharge and described as a health and safety risk to humans and environment as stated in the AAC R18-9-A309.A.4. Further regulations were established in 1990 to improve septic system processes and testing.

Two major assumptions are used in this report to determine current conditions of existing TRSD facilities. All residential homes permitted between 1905 and 1970 are assumed to use cesspools. All residential homes permitted between 1970 and 1990 are assumed to have substandard septic systems. Therefore, all existing homes constructed between 1905 and 1990 are assumed to violate current standards for sewage disposal. The status of residential treatment systems throughout TRSD is shown in Table 7 below. This data was received from Gila County in 2015.

Table 7 – Status of TRSD Residential Treatment Systems

Total Estimated Residential Properties	**1,827**	
Residential Properties with Cesspools	1,188	65%
Residential Properties with Substandard Septic Systems	434	24%
Total Systems in Violation	1,622	89%
Total Adequate Systems	205	11%

ADEQ has delegated regulation enforcement to Gila County for use of cesspools and independent septic systems within its boundaries. Gila County has refrained from actively seeking out properties in violation as a large portion would suffer repercussions leading to increased number of abandoned homes and associated hardship. Discussions with the Wastewater Division Manager of Gila County, has put estimates of abandoned homes at about 300-400 within TRSD.

Once an onsite wastewater system is determined to be 1) an outlawed cesspool, 2) a failing/substandard system, or 3) a failed system, the homeowner is left with few options. If it were a failing/substandard system, the owner would need pay to have it repaired and updated to modern standards. If it is a cesspool or failed system, it must be decommissioned and a new system would need to be installed on a different piece of land. Often this option is infeasible due to lack of available budget or land, the only option is to abandon the property because water service will be discontinued.

The majority of the TRSD area, from a public health standpoint, is seeing the unsanitary conditions progressively worsen. As more and more cesspools and septic systems fail, homeowners of these small properties will be forced to allow wastewater to flow onto the ground until reported. As system failures become more frequent, the potential for waterborne illness increases. Children, the elderly, pets and wildlife are at higher risk as they are more vulnerable to contaminated areas that are exposed due to failing systems. Without the installation of a regional wastewater collection and treatment system, economic hardship will continue.

2.3 Financial Status of Any Existing Facilities

2.3.1 Current Status

TRSD current revenues are obtained from an ad valorem tax collected from its customers. Phase 1 of this project is presently being designed and once completed, Phase 1 customers being served will be assessed to finance Phase 1 costs. Similarly, after completion of Phase 2 and 3, Phase 2 and 3 customers will be assessed for their service.

In August of 2018, the USDA-RD issued a Letter of Conditions (LOC) offering Phase 1 funding package consisting of about 57% grant and about 43% loan. Since the project is within a designated Colonia area with a Median Household Income (MHI) of approximately $35,672, a portion of USDA-RD grant funding is Colonia that will be utilized for the residential services connections.

With this PER, TRSD is pursuing USDA-RD funding for Phases 2 and Phase 3. Project financing will be accomplished through three sources:

1. **Ad Valorem Tax**
   At this time, TRSD intends to continue its current taxing of all customers to cover administrative costs to avoid customers in any one phase to be overburdened. Administrative costs may include items such as management, insurance, safety training, bookkeeping, etc.

2. **Operation and Maintenance (O&M) Fee**
   Wastewater collection and treatment system O&M costs include a reserve fund for short-lived assets as required by USDA-RD. These reserves are established to assist TRSD with pump and motor replacement, non-routine maintenance, and small equipment replacement, etc. The TRSD O&M fee will be distributed between the residents being served based on the EDUs of their property or properties. Per ARS 48-2027(G)(5) an O&M availability fee may be charged to vacant parcels, but is capped at up to 50% of the fee.

3. **Debt Repayment**
   Primary project funding is through the USDA-RD Rural Utilities Service (RUS) program. Repayment for the loan portion of the USDA-RD funding will be repaid based on a per EDU amount. Loan repayment will be assessed and collected through the Gila County Assessor's Office. Homeowners will be offered a one-time cash buyout option or 40-year installment option.

   Due to the use of an Assessment District Process, as discussed in Section 2.3.1, limits the amount of debt that TRSD can go into based on the information provided to the public in the ROI. These limits are:

   - Phase 2 $9,688,000 Maximum Debt Limit
   - Phase 3 $10,858,000 Maximum Debt Limit

2.3.2 *Annual Revenues and Expenditures*

Current annual expenditures of TRSD are minimal, as it does not operate or maintain any wastewater infrastructure at this time. Revenues are currently obtained through Gila County Secondary Tax Assessments. TRSD annual revenues and expenditures are summarized in the following Table 8 - TRSD Actual Annual Revenues and Expenditures. Tax revenues are secured by Gila County on an annual basis. Since 2015, the State uses one type of property value for taxing purposes, known as the Limited Property Value. See Appendix H for Gila County TRSD tax information for tax year 2021-2022.

Table 8 - TRSD Actual Annual Revenues and Expenditures

Category	2018-2019 Actuals	2019-2020 Actuals	2020-2021 Actuals	2021-2022 Budget
Interest	$4,218	$3,572	$3,270	$0
Secured Taxes	$152,407	$176,292	$192,708	$0
Unsecured Taxes	$1,913	$0	$291	$0
Capital Improvements Funding	$0	$0	$0	$6,451,000
Total Revenues	**$158,538**	**$179,864**	**$196,269**	**$6,451,000**
Expenses				
Administrative				
Legal Fees	$102,463	$57,457	$115,490	$61,327
Board Expenses	$7,201	$0	$0	$5,000
Office Personnel	$0	$0	$0	$31,200
Facilities and Equipment	$340	$575	$1,875	$19,800
Website	$770	$0	$0	$0
Publishing / Printing	$4,982	$0	$534	$2,500
Office Supplies / Postage	$2,824	$2,500	$120	$5,173
Travel	$454	$0	$1,071	$9,000
Insurance - Liability	$4,850	$4,850	$5,491	$8,000
Accounting / Bookkeeping	$718	$943	$1,338	$24,000
Management	$0	$0	$0	$50,000
Miscellaneous	$0	$939	$1,095	$0
Capital Improvements				
Capital Improvements Expenses	$0	$52,125	$0	$6,235,000
Total Expenses	**$124,602**	**$119,389**	**$127,014**	**$6,451,000**
Total Net Income	**$33,936**	**$60,475**	**$69,255**	**$0**

2.3.3 *Capital Improvement Programs*

The current financed capital improvement plans include Phase 1 of this wastewater collection and treatment system detailed in section 2.1.1 TRSD Existing Facilities. This PER outlines recommendations for Phases 2 and 3 capital improvements.

2.3.4 *Status of Existing Debts and Established Reserve Accounts*

In August of 2018, USDA-RD issued a Letter of Conditions (LOC) for Phase 1 funding offering a package consisting of a $12 million low-interest loan and $16 million in grant funds. TRSD has obtained a bridge loan for Phase 1 that will cover engineering and some administrative expenses until Phase 1 reaches the construction stage at which time the USDA-RD funding will be released. The bridge loan is $5,500,000 through Water Infrastructure Authority of Arizona (WIFA).

Debt Reserve funds are not allowed in accordance with State of Arizona statues concerning sanitary districts and are not included in the cost of this project.

2.3.5 Owner Contributions to Project

Currently, the Owner contribution committed is as follows:

Table 9 - TRSD Owner Contributions

Category	Amount Obligated
Phase 2 Engineering (PER) & Environmental Consulting (EA)	$94,547
Phase 3 Engineering (PER) & Environmental Consulting (EA)	$94,546
Total Contributions	**$189,093**

2.4 Water / Energy / Waste Audits

Several studies have been conducted to manage or mitigate wastewater flows from within the TRSD areas. The first study began in 1972 and included discussions of similar issues addressed within this PER. Prior studies are listed below:

- Greater Globe-Miami Wastewater Project (1972)
- Environmental Impact Statement (EIS) – Greater Globe-Miami, Arizona Wastewater Treatment Project (1976)
- CVSD Sewage System Analysis (1981)
- Pinal Sanitary District Wastewater Management Plan (1984)
- Central Arizona Association of Governments (CAAG) 208 Plan Amendment (2017)
- Regional Wastewater Study (2001)
- Gila County Regional Sanitary Sewer Evaluation and Assessment (2020)

3 Need for Project

3.1 Health, Sanitation, and Security

Nearly 90% of residential properties within TRSD have onsite treatment systems in violation of the CWA, AAC, and/or ADEQ regulations. When constructed, these types of systems were believed to have potential to treat wastewater adequately. However, concern over ongoing potential environmental hazards of these systems has been noted to be evident prior to the 1970s (United States Environmental Protection Agency 1976). These systems have since been outlawed, with the exception of current advanced technology. Potential public health, sanitation, and environmental issues are arising from the TRSD's failing wastewater disposal systems. This makes it crucial to implement changes to current treatment methods.

One major concern is the release of pollutants, including nitrogen, to underlying groundwater. Effluent from onsite treatment systems can have nitrogen concentrations as high as 60 Parts per Million (PPM) (Canter and Knox 1985); this is six times the drinking water maximum contaminant level (MCL) of 10 PPM. Under ideal design conditions, high levels of nitrogen within septic tank and cesspool effluent, are diluted, converted to ammonia and then converted to NO3 (nitrate) within aerobic soil when discharged to the leach field. When systems are poorly sized, located, or maintained, volume of effluent released from them can overwhelm the ability of the land to treat effluent properly. This results in effluent nitrogen levels that exceed the treatment capacity of the soil, allowing effluent with a high nitrogen concentration to potentially reaching groundwater.

Regional groundwater flows toward the north end of TRSD in the direction of Theodore Roosevelt Lake. The northern most boundary of TRSD is only 15.9 miles from the edge of the Roosevelt Reservoir. The main constituent of concern in substandard onsite treatment systems is nitrogen and potential contributions into surface and groundwater. Excess nitrogen in surface water causes growth overstimulation of aquatic plants and algae, which eventually leads to eutrophication in lakes. Effects from excessive nitrogen loading groundwater could eventually be seen at Theodore Roosevelt Lake, which aside from being a significant natural ecosystem also provides water storage for the Salt River Project.

These public health concerns are only growing as conditions of existing onsite systems are worsening and potential for waterborne illness rises. This poses great risk to the simplest of community activities such as residents going on a hike, children playing outside in yards with pets, and even area wildlife just seeking food and water. Both TRSD and Gila County understand these risks and continue working together with the goal of providing the best regional improvement solution to protect the health of its residents and ecosystem.

3.2 Aging Infrastructure

A majority of infrastructure in TRSD is failing and irreparable or is in direct violation of the CWA, AAC, and/or ADEQ regulations. As these outlawed onsite cesspools and inadequate septic systems age, the outdated designs and lack of maintenance issues are exacerbated, making system failures and resulting risks to human health and the environment increasingly likely.

Responsibility for maintaining or replacing septic systems currently remains with homeowners. If the existing system can be replaced, cost to homeowners for replacement of a failing onsite system could range from about $5,000 to $12,000 depending on system type, size and complexity required (Gila County, Arizona, 2014; Gila County, Arizona - Wastewater Department, 2014; SepticTankGuide.com, 2018). In an instance where more land is required because the existing yard is too small, installing a new system can range from $8,000 to $25,000 (Hurd, 2016).

Other costs incurred by the homeowner, suggested by guidelines on septic system maintenance, are to have a septic system professionally inspected and pumped every one to five years (depending on system and use) with cost estimates ranging anywhere from $425 to $500 (SepticTankGuide.com, 2018; Gila County, Arizona - Wastewater Department, 2014; Hurd, 2016). Unfortunately, with the MHI of only approximately $35,672, many residents are unable to handle the financial burden of the maintenance and/or installation of such a system.

Furthermore, a majority of TRSD homes do not have enough usable land on which to install a replacement septic system. It is estimated the average lot size is 5,000 ft^2 while mining subdivisions have lot sizes of 3,750 ft^2, which equates to an average density of 8.72 to 11.63 homes per acre. Current regulations require any subdivisions with a density of greater than one (1) home per acre to reduce nitrogen contribution to the ground and removing biological contaminants and viruses through advanced treatment systems or a wastewater collection and treatment system. Some small lots qualify to use enhanced alternative onsite treatment systems to overcome lot limitations, however,

cost is normally more than the appraised value of the property itself. Some multiple lot properties have been able to replace failed cesspools with septic systems, and usually multiple cesspools are replaced by one septic system.

3.3 Reasonable Growth

3.3.1 Methodology

Without documented historical information for TRSD such as population estimates/growth projections or a sewer master plan for land use information, an alternative method was required to address reasonable growth. The only available information is recorded parcel information managed by Gila County Assessor's Office. Through an evaluation of potential EDU, a methodology was developed to present land use data, estimate flow projections, and offer reasonable growth projections.

This parcel research method used to estimate EDU and flow projections considers the status of the community. So when considering future flow projections and planning capacity, a significant factor are vacant properties. Although there are various reasons for vacancies, many properties may be left vacant due to lack of adequate wastewater treatment leading to deterioration of the community value by a large amount of abandoned homes. Table 8 below shows that 606 of the total estimated EDUs are vacant properties. Instead of using projected population for conceptual planning of this new system, these vacant properties are being considered reasonable growth. The installation of a collection and treatment system can have a positive impact on the community bringing value and potentially creating an atmosphere supportive of property development.

Table 10 below shows the percentage of vacant properties, which allows for approximately 28% capacity as reasonable growth.

Table 10 – TRSD Reasonable Growth Estimates

	Phase 1		Phase 2		Phase 3		Total	
Flow Type	**EDU**	**Flow[1]**	**EDU**	**Flow[1]**	**EDU**	**Flow[1]**	**EDU**	**Flow[1]**
Residential	658	115,150	643	112,525	537	93,975	1,838	321,650
Non-Residential	93	16,318	79	13,825	176	30,800	348	60,943
Flow Totals	**751**	**131,468**	**722**	**126,350**	**713**	**124,775**	**2,186**	**382,593**
Vacant	326	57,050	147	25,725	135	23,625	606	106,050
Potential Flow Totals	**326**	**57,050**	**147**	**25,725**	**135**	**23,625**	**606**	**106,050**
	Phase 1		**Phase 2**		**Phase 3**		**Total**	
Vacant Parcels Total	57,050		25,725		23,625		106,050	
Total Flow Estimate	131,468		126,350		124,775		382,593	
Estimated Growth	**43%**		**20%**		**19%**		**28%**	

[1]Estimated based on 175 GPD per EDU

4 Alternatives Considered

The following alternatives have been considered for Phase 2 and 3 of the TRSD Wastewater Collection and Treatment System project to continue to address the public health and safety issues present in TRSD. For ease of comparison, alternative construction cost estimates in the analysis excludes some component line items that are the same across alternatives being compared. Non-construction estimates are calculated at a flat percentage rate (25%) for comparison purposes. Detailed cost estimates are included in Appendix I.

4.1 TRSD Phase 2

4.1.1 Phase 2 No Action

No Action proposes no changes to the TRSD Phase 2 infrastructure. This means the potential population to be served would maintain the existing onsite treatment systems. The condition of the facilities will continue to deteriorate, resulting in the increased potential for septic tank overflow, septic tank failure, cesspool overflow, and the introduction of pollutants into the environment. This alternative also continues to limit the potential uses and ability to sell the existing property located within the TRSD area.

Nearly 90% of the residential properties within TRSD are in violation of the CWA or ADEQ regulations. The current conditions of the TRSD can lead to health and safety issues as well as potential for groundwater contamination. The potential for negative impacts on human and or the natural environment will continue to increase. Without the efforts to adequately collect and treat the area wastewater, residents will continue to dispose of greywater in the streets, children and pets will play near substandard or failing cesspools and septic systems, and wildlife will be exposed to contaminated water and plants.

Individual homeowners would still be required to repair and replace failing septic systems. The possibility exists that a homeowner might not have an adequate lot size to replace an old septic system with a new septic system and leach field that would meet the current the Gila County requirements. Furthermore, the cost to update systems including proper installation is not affordable for the homeowners within TRSD. A properly installed system for wastewater treatment, which complies with current code, can cost between $25,000 and $35,000. It is likely that existing noncompliant systems will continue to stay in place and devalue the property. In fact, due to the cost, the homeowners could be forced to abandon their homes.

No Action does not address the public health, safety and environmental issues and is therefore infeasible.

4.1.2 Phase 2 Collection System

4.1.2.1 Infeasible Alternatives Considered

4.1.2.1.1 Collection System Alignments

Conceptual design efforts for determining the collection system alignments were focused in using existing available easements and right-of-ways (ROWs). For the majority of the main lines, staying within these parameters is the most cost-effective approach. Opportunities for alignment modifications are very minimal and therefore were not considered due to the cost required to obtain/record legal descriptions and the unknown cost to acquire them. No major alignment options are identified and no further consideration was taken.

4.1.2.1.2 Piping Materials

There are several piping materials available for use in collection systems including polyvinyl chloride (PVC), high-density polyethylene (HDPE), ductile iron, etc. At this time, efforts to provide an in-depth evaluation on materials was not considered due to fluctuating costs and supply availability/demands. This evaluation uses PVC for the collection lines as it is a widely used, reliable option. It is recommended that the construction bid include a bid alternate to price different piping options at that time.

4.1.2.1.3 Septic Tank Effluent Pump

A Septic Tank Effluent Pump (STEP) system would use existing onsite systems at the home by adding a pump that would convey flows from the homes through pressurized collection piping to the TRSD Main Lift Station. This piping would be smaller than conventional system pipes, about 3” or 4” in diameter. After reaching the lift station, the flows would then be pumped via the force main to the TRSD WRF. This system type would require retrofitting all the homes being served to add the pump to the existing tank. As well, electrical service to the homes may need to be upgraded

to accommodate the power required to run these individual systems. Considering the majority of residences within Phase 2 area are using cesspools of 50 plus years old, these current conditions shows reliance on the existing onsite infrastructure is not considered practical or economically feasible.

4.1.2.2 Phase 2 Collection System Type (CST)

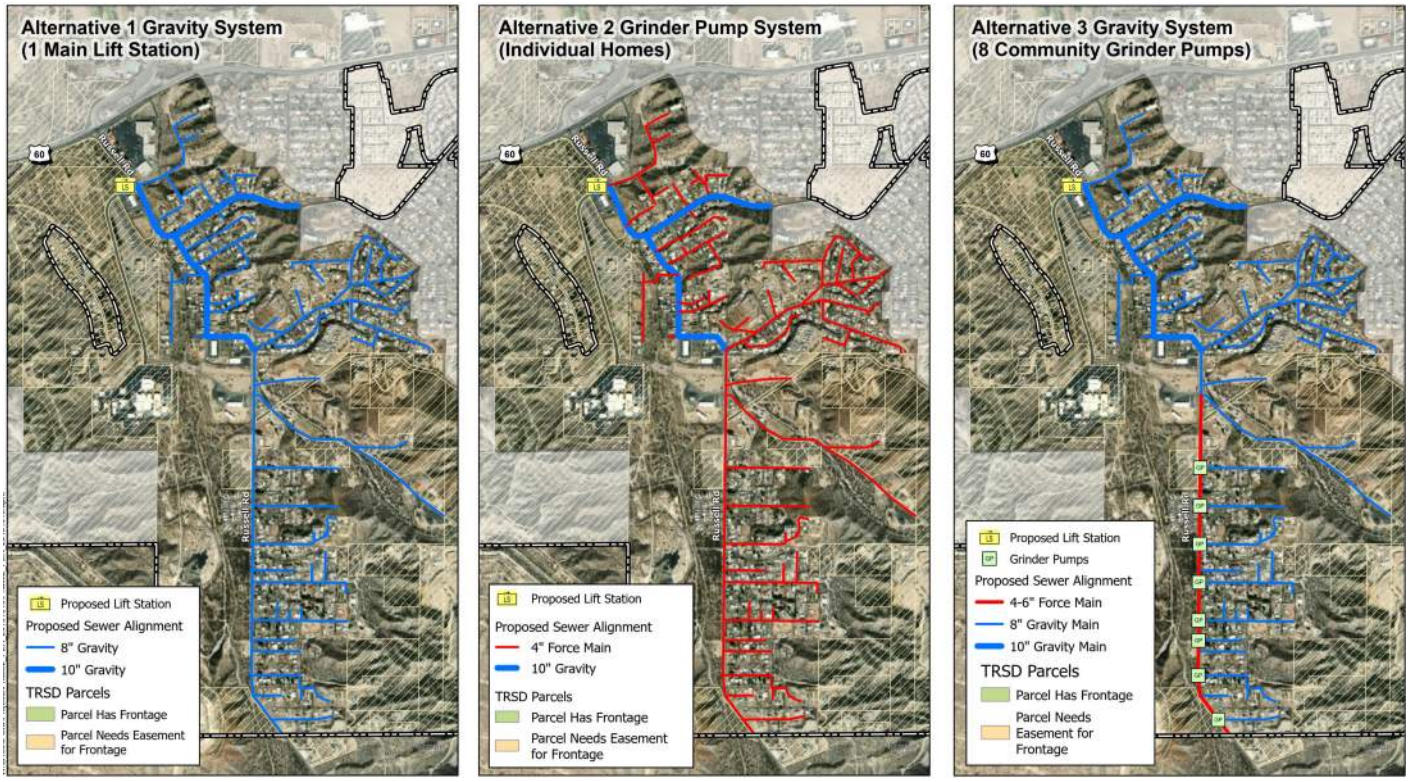
4.1.2.2.1 Description

Phase 2 collection system infrastructure consists of the installation of 51,000+/- LF of gravity main, 2,600+/- LF of force main and 643+/- residential connections. Using a gravity system (a conventional wastewater collection system) would be a typical method used where pipes are installed on such a slope to allow the natural flow of wastewater to central point (i.e. a lift station). However due to varying terrain within the region, a gravity system may require deep excavation. Another option is a grinder pump pressure system with grinder pumps at each individual home. A potential benefit of this pressure system is reduced cost where there is low-density housing or to accommodate varying terrain. Although the majority of TRSD Phase 2 area is more high-density housing, there is some varying terrain. Therefore, a grinder pump pressure systems was considered. An additional option is a majority gravity system with community grinder pumps along a force main to allow for a reduced pipe size. Regardless of system type, the proposed collection main layout will be the same (Appendix A, Exhibit 5).

The feasible alternatives evaluated for the Phase 2 collection system include:

- CST Alternative 1 - Gravity System (1 Main Lift Station)
- CST Alternative 2 - Grinder Pump System (Individual Homes)
- CST Alternative 3 - Gravity System (8 Community Grinder Pumps)

Figure 5 – Phase 2 Collection System Alternatives



4.1.2.2.2 Design Criteria

The design criteria to be used for this project include RUS design policies (7 Code of Federal Regulations (CFR) 1780.57), AAC R-18-9, and ADEQ Engineering Bulletin No. 11. This applies to all collection system alternatives considered in the following discussion. Efforts will be made to avoid placing any infrastructure in floodplains, but if unavoidable, the RUS Bulletin 1794A guidelines will be used to design accordingly for protection this critical infrastructure. Portions of the collection mains may be installed within floodways. United States army Corp of Engineers (USACE) Section 404 permit issues may have to be addressed during final design. Per ADEQ, in AAC R-

18-9-E301.D.2.c, collection main crossing or constructed in floodways shall be installed 2' below the 100-year storm scour depth or scour protection must be provided if the depth cannot be maintained.

Other codes that will be referenced are as follows:

- Maricopa Association of Governments (MAG) Standards
- Per Gila County Building Code Handbook
    - 2012 International Residential Code
    - 2012 International Building Code
    - 2012 International Existing Building Code
    - 2011 National Electrical Code
    - 2012 International Plumbing Code
    - 2012 International Fuel Gas Code
    - 2012 International Mechanical Code
    - 2009 Accessible and Usable Buildings and Facilities ICC A117.1
    - 2006 International Fire Code
    - 2009 National Fire Protection Association 820

The following assumptions have been made:

- Majority of collection main installations will use conventional open-trench methods. Use of trenchless technologies such as jack-and-bore with steel casings or directional bore methods when crossing railroads, jurisdictional delineations, and the US 60.
- New system installation will include interceptors, laterals and house service connections.
- Average depth of installation for new collection mains is anticipated to be approximately 6'.
- A geotechnical evaluation will be performed to characterize the soil to be encountered in the area. Encountering significant hard materials during excavation is not expected.
- American Iron and Steel Requirements, as defined in RUS Bulletin 1780-35, have been considered in the construction cost estimates.

4.1.2.2.3 Map

Exhibit 5 (Appendix A) illustrates the preliminary collection system layouts for all alternatives.

4.1.2.2.4 Collection System Alternative 1 - Gravity System (1 Main Lift Station)

A conventional gravity system will be installed to convey all flows to a main lift station. Because this system type uses gravity, no power is required to convey generated flows from homes to the lift station. Flows will then be pumped via force main to a treatment facility. Typical gravity mains for this type of project ranges between 8" and 10" diameters. This system would include installation of 48" manholes along collection mains to access for maintenance. Although there is some risk with infiltration with this type of system due to manholes, but this type is widely used and will provide a reliable system. Detailed estimates are in Appendix I.

Table 11 – Phase 2 CST Alternative 1 - Gravity System (1 Main Lift Station) Capital Cost

Description	Cost
Collection System	$10,064,794
Lift Stations	$604,800
Misc & Pavement Restoration	$2,708,563
Subtotal	**$13,378,157**
General Conditions	$2,485,828
Contingency	$1,381,016
Loan Costs	$290,013
Total Construction Cost	**$17,535,014**
Non-Construction Costs (25%)	$4,383,753
Total Capital Costs	**$21,918,767**

Table 12 – Phase 2 CST Alternative 1 - Gravity System (1 Main Lift Station) O&M Cost

Description	Cost
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$1,300
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Fuel	$1,750
Electrical	$7,500
Equipment Repairs / Maintenance (Collection)	$5,500
Camera & Flushing (20% of System)	$15,000
Total Annual O&M Costs	**$33,300**

4.1.2.2.5 Collection System Alternative 2 - Grinder Pump System (Individual Homes)

Grinder pump (GP) system is a pressure system (similar to a STEP system), but requires a new vault system. The vault system has a grinder to break up solids. Each service connection would have a new GP vault system installed that will convey flows from homes through pressurized collection piping (about 4" to 6" in dimeter) to the 10" main collection line that will convey flows to the main lift station. After reaching the lift station, flows will be pumped via force main to a treatment facility. This system type will require retrofitting all homes being served to add a pump to the existing tank. Additionally, electrical service to the homes may need to be upgraded to accommodate power required to run these individual systems. It is estimated that approximately 75% of homes will need this upgrade. Infiltration is reduced because this system is airtight. Some concerns with the GP systems are higher total suspended solids (TSS) that flows will deliver to the treatment facility and the ability to bear low-flow conditions. O&M and short-lived asset reserve (SLAR) costs may be higher due to the number of pumps in the system and associated power usage and pump replacement costs. Detailed estimates are in Appendix I.

Table 13 – Phase 2 CST Alternative 2 – Grinder Pump System (Individual Homes) Capital Cost

Description	Cost
Collection System	$23,931,714
Misc & Pavement Restoration	$2,713,629
Subtotal	**$26,645,343**
General Conditions	$4,796,162
Contingency	$2,664,534
Loan Costs	$559,552
Total Construction Cost	**$34,665,592**
Non-Construction Costs (25%)	$8,666,398
Total Capital Costs	**$43,331,990**

Table 14 – Phase 2 CST Alternative 2 – Grinder Pump System (Individual Homes) O&M Cost

Description	Cost
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$13,000
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Electrical	$25,800
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$3,500
Total Annual O&M Costs	**$46,300**

4.1.2.2.6 Collection System Alternative 3 - Gravity System (8 Community Grinder Pumps)

Similar to Alternative 2, this alternative would use a larger grinder pump system strategically placed on the collection line at the base of a collection area instead of at individual homes. These are referenced as community grinder pumps

because it will accept flows from a group of homes. The wastewater is collected by gravity from each home and conveyed to a community grinder pump that is then pumped via force main (about 4-6" in dimeter) to the 10" main collection line that will convey flows to the main lift station.

For Phase 2, Russell Road stretches north and south for a significant distance. Placing eight (8) grinder pumps along this road using a 4-6" force main eliminates the need to run an 8" gravity main reducing the required piping diameter and depth. Additionally, this would eliminate the retrofitting of individual home systems and electrical upgrades, as well as reduce O&M costs. Detailed estimates are in Appendix I.

Table 15 – Phase 2 CST Alternative 3 – Gravity System (8 Community Grinder Pumps) Capital Cost

Description	Cost
Collection System	$10,563,674
Misc & Pavement Restoration	$2,476,256
Lift Stations	$1,036,800
Subtotal	**$14,076,730**
General Conditions	$2,533,811
Contingency	$1,407,673
Loan Costs	$295,611
Total Construction Cost	**$18,313,826**
Non-Construction Costs (25%)	$4,578,456
Total Capital Costs	**$22,892,282**

Table 16 – Phase 2 CST Alternative 3 – Gravity System (8 Community Grinder Pumps) O&M Cost

Description	Cost
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$1,300
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Electrical	$12,000
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$15,000
Camera & Flushing (20% of System)	$15,000
Total Annual O&M Costs	**$47,300**

4.1.2.3 Phase 2 Collection System Environmental Impacts

All alternatives will beneficially impact the environment in the area by eliminating use on onsite treatment systems/cesspools and employing the use of a modernized wastewater treatment system. This action will benefit groundwater quality, protect from airborne illness and lift economic and socioeconomic condition of the TRSD area.

As detailed in the EA prepared by Logan Simpson Design, Inc. (Appendix K), numerous best management practices shall be used during the construction of this infrastructure. The EA states mitigation measures that would apply to the collection system development is as follows:

Cultural Resources

- As the Arizona Eastern Railroad, AZ V:9:392(ASM) has previously been determined eligible for inclusion in the NRHP under Criterion A, any future ground-disturbing undertakings would avoid this site. If avoidance is not possible, then the site should be subjected to an appropriate data recovery plan that includes archival research and intensive documentation.

Biological Resources

- If clearing activities are scheduled during migratory bird breeding season (March 1 to August 31), the Contractor shall have a qualified biologist conduct a field survey to flag active bird nests to be avoided. TRSD's contractor would avoid and maintain a 20-foot buffer around any active bird nests. If the active nests

> cannot be avoided, the contractor should notify an approved and qualified biologist to evaluate the situation. (p.43)

4.1.2.4 Phase 2 Collection System Land Requirements

All alternatives will require similar land requirements. Conceptual design efforts for determining the collection system alignments were focused in using existing available easements and ROWs. However, there will be the need for acquisition of additional ROW or easements along proposed sewer alignments if there are no existing easements defining when they cross into private property. TRSD has identified potential collection line ROW issues where existing roads are not on public ROWs. TRSD and its consultants have discussed these issues with Gila County. The County has agreed to help resolve these issues and TRSD will support the County as required.

4.1.2.5 Phase 2 Collection System Potential Construction Problems

With this project in the planning stage, the following potential problems discussed are not intended to address all site-specific design and construction issues that may arise throughout the project. Some key design and constructability problems that should be anticipated to be able to mitigate quickly and appropriately include:

- Special care taken with excavation to avoid challenges that may arise with old, abandoned and/or unrecorded existing utilities.
- Attention to traffic control execution could pose challenges to the construction schedule and maintaining access for homeowners near construction activities.
- Narrow streets (pavement widths less than 25' wide) may cause access issues with many of the collection mains being installed in these streets. Construction sequencing and care will be required to avoid obstructing home access, ensure adequate separation from other utilities (like gas, water and electricity) to avoid high relocation costs. Potential asphalt variation may create issues.
- A large portion of construction will be completed within steep, mountainous terrain. Care must be taken during design ensuring collection mains are installed at reasonable slopes.

4.1.2.6 Phase 2 Collection System Sustainability Considerations

4.1.2.6.1 Water and Energy Efficiency

Energy efficient pumps and mechanical equipment will be used to decrease operational costs and energy use.

4.1.2.6.2 Green Infrastructure

PVC can be considered green infrastructure by 1) reducing need for replacement materials due to longevity of product, and 2) reducing risks of environmental contamination due to its durability and reliability. Prior standard materials used for collection systems, such as clay piping, has had issues with infiltration and exfiltration. Infiltration can lead to issues within lift station mechanical equipment, headworks mechanical equipment, other mechanical systems in the treatment process, and biological loading of the wastewater. Exfiltration can lead to discharge of wastewater into the environment and soil, potentially leading to contamination.

4.1.3 Phase 2 Wastewater Treatment (WT)

4.1.3.1 Infeasible Alternatives Considered

4.1.3.1.1 Flows conveyed to Globe Pinal Creek Wastewater Treatment Facility

Due to the terrain and long distance from the Phase 2 portion of the system to the Globe Pinal Creek Wastewater Treatment Facility, this option would not be cost effective and no further consideration is taken.

4.1.3.1.2 Flows Conveyed to Miami Water Reclamation Facility

As detailed in the TRSD Phase 1 PER (PACE 2018), a significant effort was made to negotiate an intergovernmental agreement (IGA) for the TRSD flows to be conveyed to and treated by the Miami WRF. After approximately three (3) years, the efforts were unsuccessful and TRSD determined that the project would move forward with the project. Phase 1 includes a new TRSD WRF that will be available to treat these Phase 2 flows and this option is deemed infeasible.

4.1.3.2 Phase 2 WT Alternative 1 – TRSD Water Reclamation Facility Expansion

4.1.3.2.1 Description

WT Alternative 1 is the expansion of the TRSD Phase 1 infrastructure to connect customers in the Phase 2 area. This will require a TRSD WRF expansion increasing capacity from 0.20 MGD to 0.35 MGD (150,000 gpd) to accommodate the Phase 2 flows. The WRF facility utilizes a membrane bio-reactor treatment process, followed by UV disinfection, to treat an average day flow of 0.20 MGD to meet Class A+ requirements for unrestricted reuse of recycled water. The facility will be expanded on the same parcel to accommodate the additional flows in Phase 2 bringing the total WRF average day flow capacity to 0.35 MGD. The expansion will include additional tankage, aeration, mixing, and membrane units necessary to handle the expanded capacity. The headworks, UV disinfection and sludge dewatering systems having been sized for the buildout flowrate in Phase 1 will not require expansion in Phase 2.

The Phase 1 lift station is located near the athletic fields at the intersection of Old Oak Road and US Highway 60 and collects sewage from the western service area and conveys it to the TRSD WRF, approximately 3,500 feet away, for treatment. In Phase 2 of the project, an ancillary Phase 2 lift station will be constructed near the intersection of Russell Road and Hospital Drive. It will convey the Phase 2 service area flows to the TRSD WRF Headworks. The total capacity of the Phase 1 and Phase 2 lift stations shall not exceed the peak flow of the TRSD WRF of 870 gallons per minute (gpm). This lift station will require an additional 2,600+/- LF of force main to connect directly to the TRSD WRF.

4.1.3.2.2 Design Criteria

Design and construction of wastewater treatment facilities will conform to the following applicable codes:

- Maricopa Association of Governments (MAG) Standards
- ADEQ Title 18, Chapters 9 and 11 – 2005
- Per Gila County Building Code Handbook
    - 2012 International Residential Code
    - 2012 International Building Code
    - 2012 International Existing Building Code
    - 2011 National Electrical Code
    - 2012 International Plumbing Code
    - 2012 International Fuel Gas Code
    - 2012 International Mechanical Code
    - 2009 Accessible and Usable Buildings and Facilities ICC A117.1
    - 2006 International Fire Code
    - 2009 National Fire Protection Association 820

For any Biosolids, all processes of treatment, handling and selection of disposal facility will be properly permitted under the ADEQ Arizona Pollutant Discharge Elimination System (AZPDES) program and carried out according to the associated regulations. These regulations include:

- ARS Chapter 49 The Environment, Article 3.1 Arizona Pollutant Discharge Elimination System Program
- AAC Title 18 Environmental Quality
    - Chapter 09, Article 10: Arizona Pollutant Discharge Elimination System – Disposal, Use, and Transportation of Biosolids
- Clean Water Act as amended (33 U.S.C. §1251 et seq.)
- Code of Federal Regulations
    - 40 CFR258: Criteria for Municipal Solid Waste Landfills

4.1.3.2.3 Map

No map is shown at this time due to a non-disclosure agreement.

4.1.3.2.4 Cost Estimates

Detailed estimates are in Appendix I.

Table 17 – Phase 2 WT Alternative 1 – TRSD WRF Expansion Capital Cost

Description	Cost
Wastewater Treatment	$3,038,600
Subtotal	**$3,038,600**
General Conditions	$546,948
Contingency	$303,860
Loan Costs	$63,811
Total Construction Cost	**$3,953,219**
Non-Construction Costs (25%)	$988,305
Total Capital Costs	**$4,941,523**

Table 18 – Phase 2 WT Alternative 1 – TRSD WRF Expansion O&M Cost

Description	Cost
Safety Equipment (Wastewater Treatment)	$200
Large Equipment Rental (Wastewater Treatment)	$200
Small Tools / Equipment (Wastewater Treatment)	$300
Special Supplies (Wastewater Treatment)	$300
Building Repairs / Maintenance	$60
Equipment Repairs / Maintenance (Wastewater Treatment)	$15,000
Fuel / Lubricants	$1,000
Testing Chemical / Laboratory Supplies	$800
Testing Other	$850
Disposable Equipment/Tools	$300
Electricity	$15,000
Disinfection Bulbs or Chlorine	$6,300
Biosolids Disposal / Screening (Hauling / Landfill Fees)	$11,250
Total Annual O&M Costs	**$51,560**

4.1.3.3 Phase 2 WT Environmental Impacts

This wastewater treatment will beneficially impact the environment in the area by eliminating use on onsite treatment systems/cesspools and employing the use of a modernized wastewater treatment system. This action will benefit groundwater quality, protect from airborne illness and lift economic and socioeconomic condition of the TRSD area.

As detailed in the EA prepared by Logan Simpson Design, Inc. (Appendix K), numerous best management practices shall be used during the construction of this infrastructure. The EA states mitigation measures that would apply to the collection system development is as follows:

Floodplains

- During the final design of the sewer collection system, and WRF expansion, additional analysis would be performed to ensure that the footprint would lie outside of the 100-year floodplain, where possible. Berms, additional grading and/or other features would be incorporated into the final design, as necessary, to provide proper protection to the WRF expansion from 500 and 100-year flood events.

Cultural Resources

- As the Arizona Eastern Railroad, AZ V:9:392(ASM) has previously been determined eligible for inclusion in the NRHP under Criterion A, any future ground-disturbing undertakings would avoid this site. If avoidance is not possible, then the site should be subjected to an appropriate data recovery plan that includes archival research and intensive documentation.

Biological Resources

- If clearing activities are scheduled during migratory bird breeding season (March 1 to August 31), the Contractor shall have a qualified biologist conduct a field survey to flag active bird nests to be avoided. TRSD's contractor would avoid and maintain a 20-foot buffer around any active bird nests. If the active nests cannot be avoided, the contractor should notify an approved and qualified biologist to evaluate the situation. (p.43)

4.1.3.4 Phase 2 WT Land Requirements

Land will not be required for the expansion of the TRSD WRF because the site acquired for Phase 1 is large enough for this Phase 2 expansion. Additional land will be required for the new Phase 2 ancillary lift station.

4.1.3.5 Potential Construction Problems

In general, the WRF site is easily accessible for construction and utilities, but somewhat isolated so no construction problems are anticipated.

4.1.3.6 Phase 2 WT Sustainability Considerations

4.1.3.6.1 Water and Energy Efficiency

The TRSD WRF effluent meets AAC Title 18 Environmental Quality Class A+ Reclaimed Water Standards allowing the potential for reuse for unrestricted irrigation of public landscape and common areas. Currently, there are several available options for potential effluent reuse for the new TRSD WRF; however, at this time TRSD is not pursuing these options. The options include:

- A number of the mining companies in the area have expressed interest in utilizing the facility's effluent within their operations. Any discussions of this usage would include the mining company providing pumps and piping to convey the effluent to the desired locations.
- The local golf course, Cobre Valley Country Club (CVCC) has expressed interest in obtaining the effluent for irrigation of the course. CVCC struggles to obtain enough water to keep the course green. Any discussions of this usage would include CVCC providing pumps and piping to convey the effluent to the golf course.
- Discussions have taken place regarding the utilization of the effluent to create a lake with a surrounding regional community park constructed for recreational use, providing an amenity for the area. The cost of the lake and park would not be bore wholly by TRSD, but would be a collaboration by a number of interested groups in the region including Gila County.

Energy efficient pumps and mechanical equipment will be used for the proposed project to decrease operational costs and energy use.

4.2 TRSD Phase 3

4.2.1 Phase 3 No Action

No Action proposes no changes to the TRSD Phase 2 infrastructure. This means the potential population to be served would maintain the existing onsite treatment systems. The condition of the facilities will continue to deteriorate, resulting in the increased potential for septic tank overflow, septic tank failure, cesspool overflow, and the introduction of pollutants into the environment. This alternative also continues to limit the potential uses and ability to sell the existing property located within the TRSD area.

Nearly 90% of the residential properties within TRSD are in violation of the CWA or ADEQ regulations. The current conditions of the TRSD can lead to health and safety issues as well as potential for groundwater contamination. The potential for negative impacts on human and or the natural environment will continue to increase. Without the efforts to adequately collect and treat the area wastewater, residents will continue to dispose of greywater in the streets, children and pets will play near substandard or failing cesspools and septic systems, and wildlife will be exposed to contaminated water and plants.

Individual homeowners would still be required to repair and replace failing septic systems. The possibility exists that a homeowner might not have an adequate lot size to replace an old septic system with a new septic system and leach field that would meet the current the Gila County requirements. Furthermore, the cost to update systems including proper installation is not affordable for the homeowners within TRSD. A properly installed system for wastewater treatment, which complies with current code, can cost between $25,000 and $35,000. It is likely that existing

noncompliant systems will continue to stay in place and devalue the property. In fact, due to the cost, the homeowners could be forced to abandon their homes.

No Action does not address the public health, safety and environmental issues and is therefore infeasible.

4.2.2 Phase 3 Collection System

4.2.2.1 Infeasible Alternatives Considered

4.2.2.1.1 Collection System Alignments

Conceptual design efforts for determining the collection system alignments were focused in using existing available easements ROWs. For the majority of the main lines, staying within these parameters is the most cost-effective approach. Opportunities for alignment modifications are very minimal and therefore were not considered due to the cost required to obtain/record legal descriptions and the unknown cost to acquire them. No major alignment options are identified and no further consideration was taken.

4.2.2.1.2 Piping Materials

There are several piping materials available for use in collection systems including PVC, HDPE, ductile iron, etc. At this time, efforts to provide an in-depth evaluation on materials was not considered due to fluctuating costs and supply availability/demands. This evaluation uses PVC for the collection lines as it is a widely used, reliable option. It is recommended that the construction bid include a bid alternate to price different piping options at that time.

4.2.2.1.3 Septic Tank Effluent Pump

A STEP system would use existing onsite systems at the home by adding a pump that would convey flows from the homes through pressurized collection piping to the TRSD Main Lift Station. This piping would be smaller than conventional system pipes, about 3” or 4” in diameter. After reaching the lift station, the flows would then be pumped via the force main to the TRSD WRF. This system type would require retrofitting all the homes being served to add the pump to the existing tank. As well, electrical service to the homes may need to be upgraded to accommodate the power required to run these individual systems. Considering the majority of residences within Phase 3 area are using cesspools of 50 plus years old, these current conditions shows reliance on the existing onsite infrastructure is not considered practical or economically feasible.

4.2.2.2 Phase 3 Collection System Type (CST)

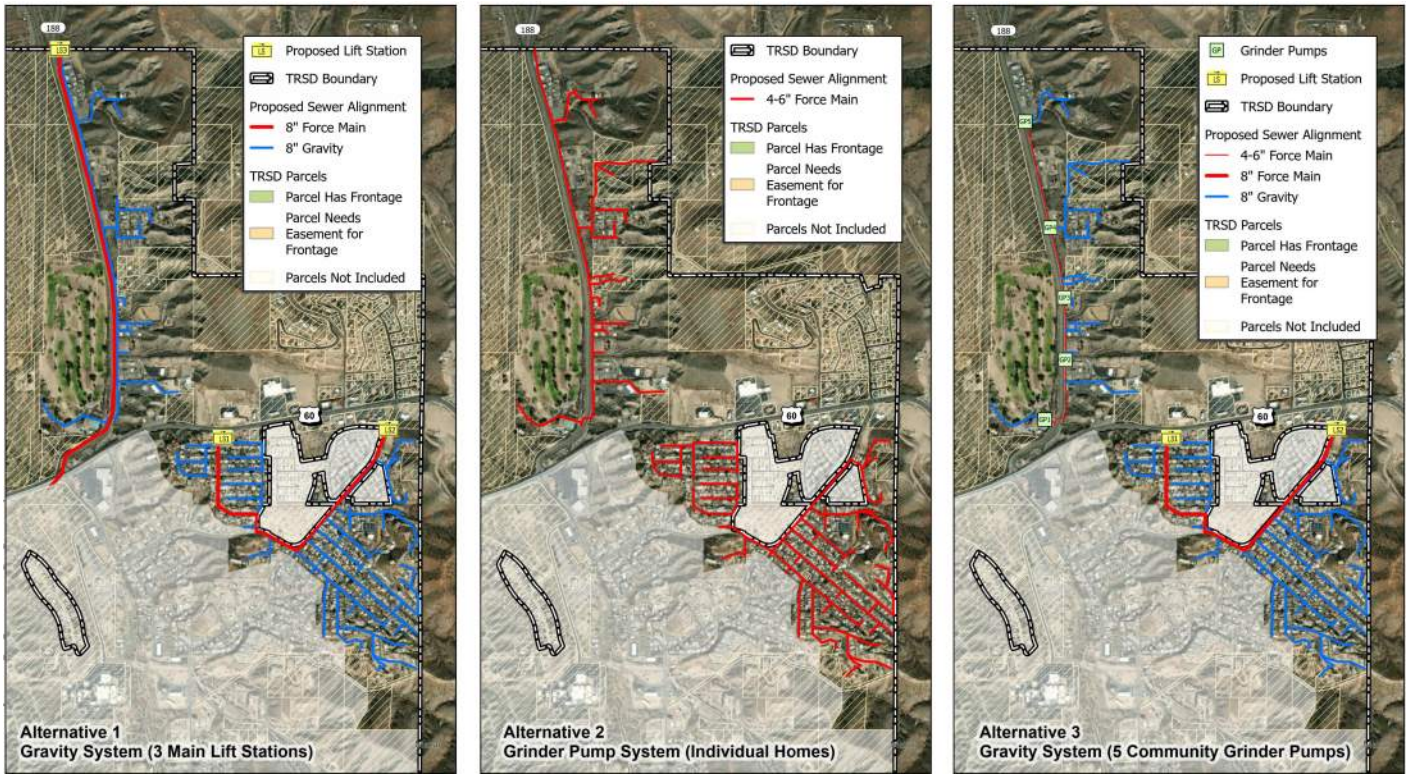
4.2.2.2.1 Description

Phase 3 collection system infrastructure consists of the installation of 47,000+/- LF of gravity main and 537+/- residential service connections. Using a gravity system (a conventional wastewater collection system) would be a typical method used where pipes are installed on such a slope to allow the natural flow of wastewater to central point (i.e. the TRSD Lift Station). However due to varying terrain within the region, a gravity system may require deep excavation. Another option is a grinder pump pressure system. A potential benefit of this pressure system is reduced cost where there is low-density housing or to accommodate varying terrain. Phase 3 has varying terrain and density conditions. The southern portion has a higher density while the northern area has low density with homes and businesses to be connected more spread out. An additional option is a majority gravity system with community grinder pumps along a force main to allow for a reduced pipe size. Regardless of system type, the proposed collection main layout will be the same (Appendix A, Exhibit 6).

The feasible alternatives evaluated for the Phase 3 collection system include:

- CST Alternative 1 Gravity System (2 Main Lift Stations)
- CST Alternative 2 Grinder Pump System (Individual Homes)
- CST Alternative 3 Gravity System (5 Community Grinder Pumps)

Figure 6 – Phase 3 Collection System Alternatives



4.2.2.2.2 Design Criteria

The design criteria to be used for this project include RUS design policies (7 Code of Federal Regulations (CFR) 1780.57), AAC R-18-9, and ADEQ Engineering Bulletin No. 11. This applies to all collection system alternatives considered in the following discussion. Efforts will be made to avoid placing any infrastructure in floodplains, but if unavoidable, the RUS Bulletin 1794A guidelines will be used to design accordingly for protection this critical infrastructure. Portions of the collection mains may be installed within floodways. USACE Section 404 permit issues may have to be addressed during final design. Per ADEQ, in AAC R-18-9-E301.D.2.c, collection main crossing or constructed in floodways shall be installed 2' below the 100-year storm scour depth or scour protection must be provided if the depth cannot be maintained.

Other codes that will be referenced are as follows:

- MAG Standards
- Per Gila County Building Code Handbook
    - 2012 International Residential Code
    - 2012 International Building Code
    - 2012 International Existing Building Code
    - 2011 National Electrical Code
    - 2012 International Plumbing Code
    - 2012 International Fuel Gas Code
    - 2012 International Mechanical Code
    - 2009 Accessible and Usable Buildings and Facilities ICC A117.1
    - 2006 International Fire Code
    - 2009 National Fire Protection Association 820

The following assumptions have been made:

- Majority of collection main installations will use conventional open-trench methods. Use of trenchless technologies such as jack-and-bore with steel casings or directional bore methods when crossing railroads, jurisdictional delineations, and the US Highway 60.
- New system installation will include interceptors, laterals and house service connections.
- Average depth of installation for new collection mains is anticipated to be approximately 6'.
- A geotechnical evaluation will be performed to characterize the soil to be encountered in the area. Encountering significant hard materials during excavation is not expected.

- American Iron and Steel Requirements, as defined in RUS Bulletin 1780-35, have been considered in the construction cost estimates.

4.2.2.2.3 Map

Exhibit 6 (Appendix A) illustrates the preliminary collection system layouts for all alternatives.

4.2.2.2.3.1 Collection System Alternative 1 - Gravity System (2 Main Lift Stations)

A conventional gravity system will be installed to convey all flows to a main lift station. Because this system type uses gravity, no power is required to convey generated flows from homes to the lift station. Flows will then be pumped via force main to a treatment facility. Typical gravity mains for this type of project ranges between 8" and 10" diameters. This system would include installation of 48" manholes along collection mains to access for maintenance. Although there is some risk with infiltration with this type of system due to manholes, but this type is widely used and will provide a reliable system. Detailed estimates are in Appendix I.

Table 19 – Phase 3 CST Alternative 1 - Gravity System (2 Main Lift Stations) Capital Cost

Description	Cost
Collection System	$12,159,866
Lift Stations	$1,000,800
Misc & Pavement Restoration	$3,533,669
Subtotal	**$16,694,335**
General Conditions	$3,004,980
Contingency	$1,669,434
Loan Costs	$350,581
Total Construction Cost	**$21,719,330**
Non-Construction Costs (25%)	$5,429,833
Total Capital Costs	**$27,149,163**

Table 20 – Phase 3 CST Alternative 1 - Gravity System (2 Main Lift Stations) O&M Cost

Description	Cost
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$1,300
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Electrical	$10,000
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$5,500
Camera & Flushing (20% of System)	$3,500
Total Annual O&M Costs	**$24,300**

4.2.2.2.4 Collection System Alternative 2 - Grinder Pump System (Individual Homes)

Grinder pump (GP) system is a pressure system (similar to a STEP system), but requires a new vault system. The vault system has a grinder to break up solids. Each service connection would have a new GP vault system installed that will convey flows from homes through pressurized collection piping (about 4" to 6" in dimeter) to the 10" main collection line that will convey flows to the main lift station. After reaching the lift station, flows will be pumped via force main to a treatment facility. This system type will require retrofitting all homes being served to add a pump to the existing tank. Additionally, electrical service to the homes may need to be upgraded to accommodate power required to run these individual systems. It is estimated that approximately 75% of homes will need this upgrade. Infiltration is reduced because this system is airtight. Some concerns with the GP systems are higher total suspended solids (TSS) that flows will deliver to the treatment facility and the ability to bear low-flow conditions. O&M costs may be higher due to the number of pumps in the system and associated power usage and pump replacement costs. Detailed estimates are in Appendix I.

Table 21 – Phase 3 CST Alternative 2 – Grinder Pump System (Individual Homes) Capital Cost

Description	Cost
Collection System	$19,922,320
Misc. & Pavement Restoration	$2,762,624
Subtotal	**$22,684,944**
General Conditions	$4,083,290
Contingency	$2,268,494
Loan Costs	$476,384
Total Construction Cost	**$29,513,112**
Non-Construction Costs (25%)	$7,378,278
Total Capital Costs	**$36,891,390**

Table 22 – Phase 3 CST Alternative 2 – Grinder Pump System (Individual Homes) O&M Cost

Description	Cost
Safety Equipment (Collection)	$500
Small Tools / Equipment (Collection)	$750
Electrical	$25,800
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$15,000
Total Annual O&M Costs	**$43,800**

4.2.2.2.5 Collection System Alternative 3 – Gravity System (5 Community Grinder Pumps)

Similar to Alternative 2, this alternative would use a larger grinder pump system strategically placed on the collection line instead of at individual homes. These are referenced as community grinder pumps because it will accept flows from a group of homes. The wastewater is collected by gravity from each home and conveyed to a community grinder pump that is then pumped via force main (about 4-6" in dimeter) to the 10" main collection line that will convey flows to the main lift station.

For Phase 3, State Route 188 stretches north and south for a significant distance. Placing five (5) grinder pumps along this road using a 4-6" force main eliminates the retrofitting of individual home systems and electrical upgrades, as well as reduce O&M costs. Detailed estimates are in Appendix I.

Table 23 – Phase 3 CST Alternative 3 – Gravity System (5 Community Grinder Pumps) Capital Cost

Description	Cost
Collection System	$10,782,154
Lift Stations	$1,468,800
Misc. & Pavement Restoration	$3,041,949
Subtotal	**$15,292,903**
General Conditions	$2,752,723
Contingency	$1,529,290
Loan Costs	$321,151
Total Construction Cost	**$19,896,067**
Non-Construction Costs (25%)	$4,974,017
Total Capital Costs	**$24,870,084**

Table 24 – Phase 3 CST Alternative 3 – Gravity System (5 Community Grinder Pumps) O&M Cost

Description	Cost
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$1,300
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Electrical	$25,000
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$5,500
Camera & Flushing (20% of System)	$3,500
Total Annual O&M Costs	**$39,300**

4.2.2.3 Phase 3 Collection System Environmental Impacts

All alternatives will beneficially impact the environment in the area by eliminating use on onsite treatment systems/cesspools and employing the use of a modernized wastewater treatment system. This action will benefit groundwater quality, protect from airborne illness and lift economic and socioeconomic condition of the TRSD area.

As detailed in the Environmental Assessment (EA) prepared by Logan Simpson Design, Inc. (Appendix K), numerous best management practices shall be used during the construction of this infrastructure. The EA states mitigation measures that would apply to the collection system development is as follows:

> **Cultural Resources**
>
> - As the Arizona Eastern Railroad, AZ V:9:392(ASM) has previously been determined eligible for inclusion in the NRHP under Criterion A, any future ground-disturbing undertakings would avoid this site. If avoidance is not possible, then the site should be subjected to an appropriate data recovery plan that includes archival research and intensive documentation.
>
> **Biological Resources**
>
> - If clearing activities are scheduled during migratory bird breeding season (March 1 to August 31), the Contractor shall have a qualified biologist conduct a field survey to flag active bird nests to be avoided. TRSD's contractor would avoid and maintain a 20-foot buffer around any active bird nests. If the active nests cannot be avoided, the contractor should notify an approved and qualified biologist to evaluate the situation. (p.43)

4.2.2.4 Phase 3 Collection System Land Requirements

All alternatives will require similar land requirements. Conceptual design efforts for determining the collection system alignments were focused in using existing available easements and ROW. However, there will be the need for acquisition of additional ROW or easements along proposed sewer alignments if these alignments do not have existing easements defined when they cross into private property. TRSD has identified potential collection line ROW issues where existing roads are not on public ROWs. TRSD and its consultants have discussed these issues with Gila County. The County has agreed to help resolve these issues and TRSD will support the County as required.

4.2.2.5 Phase 3 Collection System Potential Construction Problems

With this project in the planning stage, the following potential problems discussed are not intended to address all site-specific design and construction issues that may arise throughout the project. Some key design and constructability problems that should be anticipated to be able to mitigate quickly and appropriately include:

- Special care taken with excavation to avoid challenges that may arise with old, abandoned and/or unrecorded existing utilities.
- Attention to traffic control execution could pose challenges to the construction schedule and maintaining access for homeowners near construction activities.
- Narrow streets (pavement widths less than 25' wide) may cause access issues with many of the collection mains being installed in these streets. Construction sequencing and care will be required to avoid obstructing home access, ensure adequate separation from other utilities (like gas, water and electricity) to avoid high relocation costs. Potential asphalt variation may create issues.

- A large portion of construction will be completed within steep, mountainous terrain. Care must be taken during design ensuring collection mains are installed at reasonable slopes.

4.2.2.6 Phase 3 Collection System Sustainability Considerations

4.2.2.6.1 Water and Energy Efficiency

Energy efficient pumps and mechanical equipment will be used to decrease operational costs and energy use.

4.2.2.6.2 Green Infrastructure

PVC can be considered green infrastructure by 1) reducing need for replacement materials due to longevity of product, and 2) reducing risks of environmental contamination due to its durability and reliability. Prior standard materials used for collection systems, such as clay piping, has had issues with infiltration and exfiltration. Infiltration can lead to issues within lift station mechanical equipment, headworks mechanical equipment, other mechanical systems in the treatment process, and biological loading of the wastewater. Exfiltration can lead to discharge of wastewater into the environment and soil, potentially leading to contamination.

4.2.3 Phase 3 Wastewater Treatment (WT)

4.2.3.1 Infeasible Alternatives Considered

4.2.3.1.1 Flows conveyed to Miami Water Reclamation Facility

Due to the terrain and long distance from the Phase 3 portion of the system to the Miami WRF, this option would not be cost effective and no further consideration is taken.

4.2.3.1.2 Flows conveyed to Globe Pinal Creek Wastewater Treatment Facility

Conveying flow to the Globe Pinal Creek Wastewater Treatment Facility was considered early in the preliminary planning of both Phase 1 and Phase 2. It was anticipated to have higher costs due to significant increased distance from Phase 1 collection system and the need for additional lift stations in Phase 2 required to accommodate a ridge between the TRSD collection system and the Globe facility. However, since the initial evaluation, recent discussions with Globe's City Manager (Paul Jepson), it has been confirmed that Globe has current plans to expand its wastewater service and would like to reserve its available capacity for this growth (Appendix H). Therefore, no further consideration of this alternative is necessary.

4.2.3.2 Phase 3 WT Alternative 1 – TRSD Water Reclamation Facility Expansion

4.2.3.2.1 Description

WT Alternative 1 is the expansion of the TRSD Phase 2 infrastructure to connect customers in the Phase 3 area. This will require a TRSD WRF expansion increasing capacity from 0.35 MGD to 0.5 MGD (150,000 gpd) to accommodate the Phase 3 flows. The expansion will include aeration, mixing, and membrane units necessary to handle the expanded capacity. The headworks, UV disinfection and sludge dewatering systems having been sized for the buildout flowrate in Phase 1 will not require expansion in Phase 3.

In Phase 3 of the project, two (2) ancillary lift stations will be constructed on the south side of the US Highway 60 to accommodate some steep terrain. Phase 3 flows will be conveyed to the Phase 2 lift station directly connected to the TRSD WRF.

4.2.3.2.2 Design Criteria

Design and construction of wastewater treatment facilities will conform to the following applicable codes:

- ADEQ Title 18, Chapters 9 and 11 – 2005
- Per Gila County Building Code Handbook
    - 2012 International Residential Code
    - 2012 International Building Code
    - 2012 International Existing Building Code
    - 2011 National Electrical Code
    - 2012 International Plumbing Code
    - 2012 International Fuel Gas Code
    - 2012 International Mechanical Code
    - 2009 Accessible and Usable Buildings and Facilities ICC A117.1

- 2006 International Fire Code
- 2009 National Fire Protection Association 820

For any Biosolids, all processes of treatment, handling and selection of disposal facility will be properly permitted under the ADEQ AZPDES program and carried out according to the associated regulations. These regulations include:

- ARS Chapter 49 The Environment, Article 3.1 Arizona Pollutant Discharge Elimination System Program
- ACC Title 18 Environmental Quality
  - Chapter 09, Article 10: Arizona Pollutant Discharge Elimination System – Disposal, Use, and Transportation of Biosolids
- Clean Water Act as amended (33 U.S.C. §1251 et seq.)
- Code of Federal Regulations (CFR)
  - 40 CFR258: Criteria for Municipal Solid Waste Landfills

4.2.3.2.3 Map

No map is shown at this time due to a non-disclosure agreement.

4.2.3.2.4 Cost Estimates

Detailed estimates are in Appendix I.

Table 25 – Phase 3 WT Alternative 1 – TRSD WRF Expansion Capital Cost

Description	Cost
Wastewater Treatment	$2,693,000
Subtotal	**$2,693,000**
General Conditions	$48,474
Contingency	$269,300
Loan Costs	$56,553
Total Construction Cost	**$3,067,327**
Non-Construction Costs (25%)	$766,832
Total Capital Costs	**$3,834,159**

Table 26 – Phase 3 WT Alternative 1 – TRSD WRF Expansion O&M Cost

Description	Cost
Safety Equipment (Wastewater Treatment)	$180
Large Equipment Rental (Wastewater Treatment)	$180
Small Tools / Equipment (Wastewater Treatment)	$270
Special Supplies (Wastewater Treatment)	$270
Building Repairs / Maintenance	$54
Equipment Repairs / Maintenance (Wastewater Treatment)	$15,000
Fuel / Lubricants	$1,000
Testing Chemical / Laboratory Supplies	$720
Testing Other	$765
Disposable Equipment/Tools	$270
Electricity	$15,000
Disinfection Bulbs or Chlorine	$6,300
Biosolids Disposal / Screening (Hauling / Landfill Fees)	$11,250
Total Annual O&M Costs	**$51,259**

4.2.3.3 Phase 3 WT Environmental Impacts

This wastewater treatment will beneficially impact the environment in the area by eliminating use on onsite treatment systems/cesspools and employing the use of a modernized wastewater treatment system. This action will benefit groundwater quality, protect from airborne illness and lift economic and socioeconomic condition of the TRSD area.

As detailed in the EA prepared by Logan Simpson Design, Inc. (Appendix K), numerous best management practices shall be used during the construction of this infrastructure. The EA states mitigation measures that would apply to the collection system development is as follows:

> **Floodplains**
>
> - During the final design of the sewer collection system, and WRF expansion, additional analysis would be performed to ensure that the footprint would lie outside of the 100-year floodplain, where possible. Berms, additional grading and/or other features would be incorporated into the final design, as necessary, to provide proper protection to the WRF expansion from 500 and 100-year flood events.
>
> **Cultural Resources**
>
> - As the Arizona Eastern Railroad, AZ V:9:392(ASM) has previously been determined eligible for inclusion in the NRHP under Criterion A, any future ground-disturbing undertakings would avoid this site. If avoidance is not possible, then the site should be subjected to an appropriate data recovery plan that includes archival research and intensive documentation.
>
> **Biological Resources**
>
> - If clearing activities are scheduled during migratory bird breeding season (March 1 to August 31), the Contractor shall have a qualified biologist conduct a field survey to flag active bird nests to be avoided. TRSD's contractor would avoid and maintain a 20-foot buffer around any active bird nests. If the active nests cannot be avoided, the contractor should notify an approved and qualified biologist to evaluate the situation. (p.43)

4.2.3.4 Phase 3 WT Land Requirements

Land will not be required for the expansion of the TRSD WRF because the site acquired in Phase 1 was selected to be large enough for the Phase 2 and 3 expansions. The Phase 3 expansion will not require more tanking, only the addition of aeration and membrane equipment to accommodate extra flows. Additional land will be required for the new Phase 3 ancillary lift station(s).

4.2.3.5 Phase 3 WT Potential Construction Problems

In general, the WRF site is easily accessible for construction and utilities, but somewhat isolated so no construction problems are anticipated.

4.2.3.6 Phase 3 WT Sustainability Considerations

4.2.3.6.1 Water and Energy Efficiency

The TRSD WRF effluent meets AAC Title 18 Environmental Quality Class A+ Reclaimed Water Standards allowing the potential for reuse for unrestricted irrigation of public landscape and common areas. Currently, there are several available options for potential effluent reuse for the new TRSD WRF; however, at this time TRSD is not pursuing these options. The options include:

- A number of the mining companies in the area have expressed interest in utilizing the facility's effluent within their operations. Any discussions of this usage would include the mining company providing pumps and piping to convey the effluent to the desired locations.
- The local golf course, Cobre Valley Country Club (CVCC) has expressed interest in obtaining the effluent for irrigation of the course. CVCC struggles to obtain enough water to keep the course green. Any discussions of this usage would include CVCC providing pumps and piping to convey the effluent to the golf course.
- Discussions have taken place regarding the utilization of the effluent to create a lake with a surrounding regional community park constructed for recreational use, providing an amenity for the area. The cost of the lake and park would not be bore wholly by TRSD, but would be a collaboration by a number of interested groups in the region including Gila County.

Energy efficient pumps and mechanical equipment will be used for the proposed project to decrease operational costs and energy use.

5 Selection of an Alternative

5.1 Life Cycle Cost Analysis

The life cycle present worth cost analysis examined construction costs, non-construction costs, annual O&M costs, short-lived assets, and salvage values. To determine the present worth of the O&M costs, short-lived assets, and salvage values; a Real Federal Discount Rate of -0.5% was used per the Office of Management and Budget (OMB) Circular No. A-94 dated November 2020. Following are summaries of the analyses and selection of alternatives with reasoning. Detailed analyses are available in Appendix I.

5.1.1 Phase 2 Collection System Type (CST)

Phase 2 Collection System Type Alternative 1 has the lowest total present worth value and is the selected alternative.

Table 27 – Phase 2 CST Present Worth Summary

Cost Component	CST Alternative 1 Gravity System	CST Alternative 2 Grinder Pump System	CST Alternative 3 Community Pump System
Capital	$21,918,767	$43,331,990	$22,892,282
Annual O&M (PV)	$639,000	$888,000	$907,000
Annual SLAR (PV)	$9,000	$934,000	$600,000
Salvage Value	$8,095,000	$16,003,000	$8,454,000
Total Present Worth	**$14,471,767**	**$29,150,990**	**$15,945,282**

5.1.2 Phase 3 Collection System Type (CST)

Phase 3 Collection System Type Alternative 3 has the lowest total present worth value and is the selected alternative.

Table 28 – Phase 3 CST Present Worth Summary

Cost Component	CST Alternative 1 Gravity System	CST Alternative 2 Grinder Pump System	CST Alternative 3 Gravity/Grinder System
Capital	$27,149,163	$36,891,390	$24,870,084
Annual O&M (PV)	$466,000	$840,000	$754,000
Annual SLAR (PV)	$9,000	$770,000	$47,000
Salvage Value	$10,026,000	$13,624,000	$9,185,000
Total Present Worth	**$17,598,163**	**$24,877,390**	**$16,486,084**

5.1.3 Phase 2 & 3 Wastewater Treatment

The only alternative feasible for Phase 2 and 3 wastewater treatment is to expand the TRSD WRF so no life cycle analysis was completed.

5.1.4 Summary

The following is a summary of the selected alternatives for the Proposed Project.

5.1.4.1 Phase 2

Phase 2 will consist of design and construction of a gravity collection system and the 0.15 MGD expansion of the TRSD WRF.

5.1.4.2 Phase 3

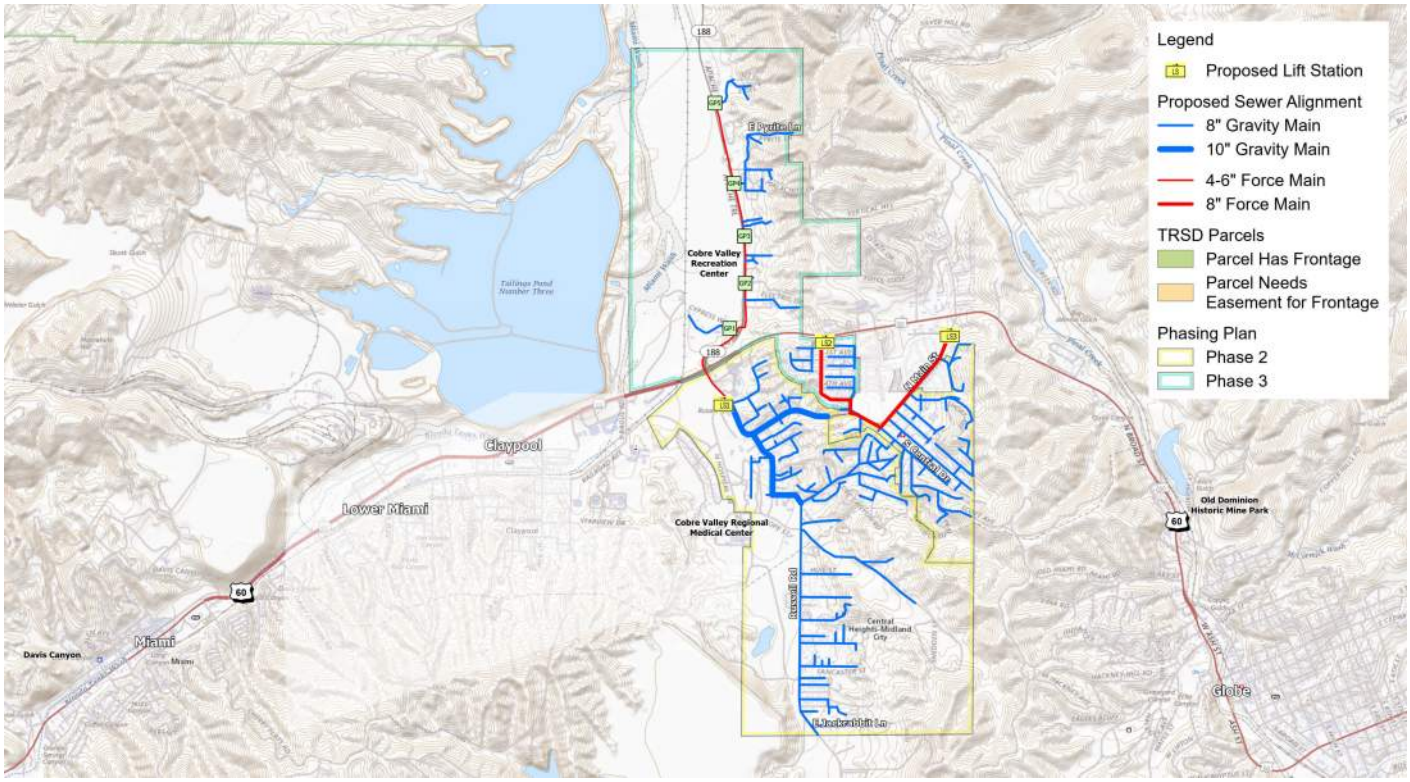
Phase 3 will consist of design and construction of a gravity collection system in the southern portion, a combined gravity system with the use of community grinder pumps in the northern portion, and the 0.15 MGD expansion of the TRSD WRF.

6 Proposed Project (Recommended Alternative)

6.1 Preliminary Project Design

Following is a description of the Proposed Project. The improvements are shown in the figure below and Exhibit 7 (Appendix A).

Figure 7 – Proposed Project



6.1.1 Phase 2

6.1.1.1 Collection System

Phase 2 collection system infrastructure consists of the installation of 51,000+/- LF of gravity main, 2,600+/- LF of force main and 643+/- residential connections. A conventional gravity collection system will be installed to convey all flows to a new Phase 2 lift station. Typical gravity mains for this type of project range between 8" and 10" diameters. This system would include installation of about 225 48" manholes along collection mains to access for maintenance.

6.1.1.2 WRF Expansion

An expansion of the TRSD Phase 1 WRF will be completed to connect customers in the Phase 2 area. This will require a TRSD WRF expansion increasing capacity from 0.20 MGD to 0.35 MGD (150,000 gpd) to accommodate the Phase 2 flows. The WRF facility utilizes a membrane bio-reactor treatment process, followed by UV disinfection, to treat an average day flow of 0.20 MGD to meet Class A+ requirements for unrestricted reuse of recycled water. Effluent will be discharged into Russell Gulch, a contributor to Pinal Creek. The facility will be expanded on the same parcel to accommodate the additional flows in Phase 2 bringing the total WRF average day flow capacity to 0.35 MGD. The expansion will include additional tankage, aeration, mixing, and membrane units necessary to handle the expanded capacity. Biosolids will be produced by the proposed WRF and will be dewatered for disposal in a landfill. Biosolids land application is a future possibility; however, this option is not being considered at this time.

6.1.1.2.1 WRF Procurement

It is the intent of TRSD to use the Performance-Based Specification process to procure the WRF equipment. The use of Performance-Based Specifications in the equipment selection process allows clients to obtain open competitive bids that assist in evaluation capital and operational costs and operational performance prior to finalizing the design. The

major advantage of Performance-Based Specifications is that the project team can proceed to design knowing the cost and equipment they will be using in the project without losing the benefit of a competitive market. Additionally, TRSD could choose to order equipment in advance to lock in pricing to limit or control any cost increases due to scheduling. This process has been successfully utilized on a number of projects throughout Arizona and California. The process has proven to be very beneficial to the overall project and meets the USDA-RD Open Competition requirements.

6.1.1.3 Lift Station

In Phase 2 of the project, an ancillary Phase 2 lift station will be constructed near the intersection of Russell Road and Hospital Drive. It will convey the Phase 2 service area flows to the TRSD WRF Headworks. The total capacity of the Phase 1 and Phase 2 lift stations shall not exceed the peak flow of the TRSD WRF of 870 gallons per minute (gpm). This lift station will require an additional 2,600+/- LF of force main to connect directly to the TRSD WRF.

6.1.1.4 Service Connections

New service connections will include a lateral from the sewer main to the connection at the residence and restoration of the yard.

6.1.2 Phase 3

6.1.2.1 Collection System

Phase 3 collection system infrastructure consists of the installation of 47,000+/- LF of gravity main, 5,500+/- LF of force main and 537+/- residential service connections. Phase 3 has varying terrain and density conditions. The southern portion has a higher density while the northern area has low density with homes and businesses to be connected more spread out. The southern portion will use conventional gravity system with gravity mains ranging between 8” and 10” diameters. The northern part of will include five (5) community grinder pump vault system installed along State Route 188. Gravity lines will collect from a group of homes and convey these flows to a community grinder pump. The community grinder pumps, through pressurized collection piping (about 4” to 6” in dimeter), will then convey flows to the Phase 2 lift station. This system would include installation of about 210 48” manholes along collection mains to access for maintenance.

6.1.2.2 WRF

WT Alternative 1 is the expansion of the TRSD Phase 2 infrastructure to connect customers in the Phase 3 area. This will require a TRSD WRF expansion increasing capacity from 0.35 MGD to 0.5 MGD (150,000 gpd) to accommodate the Phase 3 flows. The expansion will include aeration, mixing, and membrane units necessary to handle the expanded capacity. The headworks, UV disinfection and sludge dewatering systems having been sized for the buildout flowrate in Phase 1 will not require expansion in Phase 3.

If funding is available in Phase 3 after the Proposed Project is complete, TRSD would like to request use to add an Operations and Maintenance (O&M) building. The building would be between 2,500 and 3,000 square feet (SF) in floor space and would include areas for operations and maintenance duties, including storage and a maintenance/repair shop.

6.1.2.2.1 WRF Procurement

It is the intent of TRSD to use the Performance-Based Specification process to procure the WRF equipment. The use of Performance-Based Specifications in the equipment selection process allows clients to obtain open competitive bids that assist in evaluation capital and operational costs and operational performance prior to finalizing the design. The major advantage of Performance-Based Specifications is that the project team can proceed to design knowing the cost and equipment they will be using in the project without losing the benefit of a competitive market. Additionally, TRSD could choose to order equipment in advance to lock in pricing to limit or control any cost increases due to scheduling. This process has been successfully utilized on a number of projects throughout Arizona and California. The process has proven to be very beneficial to the overall project and meets the USDA-RD Open Competition requirements.

6.1.2.3 Lift Station(s)

In Phase 3 of the project, two (2) ancillary lift stations will be constructed on the south side of the US Highway 60 to accommodate some steep terrain. Phase 3 flows will be conveyed to the Phase 2 lift station directly connected to the TRSD WRF.

6.1.2.4 Service Connections

New service connections will include a lateral from the sewer main to the connection at the residence and restoration of the yard.

6.2 Project Phasing

Combining Phase 2 & 3 projects presents possible opportunities to save both time and money. Should this possibility exist, the following sections will address how the project could benefit from being completed simultaneously.

6.3 Project Schedule

6.3.1 Phase 2

Table 29 – Phase 2 Estimated Project Schedule

Milestone	Proposed Dates
Engineering Period	Q2 2023 – Q1 2024
USDA Approval of Bid Documents	Q2 2024
Construction Bid Period & Award	Q3 2024 – Q4 2024
Construction Period	Q1 2025 – Q2 2026
Construction Complete & Startup	Q3 2026

6.3.2 Phase 3

Table 30 – Phase 3 Estimated Project Schedule

Milestone	Proposed Dates
Engineering Period	Q2 2024 – Q1 2025
USDA Approval of Bid Documents	Q2 2025
Construction Bid Period & Award	Q3 2025 – Q4 2025
Construction Period	Q1 2026 – Q2 2027
Construction Complete & Startup	Q3 2027

6.3.3 Combined Phase 2 & 3

Table 31 – Combined Phase 2 & 3 Estimated Project Schedule

Milestone	Proposed Dates
Engineering Period	Q2 2023 – Q2 2024
USDA Approval of Bid Documents	Q2 2024 – Q3 2024
Construction Bid Period & Award	Q3 2024 – Q1 2025
Construction Period	Q1 2025 – Q3 2026
Construction Complete & Startup	Q4 2026

6.4 Permit Requirements

6.4.1 Phase 2

Permits anticipated to be required for this project are listed below.

- ADEQ
  - AZPDES (will be completed in Phase 1)
  - 4.01 General Permit
  - Aquifer Protection Permit (APP) Significant Amendment
- Potential Additional Permits

- Building/Grading Permit
- Floodplain Use Permit
- Air Quality Permit
- Dust Control Permit
- SWWP

6.4.2 Phase 3

Permits anticipated to be required for this project are listed below.

- ADEQ
  - AZPDES (will be completed in Phase 1)
  - 4.01 General Permit Notice of Intent
  - APP Significant Amendment
- ADOT
  - ROW Franchise Agreement
  - Boring Permit
- Potential Additional Permits
  - Building/Grading Permit
  - Floodplain Use Permit
  - Air Quality Permit
  - Dust Control Permit
  - SWWP

6.5 Sustainability Considerations

6.5.1.1 Phase 2

6.5.1.2 Water and Energy Efficiency

Energy efficient pumps and mechanical equipment will be used to decrease operational costs and energy use.

6.5.1.3 Green Infrastructure

PVC can be considered green infrastructure by 1) reducing need for replacement materials due to longevity of product, and 2) reducing risks of environmental contamination due to its durability and reliability. Prior standard materials used for collection systems, such as clay piping, has had issues with infiltration and exfiltration. Infiltration can lead to issues within lift station mechanical equipment, headworks mechanical equipment, other mechanical systems in the treatment process, and biological loading of the wastewater. Exfiltration can lead to discharge of wastewater into the environment and soil, potentially leading to contamination.

6.5.1.4 Phase 3

6.5.1.5 Water and Energy Efficiency

Energy efficient pumps and mechanical equipment will be used to decrease operational costs and energy use.

6.5.1.6 Green Infrastructure

PVC can be considered green infrastructure by 1) reducing need for replacement materials due to longevity of product, and 2) reducing risks of environmental contamination due to its durability and reliability. Prior standard materials used for collection systems, such as clay piping, has had issues with infiltration and exfiltration. Infiltration can lead to issues within lift station mechanical equipment, headworks mechanical equipment, other mechanical systems in the treatment process, and biological loading of the wastewater. Exfiltration can lead to discharge of wastewater into the environment and soil, potentially leading to contamination.

6.6 Total Project Cost Estimate

The estimated cost for the proposed alternatives are shown in the tables below. Detailed estimates are in Appendix I. The following cost estimates provided include the impact of Build America, Buy American compliance. It is anticipated that a waiver will need to be obtained for the water reclamation facility membranes as this technology is not currently produced in the United States.

6.6.1 Phase 2

Table 32 – Phase 2 Proposed Project Cost Estimate

Description	Cost	Collection	Treatment	Service
Construction Cost Estimate				
Collection System	$10,181,004	$10,181,004		
Lift Station	$1,036,800	$1,036,800		
Pavement Restoration & Misc.	$2,745,549	$2,745,549		
Wastewater Treatment	$3,038,600		$3,038,600	
Service Connections	$5,347,188			$5,347,188
General Conditions Costs	$3,017,134	$1,885,053	$410,211	$721,870
Contingency	$2,536,628	$1,584,841	$344,881	$606,906
Loan Costs	$469,332	$295,679	$70,400	$103,253
Construction Subtotal	**$28,372,235**	**$17,728,926**	**$3,864,092**	**$6,779,217**
Build America, Buy American Impact	$2,411,640	$1,506,959	$328,448	$576,233
Construction Total with BABA	**$30,783,875**	**$19,235,884**	**$4,192,540**	**$7,355,451**
Non-Construction Cost Estimate				
Study & Report Phase	$200,400	$110,400		$90,000
Design Phase	$1,892,680	$1,284,000	$367,500	$241,180
Bid Phase	$67,500	$22,500	$22,500	$22,500
Construction Phase	$1,107,120	$683,000	$184,120	$240,000
Administration	$650,779	$393,991	$117,617	$139,171
Contingency	$391,848	$246,864	$58,777	$86,207
Loan Costs	$97,825	$61,630	$14,674	$21,522
Non-Construction Total	**$4,408,152**	**$2,802,385**	**$765,188**	**$840,579**
Proposed Project Total	**$35,192,027**	**$22,038,269**	**$4,957,727**	**$8,196,030**

6.6.2 Phase 3

Table 33 – Phase 3 Proposed Project Cost Estimate

Description	Cost	Collection	Treatment	Service
Construction Cost Estimate				
Collection System	$10,421,400	$10,421,400		
Lift Station	$1,862,550	$1,862,550		
Misc & Pavement Restoration	$2,930,133	$2,930,133		
Wastewater Treatment	$2,693,000		$2,693,000	
Service Connections	$4,465,692			$4,465,692
General Conditions Costs	$3,020,325	$2,053,901	$363,555	$602,868
Contingency	$2,539,310	$1,726,798	$305,656	$506,856
Loan Costs	$469,828	$295,992	$70,474	$103,362
Construction Subtotal	**$28,402,238**	**$19,290,775**	**$3,432,685**	**$5,678,779**
Build America, Buy American Impact	$2,414,190	$1,639,716	$291,778	$482,696
Construction Total with BABA	**$30,816,429**	**$20,930,491**	**$3,724,463**	**$6,161,475**
Non-Construction Cost Estimate				
Study & Report Phase	$190,400	$110,400		$80,000
Design Phase	$2,092,620	$1,511,500	$367,500	$213,620
Bid Phase	$67,500	$22,500	$22,500	$22,500

Description	Cost	Collection	Treatment	Service
Construction Phase	$1,107,120	$683,000	$184,120	$240,000
Administration	$670,065	$406,141	$120,510	$143,414
Contingency	$412,771	$260,045	$61,916	$90,810
Loan Costs	$97,825	$61,630	$14,674	$21,522
Non-Construction Total	**$4,638,301**	**$3,055,216**	**$771,219**	**$811,865**
Proposed Project Total	**$35,454,729**	**$23,985,707**	**$4,495,682**	**$6,973,340**

6.6.3 Combined Phase 2 & 3

If Phase 2 and 3 are funded at the same, there can be potential savings in moving the projects forward simultaneously. One major area of savings is the WRF; if Phase 2 and 3 are funded at the same time, this would allow for only one expansion rather than two separate expansions. Then other areas of potential savings could be in the design and construction services (depending upon how project bidding is performed). Detailed estimates are in Appendix I.

Table 34 – Combined Phase 2 & 3 Proposed Project Cost Estimate

Description	Phase 2	Phase 3	Combined	Savings
Construction Cost Estimate				
Collection System	$10,181,004	$10,421,400	$20,602,404	$0
Lift Station	$1,036,800	$1,862,550	$2,899,350	$0
Misc & Pavement Restoration	$2,745,549	$2,930,133	$5,675,683	$0
Wastewater Treatment	$3,038,600	$2,693,000	$4,390,260	$1,341,340
Service Connections	$5,347,188	$4,465,692	$9,812,880	$0
General Conditions Costs	$3,017,134	$3,020,325	$5,856,378	$181,081
Contingency	$2,536,628	$2,539,310	$4,338,058	$737,880
Loan Costs	$469,332	$469,828	$844,294	$94,866
Construction Subtotal	**$28,372,235**	**$28,402,238**	**$54,419,306**	**$2,355,167**
Build America, Buy American Impact	$2,411,640	$2,414,190	$4,825,830	$0
Construction Total with BABA	**$30,783,875**	**$30,816,429**	**$59,245,137**	**$2,355,167**
Non-Construction Cost Estimate				
Study & Report Phase	$200,400	$190,400	$390,800	$0
Design Phase	$1,892,680	$2,092,620	$3,687,370	$297,930
Bid Phase	$67,500	$67,500	$112,500	$22,500
Construction Phase	$1,107,120	$1,107,120	$2,009,180	$205,060
Administration	$650,779	$670,065	$1,201,500	$119,344
Contingency	$391,848	$412,771	$740,135	$64,483
Loan Costs	$97,825	$97,825	$195,650	$0
Non-Construction Total	**$4,408,152**	**$4,638,301**	**$8,337,135**	**$709,317**
Proposed Project Total	**$35,192,027**	**$35,454,729**	**$67,582,272**	**$3,064,484**

6.7 Annual Operating Budget

6.7.1 Existing Annual Operating Budget

Following is a summary of the existing annual operating budget provided by TRSD.

Table 35 – Existing Annual Operating Budget

Category	2021-2022 Budget
Expenses	
Administrative	
Legal Fees	$61,327
Board Expenses	$5,000
Office Personnel	$31,200
Facilities and Equipment	$19,800
Website	$0
Publishing / Printing	$2,500
Office Supplies / Postage	$5,173
Travel	$9,000
Insurance - Liability	$8,000
Accounting / Bookkeeping	$24,000
Management	$50,000
Miscellaneous	$0
Capital Improvements	
Capital Improvements Expenses	$6,235,000
Total Expenses	**$6,451,000**

6.7.2 *Annual O&M Costs*

Following is a summary of anticipated O&M costs. Detailed estimates are in Appendix I.

Table 36 – Anticipated Annual Operating Budget

O&M COSTS	Phase 1	Phase 1 & 2		Phase 1-3	
Description	**Cost**	**Phase 2 Added Cost**	**Total**	**Phase 3 Added Cost**	**Total**
Administration					
Personnel	$159,724	$31,945	$191,669	$52,431	$244,100
Contract Services	$40,000	$8,000	$48,000	$7,200	$55,200
Insurance	$3,500	$700	$4,200	$630	$4,830
Vehicles	$12,000	$2,400	$14,400	$2,160	$16,560
Accounting Services	$12,000	$2,400	$14,400	$2,160	$16,560
Legal	$4,250	$850	$5,100	$765	$5,865
Office Supplies & Shipping	$2,275	$455	$2,730	$410	$3,140
Public Relations	$350	$70	$420	$63	$483
Travel & Conferences	$1,400	$280	$1,680	$252	$1,932
Personnel Training & Supplies	$1,250	$250	$1,500	$225	$1,725
Utilities	$1,625	$325	$1,950	$293	$2,243
Professional Services	$24,000	$4,800	$28,800	$4,320	$33,120
Wastewater Treatment					
Safety Equipment	$1,000	$200	$1,200	$180	$1,380
Large Equipment Rental	$1,000	$200	$1,200	$180	$1,380
Small Tools / Equipment	$1,500	$300	$1,800	$270	$2,070
Special Supplies	$1,500	$300	$1,800	$270	$2,070
Building Repairs / Maintenance	$300	$60	$360	$54	$414
Equipment Repairs / Maintenance	$20,000	$15,000	$35,000	$15,000	$50,000
Fuel / Lubricants	$1,250	$1,000	$2,250	$1,000	$3,250
Testing Chemical / Laboratory Supplies	$4,000	$800	$4,800	$720	$5,520
Testing Other	$4,250	$850	$5,100	$765	$5,865
Disposable Equipment/Tools	$1,500	$300	$1,800	$270	$2,070
Electricity	$20,000	$15,000	$35,000	$15,000	$50,000
Disinfection Bulbs or Chlorine	$8,500	$6,300	$14,800	$6,300	$21,100
Biosolids Disposal (Hauling /Landfill Fees)	$15,000	$11,250	$26,250	$11,250	$37,500
Collection System					
Safety Equipment (Collection)	$1,000	$200	$1,200	$180	$1,380
Large Equipment Rental (Collection)	$1,300	$260	$1,560	$234	$1,794
Small Tools / Equipment (Collection)	$750	$150	$900	$135	$1,035
Special Supplies (Collection)	$500	$100	$600	$90	$690
Electrical (Lift Station)	$11,500	$10,000	$21,500	$12,500	$34,000
Fuel	$2,500	$500	$3,000	$450	$3,450
Equipment Repairs / Maintenance (Collection)	$3,000	$2,000	$5,000	$2,000	$7,000
Equipment Repairs / Maintenance (Lift Station)	$3,000	$3,000	$6,000	$6,000	$12,000
Camera & Flushing (20% of System)	$4,500	$4,500	$9,000	$4,500	$13,500
	$370,224	**$124,745**	**$494,969**	**$148,256**	**$643,225**

6.7.3 *Debt Repayments*

Currently, TRSD has a $5,500,000 bridge loan that is financing the Phase 1 design. The amount of bridge loan used to complete the Phase 1 design will be reimbursed once the USDA-RD $12,000,000 loan is available when construction begins. Estimated monthly user rates for the proposed project will be calculated below for different funding scenarios. As required by RUS Bulletin 1780-2, the PER must consider and be based on the funding at 100% loan, however, these funding scenarios include only include a 65% and 75% grant options because of the ROI discussed in 1.6.2 Assessment District Process. Due to this process, TRSD is limited to the amount of debt that can be incurred. The loan interest rate assumed is an estimated rate of 1.25%. Following is a Median Household Income Rate Factor calculation for reference.

Table 37 – Phase 2 & 3 Combined Project Funding Scenarios Considering Phase 1

Category	Phase 2 & 3 65% Grant	Phase 1-3 65% Grant	Phase 2 & 3 75% Grant	Phase 1-3 75% Grant
Project Cost	$53,377,822	-	$53,377,822	-
Less Grant	$34,695,584	-	$40,033,366	-
Total Bonds Issued[1]	$18,682,238	$30,682,238	$13,344,455	$25,344,455
Annual Debt Repayment (40 yrs @ 1.25%)[2]	$593,748	$1,076,748	$424,106	$907,106
Total Annual Cost	$593,748	$1,076,748	$424,106	$907,106
Total Monthly Cost	$49,479	$89,729	$35,342	$75,592
Number of EDUs (Debt Service)	1,717	2,792	1,717	2,792
Estimated Subtotal Monthly Rate (Debt Service)	$29	$32	$21	$27
Projected Annual O&M (without SLAR)	$273,001	$643,225	$273,001	$643,225
Annual Short Lived Assets Reserves SLAR	$22,787	$64,003	$22,787	$64,003
Total Monthly Cost	$24,649	$58,936	$24,649	$58,936
Number of EDUs (O&M)	1,576	2,489	1,576	2,489
Estimated Subtotal Monthly Rate (O&M)	$16	$24	$16	$24
Total Estimated Monthly Cost	**$44**	**$56**	**$36**	**$51**

[1] Per TRSD assessment ROI (Appendix E), maximum loan amounts are: Phase 2 $9,688,000, Phase 3 $10,858,000

[2] Phase 1-3 loan payment amount is actual based on USDA-RD provided funding for Phase 1

Table 38 – MHI Rate Factor

Item	Amount
Median Household Income	$35,672
EDU Annual Rate Amount (1.5%)	$535
EDU Monthly Rate Amount	$45

6.7.4 *Colonia Funding*

The project is in a Colonia area with a Median Household Income (MHI) of approximately $35,672. Colonia grant funding through USDA-RD would be utilized to the maximum extent wherever it is applicable throughout the project. It is anticipated that Colonia funds could be used for the following to reduce the cost of the project by not incurring the Service Connections Costs in the cost estimate.

- Installation of laterals from existing homes to the new sewer mains
- Yard restoration

6.7.5 Reserves

6.7.5.1 USDA-RD Reserve Requirement

Debt Reserve funds are not allowed in accordance with State of Arizona statues concerning Sanitary Districts and will not be included in the cost of this project.

6.7.5.2 Short-Lived Asset Reserves

The short-lived assets and reserve for both Phase 2 and Phase 3 are shown in the following tables.

Table 39 – Phase 2 Short-Lived Asset Reserves

Description	Estimated Life Cycle		
	1-5 years	6-10 years	11-15 years
Existing System (Phase 1)			
Collection System			
Lift Station Pumps			$25,000
Lift Station Motors			$10,000
Pump Controls & Security		$7,000	
Valves (Collection)			$7,000
Emergency Generator			$30,000
Wastewater Treatment			
Wastewater Treatment Values			$15,000
WRF Pumps		$50,000	
WRF Motors		$25,000	
Flow Meters			$10,000
Field & Process Inst Equip & Alarms		$15,000	
Blowers			$40,000
Membranes		$118,000	
Actuators		$7,500	
Headworks Screening & Grit	$10,000		
Emergency Generator			$30,000
Air Compressor		$25,000	
Aerators	$5,000		
Chlorine Dosing System			$20,000
Dechlorination System			$15,000
Upgraded System (Phase 2)			
Collection System			
Lift Station Pumps			$6,000
Lift Station Motors			$2,000
Pump Controls & Security		$3,500	
Valves (Collection)			$1,500
Emergency Generator			$3,000
Wastewater Treatment			
Wastewater Treatment Values			$2,500
WRF Pumps		$10,000	
WRF Motors		$5,000	
Flow Meters			$2,000
Field & Process Inst Equip & Alarms		$3,000	
Blowers			$4,000
Membranes		$55,000	
Actuators		$1,500	
Headworks Screening & Grit	$5,000		
Emergency Generator			$3,000

Description	Estimated Life Cycle		
	1-5 years	6-10 years	11-15 years
Air Compressor		$2,500	$150
Aerators	$2,500		
Chlorine Dosing System			$2,000
Dechlorination System			$1,500
Subtotal of Short-Lived Assets (per period)	$22,500	$328,000	$229,650
Subtotal of Short-Lived Assets (per year)	$4,500	$32,800	$15,310
Subtotal of Short-Lived Assets (per month)	$375	$2,733	$1,276
Total of Short-Lived Assets (1-15 years)	**$580,150**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$52,610**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$4,384**		

Table 40 – Phase 3 Short-Lived Asset Reserves

Description	Estimated Life Cycle		
	1-5 years	6-10 years	11-15 years
Existing System (Phase 1 & 2)			
Collection System			
Lift Station Pumps			$31,000
Lift Station Motors			$12,000
Pump Controls & Security		$10,500	
Valves (Collection)			$8,500
Emergency Generator			$33,000
Wastewater Treatment			
Wastewater Treatment Values			$17,500
WRF Pumps		$60,000	
WRF Motors		$30,000	
Flow Meters			$12,000
Field & Process Inst Equip & Alarms		$18,000	
Blowers			$44,000
Membranes		$173,000	
Actuators		$9,000	
Headworks Screening & Grit	$15,000		
Emergency Generator			$33,000
Air Compressor		$27,500	$150
Aerators	$7,500		
Chlorine Dosing System			$22,000
Dechlorination System			$16,500
Upgraded System (Phase 3)			
Collection System			
Lift Station Pumps			$6,000
Lift Station Motors			$2,000
Pump Controls & Security		$3,500	
Valves (Collection)			$1,500
Emergency Generator			$3,000
Wastewater Treatment			
Wastewater Treatment Values			$2,500
WRF Pumps		$10,000	
WRF Motors		$5,000	
Flow Meters			$2,000

Description	Estimated Life Cycle		
Field & Process Inst Equip & Alarms		$3,000	
Blowers			$4,000
Membranes		$55,000	
Actuators		$1,500	
Headworks Screening & Grit	$5,000		
Emergency Generator			$3,000
Air Compressor		$2,500	$150
Aerators	$2,500		
Chlorine Dosing System			$2,000
Dechlorination System			$1,500
Subtotal of Short-Lived Assets (per period)	$30,000	$408,500	$257,300
Subtotal of Short-Lived Assets (per year)	$6,000	$40,850	$17,153
Subtotal of Short-Lived Assets (per month)	$500	$3,404	$1,429
Total of Short-Lived Assets (1-15 years)	**$695,800**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$64,003**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$5,334**		

7 Conclusions and Recommendations

TRSD encompasses approximately 5.3 square miles located in Gila County, Arizona between Miami and Globe. This area is located about 80 miles east of the City of Phoenix. TRSD, an Arizona Sanitary District established in 2011, was formed with a foundation and mission to improve quality of life for the Tri-City area of southern Gila County, Arizona by developing a plan to provide and manage a new wastewater collection and treatment system.

This wastewater collection and treatment system project planning has been in progress since 2011 working closely with the USDA-RD. Due to the magnitude (size and complexity) of the overall project, it encompasses a three-phase approach based on direction of USDA-RD related to the funding process.

At full buildout, approximately 4,000 residents will directly benefit from this new collection and treatment system and the entire community will begin to see some environmental and economical improvements in the area. This project consists of the installation of 150,000+/- LF of gravity mains, 15,000+/- LF of force main, 1,838 +/- residential service connections, and a new 0.50 MGD membrane bioreactor (MBR) water reclamation facility (WRF).

Phase 1 is being funded through grant/loan package provided by USDA-RD. In August of 2018, USDA-RD issued a Letter of Conditions for Phase I funding offering a package consisting of a $12 million low-interest loan and $16 million in grant funds. Phase 1 design is currently underway and consists of the installation of 61,000+/- linear feet (LF) of gravity mains, 7,600+/- LF of force main, 658+/- residential service connections, main lift station and a 0.20 MGD MBR WRF.

This Preliminary Engineering Report (PER) evaluated alternatives to install new collection mains to connect and treat additional generated flows for the approximately 1,358 people within the Phase 2 area and 1,105 people within the Phase 3 area. Phase 2 infrastructure consists of the installation of 51,000+/- LF of gravity main, 2,600+/- LF of force main and 643+/- residential service connections. Phase 3 infrastructure consists of the installation of 47,000+/- LF of gravity main, 5,500+/- LF of force main and 537+/- residential service connections.

Through a life cycle cost analysis, alternatives were evaluated and following is a summary of selected alternatives for the Proposed Project.

- Phase 2
  - Phase 2 will consist of design and construction of a gravity collection system and the 0.15 MGD expansion of the TRSD WRF.
- Phase 3
  - Phase 3 will consist of design and construction of a gravity collection system in the southern portion, a combined gravity system with the use of community grinder pumps in the northern portion, and the 0.15 MGD expansion of the TRSD WRF.

The amount of USDA-RD funding being requested for the total project cost is estimated at:

Phase 2	$35,192,027
Phase 3	$35,454,729
Total Funding Request	$70,646,756

The cost estimates provided include the impact of Build America, Buy American compliance. It is anticipated that a waiver will need to be obtained for the water reclamation facility membranes as this technology is not currently produced in the United States.

Unused Funding Availability Request

If funding is available in Phase 3 after the Proposed Project is complete, TRSD would like to request to use for the addition of an O&M building. The building would be between 2,500 and 3,000 SF in floor space and would include areas for operations and maintenance duties, including storage and a maintenance/repair shop. Other requests would be to use funding for the purchase of a vactor truck for the system operations.

References

Arizona Administrative Code, A.A.C.R18-9-E323, Table 1 – Unit Design Flows: Effective November 12, 2005

Arizona Department of Commerce. (2014). Globe/Miami Community Profile. Retrieved 24 February, 2015, from http://www.azcommerce.com/doclib/commune/globe-miami.pdf

Canter, L. W., & Knox, R. C. (1985). Septic Tank System Effects on Ground Water Quality (1st ed.). Chelsea, Michigan: Lewis Publishers, Inc.PACE, 2018, Preliminary Engineering Report Update for Tri-City Regional Sanitary District Wastewater Collection and Treatment, Gila County, Arizona: dated April.

EPA.gov. (2021). EJSCREEN: Environmental Justice Screening and Mapping Tool. Retrieved October 4, 2021 from https://www.epa.gov/ejscreen

Garrett, J., & Berry, J. (2012). Sewage Treatment Study, Tri-City Regional Sanitary District. Memorandum, Gila County, Arizona, Community Development, Wastewater.

Hurd, G. K. (2016, December 12). How Much Do Septic Tanks Cost? The Stomach-Churning Price Revealed. Retrieved September 6, 2018, from Realtor.com: https://www.realtor.com/advice/home-improvement/how-much-does-a-septic-system-cost/

Logan Simpson. (2018). Environmental Assessment Tri-City Regional Sanitary District Project Wastewater Collection and Treatment Phase I of III Gila County, Arizona. Technical Report.

Logan Simpson. (2022). Environmental Assessment Tri-City Regional Sanitary District Project Wastewater Collection and Treatment Phase 2 of 3 Gila County, Arizona. Technical Report.

PACE. (2018) Preliminary Engineering Report Update for Tri-City Regional Sanitary District Wastewater Collection and Treatment, Gila County, Arizona: dated April.

PACE. (2019). 4th Draft Section 208 Water Quality Management Plan Amendment for Tri-City Regional Sanitary District Wastewater Collection and Treatment Designated Management Agency, Gila County, Arizona: dated December.

SepticTankGuide.com. (2018). Septic Tank Costs. Retrieved September 6, 2018, from Septic Tank Guide: http://www.septictankguide.com/septic-tank-costs.html

United States Environmental Protection Agency. (April 1976). Environmental Impact Statement: Greater Globe-Miami, Arizona Wastewater Treatment Project. Pacific Southwest Region IX, San Francisco.

Legend

TRSD Boundary (5.3 SQMI)

TRSD Boundary

Vertical Heights

Pinal Creek

Tailings Point Number 3

Bloody Tanks Wash

60

Miami Gardens

Midland City & Central Heights

Gordon Street Area

Miami Junior/Senior High School

Elementary Schools

Claypool

Lower Miami

Cobre Valley Community Hospital

60

City of Globe

Town of Miami

Solitude Tailings Pond

Little Acres

Landfill

Path: W:\B406\6-GIS\Projects\Phase2_PER_20191010\Phase2_PER_20191010.aprx

TRI-CITY REGIONAL SANITARY DISTRICT

PACE Advanced Water Engineering

N

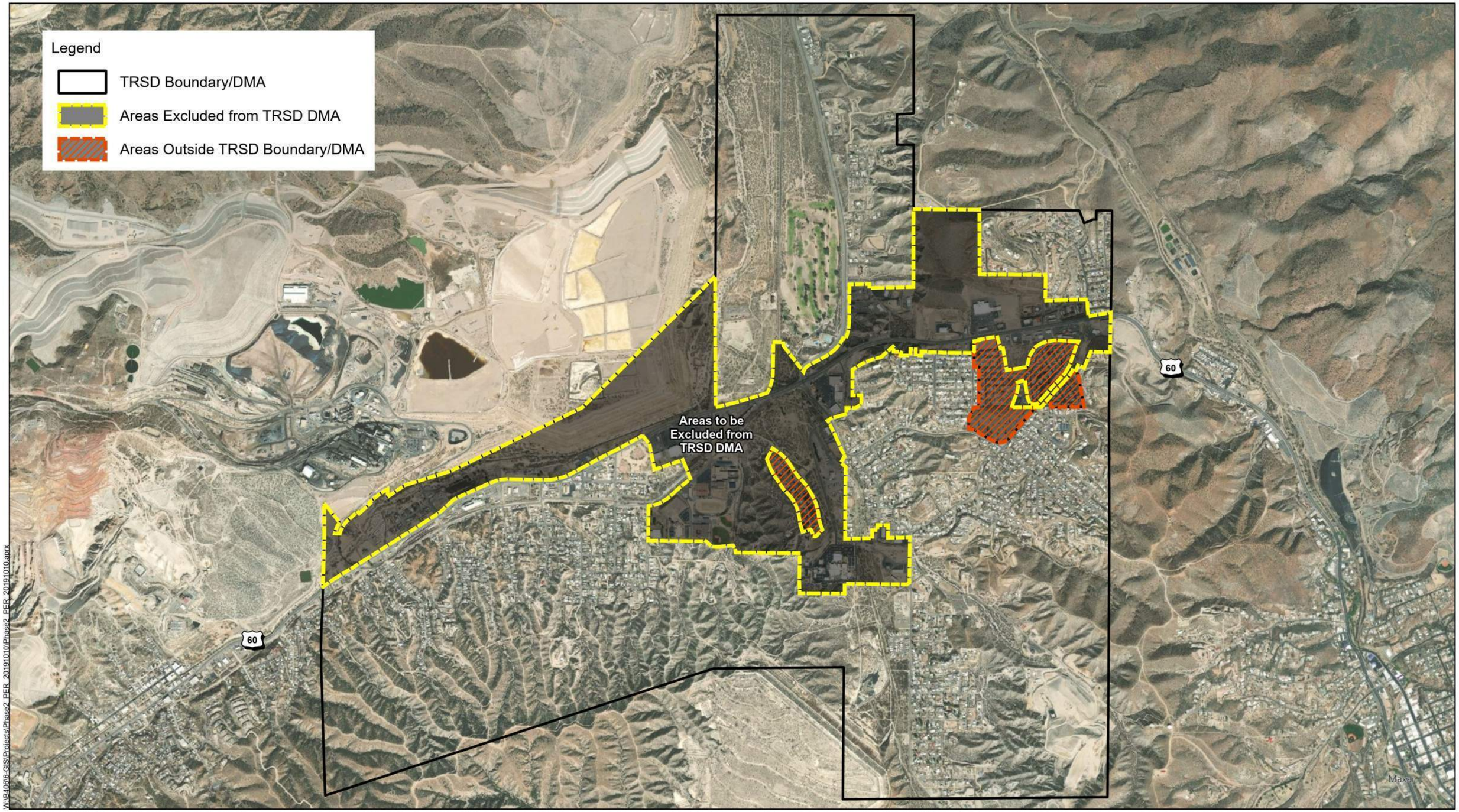
0 900 1,800 3,600 Feet

Date: 3/3/2022

Job Number: B406

LOCATION MAP

Exhibit 1



WIP\4066-GIS\Projects\Phase2_PER_20191010\Phase2_PER_20191010.aprx

TRI-CITY REGIONAL SANITARY DISTRICT

DMA EXCLUSIONS

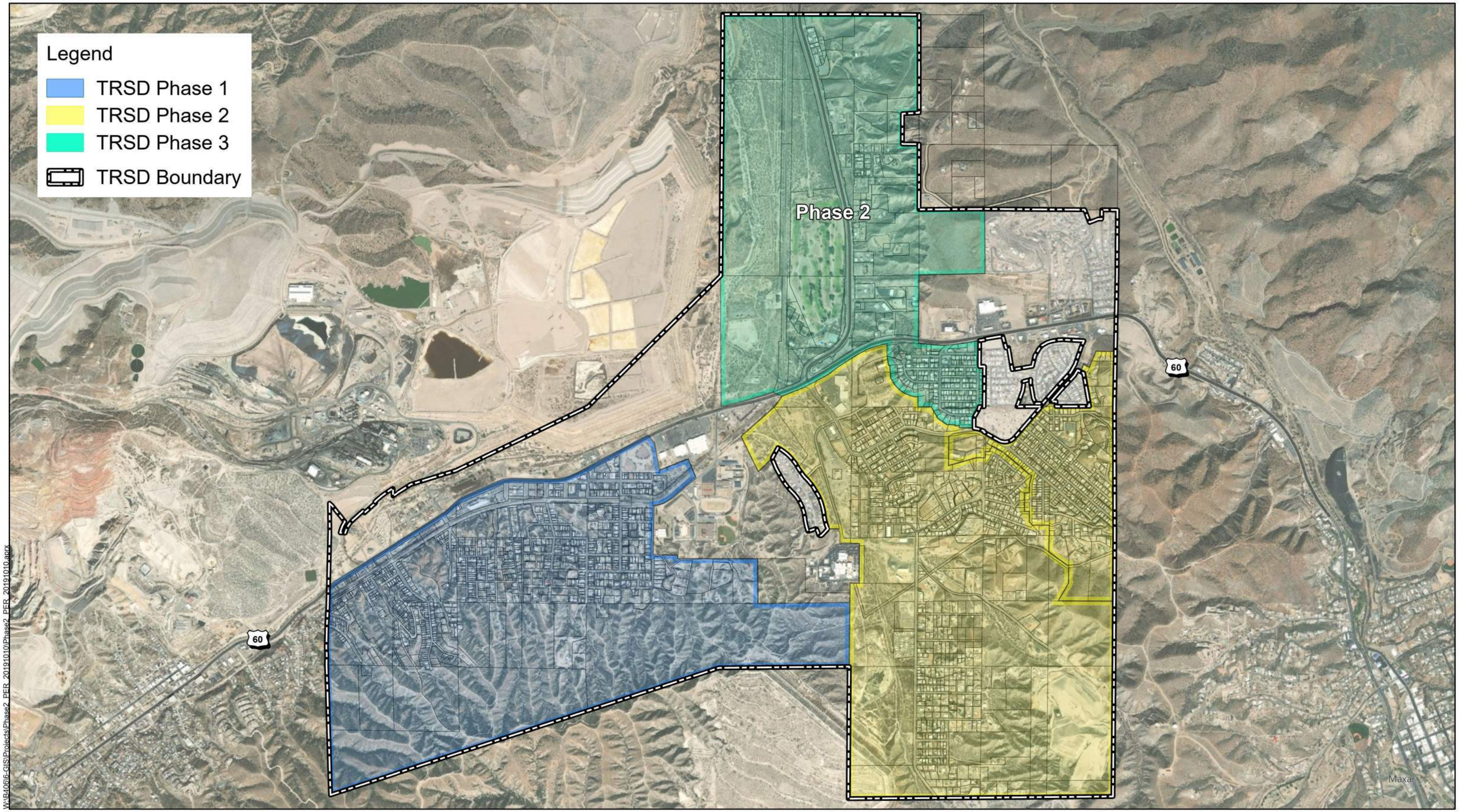
PACE Advanced Water Engineering

0 900 1,800 3,600 Feet

Date: 3/3/2022

Job Number: B406

Exhibit 2



TRI-CITY REGIONAL SANITARY DISTRICT

PHASING PLAN

PACE Advanced Water Engineering

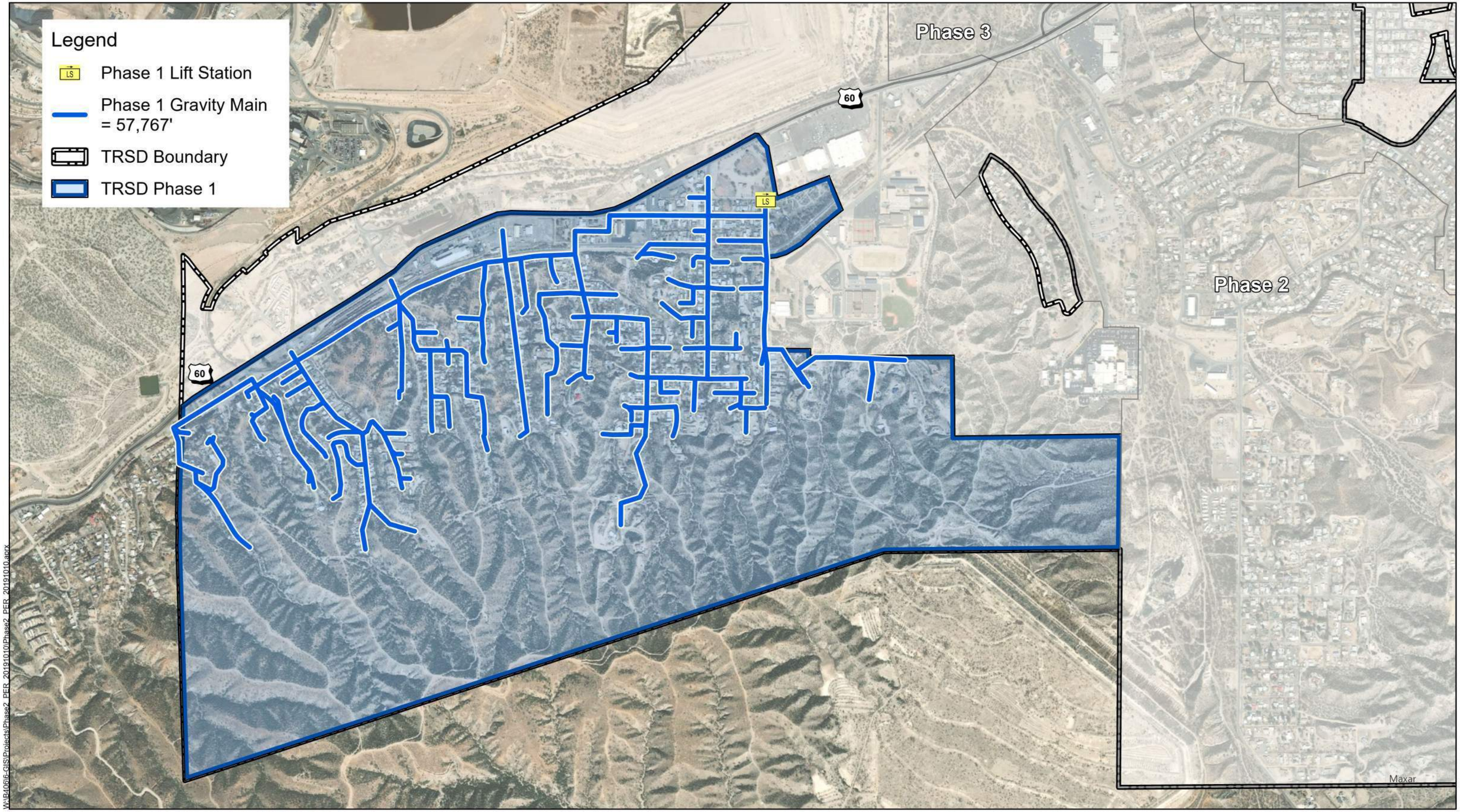
0 900 1,800 3,600 Feet

Date: 3/3/2022

Job Number: B406

Exhibit 3

W:\B406\6-GIS\Projects\Phase2_PFR_20191010\Phase2_PFR_20191010.aprx



TRI-CITY REGIONAL SANITARY DISTRICT

EXISTING FACILITIES

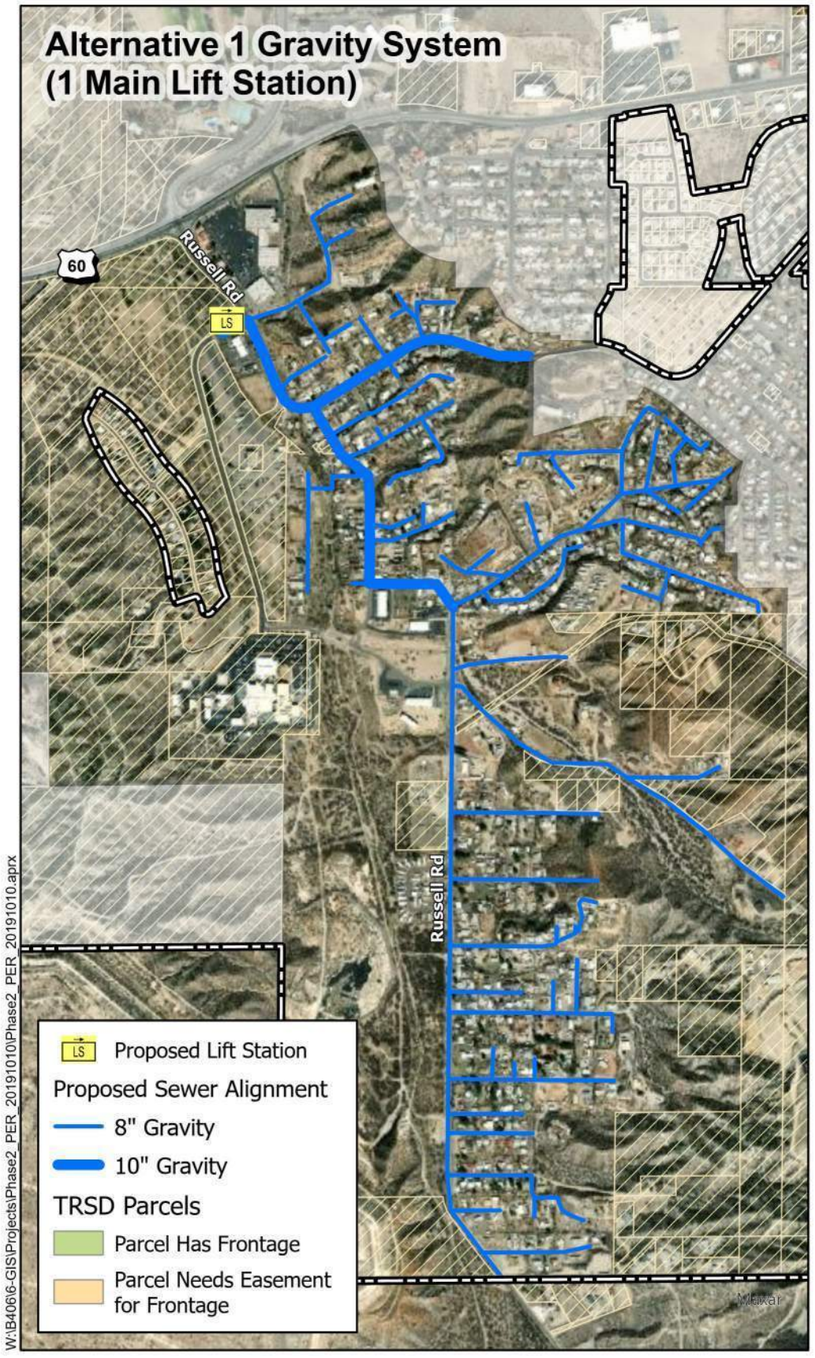
PACE Advanced Water Engineering

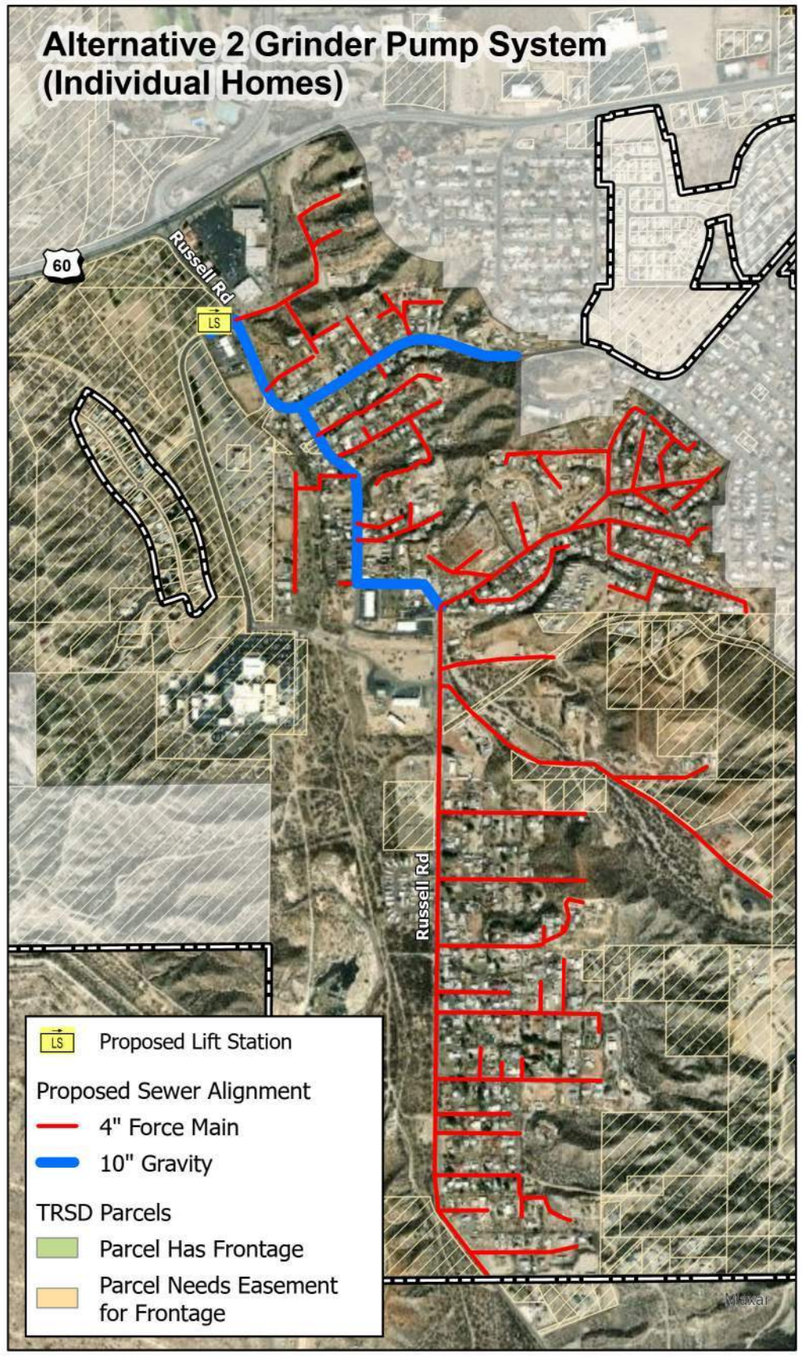
0 500 1,000 2,000 Feet

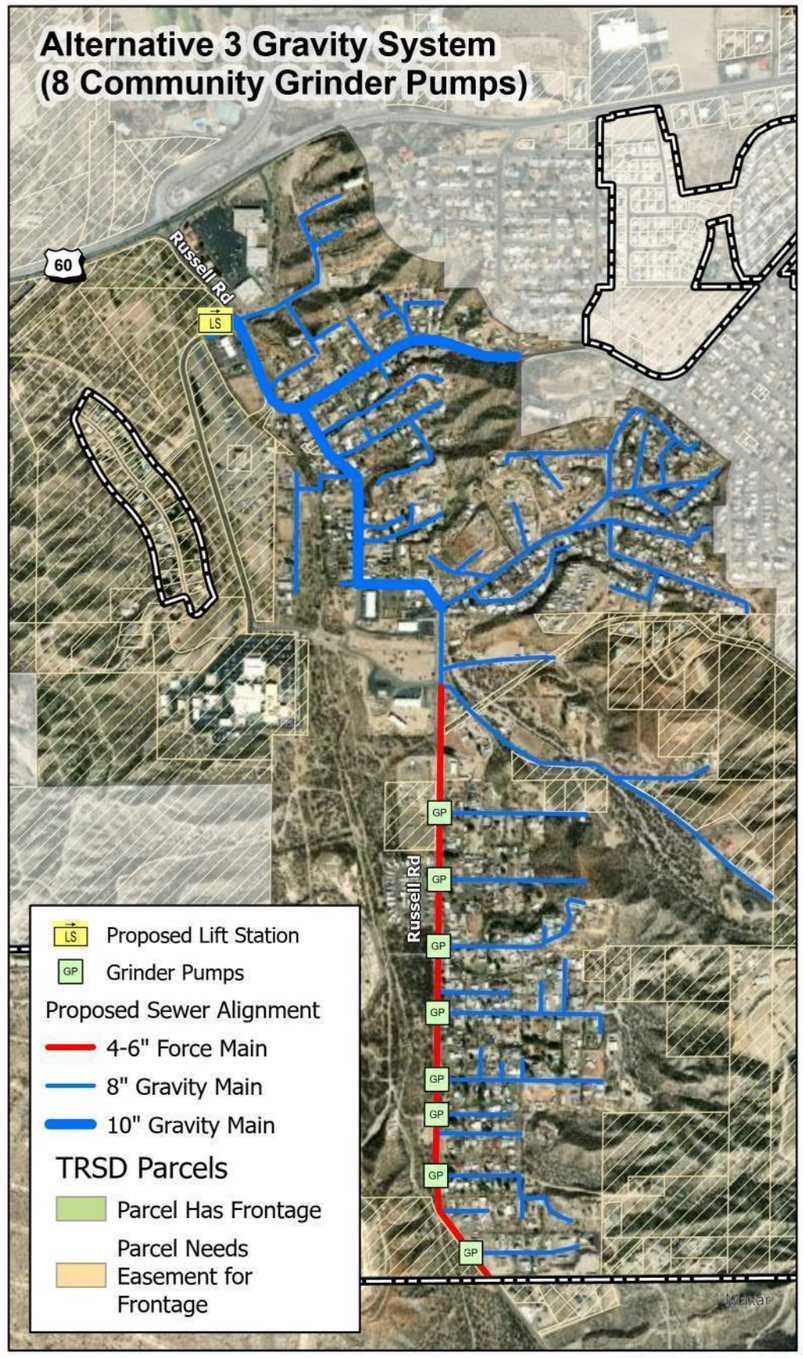
Date: 3/3/2022

Job Number: B406

Exhibit 4







W:\B40616-GIS\Projects\Phase2_PER_20191010\Phase2_PER_20191010.aprx

TRI-CITY REGIONAL SANITARY DISTRICT

PHASE 2
COLLECTION SYSTEM ALTERNATIVES

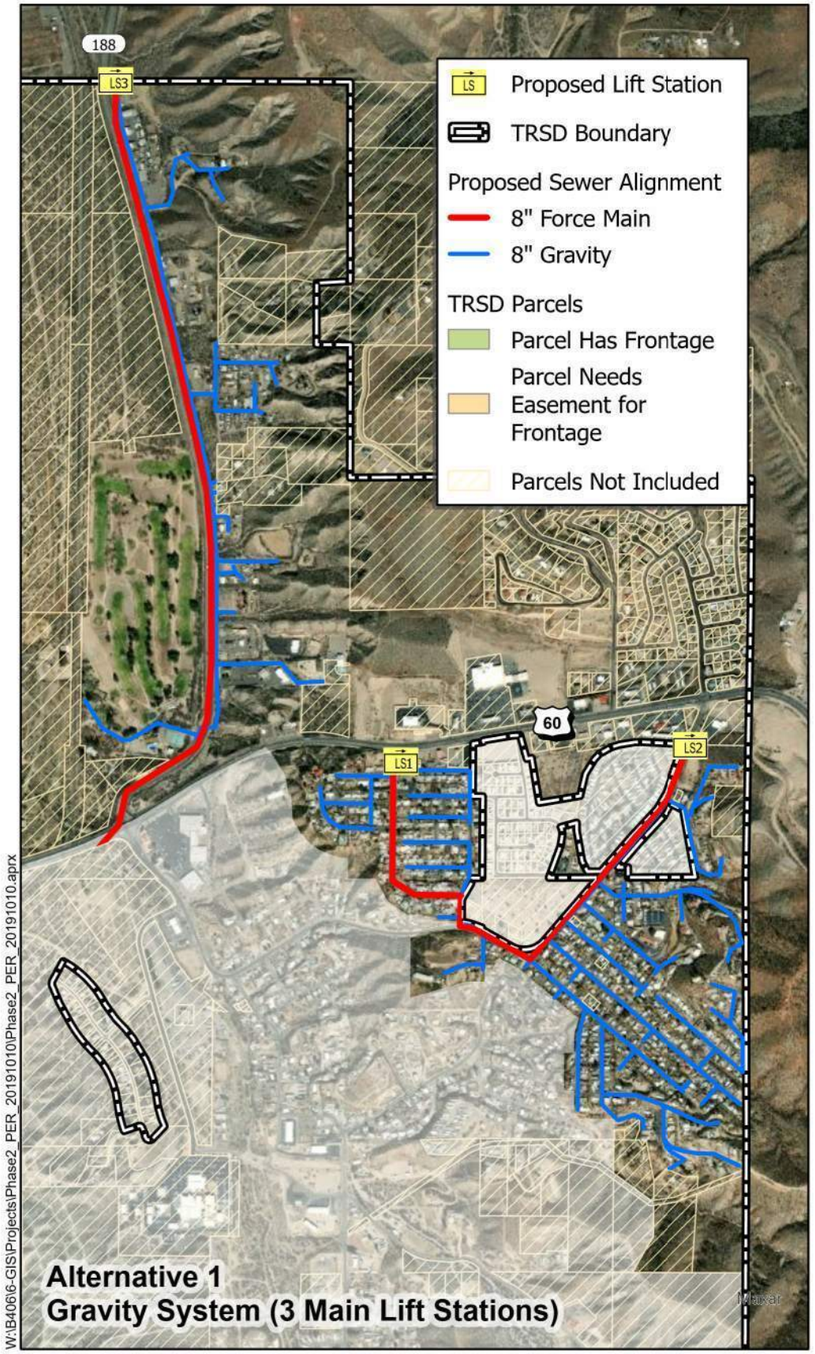
PACE Advanced Water Engineering

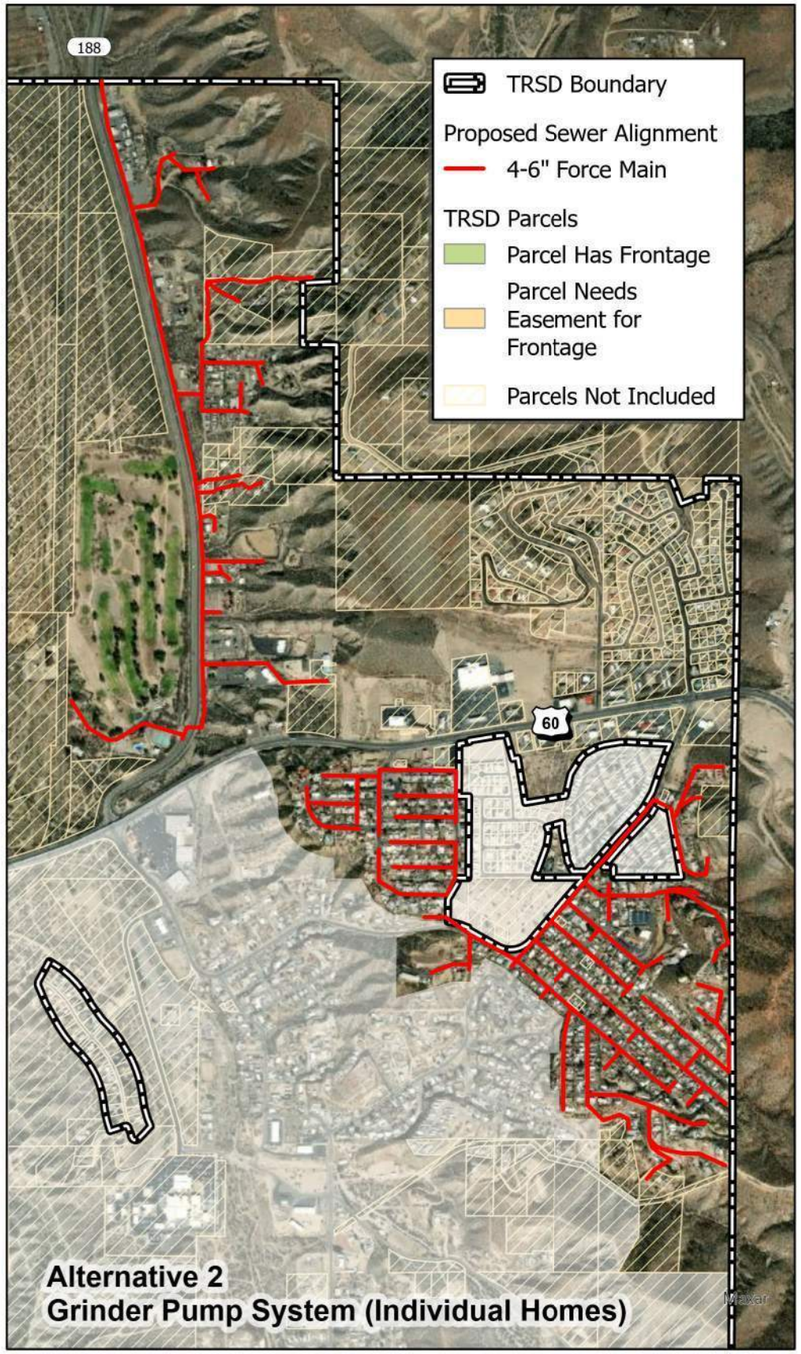
0 600 1,200 2,400 Feet

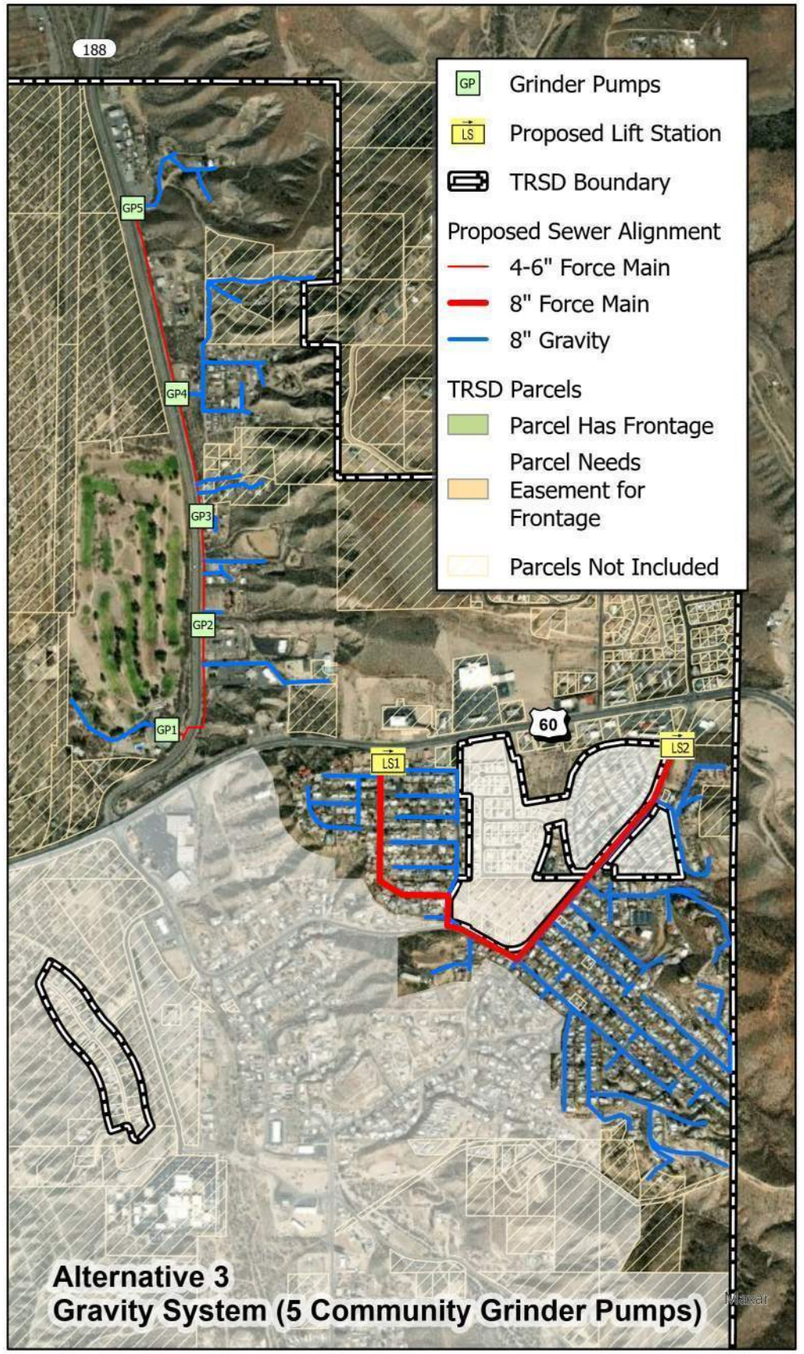
Date: 3/3/2022

Job Number: B406

Exhibit 5







W:\B406\6-GIS\Projects\Phase2_PER_20191010\Phase2_PER_20191010.aprx

TRI-CITY REGIONAL SANITARY DISTRICT

PHASE 3
COLLECTION SYSTEM ALTERNATIVES

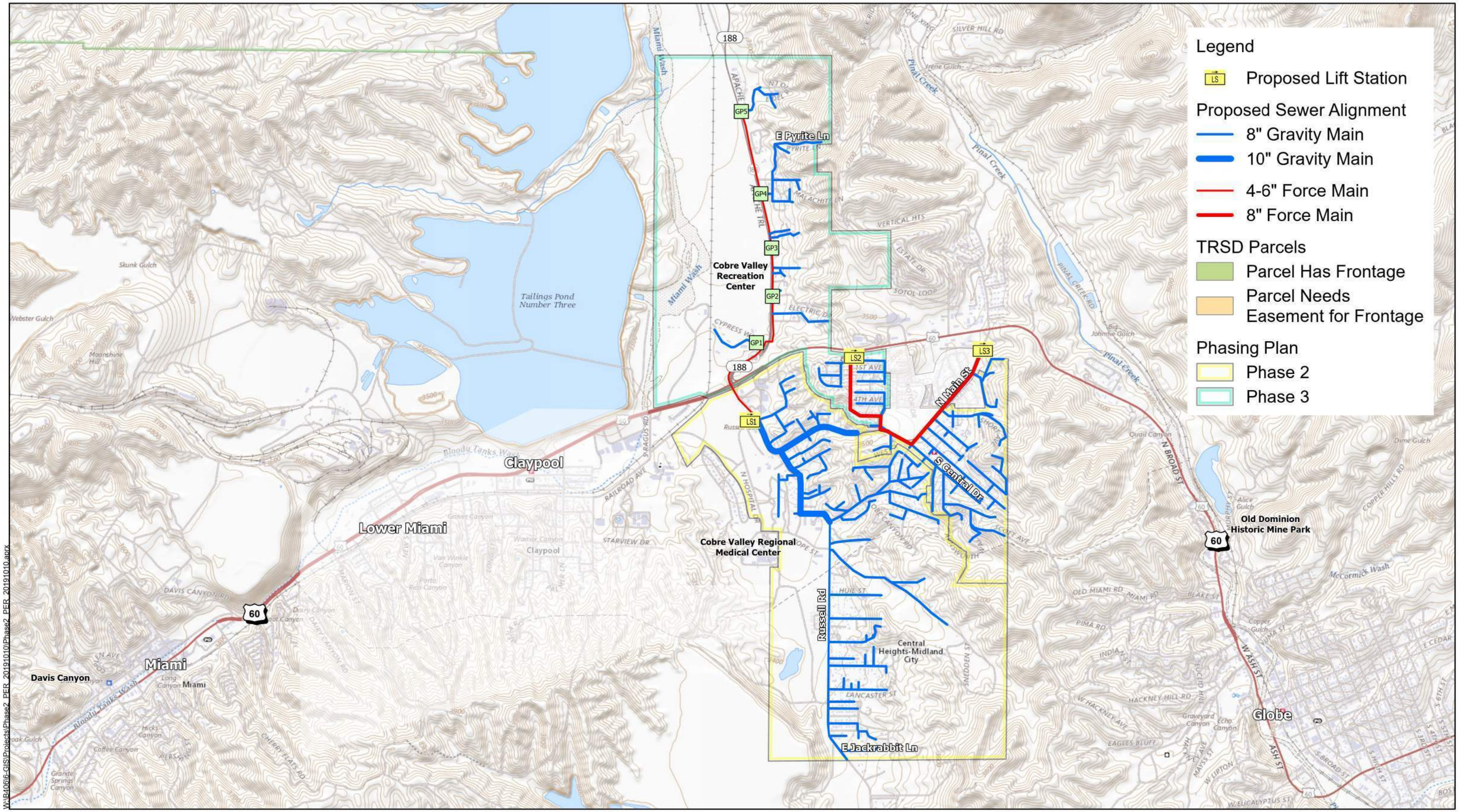
PACE Advanced Water Engineering

0 750 1,500 3,000 Feet

Date: 3/3/2022

Job Number: B406

Exhibit 6



W:\B406\06-GIS\Projects\Phase2_PER_20191010\Phase2_PER_20191010.aprx

TRI-CITY REGIONAL SANITARY DISTRICT

PROPOSED PROJECT OVERALL

PACE Advanced Water Engineering

0 1,000 2,000 4,000 Feet

Date: 3/3/2022

Job Number: B406

Exhibit 7

Legal Description
Tri-City Regional Sanitary District Designated Management Agency
Wastewater Service Area

Job No. 18-508 June 3, 2019

The east half of Section 16, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona; and

The northwest quarter of Section 15, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona; and

The southwest quarter of Section 15, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, except the southeast quarter of said southwest quarter; and

The northwest quarter of the southeast quarter of Section 15, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona; and

That part of the northeast quarter of Section 21, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying outside the jurisdictional limits of the City of Globe; and

That part of the southwest quarter of Section 21, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying south of the south right-of-way line of US60, except any portion lying within Gila County Assessor Parcel Numbers 206-04-008B and 206-04-004A; and

That part of Section 20, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying south of the south right-of-way line of US60; and

That part of Section 29, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying south of the south right-of-way line of US60, except any portion lying within Gila County Assessor Parcel Number 206-08-002B; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying south of the south right-of-way line of US60, except any portion lying within the following described parcels:

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Warranty Deed recorded as document Number 2007-011282, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Deed of Trust recorded as document Number 2017-006027, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Deed of Trust recorded as document Number 2011-007609, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Warranty Deed recorded as document Number 1996-006134, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Deed of Trust recorded as document Number 2005-004147, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Deed of Trust recorded as document Number 2007-011282, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within Gila County Assesssor Parcel Number 206-07-007N; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within Gila County Assesssor Parcel Number 206-07-004G; and

Together with:

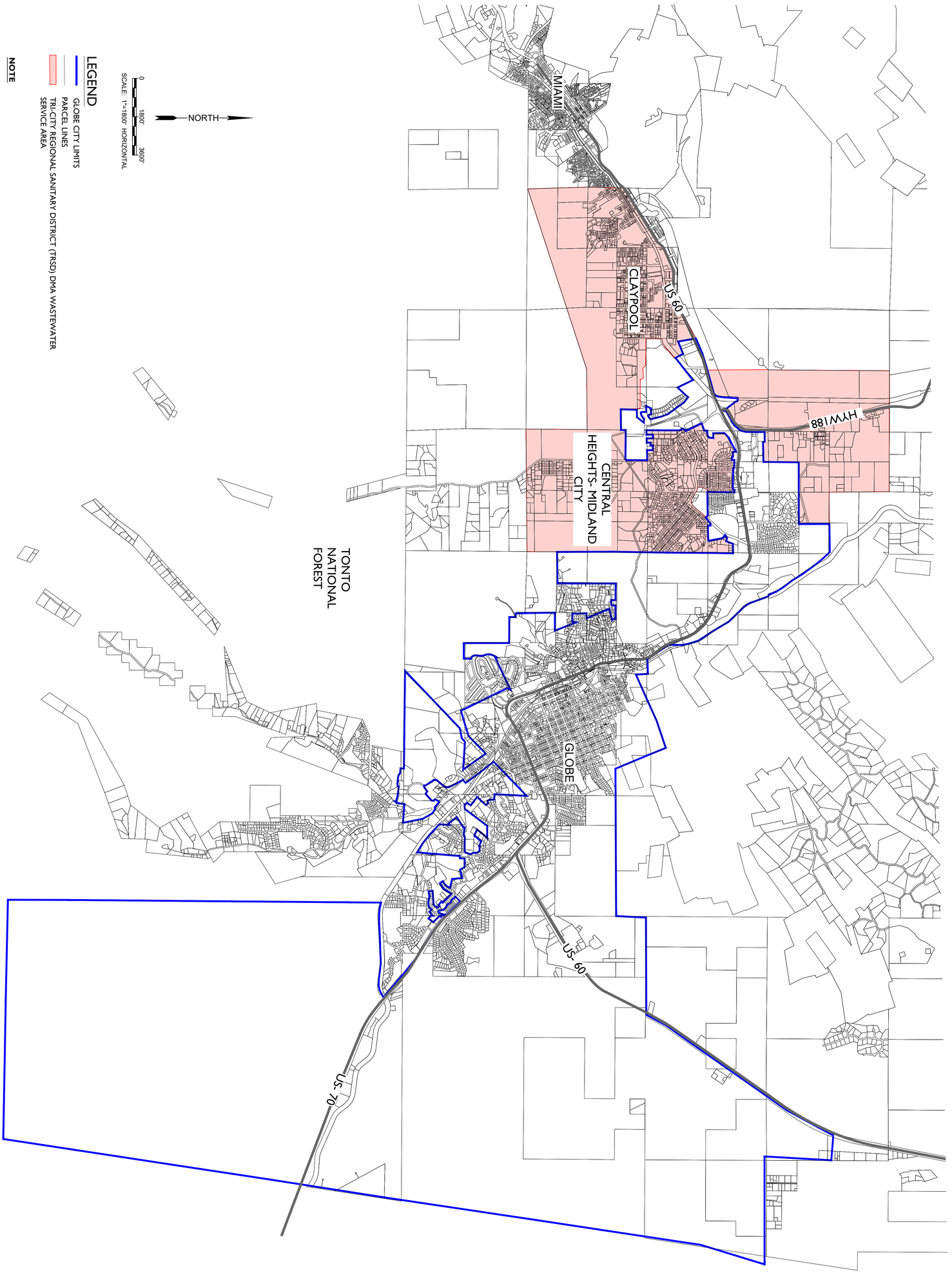
Section 27, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, except any portion lying within the jurisdictional limits of the City of Globe; and

That part of Section 22, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona except any portion lying within the jurisdictional limits of the City of Globe and except any portion lying north of the south right-of-way line of East Golden Hill Road and east of the west right-of-way line of North Arbor Avenue.

EPS Group, Inc. • 1130 N. Alma School Rd, Suite 120 • Mesa, AZ 85201
Tel (480) 503-2250 • Fax (480) 503-2258

CAG 208 AMENDMENT PROJECT

iduarte Aug 29, 2019 12:06pm V:\CAD\City Of Globe\CAG 208 Amendment\Production Drawings\Exhibits\FIGURE 2.dwg



NORTH

SCALE: 1"=1800' HORIZONTAL
0 1800' 3600'

LEGEND

GLOBE CITY LIMITS

PARCEL LINES

TRI-CITY REGIONAL SANITARY DISTRICT (TRSD) DMA WASTEWATER SERVICE AREA

NOTE

DMA AREA SHOWN IS FOR ILLUSTRATION PURPOSES ONLY. SEE SERVICE AREA LEGAL DESCRIPTION FOR FURTHER INFORMATION.

Project:

CAG 208 AMENDMENT PROJECT
City Of Globe, Arizona

TRI-CITY REGIONAL SANITARY DISTRICT DMA WASTEWATER SERVICE AREA

Revisions:

NOT FOR CONSTRUCTION

Job No. 16-242

08-29-2019

Sheet No. 1 of 1

Designer: B.L.S.
Drawn by: S.C.D.

EPS GROUP
125 S. Avondale Blvd., Suite 115
Avondale, AZ 85323
T:623.547.4461 | F:623.547.4662
www.epsgroupinc.com

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

Douglas A. Ducey
Governor

Misael Cabrera
Director

June 3, 2016

Mr. Alan Urban
Central Arizona Governments
Community Development Manager
1075 S. Idaho Road, Suite 300
Apache Junction, AZ 85119

Re: DMA Status of Sanitary Districts in Gila County

Dear Mr. Urban:

The letter is in response to your February 12, 2016 request for clarification as to the current status of the Pinal Sanitary, Cobre Valley Sanitary and Tri-City Regional Sanitary Districts as designated management agencies under Section 208 of the Clean Water Act.

COPY

The *Central Arizona Association of Governments 208 Areawide Water Quality Management Plan Update, September, 1994* identifies both the Pinal Sanitary District and Cobre Valley Sanitary District as designated management agencies (DMA). Pinal and Cobre Valley received their DMA designations in 1983 and 1985, respectively, in order to address serious water quality issues in their areas including failing septic systems and use of cesspools.

In 2011, the Tri-City Regional Sanitary District (TRSD) was formed through the merger of the Pinal and Cobre Valley Sanitary Districts. In the next 12-18 months, TRSD will be preparing a 208 Water Quality Management Plan amendment to the *2016 CAG Areawide Water Quality Management Plan* requesting approval to be the DMA for the areas currently assigned to the Pinal Sanitary and Cobre Valley Sanitary Districts and to identify TRSD's plan to address the water quality issues within the District. Until such time as an amendment is processed through CAG and ADEQ and approved by the EPA, Pinal and Cobre Valley remain the recognized DMAs but are being administered by TRSD.

ADEQ apologizes for the delayed response to your request. This particular situation has no precedent that we are aware of, so it has taken some additional time for both historical and legal review. If you have any additional questions, please contact me directly at 602.771.2321.

Sincerely,

Trevor Baggiore, Director
Water Quality Division

cc: Jared Vollmer, U.S. Environmental Protection Agency, Region 9
Bob Zache, President, Tri-City Regional Sanitary District

COPY

Legal Description
Tri-City Regional Sanitary District Designated Management Agency
Wastewater Service Area

Job No. 18-508 June 3, 2019

The east half of Section 16, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona; and

The northwest quarter of Section 15, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona; and

The southwest quarter of Section 15, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, except the southeast quarter of said southwest quarter; and

The northwest quarter of the southeast quarter of Section 15, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona; and

That part of the northeast quarter of Section 21, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying outside the jurisdictional limits of the City of Globe; and

That part of the southwest quarter of Section 21, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying south of the south right-of-way line of US60, except any portion lying within Gila County Assessor Parcel Numbers 206-04-008B and 206-04-004A; and

That part of Section 20, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying south of the south right-of-way line of US60; and

That part of Section 29, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying south of the south right-of-way line of US60, except any portion lying within Gila County Assessor Parcel Number 206-08-002B; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona lying south of the south right-of-way line of US60, except any portion lying within the following described parcels:

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Warranty Deed recorded as document Number 2007-011282, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Deed of Trust recorded as document Number 2017-006027, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Deed of Trust recorded as document Number 2011-007609, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Warranty Deed recorded as document Number 1996-006134, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Deed of Trust recorded as document Number 2005-004147, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within the property described in Deed of Trust recorded as document Number 2007-011282, Official Records of Gila County; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within Gila County Assesssor Parcel Number 206-07-007N; and

That part of Section 28, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, lying within Gila County Assesssor Parcel Number 206-07-004G; and

Together with:

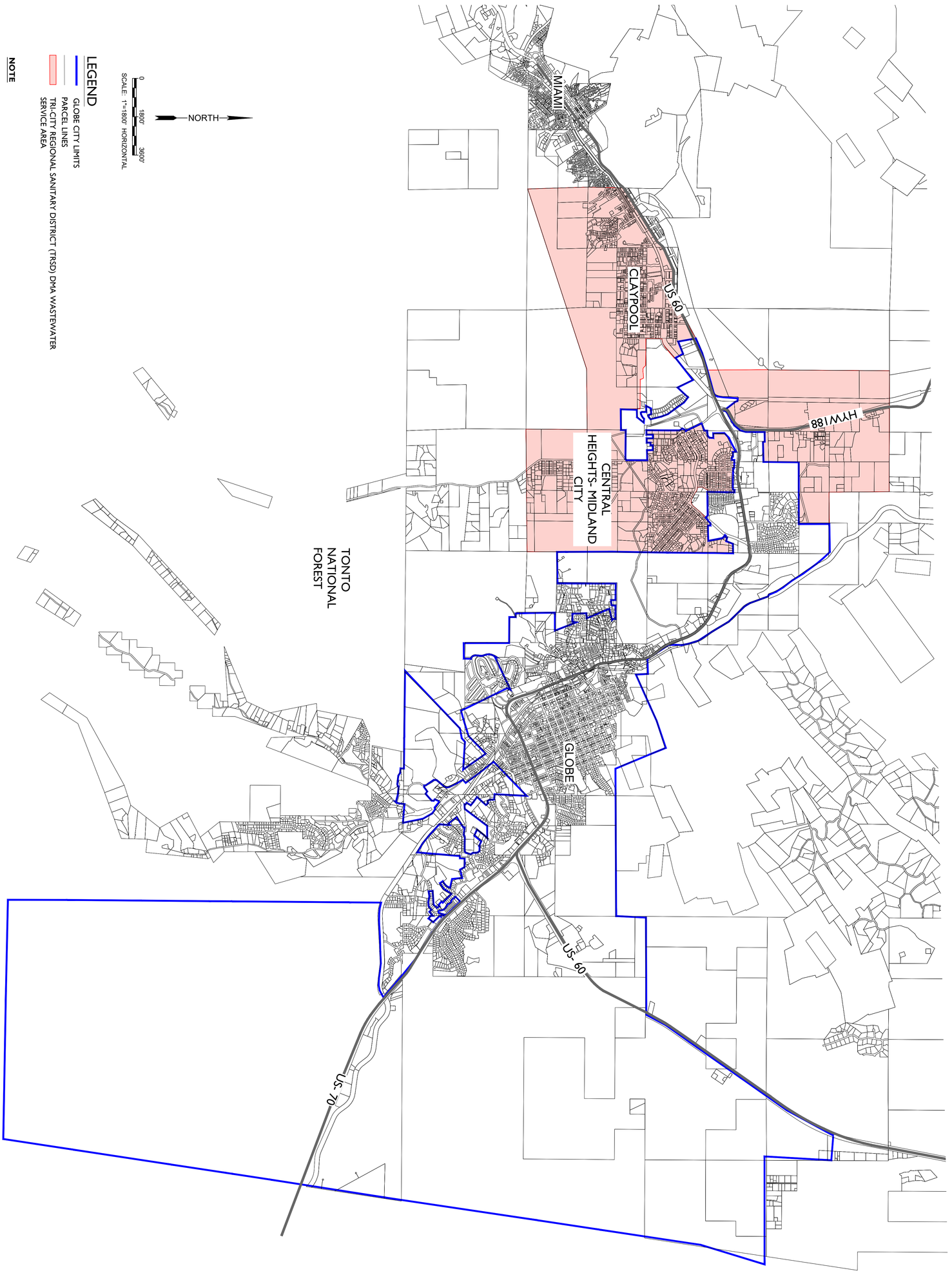
Section 27, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona, except any portion lying within the jurisdictional limits of the City of Globe; and

That part of Section 22, Township 1 North, Range 15 East, Gila and Salt River Meridian, Gila County, Arizona except any portion lying within the jurisdictional limits of the City of Globe and except any portion lying north of the south right-of-way line of East Golden Hill Road and east of the west right-of-way line of North Arbor Avenue.

EPS Group, Inc. • 1130 N. Alma School Rd, Suite 120 • Mesa, AZ 85201
Tel (480) 503-2250 • Fax (480) 503-2258

CAG 208 AMENDMENT PROJECT

iduarte Aug 29, 2019 12:06pm V:\CAD\City Of Globe\CAG 208 Amendment\Production Drawings\Exhibits\FIGURE 2.dwg



NORTH

SCALE: 1"=1800' HORIZONTAL
0 1800' 3600'

LEGEND

GLOBE CITY LIMITS

PARCEL LINES

TRI-CITY REGIONAL SANITARY DISTRICT (TRSD) DMA WASTEWATER SERVICE AREA

NOTE

DMA AREA SHOWN IS FOR ILLUSTRATION PURPOSES ONLY. SEE SERVICE AREA LEGAL DESCRIPTION FOR FURTHER INFORMATION.

Project:

CAG 208 AMENDMENT PROJECT
City Of Globe, Arizona

TRI-CITY REGIONAL SANITARY DISTRICT DMA WASTEWATER SERVICE AREA

Revisions:

NOT FOR CONSTRUCTION

Job No. 16-242

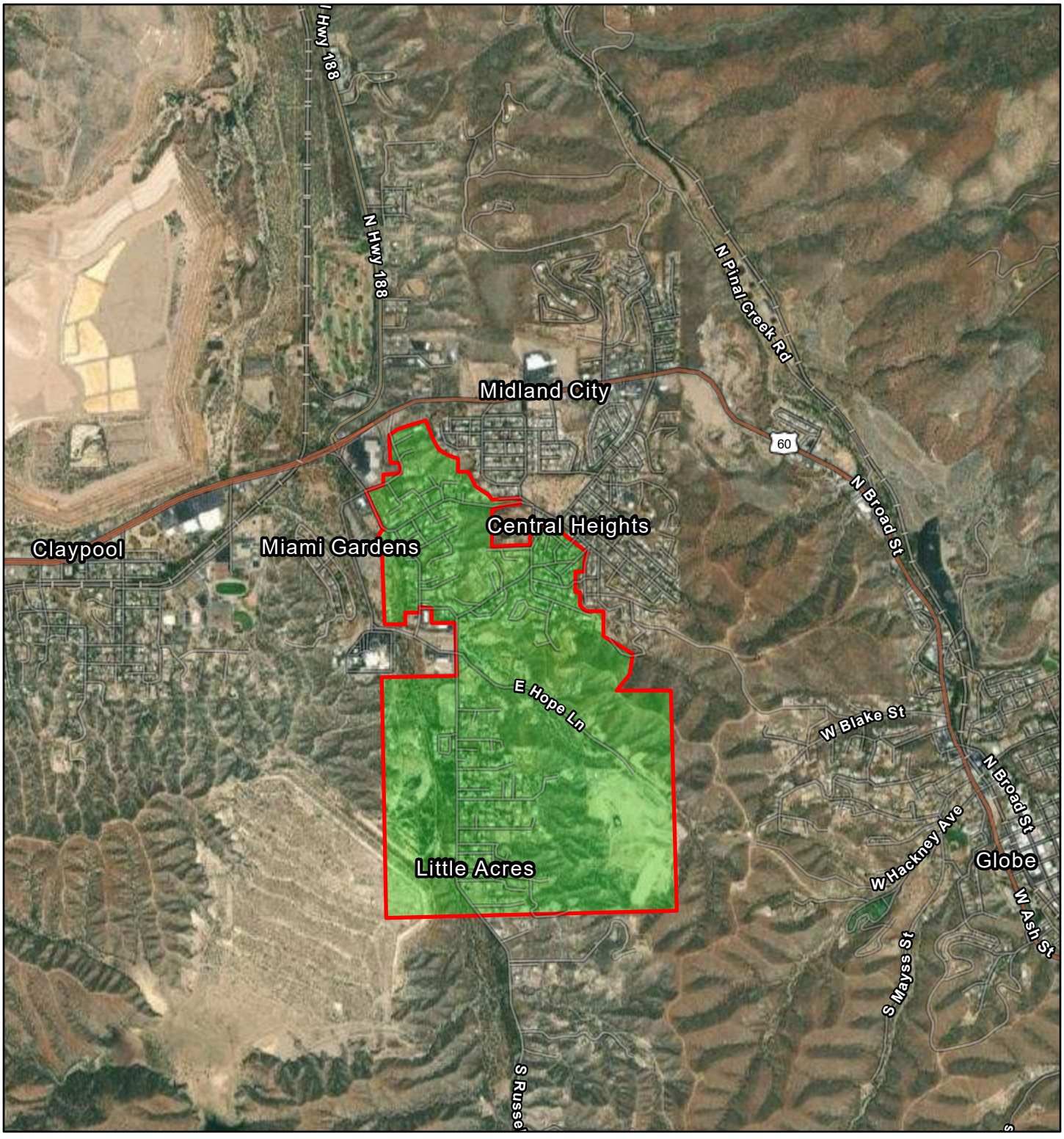
08-29-2019

Sheet No. 1 of 1

Designer: B.L.S.
Drawn by: S.C.D.

EPS GROUP
125 S. Avondale Blvd., Suite 115
Avondale, AZ 85323
T:623.547.4461 | F:623.547.4662
www.epsgroupinc.com

Phase 2 (2021)



10/4/2021

1:36,112

Project 1

0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

EJSCREEN Census 2010 Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description: TRSD Phase 2 (2021)

Summary	Census 2010
Population	1,254
Population Density (per sq. mile)	1,675
People of Color Population	427
% People of Color Population	34%
Households	494
Housing Units	567
Land Area (sq. miles)	0.75
% Land Area	100%
Water Area (sq. miles)	0.00
% Water Area	0%

Population by Race	Number	Percent
Total	1,254	-------
Population Reporting One Race	1,209	96%
White	1,022	81%
Black	12	1%
American Indian	31	2%
Asian	4	0%
Pacific Islander	1	0%
Some Other Race	140	11%
Population Reporting Two or More Races	45	4%
Total Hispanic Population	374	30%
Total Non-Hispanic Population	880	70%
White Alone	827	66%
Black Alone	10	1%
American Indian Alone	29	2%
Non-Hispanic Asian Alone	4	0%
Pacific Islander Alone	1	0%
Other Race Alone	1	0%
Two or More Races Alone	10	1%

Population by Sex	Number	Percent
Male	613	49%
Female	641	51%

Population by Age	Number	Percent
Age 0-4	88	7%
Age 0-17	337	27%
Age 18+	917	73%
Age 65+	212	17%

Households by Tenure	Number	Percent
Total	494	
Owner Occupied	379	77%
Renter Occupied	115	23%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description: TRSD Phase 2 (2021)

Summary of ACS Estimates	2014 - 2018
Population	1,337
Population Density (per sq. mile)	1,787
People of Color Population	571
% People of Color Population	43%
Households	585
Housing Units	700
Housing Units Built Before 1950	143
Per Capita Income	22,516
Land Area (sq. miles) (Source: SF1)	0.75
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	0.00
% Water Area	0%

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	1,337	100%	445
Population Reporting One Race	1,312	98%	732
White	1,259	94%	426
Black	0	0%	12
American Indian	17	1%	83
Asian	14	1%	159
Pacific Islander	0	0%	12
Some Other Race	22	2%	40
Population Reporting Two or More Races	25	2%	82
Total Hispanic Population	515	39%	282
Total Non-Hispanic Population	822		
White Alone	767	57%	347
Black Alone	0	0%	12
American Indian Alone	17	1%	71
Non-Hispanic Asian Alone	14	1%	159
Pacific Islander Alone	0	0%	12
Other Race Alone	0	0%	12
Two or More Races Alone	25	2%	82
Population by Sex			
Male	625	47%	196
Female	712	53%	291
Population by Age			
Age 0-4	56	4%	96
Age 0-17	294	22%	135
Age 18+	1,043	78%	312
Age 65+	357	27%	199

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2014 - 2018 .

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description: TRSD Phase 2 (2021)

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	955	100%	354
Less than 9th Grade	54	6%	90
9th - 12th Grade, No Diploma	164	17%	115
High School Graduate	315	33%	152
Some College, No Degree	240	25%	236
Associate Degree	40	4%	79
Bachelor's Degree or more	182	19%	134
Population Age 5+ Years by Ability to Speak English			
Total	1,282	100%	396
Speak only English	1,085	85%	374
Non-English at Home[1+2+3+4]	197	15%	207
[1]Speak English "very well"	108	8%	107
[2]Speak English "well"	71	6%	120
[3]Speak English "not well"	12	1%	145
[4]Speak English "not at all"	7	1%	74
[3+4]Speak English "less than well"	18	1%	163
[2+3+4]Speak English "less than very well"	89	7%	164
Linguistically Isolated Households*			
Total	39	100%	74
Speak Spanish	37	96%	70
Speak Other Indo-European Languages	0	0%	12
Speak Asian-Pacific Island Languages	2	4%	21
Speak Other Languages	0	0%	12
Households by Household Income			
Household Income Base	585	100%	180
< $15,000	83	14%	72
$15,000 - $25,000	118	20%	123
$25,000 - $50,000	220	38%	117
$50,000 - $75,000	25	4%	77
$75,000 +	140	24%	120
Occupied Housing Units by Tenure			
Total	585	100%	180
Owner Occupied	459	78%	153
Renter Occupied	126	22%	134
Employed Population Age 16+ Years			
Total	1,100	100%	354
In Labor Force	524	48%	264
Civilian Unemployed in Labor Force	30	3%	89
Not In Labor Force	576	52%	203

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of anyrace.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

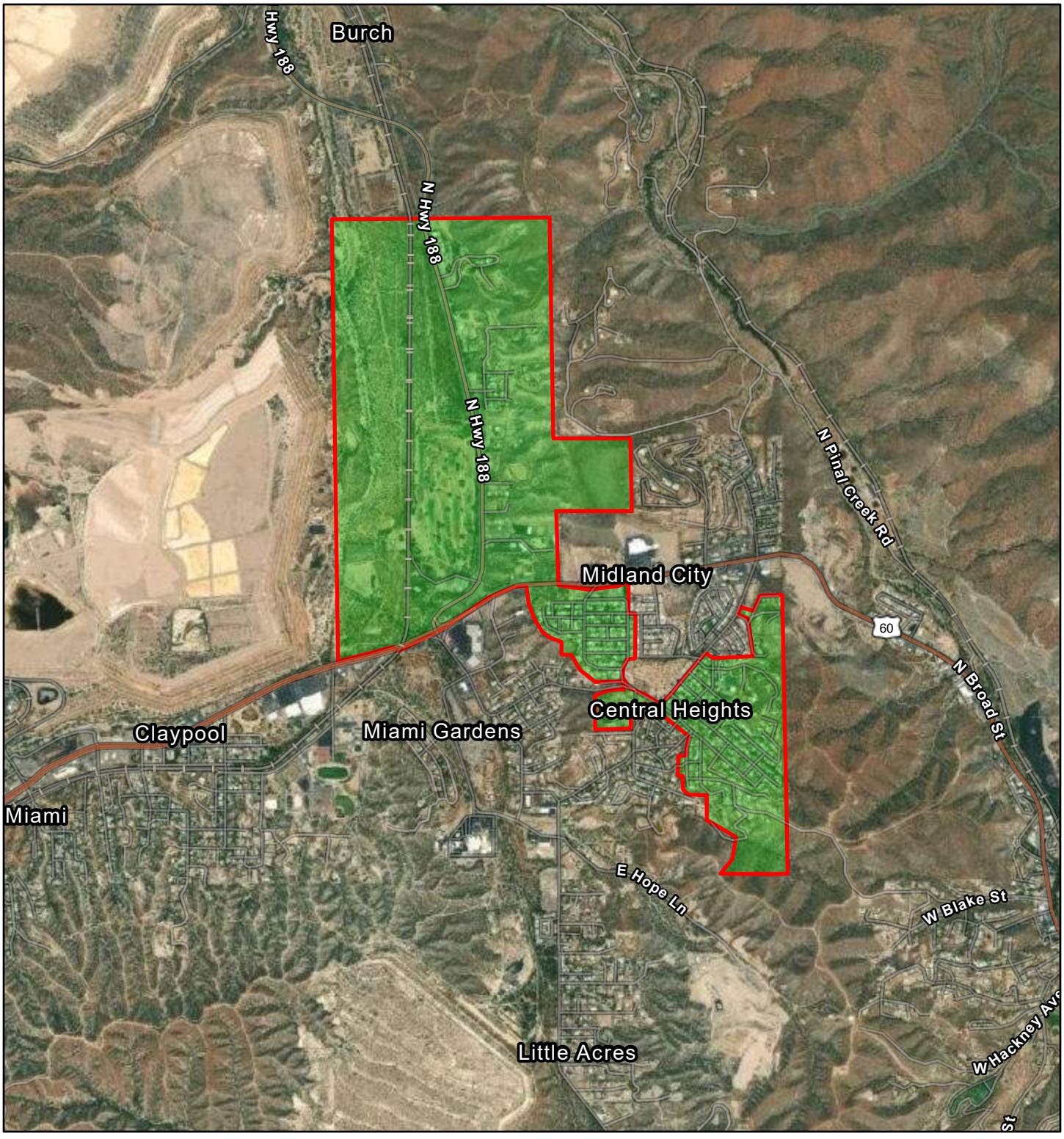
EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description: TRSD Phase 2 (2021)

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	812	100%	554
English	643	79%	577
Spanish	141	17%	300
French	0	0%	12
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	0	0%	12
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	0	0%	12
Chinese	22	3%	121
Japanese	N/A	N/A	N/A
Korean	0	0%	12
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	0	0%	12
Other Asian	0	0%	12
Tagalog	0	0%	12
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	12
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	6	1%	54
Total Non-English	169	21%	800

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2014 - 2018.
*Population by Language Spoken at Home is available at the census tract summary level and up.

Phase 3 (2021)



10/4/2021

1:36,112

TRSD Phase III (2021)

0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

EJSCREEN Census 2010 Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description: TRSD Phase 3 (2021)

Summary	Census 2010
Population	1,010
Population Density (per sq. mile)	867
People of Color Population	342
% People of Color Population	34%
Households	444
Housing Units	509
Land Area (sq. miles)	1.17
% Land Area	100%
Water Area (sq. miles)	0.00
% Water Area	0%

Population by Race	Number	Percent
Total	1,010	-------
Population Reporting One Race	983	97%
White	827	82%
Black	12	1%
American Indian	16	2%
Asian	6	1%
Pacific Islander	3	0%
Some Other Race	120	12%
Population Reporting Two or More Races	27	3%
Total Hispanic Population	300	30%
Total Non-Hispanic Population	710	70%
White Alone	668	66%
Black Alone	11	1%
American Indian Alone	15	1%
Non-Hispanic Asian Alone	6	1%
Pacific Islander Alone	2	0%
Other Race Alone	1	0%
Two or More Races Alone	7	1%

Population by Sex	Number	Percent
Male	488	48%
Female	522	52%

Population by Age	Number	Percent
Age 0-4	54	5%
Age 0-17	245	24%
Age 18+	765	76%
Age 65+	193	19%

Households by Tenure	Number	Percent
Total	444	
Owner Occupied	341	77%
Renter Occupied	103	23%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description: TRSD Phase 3 (2021)

Summary of ACS Estimates	2014 - 2018
Population	1,082
Population Density (per sq. mile)	928
People of Color Population	512
% People of Color Population	47%
Households	442
Housing Units	505
Housing Units Built Before 1950	74
Per Capita Income	18,892
Land Area (sq. miles) (Source: SF1)	1.17
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	0.00
% Water Area	0%

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	1,082	100%	445
Population Reporting One Race	1,068	99%	852
White	952	88%	426
Black	0	0%	12
American Indian	0	0%	83
Asian	32	3%	159
Pacific Islander	0	0%	12
Some Other Race	84	8%	160
Population Reporting Two or More Races	13	1%	82
Total Hispanic Population	466	43%	315
Total Non-Hispanic Population	615		
White Alone	570	53%	347
Black Alone	0	0%	12
American Indian Alone	0	0%	71
Non-Hispanic Asian Alone	32	3%	159
Pacific Islander Alone	0	0%	12
Other Race Alone	0	0%	12
Two or More Races Alone	13	1%	82
Population by Sex			
Male	559	52%	206
Female	523	48%	291
Population by Age			
Age 0-4	66	6%	96
Age 0-17	279	26%	135
Age 18+	803	74%	312
Age 65+	160	15%	199

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2014 - 2018 .

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description: TRSD Phase 3 (2021)

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	748	100%	354
Less than 9th Grade	90	12%	90
9th - 12th Grade, No Diploma	109	15%	115
High School Graduate	195	26%	152
Some College, No Degree	308	41%	236
Associate Degree	32	4%	79
Bachelor's Degree or more	46	6%	99
Population Age 5+ Years by Ability to Speak English			
Total	1,015	100%	396
Speak only English	750	74%	374
Non-English at Home[1+2+3+4]	265	26%	207
[1]Speak English "very well"	171	17%	163
[2]Speak English "well"	7	1%	120
[3]Speak English "not well"	71	7%	145
[4]Speak English "not at all"	16	2%	74
[3+4]Speak English "less than well"	87	9%	163
[2+3+4]Speak English "less than very well"	94	9%	164
Linguistically Isolated Households*			
Total	18	100%	74
Speak Spanish	14	77%	70
Speak Other Indo-European Languages	0	0%	12
Speak Asian-Pacific Island Languages	4	23%	21
Speak Other Languages	0	0%	12
Households by Household Income			
Household Income Base	442	100%	152
< $15,000	89	20%	78
$15,000 - $25,000	141	32%	117
$25,000 - $50,000	112	25%	117
$50,000 - $75,000	22	5%	77
$75,000 +	78	18%	120
Occupied Housing Units by Tenure			
Total	442	100%	152
Owner Occupied	287	65%	153
Renter Occupied	155	35%	100
Employed Population Age 16+ Years			
Total	848	100%	354
In Labor Force	508	60%	264
Civilian Unemployed in Labor Force	70	8%	89
Not In Labor Force	340	40%	203

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of anyrace.
N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 0-miles radius
Description: TRSD Phase 3 (2021)

	2014 - 2018 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	2,323	100%	554
English	1,841	79%	577
Spanish	403	17%	300
French	0	0%	12
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	0	0%	12
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	0	0%	12
Chinese	62	3%	121
Japanese	N/A	N/A	N/A
Korean	0	0%	12
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	0	0%	12
Other Asian	0	0%	12
Tagalog	0	0%	12
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	12
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	18	1%	54
Total Non-English	482	21%	800

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2014 - 2018.
*Population by Language Spoken at Home is available at the census tract summary level and up.

1907 - 2007

City of Globe

150 N. Pine Street
Globe, Arizona 85501

March 26, 2019

Malissa Buzan
Board President
Tri-City Regional Sanitary District
PO Box 2198
Claypool, AZ 85532

Dear Ms. Buzan

The purpose of this letter is to express the support by the City of Globe City Council for the Tri-City Regional Sanitary District (TRSD) and their effort to develop modern sewer infrastructure and deliver high quality yet affordable sewer services to the unincorporated areas of southern Gila County between the City of Globe and the town of Miami. It is critical that these underserved areas of our region be provided with wastewater collection infrastructure to improve the quality of life of the residents and to enhance the overall economic viability of the area. As part of our collaborative efforts with the TRSD and the Town of Miami, we look forward to approval of our mutually agreed upon Designated Management Area (DMA) boundary amendments currently under review by Central Arizona Governments (CAG). The City of Globe City Council looks forward to the development of our future partnerships as your USDA funded infrastructure project advances.

Sincerely,

Al Gameros
Mayor

Revision 2 March 26, 2019

TOWN COUNCIL

Darryl Dalley, Mayor
Sammy Gonzales, Vice-Mayor
Michael Black
Patricia Bringhurst
Jose "Angel" Medina
Dan Moat
Don Reiman

TOWN OF MIAMI
"Copper Center of the World"

500 W. Sullivan St.
Miami, AZ 85539
928-473-4403
www.miamiaz.gov

ADMINISTRATION

Joseph Heatherly
Town Manager
Karen Norris
Town Clerk

April 15, 2019

Ms. Mary Ann Moreno
Tri City Regional Sanitary District
c/o Law Offices of William L. Clemmens
416 West Sullivan Street
Miami, Arizona 85539

Dear Ms. Moreno:

The Town of Miami's Council has, for many years, realized that the septic and cesspool collection systems within the area of the old Pinal Sanitary District and the Cobre Valley Sanitary District need to be eliminated. Many years ago, Tri City Regional Sanitary District (TRSD) was formed by the combination of the previous two districts and it initiated a study to develop a sewer collection system. The proposed project to install new sewer collection lines within much of the unincorporated parts of southern Gila County lying between Miami and Globe would be a much needed project addressing many existing sanitary and environmental issues within our community.

The Town of Miami supports the TRSD project and feels it is critical to the overall economic development of our community.

Sincerely,

Darryl Dalley
Mayor, Town of Miami

Notive of Violations within TRSD

No.	APN	NOV Sewage	NOV Greywater	Failed Sewage System	Area
1	206-02-050		x	x	Claypool
2	206-02-055		x		Claypool
3	206-02-060		x		Claypool
4	206-03-007		x		Claypool
5	206-03-008		x		Claypool
6	206-03-010		x		Claypool
7	206-03-109	x		x	Claypool
8	206-03-128		x		Claypool
9	206-03-143	x		x	Claypool
10	206-03-149A	x		x	Claypool
11	206-03-207	x	x	x	Claypool
12	206-06-104	x		x	Claypool
13	206-06-183A	x		x	Claypool
14	206-06-212	x			Claypool
15	206-06-216	x			Claypool
16	206-06-236	x		x	Claypool
17	206-06-311E			x	Claypool
18	206-06-349	x			Claypool
19	206-06-352	x			Claypool
20	206-06-396			x	Claypool
21	206-06-401A			x	Claypool
22	206-06-407	x			Claypool
23	206-09-002C	x		x	Claypool
24	206-09-007	x			Claypool
25	206-09-021B	x		x	Claypool
26	206-09-035	x		x	Claypool
27	206-09-041	x		x	Claypool
28	206-10-107	x			Claypool
29	206-10-109D	x			Claypool
30	206-10-125K			x	Claypool
31	207-04-012		x		Central Heights-Midland City
32	207-04-013			x	Central Heights-Midland City
33	207-04-024			x	Central Heights-Midland City
34	207-04-032			x	Central Heights-Midland City
35	207-04-034			x	Central Heights-Midland City
36	207-04-041		x		Central Heights-Midland City
37	207-04-043			x	Central Heights-Midland City
38	207-04-077			x	Central Heights-Midland City
39	207-04-090			x	Central Heights-Midland City
40	207-04-099	x			Central Heights-Midland City
41	207-04-134		x		
42	207-04-144			x	Central Heights-Midland City
43	207-06-009			x	Central Heights-Midland City
44	207-06-011			x	Central Heights-Midland City
45	207-06-107	x		x	Central Heights-Midland City
46	207-06-120			x	Central Heights-Midland City
47	207-06-127			x	Central Heights-Midland City
48	207-07-021			x	Central Heights-Midland City
49	207-07-044E			x	Central Heights-Midland City
50	207-08-017	x		x	Central Heights-Midland City
51	207-08-022			x	Central Heights-Midland City
52	207-08-034			x	Central Heights-Midland City
53	207-08-060	x			Central Heights-Midland City
54	207-08-062A	x			Central Heights-Midland City
55	207-08-081	x			Central Heights-Midland City
56	207-08-111			x	Central Heights-Midland City
57	207-08-196			x	Central Heights-Midland City
58	207-08-197	x			Central Heights-Midland City
59	207-08-244			x	
60	207-08-251		x		Central Heights-Midland City
61	207-09-009			x	Central Heights-Midland City
62	207-09-059			x	Central Heights-Midland City
63	207-09-077			x	Central Heights-Midland City
64	207-09-087	x			Central Heights-Midland City
65	207-09-123B			x	Central Heights-Midland City
66	207-09-137		x		Central Heights-Midland City
67	207-09-159			x	Central Heights-Midland City
68	207-09-182			x	Central Heights-Midland City
69	207-24-015			x	Little Acres
70	207-24-034B			x	Little Acres
71	207-24-46			x	Little Acres
72	207-24-055			x	Little Acres
73	207-24-078			x	Little Acres
74	207-24-113			x	Little Acres
75	207-27-020			x	Central Heights-Midland City

745 N Rose Mofford Way
(Mail to: 1400 E Ash St)
Globe Arizona 85501
(928)425-3231 Ext. 4224
FAX (928)425-0829

608 E. Hwy 260
Payson, Arizona 85541
(928)474-9276
FAX (928)474-0802

GILA COUNTY COMMUNITY DEVELOPMENT

Robert Gould, Director

Joe Mendoza, Deputy Director

SEWAGE TREATMENT STUDY
TRI-CITY REGIONAL SANITARY DISTRICT
NOVEMBER 2012

by
Jake Garrett, PE,
Gila County Wastewater Department Manager
Jim Berry
Gila County Wastewater Department Engineering Technician

Why the Maps: The project originally started as a visual method of identifying areas of concern for catastrophic failure of sewage handling and major public health concerns. It now demonstrates the predominance of cesspool use within Tri-City Regional Sanitary District (TRSD).

The Data for the Maps: Every property file in the possession of the Gila County Wastewater Department was examined to find sewage system permits of any type and citizen complaints for surfacing sewage or gray water leaving the property. A former Health Department Director told us that the earliest Gila County records for septic system permits are dated in 1979, that by 1984 Gila County had become "good" at seeing that septic systems were permitted, that permit requests were made by mail and that data provided was minimal and accuracy was lacking. As a result, by policy, Gila County does not recognize any percolation test results for tests conducted prior to 1990 due to the crude percolation test methods used.

Only 5 years of complaint data is available beginning in mid-2007. Prior to that time the Arizona Department of Environmental Quality (ADEQ) required that all complaint data be filed by street address rather than parcel number for auditing purposes. Consequently that information was not part of the property file and was discarded when ADEQ's audit directions changed in 2007.

A complaint is resolved and the public health hazard corrected when the property owner stops sewage from surfacing and/or gray water from ponding on or leaving his property and the contaminated area is properly cleaned and disinfected. If the property owner does not respond in 24 hours an escalating, 3-step, 3-day written violation process is begun which culminates in a Notice of Violation and Demand for Compliance. Should the owner not comply with the Demand for Compliance water service to the home is discontinued per Arizona Statute.

The Area: Tri-City Regional Sanitary District encompasses the unincorporated area between the Town of Miami and the City of Globe in southern Gila County, Arizona. The majority of this area was developed for housing during the first ½ of the 20th century mining boom. Subdivisions featured lots 25' x 150' (3750 ft²) with a small area in the

bottom of the canyon that was suitable for home and cesspool construction with the rear portion of the lot rising very steeply uphill. In addition the ground transitioned from runoff deposited loose material to a very hard and nonporous Gila Conglomerate as the building site approached the foot of the slope. Today most of these homes have nowhere close to enough usable land in which a replacement septic system can be installed. A few of these properties might qualify to use the enhanced sewage treatment qualities of an alternative system to overcome the lot limitations. In those cases the system cost is normally more than the appraised value of the property.

Cesspool Facts: Interviews with Gila County Health Department personnel and local septic system contractors with personal knowledge about the construction practices, public attitudes and permitting during the time period from late 1950's through the early 2000's produced the following recollections:

- In 1976 the *USE* of cesspools was prohibited by Engineering Bulletin 12, the Arizona Department of Health Service guidance document for the design and installation of septic and alternative systems.
- Homes served by cesspools were constructed beginning in 1907 or earlier. These cesspools are now 105 years old ... or new cesspools were constructed to replace those that filled or failed (probably multiple times) until the mid to late 1980's when permitting became expected by a majority of citizens.
- As of this date no action has been taken by the State of Arizona to enforce the prohibition on the use of cesspools in areas where pollution of ground or surface waters cannot be proven. Absent statewide enforcement the use of cesspools by an individual home in these areas has been allowed to continue until it fails either structurally or hydraulically.
- By policy Gila County does not allow expansion or remodeling of any home served by a cesspool.
- A former Gila County Health Department Director told us that:
  - Public attitudes shifted toward installing septic systems rather than cesspools in 1979
  - At that time most permits were mailed to the Globe Health Department offices.
- A local contractor stated that his business got busy installing septic systems in early 1970.
- No permits were ever issued for cesspools however they are referenced in the building files upon occasion. Those mentioned are shown on the maps.
- Banks throughout Arizona are now and have been for 3-5 years declining to lend on homes served by a cesspool.
- It is estimated that the average lot size within the TRSD boundary is 5,000 ft^2 while the mining subdivisions had lot sizes of 3,750 ft^2. These lot sizes equate to an average density of 8.72 to 11.63 homes per acre. Current regulations would require any subdivision with a density of greater than one (1) home per acre to reduce the Nitrogen contribution to the ground in addition to removing the biological contaminants and viruses through advanced treatment systems or a sewer collection and treatment system.

Conclusions that can be drawn from the maps:

- There are very few permitted septic systems within the TRSD boundary.
- Very few unpermitted septic systems have been found in the building files.
- Cesspools are likely used for sewage disposal on all lots that do not have either a permitted or unpermitted system. This represents vast majority of homes within TRSD.
- Some multiple lot properties have been able to replace failed cesspools with septic systems. Usually there are multiple cesspools replaced by one septic system.
- Some functioning cesspools have been identified in the last 5 years.
- Several cesspools have failed and the properties have become unusable.
- Gray water complaints represent properties that are experiencing cesspool problems. Homeowners usually remove their gray water from the cesspool in an effort to extend its life. Many of these properties have a history of multiple complaints in the last 5 years indicating that their cesspool is nearing failure. .

- All lots that do not show a permitted system (since 2001 rule) are in danger of failure as is evidenced by the number of surfacing sewage complaints and Notices of Violation (NOV's)
- Based on the sewage and gray water complaint and NOV properties it is estimated that between 5% and 10% of the homes within TRSD have experienced cesspool problems within the last 5 years

Estimate of homes within TRSD using cesspools and sub-standard septic systems: This estimate is presented in support of the maps and conclusions that are presented above. An estimate of the number of homes served by cesspools and substandard septic systems within the TRSD boundary was made from the 2000 U.S. Census Bureau data for Gila County by logical reasoning and the following assumptions:

- Percentages of homes constructed in southern Gila County is represented by the sum of
  Globe and Miami home construction and those in northern Gila County is represented by Payson home construction.
- Cesspool use stopped in 1969.
- Substandard septic systems were installed through 1989 when an updated Bulletin 12 was introduced by the Arizona Department of Environmental Quality.

From these rough calculations it is reasonable to assume that there are at least 1342 operating cesspools and 266 operating substandard septic systems within the TRSD boundary. **This estimate would then say that there are 1608 homes within TRSD that are served by cesspools or substandard septic systems**.

Jake Garrett
Wastewater Department Manager
November 14, 2012

745 N Rose Mofford Way
Globe Arizona 85501
(928)425-3231 Ext. 4224
FAX (928)425-0829

608 E. Hwy 260
Payson, Arizona 85541
(928)474-9276
FAX (928)474-0802

GILA COUNTY COMMUNITY DEVELOPMENT

Robert Gould, Director

Cesspools:
Water Quality and Your Property Value

The Hard, Cold Facts about Cesspools:
A cesspool is an outhouse with running water. Cesspools discharge untreated waste into the soil that will ultimately contaminate the ground water. ***Cesspools have not been approved for use in Arizona since 1976 because they are a major source of ground water contamination.*** No permits for the construction of new cesspools have been issued since that time.

Cesspools may not be repaired in any way. When a cesspool fails it must be replaced by an approved Onsite Wastewater Treatment and Disposal System or the property must cease to be occupied. Replacement is very difficult or impossible due to small lot size, poor soils, proximity to streams and other severe lot constraints.

In current ADEQ regulations cesspools are not a permitted method of wastewater disposal and are prohibited expressly under R18-9-A309(A)(4) and R18-5-408(D). Because of this fact many financial institutions are not lending on properties serviced by a cesspool.

Cesspool Definition:
Underground pit into which raw household wastewater is discharged and from which the liquid seeps into the surrounding soil; may or may not be partially lined.

How a cesspool functions:
A cesspool is a covered hole or pit for receiving sewage from a house. Another way of thinking about a cesspool is that it is an outhouse with running water. Usually the walls are constructed out of concrete, brick or concrete blocks and the top cover is usually a poured concrete slab or timbers. The constructions of the sidewalls are loose to allow the effluent water to penetrate through the holes, allowing the water to pass into the native soil while the solids build up in the pit.

This solid waste, very similar to what you see in outhouse pits, may partially crumble into smaller pieces over time and be partially carried into the environment in a totally untreated state by the new liquids entering the cesspool. This material is a host for many disease-causing viruses, bacteria, and parasites. Unlike septic systems, cesspools provide no treatment of the raw sewage and thus discharge untreated human waste into the soil and ultimately contaminate the ground water.

By contrast, septic systems remove 100% of the disease-causing viruses, bacteria, and parasites. In a properly designed and installed septic system the tank retains 60 to

70% of the solids, oil, and grease that pass into the system and provides some treatment. The partially treated wastewater is then discharged into the leach lines, where the surrounding soil provides final treatment of the sewage prior to its discharge into the environment.

Cesspools in Gila County:

Cesspools were the preferred method of waste disposal in Gila County through the late 1960's. At that time, a transition to installation of septic systems started and by 1984 all permitted installations were septic systems. Based on US Census 2000 information, it is estimated that there are nearly 3,000 cesspools still in operation in Gila County. Most properties utilizing cesspools for human waste disposal are located in dense unincorporated areas in southern Gila County and the forest subdivisions of northern Gila County, Tonto Basin and Young. Dense from an on-site sewage system point of view means greater than 2 homes per acre. Most of these densely populated areas have 8-10 homes per acre. Many of these areas are along and very close to flowing streams and are major contributors to stream pollution.

Cesspool Failure:

When a cesspool's lid, sides or structural members deteriorate or collapse and sewage comes to the surface or backs up into the home, it is determined to have failed and must be corrected immediately. Possible corrective actions include:

- Ceasing use of the home or
- Install an appropriate wastewater treatment system.

Most cesspools are located on extremely small lots. In addition, these lots usually have very poor soil conditions and steep slopes and/or large retaining walls and may be very near running streams. *These conditions will almost always preclude installation of a conventional septic system.* In many cases installation of a more costly alternative sewage treatment system that treats sewage to a much higher degree, requires less disposal area and overcomes many site specific obstacles will not be possible.

Arizona Department of Environmental Quality (ADEQ) Cesspool Statement:

"ADEQ recognizes that a number of residential cesspools remain in operation in Gila County and across the state. However, since their operation is generally prohibited and …. They unacceptably endanger water quality and the public health and safety … their continued operation should not be encouraged. ADEQ believes that home inspectors and on-site transfer inspections that may occur should encourage potential buyers to require the installation of a permitted facility."

Gila County Policy Statement

The current Gila County Wastewater Department policy regarding ***waste systems installed prior to 1976*** is stated in the Gila County Health Department letter dated 12/9/1996 and partially quoted here:

> "**Any** system that was installed prior to 1976 including but not limited to cesspools, homemade septic tanks, or other sewage disposal hybrid devices would be grandfathered in until these "systems" fail or the residence plumbing is modified."

In support of this policy the following practices were implemented:

Nuisance Complaint Investigation:

Should failure be discovered through the complaint process, while investigating a possible Environmental Nuisance or during any normal business activity undertaken by Gila County, the failure must be immediately corrected. Possible corrective actions include:

- Ceasing use of the home or
- Install an appropriate wastewater treatment system.
  (Failure means any structural or hydraulic failure and is evidenced by such things as collapsed lids, deterioration of sidewall structural components, back-up of sewage into the home, groundwater contamination or surfacing of sewage.)

Building Clearance:

The Wastewater Department will not approve the submittal of building plans for any property served by a cesspool if those plans expand the footprint of buildings or structures on the property or alter the wastewater flow characteristics (bedrooms or plumbing fixtures) of the property.

Conclusion:

Don't let your dependence on a cesspool get you into a hole that you can't dig yourself out of!

1400 East Ash Street
Globe Arizona 85501
(928)425-3231 Ext. 8512
FAX (928)425-0829

714 S. Beeline Hwy, Suite 200
Payson, Arizona 85541
(928)474-9276
FAX (928)474-0802

GILA COUNTY COMMUNITY DEVELOPMENT

Robert Gould, Director

August 8, 2008

Wastewater Department Policy Statement
Re: Cesspool Replacement Policy

Policy Statement

The current Gila County Wastewater Department policy regarding *waste* ***systems installed prior to 1976*** is stated in the Gila County Health Department letter dated 12/9/1996 and partially quoted here:

> "**Any** system that was installed prior to 1976 including but not limited to cesspools, homemade septic tanks, or other sewage disposal hybrid devices would be grandfathered in until these "systems" fail or the residence plumbing is modified."

In support of this policy the following practices were implemented:

Nuisance Complaint Investigation:

- Should failure be discovered through the complaint process, while investigating a possible Environmental Nuisance or during any normal business activity undertaken by Gila County, the failure must be immediately corrected. Possible corrective actions include:
  - Ceasing use of the home or
  - Install an appropriate wastewater treatment system.

  (**Failure** means any structural or hydraulic failure and is evidenced by such things as collapsed lids, deterioration of sidewall structural components, back-up of sewage into the home, groundwater contamination or surfacing of sewage.)

Building Clearance:

- The Wastewater Department will not approve the submittal of building plans for any property served by a cesspool if those plans alter the wastewater flow characteristics (increase number of bedrooms or plumbing fixtures) on the property.

Respectfully,

Jake Garrett, P.E.
Wastewater Department Manager

745 N Rose Mofford Way
Globe Arizona 85501
(928)425-3231 Ext. 4224
FAX (928)425-0829

608 E. Hwy 260
Payson, Arizona 85541
(928)474-9276
FAX (928)474-0802

GILA COUNTY COMMUNITY DEVELOPMENT

Robert Gould, Director

USE OF CESSPOOLS IS PROHIBITED BY LAW

If you have a cesspool … you are

BREAKING THE LAW

Every Time You Flush

Arizona Administrative Code (AAC)

R18-9-A309. General Provisions for On-site Wastewater Treatment Facilities

A. General requirements and prohibitions.

1. No person shall discharge sewage or wastewater that contains sewage from an on-site wastewater treatment facility except under an Aquifer Protection Permit issued by the Director.
2. A person shall not install, allow to be installed, or maintain a connection between any part of an on-site wastewater treatment facility and a drinking water system or supply so that sewage or wastewater contaminates the drinking water.
3. A person shall not bypass or release sewage or partially treated sewage that has not completed the treatment process from an on-site wastewater treatment facility.
4. **A person shall not use a cesspool for sewage disposal.**

…

R18-5-408. Individual sewage disposal systems

A. Recommendations are found in the engineering bulletins of the Department and such additional requirements as may be provided by local health departments to assist in approval regarding the design, installation and operation of individual sewage disposal systems. Copies of these bulletins may be obtained from the Department.

B. Where soil conditions and terrain features or other conditions are such that individual sewage disposal systems cannot be expected to function satisfactorily or where groundwater or soil conditions are such that individual sewage disposal systems may cause pollution of groundwater, they are prohibited.

C. Where such installations may create an unsanitary condition or public health nuisance, individual sewage disposal systems are prohibited.

D. The use of cesspools is prohibited.

…

Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Stephen A. Owens
Director

April 7, 2008

Jake Garrett, P.E.
Gila County Community Development Division
Wastewater Department Manager
714 S. Beeline Hwy, Ste 200
Payson, AZ 85541

Dear Mr. Garrett:

We have received your letter dated March 18, 2008 regarding cesspools. First, any information provided to you by our Department suggesting that cesspools are to be inspected or transferred under A.A.C. Title 18 is incorrect. Cesspools are not a permitted method of wastewater disposal and are prohibited expressly under R18-9-A309(A)(4) and R18-5-408(D). Accordingly, they are not subject to the notice of transfer requirements of R18-9-A304, the presale inspection rules of R18-9-A316, or the repair provisions of R18-9-A309(A)(9).

In addition to being prohibited under the "General Provisions for On-site Wastewater Treatment Facilities" section of the rule, cesspools do not meet the requirement of the R18-9-B301(I)(1)(b). That provision refers specifically to "[a]n on-site wastewater treatment facility with flows less than 20,000 gallons per day operating before January 1, 2001." The definition of "on-site wastewater treatment facility" is provided in rule (R18-9-101(27));

> "On-site wastewater treatment facility" means a conventional septic tank system or alternative system installed at a site to treat and dispose of wastewater, predominantly of human origin, generated at that site. ...

ADEQ recognizes that a number of residential cesspools remain in operation in Gila County and across the state. However, since their operation is generally prohibited and, as your letter effectively conveys, they unacceptably endanger water quality and the public health and safety, their continued operation should not be encouraged. ADEQ believes that home inspectors and on-site transfer inspections that may occur should encourage potential buyers to require the installation of a permitted facility. Also, we would like to explore with you ways to educate current and potential homeowners of the prohibition against cesspool operation and appropriate methodologies to phase out their use in Gila County.

Please feel free to call me at (602) 771-2306 or David Lelsz at (602) 771-4447.

Sincerely,

Joan Card, Director
Water Quality Division

SAMUEL ACCOUNTING SERVICES

ACCOUNTING & INCOME TAX SERVICE

Karen A. Samuel, EA

Accountant's Notes

August 15, 2019

Tri City Regional Sanitary District

P.O. Box 2198

Claypool, AZ 85532

RE: Financial Statements for the Period July1, 2018 thru June 30, 2019

The enclosed Financial Statements for Tri City Regional Sanitary District, as referenced above, have been prepared from the books and records of the business in accordance with standards established by the American Institute of Certified Public Accountants.

In as much as we have performed no audit of the underlying documents, records, and transactions upon which the statements are based, we offer no opinions, expressed or implied, as to their fairness of presentation or adequacy of disclosure.

Karen A Samuel. EA

247 S Hill Street, Globe, AZ 85501
928-425-3757 FAX 928-425-7709

Tri City Regional Sanitary District
Balance Sheet
As of June 30, 2019

	Jun 30, 19
ASSETS	
Current Assets	
Checking/Savings	
Cash in Checking	179,689.73
Total Checking/Savings	179,689.73
Total Current Assets	179,689.73
Fixed Assets	
Land	3,600.00
Total Fixed Assets	3,600.00
TOTAL ASSETS	**183,289.73**
LIABILITIES & EQUITY	
Equity	
Opening Balance Equity	101,686.14
Retained Earnings	148,522.95
Net Income	-66,919.36
Total Equity	183,289.73
TOTAL LIABILITIES & EQUITY	**183,289.73**

Tri City Regional Sanitary District
Profit & Loss
July 2018 through June 2019

	Jul '18 - Jun 19	Jul '17 - Jun 18
Ordinary Income/Expense		
Income		
INTEREST EARNED	4,217.54	2,108.78
SECURED TAXES	152,406.60	102,963.04
UNSECURED TAXES	1,913.00	0.00
Total Income	158,537.14	105,071.82
Expense		
Contract Services		
Accounting Fees	717.80	173.60
Engineering - Grant Match	100,853.47	36,147.26
Legal Fees	102,463.42	18,913.00
Outside Contract Services	770.17	682.67
Total Contract Services	204,804.86	55,916.53
Facilities and Equipment		
Rent, Parking, Utilities	340.00	0.00
Total Facilities and Equipment	340.00	0.00
Operations		
Postage, Mailing Service	2,810.29	116.00
Printing and Copying	4,981.90	1,586.07
Supplies	13.47	0.00
Total Operations	7,805.66	1,702.07
Other Types of Expenses		
Insurance - Liability, D and O	4,850.38	4,787.43
Other Costs	7,201.29	0.00
Total Other Types of Expenses	12,051.67	4,787.43
Travel and Meetings		
Conference, Convention, Meeting	137.10	193.27
Travel	317.21	0.00
Total Travel and Meetings	454.31	193.27
Total Expense	225,456.50	62,599.30
Net Ordinary Income	-66,919.36	42,472.52
Other Income/Expense		
Other Expense		
Ask My Accountant	0.00	0.00
Total Other Expense	0.00	0.00
Net Other Income	0.00	0.00
Net Income	**-66,919.36**	**42,472.52**

Samuel Accounting Services

ACCOCUNTING & INCOME TAX SERVICE

Karen A. Samuel, EA

July 13, 2020

Tri City Regional Sanitary District
P.O. Box 2198
Claypool, AZ 85532

Re: Financial Statements for the Month and Year to Date Ended June 30, 2020

The enclosed financial statement for Tri City Regional Sanitary District as referenced above, have been prepared from the books and records of the business in accordance with standards established by the American Institute of Certified Public Accountants.

In as much as we have performed no audit of the underlying documents, records, and transactions upon which the statements are based, we offer no opinion, expressed or implied, as to their fairness of presentation or adequacy of disclosure.

Karen A Samuel EA
Samuel Accounting Services, Inc

Tri City Regional Sanitary District
Balance Sheet
As of June 30, 2020

	Jun 30, 20
ASSETS	
Current Assets	
Checking/Savings	
Cash in Checking	243,815.97
Total Checking/Savings	243,815.97
Total Current Assets	243,815.97
TOTAL ASSETS	**243,815.97**
LIABILITIES & EQUITY	
Equity	
Opening Balance Equity	101,686.14
Retained Earnings	81,654.50
Net Income	60,475.33
Total Equity	243,815.97
TOTAL LIABILITIES & EQUITY	**243,815.97**

Tri City Regional Sanitary District
Profit & Loss
July 2019 through June 2020

	Jul '19 - Jun 20	
Ordinary Income/Expense		
Income		
INTEREST EARNED	3,572.03	
SECURED TAXES	176,292.08	
Total Income		179,864.11
Expense		
Contract Services		
Accounting Fees	942.70	
Engineering - Grant Match	52,124.82	
Legal Fees	57,456.98	
Outside Contract Services	938.77	
Total Contract Services		111,463.27
Facilities and Equipment		
Rent, Parking, Utilities	575.00	
Total Facilities and Equipment		575.00
Operations		
Postage, Mailing Service	120.00	
Printing and Copying	2,309.06	
Supplies	71.07	
Total Operations		2,500.13
Other Types of Expenses		
Insurance - Liability, D and O	4,850.38	
Total Other Types of Expenses		4,850.38
Total Expense		119,388.78
Net Ordinary Income		60,475.33
Net Income		**60,475.33**

Samuel Accounting Services

ACCOCUNTING & INCOME TAX SERVICE

Karen A. Samuel, EA

July 8, 2021

Tri City Regional Sanitary District
P.O. Box 2198
Claypool, AZ 85532

Re: Financial Statements for the Month and Year to Date Ended June 30, 2021

The enclosed financial statement for Tri City Regional Sanitary District as referenced above, have been prepared from the books and records of the business in accordance with standards established by the American Institute of Certified Public Accountants.

In as much as we have performed no audit of the underlying documents, records, and transactions upon which the statements are based, we offer no opinion, expressed or implied, as to their fairness of presentation or adequacy of disclosure.

Karen A. Samuel, EA

Samuel Accounting Services, Inc

Tri City Regional Sanitary District
Balance Sheet
As of June 30, 2021

	Jun 30, 21	
ASSETS		
Current Assets		
Checking/Savings		
Cash in Checking		
CWIP (TRSD PHASE II PER/EA)	135,200.00	
Cash in Checking - Other	177,871.24	
Total Cash in Checking		313,071.24
Total Checking/Savings		313,071.24
Total Current Assets		313,071.24
TOTAL ASSETS		**313,071.24**
LIABILITIES & EQUITY		
Equity		
Opening Balance Equity		101,686.14
Retained Earnings		142,129.83
Net Income		69,255.27
Total Equity		313,071.24
TOTAL LIABILITIES & EQUITY		**313,071.24**

SEE ACCOUNTANT'S NOTES

Tri City Regional Sanitary District
Profit & Loss
June 2021

	Jun 21	Jul '20 - Jun 21
Ordinary Income/Expense		
Income		
INTEREST EARNED	163.99	3,269.67
SECURED TAXES	4,716.29	192,708.11
UNSECURED TAXES	0.00	291.08
Total Income	4,880.28	196,268.86
Expense		
Contract Services		
Accounting Fees	0.00	1,337.90
Legal Fees	28,803.53	115,490.07
Outside Contract Services	75.00	945.17
Total Contract Services	28,878.53	117,773.14
Facilities and Equipment		
Rent, Parking, Utilities	225.00	1,875.00
Total Facilities and Equipment	225.00	1,875.00
Operations		
Postage, Mailing Service	0.00	120.00
Printing and Copying	51.27	534.37
Total Operations	51.27	654.37
Other Types of Expenses		
Insurance - Liability, D and O	955.00	5,490.64
Other Costs	0.00	149.90
Total Other Types of Expenses	955.00	5,640.54
Travel and Meetings		
Travel	80.50	1,070.54
Total Travel and Meetings	80.50	1,070.54
Total Expense	30,190.30	127,013.59
Net Ordinary Income	-25,310.02	69,255.27
Net Income	**-25,310.02**	**69,255.27**

TRI CITY REGIONAL SANITARY DISTRIC
CASH FLOW

				LEGAL FEES	PUBLISHING PRINTING	OFF SUPP POSTAGE	BOARD EXPENSES	ACCOUNTING	TRAVEL	INSURANCE
		BUDGET AMT		$ 140,000.00	$ 2,500.00	$ 3,859.93	$ 5,000.00	$ 30,000.00	$ 9,000.00	$ 6,000.00
	vendor	ck #	AMT							
7/21/2020										
7/21/2020	J.E. THAYER	1375	$ 50.00		$ 50.00					
7/21/2020	IBEW	1376	$ 75.00				$ 75.00			
8/14/2020	W.L. CLEMMENS	1377	$ 7,575.00	$ 7,575.00						
8/24/2020	SAMUEL ACCTG	1378	$ 152.10					$ 152.10		
8/24/2020	J.E. THAYER	1379	$ 62.50		$ 62.50					
8/24/2020	W.L. CLEMMENS	1380	$ 5,665.00	$ 5,665.00						
9/21/2020	IBEW	1381	$ 75.00				$ 75.00			
9/24/2020	IBEW	1382	$ 150.00				$ 150.00			
9/21/2020	W.L. CLEMMENS	1383	$ 6,335.00	$ 6,335.00						
10/19/2020	J.E. THAYER	1384	$ 50.00		$ 50.00					
10/19/2020	IBEW	1385	$ 150.00				$ 150.00			
10/19/2020	W.L. CLEMMENS	1386	$ 7,062.09	$ 7,062.09						
10/19/2020	SAMUEL ACCTG	1387	$ 181.40					$ 181.40		
10/19/2020	J.E. THAYER	1388	$ 82.67		$ 82.67					
11/10/2020	ROBERT JACQUES	1389	$ 130.23			$ 27.88			$ 102.35	
11/10/2020	J.E. THAYER	1390	$ 200.00		$ 200.00					
11/10/2020	USPS	1391	$ 120.00			$ 120.00				
12/17/2020	IBEW	1392	$ 150.00				$ 150.00			
12/17/2020	MICHAEL HARPER	1393	$ 9,547.50	$ 9,547.50						
12/17/2020	IBEW	1394	$ 150.00				$ 150.00			
12/17/2020	W.L. CLEMMENS	1395	$ 4,979.00	$ 4,979.00						
12/17/2020	J.E. THAYER	1396	$ 50.00		$ 50.00					
12/17/2020	SAMUEL ACCTG	1397	$ 225.00					$ 225.00		
12/17/2020	MARY ANN MORENO	1398	$ 149.90			$ 149.90				
1/11/2021	IBEW	1399	$ 75.00				$ 75.00			
1/25/2021	IBEW	1400	$ 75.00				$ 75.00			
1/25/2021	HARPER LAW	1401	$ 2,055.64	$ 2,055.64						

TRI CITY REGIONAL SANITARY DISTRIC
CASH FLOW

				LEGAL FEES	PUBLISHING PRINTING	OFF SUPP POSTAGE	BOARD EXPENSES	ACCOUNTING	TRAVEL	INSURANCE
1/25/2021	ROBERT JACQUES	1402	$ 287.15				$ 287.15			
1/25/2021	J.E. THAYER	1403	$ 50.00		$ 50.00					
2/8/2021	IBEW	1404	$ 75.00				$ 75.00			
2/8/2021	J.E. THAYER	1405	$ 50.00		$ 50.00					
2/8/2021	SAMUEL ACCTG	1406	$ 457.20					$ 457.20		
3/8/2021	IBEW	1407	$ 75.00				$ 75.00			
3/8/2021	HARPER LAW	1408	$ 6,676.63	$ 6,676.63						
3/8/2021	ROBERT JACQUES	1409	$ 322.14				$ 108.81		$ 213.33	
3/8/2021	J.E. THAYER	1410	$ 50.00		$ 50.00					
3/14/2021	C.A.G	1411	$ 6,000.00	$ 6,000.00						
3/14/2021	INSURANCE NETWOR	1412	$ 4,535.64							$ 4,535.64
3/22/2021	HARPER LAW	1413	$ 7,967.05	$ 7,967.05						
4/12/2021	HARPER LAW	1414	$ 7,993.65	$ 7,993.65						
4/12/2021	IBEW	1415	$ 300.00				$ 300.00			
4/12/2021	ROBERT JACQUES	1416	$ 391.48		$ 279.93				$ 111.55	
4/12/2021	J.E. THAYER	1417	$ 50.00		$ 50.00					
4/12/2021	SAMUEL ACCTG	1418	$ 187.20					$ 187.20		
5/10/2021	IBEW	1419	$ 300.00				$ 300.00			
5/21/2021	ROBERT JACQUES	1420	$ 342.14			$ 46.71			$ 295.43	
5/21/2021	HARPER LAW	1421	$ 8,597.98	$ 8,597.98						
5/21/2021	J.E. THAYER	1422	$ 125.00		$ 125.00					
5/21/2021	HENZE COOK MURPH	1423	$ 6,232.00	$ 6,232.00						
5/21/2021	SAMUEL ACCTG	1424	$ 135.00					$ 135.00		
6/3/2021	INC	1425	$ 955.00							$ 955.00
6/14/2021	HARPER LAW	1427	$ 7,989.45	$ 7,989.45						
6/14/2021	HARPER LAW	1428	$ 10,972.08	$ 10,972.08						
6/14/2021	ROBERT JACQUES	1429	$ 131.77		$ 51.27			$ 80.50		
6/14/2021	J.E. THAYER	1430	$ 75.00				$ 75.00			
6/14/2021	HENZE COOK MURPH	1431	$ 9,842.00	$ 9,842.00						

			LEGAL FEES	PUBLISHING PRINTING	OFF SUPP POSTAGE	BOARD EXPENSES	ACCOUNTING	TRAVEL	INSURANCE
TOTAL EXPENSES		$ 126,738.59	$ 115,490.07	$ 1,151.37	$ 344.49	$ 2,120.96	$ 1,418.40	$ 722.66	$ 5,490.64
REMAINING BUDGET			$ 24,509.93	$ 1,348.63	$ 3,515.44	$ 2,879.04	$ 28,581.60	$ 8,277.34	$ 509.36

Tri City Regional Sanitary District
Reconciliation Detail
Cash in Checking, Period Ending 06/30/2021

Type	Date	Num	Name	Clr	Amount	Balance
Beginning Balance						344,823.26
Cleared Transactions						
Checks and Payments - 9 items						
Check	05/21/2021	1423	HENZE COOK & M...	X	-6,232.00	-6,232.00
Check	05/21/2021	1424	SAMUEL ACCOUN...	X	-135.00	-6,367.00
Check	06/03/2021	1425	INC	X	-955.00	-7,322.00
Check	06/14/2021	1427	HENZE COOK & M...	X	-10,972.08	-18,294.08
Check	06/14/2021	1431	HENZE COOK & M...	X	-9,842.00	-28,136.08
Check	06/14/2021	1426	MICHAEL HARPER	X	-7,989.45	-36,125.53
Check	06/14/2021	1428	Robert Jacques	X	-131.77	-36,257.30
Check	06/14/2021	1430	J.E. Ted Thayer	X	-75.00	-36,332.30
Transfer	06/30/2021			X	-135,200.00	-171,532.30
Total Checks and Payments					-171,532.30	-171,532.30
Deposits and Credits - 3 items						
Deposit	06/30/2021			X	163.99	163.99
Deposit	06/30/2021			X	4,716.29	4,880.28
Transfer	06/30/2021			X	135,200.00	140,080.28
Total Deposits and Credits					140,080.28	140,080.28
Total Cleared Transactions					-31,452.02	-31,452.02
Cleared Balance					-31,452.02	313,371.24
Uncleared Transactions						
Checks and Payments - 2 items						
Check	07/20/2020	1376	IBEW		-75.00	-75.00
Check	06/14/2021	1429	IBEW		-225.00	-300.00
Total Checks and Payments					-300.00	-300.00
Total Uncleared Transactions					-300.00	-300.00
Register Balance as of 06/30/2021					-31,752.02	313,071.24
Ending Balance					**-31,752.02**	**313,071.24**

TRI-CITY REGIONAL SANITARY DISTRICT

Proposed Budget FY 2021-2022

REVENUES	**PROPOSED 2021-22**
DISTRICT AD VALOREM TAX 2021-22(Estimated)	186,000.00
Added Tax 2021-2022	30,000.00
TOTAL ADMINSTRATIVE REVENUE	**216,000.00**
Capital Improvement Funding Revenue	6,235,000.00
TOTAL REVENUES	**6,451,000.00**
ADMINSTRATIVE EXPENSES	
TRSD Board Expenses	5,000.00
Office Personnel	31,200.00
PUBLISHING/PRINTING	2,500.00
Office Rental	6,000.00
Office Utilities	3,000.00
Office cleaning	1,800.00
OFFICE SUPPLIES/POSTAGE	5,172.75
Office Equipment	6,000.00
Office Security	3,000.00
TRAVEL	9,000.00
Insurance	8,000.00
ACCOUNTING / BOOKKEEPING/Audit	24,000.00
TRSD General District Legal Counsel	61,327.25
TRSD Management	50,000.00
TOTAL ADMINSTRATIVE EXPENSES	**216,000.00**
Capital Improvement Expenses	
Preliminary Studies	899,160.00
District Requirements	186,280.00
ROW and Onsite Systems Determination	318,000.00
Legal/ Title Easements	150,400.00
Permit Application & Fees	309,500.00
Design Survey & Data Gathering	580,000.00
Design Collection/WRF & LS	1,966,950.00
Contingency / Non-Construction	294,732.00
Interest Expense\Other Financing Cost	112,000.00
Legal Services / District Admin/Construction	125,000.00
Legal Fees / Bond Counsel	145,000.00
Other Fees / Financial Advisor	68,750.00
Misc Capital Expenses	329,228.00
Project Materials & Other Development Cost	750,000.00
Total Capital Improvement Expenses	**6,235,000.00**
TOTAL EXPENSES	**6,451,000.00**

After Recording Please Return To Melissa Henderson - BOS

RESOLUTION NO. 21-08-01

A RESOLUTION OF THE BOARD OF SUPERVISORS OF GILA COUNTY, ARIZONA, PROVIDING FOR THE COLLECTION OF TAXES FOR ALL JURISDICTIONS BY THE COUNTY TREASURER FOR FISCAL YEAR 2022.

WHEREAS, the Gila County Board of Supervisors has received notification of tax rates set by all jurisdictions within Gila County, and has compiled said tax rate information by jurisdiction in Exhibits A and B, attached hereto and incorporated by reference herein;

NOW, THEREFORE, BE IT RESOLVED that, in accordance with A.R.S. §42-18003, the Board of Supervisors adopts this Resolution calling for the collection of taxes for the jurisdictions listed in Exhibits A and B by the County Treasurer as provided by law from the persons named in the tax roll and directs that a copy of this Resolution be conveyed to the County Treasurer.

PASSED AND ADOPTED this 16th day of August 2021, by the Board of Supervisors, at Globe, Gila County, Arizona.

Attest:

Marian Sheppard, Clerk of the Board

GILA COUNTY BOARD OF SUPERVISORS

Tim R. Humphrey, Chairman

Approved as to form:

The Gila County Attorney's Office

REVISED - GILA COUNTY, ARIZONA
Net Assessed Valuations
Tax Levies and Tax Rates
Tax Year 2021 (Fiscal Year 2021-22)

	Tax Authority	Primary - Secondary	Net Assessed Valuation	Levy Amount	Tax Rate
	STATE OF ARIZONA				
02002	School Equalization	LPV (Primary)	$561,868,674	$ 2,395,246	0.4263
	GILA COUNTY				
02000	Gila County General Purpose	LPV (Primary)	$561,868,674	$ 23,542,297	4.1900
52000	Gila County	LPV (Secondary)	$561,868,674	$ -	
	COUNTY-WIDE DISTRICTS				
08150	Gila Community College	LPV (Primary)	$561,868,674	$ 5,374,274	0.9565
11900	Fire District Assistance Tax	LPV (Secondary)	$561,868,674	$ 561,869	0.1000
14900	Gila County Library District	LPV (Secondary)	$561,868,674	$ 1,362,532	0.2425
	FIRE DISTRICTS				
11202	Tri-City/Central Heights	LPV (Secondary)	$ 26,669,294	$ 773,410	2.9000
11204	East Verde Park	LPV (Secondary)	$ 2,283,617	$ 74,218	3.2500
11205	Pine/Strawberry	LPV (Secondary)	$ 72,663,063	$ 2,543,207	3.5000
11207	Whispering Pines	LPV (Secondary)			
11208	Houston Mesa	LPV (Secondary)	$ 4,495,057	$ 146,089	3.2500
11212	Christopher Kohl's	LPV (Secondary)	$ 21,793,969	$ 664,716	3.0500
11213	Tonto Basin	LPV (Secondary)	$ 18,086,854	$ 587,823	3.2500
11214	Gisela Valley	LPV (Secondary)	$ 1,678,588	$ 40,000	2.3830
11215	Round Valley/Oxbow Estates	LPV (Secondary)	$ 5,999,503	$ 140,988	2.3500
11216	Pleasant Valley	LPV (Secondary)	$ 8,430,839	$ 138,266	1.6400
11217	Beaver Valley	LPV (Secondary)			
11218	Hellsgate	LPV (Secondary)	$ 27,956,241	$ 908,578	3.2500
11219	Water Wheel Fire and Medical	LPV (Secondary)	$ 14,173,470	$ 460,638	3.2500
	SANITARY DISTRICTS				
21251	Green Valley	LPV (Secondary)	$ 202,815,082	$ 2,535,189	1.2500
21255	Tri-City Regional	LPV (Secondary)	$ 14,722,477	$ 216,000	1.4671
	STREET LIGHTING DISTRICTS				
13252	Pine SLID	LPV (Secondary)	$ 1,507,217	$ 2,008	0.1332
13253	Miami Gardens SLID	LPV (Secondary)	$ 323,686	$ 3,166	0.9781
13254	Apache Hills SLID	LPV (Secondary)	$ 152,997	$ 3,750	2.4510
13255	East Verde Park SLID	LPV (Secondary)	$ 2,283,617	$ 4,731	0.2072
13257	Upper Glendale SLID	LPV (Secondary)	$ 104,978	$ 1,574	1.4994
13258	Claypool Lower Miami SLID	LPV (Secondary)	$ 3,382,281	$ 18,361	0.5429
13259	Central Heights Country Club Midland City SLID	LPV (Secondary)	$ 3,712,713	$ 15,613	0.4205
	WATER DISTRICTS				
16040	Pine Strawberry DWID	LPV (Secondary)	$ 63,160,638	$ 883,049	1.3981
16090	Pine Creek Canyon DWID	LPV (Secondary)	$ 3,947,773	$ 100,000	2.5331
16120	Whispering Pines DWID	LPV (Secondary)	$ 3,430,531	$ 6,353	0.1852
16001	Rim Trail DWID	LPV (Secondary)	$ 2,269,157	$ -	-
16060	Strawberry Hollow Wastewater		$ 1,216,271	$ -	-
16050	Tonto Village DWID	LPV (Secondary)	$ 2,044,259	$ 3,271	0.1600
	CITIES AND TOWNS				
04151	City of Globe	LPV (Primary)	$ 42,321,539	$ 534,013	1.2618
04152	Town of Hayden	LPV (Primary)	$ 16,769,275	$ 2,180,006	13.0000
04153	Town of Miami	LPV (Primary)	$ 4,317,254	$ 192,718	4.4639
04154	Town of Winkelman	LPV (Primary)	$ 730,335	$ 46,729	6.3983
04155	Town of Payson	LPV (Primary)	$ 210,481,035	$ 700,481	0.3328
04156	Town of Star Valley	LPV (Primary)	$ 19,318,835		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 2

Collection System Type Alternative 1
Gravity System (1 Main Lift Station)

Collection System Type Alternative 1 - Gravity System (1 Main Lift Station) Capital Costs

CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Collection System				
8" PVC (SDR-35) Gravity Sewer Pipe	45,424	LF	$146	$6,631,904
10" PVC (SDR-35) Gravity Sewer Pipe	5,370	LF	$157	$843,090
8" Force Main from LS to WRF	2,600	LF	$130	$338,000
48" Manhole - 8" to 12" Gravity Pipe	210	EA	$9,180	$1,927,800
Traffic Control	1	LS	$324,000	$324,000
Lift Station				
Large Lift Station (Phase 2)	1	EA	$432,000	$432,000
Smaller Lift Station (At homes)	20	EA	$30,240	$604,800
Misc & Pavement Restoration				
Asphalt R&R	33,863	SY	$76	$2,573,563
Dewatering	1	LS	$27,000	$27,000
Utility Relocations	10	EA	$10,800	$108,000
			Subtotal	**$13,810,157**
General Conditions				
Mobilization/Demobilization	-	-	7.0%	$966,711
Testing & Materials	-	-	5.0%	$690,508
Taxes	-	-	6.0%	$828,609
Contingency				
Contingency	-	-	10%	$1,381,016
Loan Costs				
Interim Loan Interest (estimated @ $3.1 Million)	-	-	1.5%	$207,152
Interim Loan Origination Fee (estimated @ $3.1 Million)	-	-	0.06%	$82,861
			Construction Total	**$17,967,014**

Collection System Type Alternative 1 - Gravity System (1 Main Lift Station) O&M Costs

Description	**Cost**
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$1,300
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Fuel	$1,750
Electrical	$7,500
Equipment Repairs / Maintenance (Collection)	$5,500
Camera & Flushing (20% of System)	$15,000
Total Annual O&M Costs	**$33,300**

Collection System Type Alternative 1 - Gravity System (1 Main Lift Station) Short-Lived Asset Reserve

Description	**Estimated Life Cycle**		
	1-5 years	**6-10 years**	**11-15 years**
Lift Station Pumps			$6,000
Lift Station Motors		$2,000	
Pump Controls & Security			$600
Valves (Collection)			$600
Emergency Generator			$300
Subtotal of Short-Lived Assets (per period)	$0	$2,000	$7,500
Subtotal of Short-Lived Assets (per year)	$0	$200	$500
Subtotal of Short-Lived Assets (per month)	$0	$17	$42
Total of Short-Lived Assets (1-15 years)	**$9,500**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$700**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$58**		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 2

Collection System Type Alternative 2
Grinder Pump System (Individual Homes)

Collection System Type Alternative 2 - Grinder Pump System (Individual Homes) Capital Costs

TREATMENT CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Collection System				
4" to 6" PVC FM Sewer Pipe	45,524	LF	$126	$5,736,024
10" PVC (SDR-35) Gravity Sewer Pipe	5,370	LF	$157	$843,090
Large Lift Station (Phase 2)	1	EA	$432,000	$432,000
8" Force Main from LS to WRF	2,600	LF	$130	$338,000
48" Manhole - 8" to 10" Gravity Pipe	20	EA	$9,180	$183,600
Traffic Control	1	EA	$324,000	$324,000
Individual Grinder Pump Stations (Pump and Vault)	643	EA	$25,000	$16,075,000
Misc & Pavement Restoration				
Asphalt R&R (6' Wide Trench Patch)	33,929	SY	$76	$2,578,629
Dewatering	1	LS	$27,000	$27,000
Utility Relocations	10	EA	$10,800	$108,000
			Subtotal	**$26,645,343**
General Conditions				
Mobilization/Demobilization	-	-	7.0%	$1,865,174
Testing & Materials	-	-	5.0%	$1,332,267
Taxes	-	-	6.0%	$1,598,721
Contingency				
Contingency	-	-	10%	$2,664,534
Loan Costs				
Interim Loan Interest	-	-	1.5%	$399,680
Interim Loan Origination Fee	-	-	0.06%	$159,872
			Construction Total	**$34,665,592**

Collection System Type Alternative 2 - Grinder Pump System (Individual Homes) O&M Costs

Description	Cost
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$13,000
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Electrical	$25,800
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$3,500
Total Annual O&M Costs	**$46,300**

Collection System Type Alternative 2 - Grinder Pump System (Individual Homes) Short-Lived Asset Reserve

Description	Estimated Life Cycle		
	1-5 years	6-10 years	11-15 years
Lift Station		$2,000	$7,500
Grinder Pumps		$964,500	
Subtotal of Short-Lived Assets (per period)	$0	$966,500	$7,500
Subtotal of Short-Lived Assets (per year)	$0	$96,650	$500
Subtotal of Short-Lived Assets (per month)	$0	$8,054	$42
Total of Short-Lived Assets (1-15 years)	**$974,000**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$97,150**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$8,096**		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 2

Collection System Type Alternative 3

Gravity System (8 Community Grinder Pumps)

Collection System Type Alternative 3 - Gravity System (8 Community Grinder Pumps) Capital Costs

TREATMENT CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Collection System				
8" PVC (SDR-35) Gravity Sewer Pipe	40,209	LF	$146	$5,870,514
10" PVC (SDR-35) Gravity Sewer Pipe	6,000	LF	$157	$942,000
8" Force Main from LS to WRF	2,600	LF	$130	$338,000
48" Manhole - 8" to 10" Gravity Pipe	202	EA	$9,180	$1,854,360
6" PVC FM Sewer Pipe on Russell RD	4,800	LF	$126	$604,800
Smaller Community Lift Station Along North Russell Rd	8	EA	$78,750	$630,000
Traffic Control	1	EA	$324,000	$324,000
Lift Station				
Large Lift Station (Phase 2)	1	EA	$432,000	$432,000
Smaller Lift Station (At homes)	20	EA	$30,240	$604,800
Misc & Pavement Restoration				
Asphalt R&R (6' Wide Trench Patch)	30,806	SY	$76	$2,341,256
Dewatering	1	LS	$27,000	$27,000
Utility Relocations	10	EA	$10,800	$108,000
			Subtotal	**$14,076,730**
General Conditions				
Mobilization/Demobilization	-	-	7.0%	$985,371
Testing & Materials	-	-	5.0%	$703,837
Taxes	-	-	6.0%	$844,604
Contingency				
Contingency	-	-	10%	$1,407,673
Loan Costs				
Interim Loan Interest	-	-	1.5%	$211,151
Interim Loan Origination Fee	-	-	0.06%	$84,460
			Construction Total	**$18,313,826**

Collection System Type Alternative 3 - Gravity System (8 Community Grinder Pumps) O&M Costs

Description	**Cost**
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$1,300
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Electrical	$12,000
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$15,000
Camera & Flushing (20% of System)	$15,000
Total Annual O&M Costs	**$47,300**

Collection System Type Alternative 3 - Gravity System (8 Community Grinder Pumps) Short-Lived Asset Reserve

Description	**Estimated Life Cycle**		
	1-5 years	**6-10 years**	**11-15 years**
Lift Station Pumps	$16,000		$6,000
Lift Station Motors		$2,000	
Community Grinder Pumps		$630,000	
Pump Controls & Security			$600
Valves (Collection)			$600
Emergency Generator			$300
Subtotal of Short-Lived Assets (per period)	$16,000	$632,000	$7,500
Subtotal of Short-Lived Assets (per year)	$3,200	$63,200	$500
Subtotal of Short-Lived Assets (per month)	$267	$5,267	$42
Total of Short-Lived Assets (1-15 years)	**$655,500**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$66,900**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$5,575**		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 2

Life-Cycle Cost Analysis

Collection System Type

Life Cycle Period	20	years	Note: Highlighted Cells - Fill in Values
OMB A-94 Real Interest Rate	0.40%	Escalation Rate	

	CST Alternative 1 Gravity System	CST Alternative 2 Grinder Pump System	CST Alternative 3 Community Pump System
A. Initial Cost (Capital Cost)			
Construction	$17,535,014	$34,665,592	$18,313,826
Non-Construction w/Contingencies	$4,383,753	$8,666,398	$4,578,456
Total Initial Capital Costs	**$21,918,767**	**$43,331,990**	**$22,892,282**
B. Operations and Maintenance (O&M)			
O&M (no debt or SLAR)	$33,300	$46,300	$47,300
Total Annual Costs	$33,300	$46,300	$47,300
Present Worth Factor	19.1841	19.1841	19.1841
Present Worth of Recurrent Costs	**$639,000**	**$888,000**	**$907,000**
C. Replacement Reserve - Short Lived Assets (SLA)			
Short Lived Assets (SLA) — Years	20	20	20
(avg yearly SLA — Total Cost for Replacements/Repair	$9,500	$974,000	$625,500
calc w/o escalation) — Yearly Cost	$475	$48,700	$31,275
Present Worth Factor	19.1841	19.1841	19.1841
Present Worth of Replacements	**$9,000**	**$934,000**	**$600,000**
D. Salvage Value			
Useful Life (years)	40	40	40
Construction Cost - WTP	$17,535,014	$34,665,592	$18,313,826
Salvage Value (assume straight-line of construction cost)	$8,767,507	$17,332,796	$9,156,913
TOTAL CONSTRUCTION COST	$17,535,014	$34,665,592	$18,313,826
TOTAL SALVAGE VALUE	$8,767,507	$17,332,796	$9,156,913
Present Worth Factor	0.9233	0.9233	0.9233
Present Worth of Salvage Value	**$8,095,000**	**$16,003,000**	**$8,454,000**

LIFE CYCLE - PRESENT WORTH SUMMARY	CST Alternative 1 Gravity System	CST Alternative 2 Grinder Pump System	CST Alternative 3 Community Pump System
A. Capital Cost	$21,918,767	$43,331,990	$22,892,282
B. Annual O&M (PRESENT WORTH)	$639,000	$888,000	$907,000
C. Annual SLA (PRESENT WORTH)	$9,000	$934,000	$600,000
D. Salvage Value (PRESENT WORTH)	$8,095,000	$16,003,000	$8,454,000
G. TOTAL PRESENT WORTH COST (A+B+C-F)	**$14,471,767**	**$29,150,990**	**$15,945,282**

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 2

Wastewater Treatment Alternative 1

TRSD WRF Expansion

Wastewater Treatment Alternative 1 - TRSD WRF Expansion Capital Costs

CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Wastewater Treatment				
Package Treatment Plant Expansion (150,000 gpd)	1	EA	$2,235,600	$2,235,600
Concrete Slab for Package WWTP Plant	100	CY	$1,296	$129,600
Site Piping, Utilities & Set Train	1	LS	$194,400	$194,400
Instrumentation, Controls & SCADA	1	LS	$290,000	$290,000
Site Clearing, Grading and fencing	1	LS	$108,000	$108,000
Electrical (Wastewater Treatment)	1	LS	$81,000	$81,000
			Subtotal	**$3,038,600**
General Conditions				
Mobilization/Demobilization	-	-	7.0%	$212,702
Testing & Materials	-	-	5.0%	$151,930
Taxes	-	-	6.0%	$182,316
Contingency				
Contingency	-	-	10%	$303,860
Loan Costs				
Interim Loan Interest	-	-	1.5%	$45,579
Interim Loan Origination Fee	-	-	0.06%	$18,232
			Construction Total	**$3,953,219**

Wastewater Treatment Alternative 1 - TRSD WRF Expansion O&M Costs

Description	**Cost**
Safety Equipment (Wastewater Treatment)	$200
Large Equipment Rental (Wastewater Treatment)	$200
Small Tools / Equipment (Wastewater Treatment)	$300
Special Supplies (Wastewater Treatment)	$300
Building Repairs / Maintenance	$60
Equipment Repairs / Maintenance (Wastewater Treatment)	$15,000
Fuel / Lubricants	$1,000
Testing Chemical / Laboratory Supplies	$800
Testing Other	$850
Disposable Equipment/Tools	$300
Electricity	$15,000
Disinfection Bulbs or Chlorine	$6,300
Biosolids Disposal / Screening (Hauling / Landfill Fees)	$11,250
Total Annual O&M Costs	**$51,560**

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 3

Collection System Type Alternative 1
Gravity System (2 Main Lift Stations)

Collection System Type Alternative 1 - Gravity System (2 Main Lift Stations) Capital Costs

CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Collection System				
8" PVC (SDR-35) Gravity Sewer Pipe	51,861	LF	$146	$7,571,706
8" Force Main from 3 Ph 3 LS to Phase 2 LS	15,218	LF	$130	$1,978,340
48" Manhole - 8" to 10" Gravity Pipe	249	EA	$9,180	$2,285,820
Traffic Control	1	LS	$324,000	$324,000
Lift Station				
Larger Lift Station	3	EA	$132,000	$396,000
Smaller Lift Station	20	EA	$30,240	$604,800
Misc & Pavement Restoration				
Asphalt R&R	44,719	SY	$76	$3,398,669
Dewatering	1	LS	$27,000	$27,000
Utility Relocations	10	EA	$10,800	$108,000
			Subtotal	**$16,694,335**
General Conditions				
Mobilization/Demobilization	-	-	7.0%	$1,168,603
Testing & Materials	-	-	5.0%	$834,717
Taxes	-	-	6.0%	$1,001,660
Contingency				
Contingency	-	-	10%	$1,669,434
Loan Costs				
Interim Loan Interest	-	-	1.5%	$250,415
Interim Loan Origination Fee	-	-	0.06%	$100,166
			Construction Total	**$21,719,330**

Collection System Type Alternative 1 - Gravity System (2 Main Lift Stations) O&M Costs

Description	**Cost**
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$1,300
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Electrical	$10,000
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$5,500
Camera & Flushing (20% of System)	$3,500
Total Annual O&M Costs	**$24,300**

Collection System Type Alternative 1 - Gravity System (2 Main Lift Stations) Short-Lived Asset Reserve

Description	**Estimated Life Cycle**		
	1-5 years	**6-10 years**	**11-15 years**
Lift Station Pumps			$6,000
Lift Station Motors		$2,000	
Pump Controls & Security			$600
Valves (Collection)			$600
Emergency Generator			$300
Subtotal of Short-Lived Assets (per period)	$0	$2,000	$7,500
Subtotal of Short-Lived Assets (per year)	$0	$200	$500
Subtotal of Short-Lived Assets (per month)	$0	$17	$42
Total of Short-Lived Assets (1-15 years)	**$9,500**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$700**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$58**		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 3

Collection System Type Alternative 2

Gravity System (2 Main Lift Stations)

Collection System Type Alternative 2 - Gravity System (2 Main Lift Stations) Capital Costs

TREATMENT CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Collection System				
2" to 4" PVC FM Sewer Pipe	51,861	LF	$120	$6,223,320
Traffic Control	1	EA	$324,000	$324,000
Individual Grinder Pump Stations (Pump and Vault)	535	EA	$25,000	$13,375,000
Misc. & Pavement Restoration				
Asphalt R&R (6' Wide Trench Patch)	34,574	SY	$76	$2,627,624
Dewatering	1	LS	$27,000	$27,000
Utility Relocations	10	EA	$10,800	$108,000
			Subtotal	**$22,684,944**
General Conditions				
Mobilization/Demobilization	-	-	7.0%	$1,587,946
Testing & Materials	-	-	5.0%	$1,134,247
Taxes	-	-	6.0%	$1,361,097
Contingency				
Contingency	-	-	10%	$2,268,494
Loan Costs				
Interim Loan Interest	-	-	1.5%	$340,274
Interim Loan Origination Fee	-	-	0.06%	$136,110
			Construction Total	**$29,513,112**

Collection System Type Alternative 2 - Gravity System (2 Main Lift Stations) O&M Costs

Description	Cost
Safety Equipment (Collection)	$500
Small Tools / Equipment (Collection)	$750
Electrical	$25,800
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$15,000
Total Annual O&M Costs	**$43,800**

Collection System Type Alternative 2 - Gravity System (2 Main Lift Stations) Short-Lived Asset Reserve

Description	Estimated Life Cycle		
	1-5 years	6-10 years	11-15 years
Grinder Pumps		$802,500	
Subtotal of Short-Lived Assets (per period)	$0	$802,500	$0
Subtotal of Short-Lived Assets (per year)	$0	$80,250	$0
Subtotal of Short-Lived Assets (per month)	$0	$6,688	$0
Total of Short-Lived Assets (1-15 years)	**$802,500**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$80,250**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$6,688**		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 3

Collection System Type Alternative 3

Gravity System (5 Community Grinder Pumps)

Collection System Type Alternative 3 - Gravity System (5 Community Grinder Pumps) Capital Costs

CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Collection System				
6" PVC FM Sewer Pipe on Hwy 188 to Phase 2 LS	7,600	LF	$126	$957,600
8" Force Main from 2 Ph 3 south LS to Phase 2 LS	5,500	LF	$130	$715,000
8" PVC (SDR-35) Gravity Sewer Pipe	44,274	LF	$146	$6,464,004
48" Manhole - 8" to 10" Gravity Pipe	210	EA	$9,180	$1,927,800
Traffic Control	1	LS	$324,000	$324,000
Smaller Community Lift Station Along Hwy 188	5	EA	$78,750	$393,750
Lift Station				
Larger Lift Station on Southside of US 60	2	EA	$432,000	$864,000
Smaller Lift Station at homes	20	EA	$30,240	$604,800
Misc. & Pavement Restoration				
Asphalt R&R	38,249	SY	$76	$2,906,949
Dewatering	1	LS	$27,000	$27,000
Utility Relocations	10	EA	$10,800	$108,000
			Subtotal	**$15,292,903**
General Conditions				
Mobilization/Demobilization	-	-	7.0%	$1,070,503
Testing & Materials	-	-	5.0%	$764,645
Taxes	-	-	6.0%	$917,574
Contingency				
Contingency	-	-	10%	$1,529,290
Loan Costs				
Interim Loan Interest	-	-	1.5%	$229,394
Interim Loan Origination Fee	-	-	0.06%	$91,757
			Construction Total	**$19,896,067**

Collection System Type Alternative 3 - Gravity System (5 Community Grinder Pumps) O&M Costs

Description	Cost
Safety Equipment (Collection)	$1,000
Large Equipment Rental (Collection)	$1,300
Small Tools / Equipment (Collection)	$750
Special Supplies (Collection)	$500
Electrical	$25,000
Fuel	$1,750
Equipment Repairs / Maintenance (Collection)	$5,500
Camera & Flushing (20% of System)	$3,500
Total Annual O&M Costs	**$39,300**

Collection System Type Alternative 3 - Gravity System (5 Community Grinder Pumps) Short-Lived Asset Reserve

Description	Estimated Life Cycle		
	1-5 years	6-10 years	11-15 years
Lift Station Pumps	$10,000	$30,000	$6,000
Lift Station Motors		$2,000	
Pump Controls & Security			$600
Valves (Collection)			$600
Emergency Generator			$300
Subtotal of Short-Lived Assets (per period)	$10,000	$32,000	$7,500
Subtotal of Short-Lived Assets (per year)	$2,000	$3,200	$500
Subtotal of Short-Lived Assets (per month)	$167	$267	$42
Total of Short-Lived Assets (1-15 years)	**$49,500**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$5,700**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$475**		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 3

Life-Cycle Cost Analysis

Collection System Type

Life Cycle Period	20	years	Note: Highlighted Cells - Fill in Values
OMB A-94 Real Interest Rate	0.40%	Escalation Rate	

	CST Alternative 1 Gravity System	CST Alternative 2 Grinder Pump System	CST Alternative 3 Gravity/Grinder System
A. Initial Cost (Capital Cost)			
Construction	$21,719,330	$29,513,112	$19,896,067
Non-Construction w/Contingencies	$5,429,833	$7,378,278	$4,974,017
Total Initial Capital Costs	**$27,149,163**	**$36,891,390**	**$24,870,084**
B. Operations and Maintenance (O&M)			
O&M (no debt or SLAR)	$24,300	$43,800	$39,300
Total Annual Costs	$24,300	$43,800	$39,300
Present Worth Factor	19.1841	19.1841	19.1841
Present Worth of Recurrent Costs	**$466,000**	**$840,000**	**$754,000**
C. Replacement Reserve - Short Lived Assets (SLA)			
Short Lived Assets (SLA) Years	20	20	20
(avg yearly SLA Total Cost for Replacements/Repair	$9,500	$802,500	$49,500
calc w/o escalation) Yearly Cost	$475	$40,125	$2,475
Present Worth Factor	19.1841	19.1841	19.1841
Present Worth of Replacements	**$9,000**	**$770,000**	**$47,000**
D. Salvage Value			
Useful Life (years)	40	40	40
Construction Cost - WTP	$21,719,330	$29,513,112	$19,896,067
Salvage Value (assume straight-line of construction cost)	$10,859,665	$14,756,556	$9,948,034
TOTAL CONSTRUCTION COST	$21,719,330	$29,513,112	$19,896,067
TOTAL SALVAGE VALUE	$10,859,665	$14,756,556	$9,948,034
Present Worth Factor	0.9233	0.9233	0.9233
Present Worth of Salvage Value	**$10,026,000**	**$13,624,000**	**$9,185,000**

LIFE CYCLE - PRESENT WORTH SUMMARY	CST Alternative 1 Gravity System	CST Alternative 2 Grinder Pump System	CST Alternative 3 Gravity/Grinder System
A. Capital Cost	$27,149,163	$36,891,390	$24,870,084
B. Annual O&M (PRESENT WORTH)	$466,000	$840,000	$754,000
C. Annual SLA (PRESENT WORTH)	$9,000	$770,000	$47,000
D. Salvage Value (PRESENT WORTH)	$10,026,000	$13,624,000	$9,185,000
G. TOTAL PRESENT WORTH COST (A+B+C-F)	**$17,598,163**	**$24,877,390**	**$16,486,084**

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 3

Wastewater Treatment Alternative 1

TRSD WRF Expansion

Wastewater Treatment Alternative 1 - TRSD WRF Expansion Capital Costs

CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Wastewater Treatment				
Package Treatment Plant Expansion (150,000 gpd)	1	EA	$1,890,000	$1,890,000
Concrete Slab for Package WWTP Plant	100	EA	$1,296	$129,600
Site Piping, Utilities & Set Package Plant	1	CY	$194,400	$194,400
Instrumentation, Controls & SCADA	1	LS	$290,000	$290,000
Site Clearing, Grading & fencing	1	LS	$108,000	$108,000
Electrical (Wastewater Treatment)	1	LS	$81,000	$81,000
			Subtotal	**$2,693,000**
General Conditions				
Mobilization/Demobilization	-	-	7.0%	$18,851
Testing & Materials	-	-	5.0%	$13,465
Taxes	-	-	6.0%	$16,158
Contingency				
Contingency	-	-	10%	$269,300
Loan Costs				
Interim Loan Interest	-	-	1.5%	$40,395
Interim Loan Origination Fee (	-	-	0.06%	$16,158
			Construction Total	**$3,067,327**

Wastewater Treatment Alternative 1 - TRSD WRF Expansion O&M Costs

Description	**Cost**
Safety Equipment (Wastewater Treatment)	$180
Large Equipment Rental (Wastewater Treatment)	$180
Small Tools / Equipment (Wastewater Treatment)	$270
Special Supplies (Wastewater Treatment)	$270
Building Repairs / Maintenance	$54
Equipment Repairs / Maintenance (Wastewater Treatment)	$15,000
Fuel / Lubricants	$1,000
Testing Chemical / Laboratory Supplies	$720
Testing Other	$765
Disposable Equipment/Tools	$270
Electricity	$15,000
Disinfection Bulbs or Chlorine	$6,300
Biosolids Disposal / Screening (Hauling / Landfill Fees)	$11,250
Total Annual O&M Costs	**$51,259**

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 2

Total Project Cost Estimate

Phase 2 TRSD Water Reclamation Facility Expansion

Phase 2 TRSD WRF Expansion Capital Costs

CONSTRUCTION COST							
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**	**Collection**	**Treatment**	**Service**
Collection System					**$10,181,004**		
8" PVC (SDR-35) Gravity Sewer Pipe	45,524	LF	$146	$6,646,504	$6,646,504	-	-
10" PVC (SDR-35) Gravity Sewer Pipe	6,000	LF	$157	$942,000	$942,000	-	-
8" Force Main from LS to WRF	2,600	LF	$130	$338,000	$338,000	-	-
FM Valves & Appurtenances	1	LS	$2,700	$2,700	$2,700	-	-
48" Manhole - 8" to 10" Gravity Pipe	210	EA	$9,180	$1,927,800	$1,927,800	-	-
Traffic Control	1	LS	$324,000	$324,000	$324,000	-	-
Lift Station					**$1,036,800**		
Large Lift Station (Phase 2, includes Electrical)	1	EA	$432,000	$432,000	$432,000	-	-
Community Lift stations					-	-	-
Smaller Lift Station	20	EA	$30,240	$604,800	$604,800	-	-
Pavement Restoration & Misc.					**$2,745,549**		
Asphalt R&R (6' Wide Trench Patch)	34,349	SY	$76	$2,610,549	$2,610,549	-	-
Dewatering	1	LS	$27,000	$27,000	$27,000	-	-
Utility Relocations	10	EA	$10,800	$108,000	$108,000	-	-
Wastewater Treatment						**$3,038,600**	
Package Treatment Plant Expansion (150,000 gpd)	1	EA	$2,235,600	$2,235,600	-	$2,235,600	-
Concrete Slab for Package WWTP Plant	100	CY	$1,296	$129,600	-	$129,600	-
Site Piping, Utilities & Set Train	1	LS	$194,400	$194,400	-	$194,400	-
Instrumentation, Controls & SCADA	1	LS	$290,000	$290,000	-	$290,000	-
Site Clearing, Grading and fencing	1	LS	$108,000	$108,000	-	$108,000	-
Electrical (Wastewater Treatment)	1	LS	$81,000	$81,000	-	$81,000	-
Service Connections							**$5,347,188**
Connection Services (New Lateral to Residence)	643	EA	$5,616	$3,611,088	-	-	$3,611,088
Septic Tank Decomissioning	643	EA	$2,700	$1,736,100	-	-	$1,736,100
			Subtotal	**$22,349,141**	**$13,963,353**	**$3,038,600**	**$5,347,188**
General Conditions Costs							
Mobilization/Demobilization	-	-	7.00%	$1,564,440	$977,435	$212,702	$374,303
Testing & Materials			0.50%	$111,746	$69,817	$15,193	$26,736
Taxes	-	-	6.00%	$1,340,948	$837,801	$182,316	$320,831
Contingency							
Contingency	-	-	10%	$2,536,628	$1,584,841	$344,881	$606,906
Loan Costs							
Interim Loan Interest	-	-	1.5%	$335,237	$211,199	$50,286	$73,752
Interim Loan Origination Fee	-	-	0.06%	$134,095	$84,480	$20,114	$29,501
			Construction Subtotal	**$28,372,235**	**$17,728,926**	**$3,864,092**	**$6,779,217**
Build America, Buy American (BABA) Impact	-	-	8.5%	$2,411,640	$1,506,959	$328,448	$576,233
			Construction Total with BABA	**$30,783,875**	**$19,235,884**	**$4,192,540**	**$7,355,451**
NON-CONSTRUCTION COST							
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**	**Collection**	**Treatment**	**Service**
Study & Report Phase					**$110,400**		**$90,000**
Onsite System Evaluation	1	LS	$90,000	$90,000	-	-	$90,000
Main Line ROW Issues Determination	1	LS	$60,000	$60,000	$60,000	-	-
Non-Frontage ROW / Easement Issues	1	LS	$50,400	$50,400	$50,400	-	-
Design Phase					**$1,284,000**	**$367,500**	**$241,180**
Design Management, Scheduling, and Meetings	1	LS	$85,000	$85,000	$50,000	$15,000	$20,000
Design Survey	1	LS	$225,000	$225,000	$141,000	$30,000	$54,000
Geotechnical	1	LS	$75,000	$75,000	$50,000	$25,000	-
Underground Utilities Investigation	1	LS	$200,000	$200,000	$160,000	$40,000	-
Collection System Design	1	LS	$717,500	$717,500	$717,500	-	-
TRSD WRF Design	1	LS	$225,000	$225,000	-	$225,000	-
Lift Station Design Large & Small	1	LS	$150,000	$150,000	$150,000	-	-
Service Connection Design	643	EA	$260	$167,180	-	-	$167,180
Aquifer Protection Permit (APP) Application	1	LS	$22,500	$22,500	-	$22,500	-
4.01 General Permit Application	1	LS	$25,500	$25,500	$15,500	$10,000	-
Bid Phase					**$22,500**	**$22,500**	**$22,500**
Bid Services	1	LS	$67,500	$67,500	$22,500	$22,500	$22,500
Construction Phase					**$683,000**	**$184,120**	**$240,000**
Construction Management, Scheduling, and Meetings	16	MO	$8,570	$137,120	$80,000	$22,120	$35,000
RPR Construction Engineer	16	MO	$27,500	$440,000	$275,000	$65,000	$100,000
Onsite RPR Support (Addtional Inspector & Admin)	16	MO	$22,000	$352,000	$218,000	$50,000	$84,000
Special Inspection (Structural, Electrical)	1	LS	$25,000	$25,000	$15,000	$4,000	$6,000
Startup Commissioning	1	LS	$28,000	$28,000	$20,000	$3,000	$5,000
Record Drawings (Collection System)	1	LS	$35,000	$35,000	$25,000	-	$10,000
Record Drawings (WRF)	1	LS	$25,000	$25,000	-	$25,000	-
GIS Phase 2	1	LS	$40,000	$40,000	$35,000	$5,000	-
O&M Manual (Collection System & Treatment)	1	LS	$25,000	$25,000	$15,000	$10,000	-
Administration					**$393,991**	**$117,617**	**$139,171**
Bond Counsel Costs	1	LS	$150,000	$150,000	$90,000	$25,000	$35,000
District Legal Administrative Cost	1	LS	$100,000	$100,000	$63,000	$15,000	$22,000
Financial advisor	1	LS	$350,779	$350,779	$220,991	$52,617	$77,171
Aquifer Protection Permit (APP) Application Fee	1	LS	$25,000	$25,000	-	$25,000	-
4.01 General Permit Application Fee	1	LS	$25,000	$25,000	$20,000	-	$5,000
Contingency					**$246,864**	**$58,777**	**$86,207**
Non-Construction Contingency	-	-	10%	$391,848	$246,864	$58,777	$86,207
Loan Costs					**$61,630**	**$14,674**	**$21,522**
Bridge Loan Interest	-	-	-	$70,950	$44,699	$10,643	$15,609
Bridge Loan Origination Fee	-	-	-	$26,875	$16,931	$4,031	$5,913
			Non-Construction Total	**$4,408,152**	**$2,802,385**	**$765,188**	**$840,579**
			Project Total	**$35,192,027**	**$22,038,269**	**$4,957,727**	**$8,196,030**

Phase 2 TRSD WRF Expansion Short-Lived Asset Reserve

Description	Estimated Life Cycle		
	1-5 years	6-10 years	11-15 years
Existing System (Phase 1)			
Collection System			
Lift Station Pumps			$25,000
Lift Station Motors			$10,000
Pump Controls & Security		$7,000	
Valves (Collection)			$7,000
Emergency Generator			$30,000
Wastewater Treatment			
Wastewater Treatment Values			$15,000
WRF Pumps		$50,000	
WRF Motors		$25,000	
Flow Meters			$10,000
Field & Process Inst Equip & Alarms		$15,000	
Blowers			$40,000
Membranes		$118,000	
Actuators		$7,500	
Headworks Screening & Grit	$10,000		
Emergency Generator			$30,000
Air Compressor		$25,000	
Aerators	$5,000		
Chlorine Dosing System			$20,000
Dechlorination System			$15,000
Upgraded System (Phase 2)			
Collection System			
Lift Station Pumps			$6,000
Lift Station Motors			$2,000
Pump Controls & Security		$3,500	
Valves (Collection)			$1,500
Emergency Generator			$3,000
Wastewater Treatment			
Wastewater Treatment Values			$2,500
WRF Pumps		$10,000	
WRF Motors		$5,000	
Flow Meters			$2,000
Field & Process Inst Equip & Alarms		$3,000	
Blowers			$4,000
Membranes		$55,000	
Actuators		$1,500	
Headworks Screening & Grit	$5,000		
Emergency Generator			$3,000
Air Compressor		$2,500	$150
Aerators	$2,500		
Chlorine Dosing System			$2,000
Dechlorination System			$1,500
Subtotal of Short-Lived Assets (per period)	$22,500	$328,000	$229,650
Subtotal of Short-Lived Assets (per year)	$4,500	$32,800	$15,310
Subtotal of Short-Lived Assets (per month)	$375	$2,733	$1,276
Total of Short-Lived Assets (1-15 years)	**$580,150**		
Total Annual Reserve Deposit, Short-Lived Assets (1-15 years, per year)	**$52,610**		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 3

Total Project Cost Estimate

Phase 3 TRSD Water Reclamation Facility Expansion

Phase 3 TRSD WRF Expansion Capital Costs

CONSTRUCTION COST							
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**	**Collection**	**Treatment**	**Service**
Collection System					**$10,421,400**		
8" PVC (SDR-35) Gravity Sewer Pipe	44,275	LF	$146	$6,464,150	$6,464,150	-	-
8" Force Main On South Side LS to Ph 2 CS	5,500	LF	$130	$715,000	$715,000	-	-
6" Force Main on Hwy 188 to Ph 2 LS	7,600	LF	$126	$957,600	$957,600	-	-
FM Valves & Appurtenances	1	LS	$78,750	$78,750	$78,750		
48" Manhole - 8" to 10" Gravity Pipe	205	EA	$9,180	$1,881,900	$1,881,900	-	-
Traffic Control	1	LS	$324,000	$324,000	$324,000	-	-
Lift Station					**$1,862,550**		
Large Lift Station (Phase 3, includes electrical)	2	EA	$432,000	$864,000	$864,000	-	-
Community Lift station Hwy 188	5	EA	$78,750	$393,750	$393,750	-	-
Smaller Lift Station	20	EA	$30,240	$604,800	$604,800	-	-
Misc & Pavement Restoration					**$2,930,133**		
Asphalt R&R (6' Wide Trench Patch)	33,183	SY	$76	$2,521,933	$2,521,933	-	-
Jack & Bore US 60 North to South	400	LF	$683	$273,200	$273,200	-	-
Dewatering	1	LS	$27,000	$27,000	$27,000	-	-
Utility Relocations	10	EA	$10,800	$108,000	$108,000	-	-
Wastewater Treatment						**$2,693,000**	
Package Treatment Plant Expansion (150,000 gpd)	1	EA	$1,890,000	$1,890,000	-	$1,890,000	-
Concrete Slab for Package WWTP Plant	100	CY	$1,296	$129,600	-	$129,600	-
Site Piping, Utilities & Set Package Plant	1	LS	$194,400	$194,400	-	$194,400	-
Instrumentation, Controls & SCADA	1	LS	$290,000	$290,000		$290,000	-
Site Clearing, Grading & fencing	1	LS	$108,000	$108,000	-	$108,000	-
Electrical (Wastewater Treatment)	1	LS	$81,000	$81,000	-	$81,000	-
Service Connections							**$4,465,692**
Connection Services (New Lateral to Residence)	537	EA	$5,616	$3,015,792	-	-	$3,015,792
Septic Tank Decomissioning	537	EA	$2,700	$1,449,900	-	-	$1,449,900
			Subtotal	**$22,372,775**	**$15,214,083**	**$2,693,000**	**$4,465,692**
General Conditions Costs							
Mobilization	-	-	7.00%	$1,566,094	$1,064,986	$188,510	$312,598
Testing & Materials			0.50%	$111,864	$76,070	$13,465	$22,328
Taxes	-	-	6.00%	$1,342,367	$912,845	$161,580	$267,942
Contingency							
Contingency	-	-	10%	$2,539,310	$1,726,798.46	$305,655.50	$506,856.04
Loan Costs							
Interim Loan Interest	-	-	1.5%	$335,592	$211,423	$50,339	$73,830
Interim Loan Origination Fee	-	-	0.06%	$134,237	$84,569	$20,135	$29,532
			Construction Subtotal	**$28,402,238**	**$19,290,775**	**$3,432,685**	**$5,678,779**
Build America, Buy American (BABA) Impact	-	-	8.5%	$2,414,190	$1,639,716	$291,778	$482,696
			Construction Total with BABA	**$30,816,429**	**$20,930,491**	**$3,724,463**	**$6,161,475**

NON-CONSTRUCTION COST							
Description	**QTY**	**UOM**			**Collection**	**Treatment**	**Service**
Study & Report Phase					**$110,400**		**$80,000**
Onsite System Evaluation	1	LS	$80,000	$80,000	-	-	$80,000
Main Line ROW Issues Determination	1	LS	$60,000	$60,000	$60,000	-	-
Non-Frontage ROW / Easement Issues	1	LS	$50,400	$50,400	$50,400	-	-
Design Phase					**$1,511,500**	**$367,500**	**$213,620**
Design Management, Scheduling, and Meetings	1	LS	$85,000	$85,000	$50,000	$15,000	$20,000
Design Survey	1	LS	$225,000	$225,000	$141,000	$30,000	$54,000
Geotechnical	1	LS	$75,000	$75,000	$50,000	$25,000	-
Underground Utilities Investigation	1	LS	$200,000	$200,000	$160,000	$40,000	-
Collection System Design	1	LS	$770,000	$770,000	$770,000	-	-
TRSD WRF Design	1	LS	$225,000	$225,000	-	$225,000	-
Lift Station Design Large & Small	2	LS	$150,000	$300,000	$300,000	-	-
Service Connection Design	537	EA	$260	$139,620	-	-	$139,620
ADOT Permit	1	LS	$25,000	$25,000	$25,000	-	-
Aquifer Protection Permit (APP) Application	1	LS	$22,500	$22,500	-	$22,500	-
4.01 General Permit Application	1	LS	$25,500	$25,500	$15,500	$10,000	-
Bid Phase					**$22,500**	**$22,500**	**$22,500**
Bid Services	1	LS	$67,500	$67,500	$22,500	$22,500	$22,500
Construction Phase					**$683,000**	**$184,120**	**$240,000**
Construction Management, Scheduling, and Meetings	16	MO	$8,570	$137,120	$80,000	$22,120	$35,000
RPR Construction Engineer	16	MO	$27,500	$440,000	$275,000	$65,000	$100,000
Onsite RPR Support (Addtional Inspector & Admin)	16	MO	$22,000	$352,000	$218,000	$50,000	$84,000
Special Inspection (Structural, Electrical)	1	LS	$25,000	$25,000	$15,000	$4,000	$6,000
Startup Commissioning	1	LS	$28,000	$28,000	$20,000	$3,000	$5,000
Record Drawings (Collection System)	1	LS	$35,000	$35,000	$25,000		$10,000
Record Drawings (WRF)	1	LS	$25,000	$25,000	-	$25,000	-
GIS Phase 2	1	LS	$40,000	$40,000	$35,000	$5,000	-
O&M Manual (Collection System & Treatment)	1	LS	$25,000	$25,000	$15,000	$10,000	-
Administration					**$406,141**	**$120,510**	**$143,414**
Bond Counsel Costs	1	LS	$150,000	$150,000	$90,000	$25,000	$35,000
District Legal Administrative Cost	1	LS	$100,000	$100,000	$63,000	$15,000	$22,000
Financial advisor	1	LS	$370,065	$370,065	$233,141	$55,510	$81,414
Aquifer Protection Permit (APP) Application Fee	1	LS	$25,000	$25,000	-	$25,000	-
4.01 General Permit Application Fee	1	LS	$25,000	$25,000	$20,000	-	$5,000
Contingency					**$260,045**	**$61,916**	**$90,810**
Non-Construction Contingency	-	-	10%	$412,771	$260,045	$61,916	$90,810
Loan Costs					**$61,630**	**$14,674**	**$21,522**
Bridge Loan Interest	-	-	-	$70,950	$44,699	$10,643	$15,609
Bridge Loan Origination Fee	-	-	-	$26,875	$16,931	$4,031	$5,913
				Non-Construction Total	**$4,638,301**	**$3,055,216**	**$771,219**	**$811,865**
				Project Total	**$33,040,539**	**$22,345,991**	**$4,203,904**	**$6,490,644**

Phase 3 TRSD WRF Expansion Short-Lived Asset Reserve

Description	Estimated Life Cycle		
	1-5 years	6-10 years	11-15 years
Existing System (Phase 1 & 2)			
Collection System			
Lift Station Pumps			$31,000
Lift Station Motors			$12,000
Pump Controls & Security		$10,500	
Valves (Collection)			$8,500
Emergency Generator			$33,000
Wastewater Treatment			
Wastewater Treatment Values			$17,500
WRF Pumps		$60,000	
WRF Motors		$30,000	
Flow Meters			$12,000
Field & Process Inst Equip & Alarms		$18,000	
Blowers			$44,000
Membranes		$173,000	
Actuators		$9,000	
Headworks Screening & Grit	$15,000		
Emergency Generator			$33,000
Air Compressor		$27,500	$150
Aerators	$7,500		
Chlorine Dosing System			$22,000
Dechlorination System			$16,500
Upgraded System (Phase 3)			
Collection System			
Lift Station Pumps			$6,000
Lift Station Motors			$2,000
Pump Controls & Security		$3,500	
Valves (Collection)			$1,500
Emergency Generator			$3,000
Wastewater Treatment			
Wastewater Treatment Values			$2,500
WRF Pumps		$10,000	
WRF Motors		$5,000	
Flow Meters			$2,000
Field & Process Inst Equip & Alarms		$3,000	
Blowers			$4,000
Membranes		$55,000	
Actuators		$1,500	
Headworks Screening & Grit	$5,000		
Emergency Generator			$3,000
Air Compressor		$2,500	$150
Aerators	$2,500		
Chlorine Dosing System			$2,000
Dechlorination System			$1,500
Subtotal of Short-Lived Assets (per period)	$30,000	$408,500	$257,300
Subtotal of Short-Lived Assets (per year)	$6,000	$40,850	$17,153
Subtotal of Short-Lived Assets (per month)	$500	$3,404	$1,429
Total of Short-Lived Assets (1-15 years)	**$695,800**		
Total Annual Reserve Deposit, Short-Lived Assets (1 15 years, per year)	**$64,003**		
Total Monthly Reserve Deposit, Short-Lived Assets (1-15 years, per month)	**$5,334**		

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 2

Total Project Cost Estimate

Phase 2 TRSD Water Reclamation Facility Expansion

Phase 2 TRSD WRF Expansion Capital Costs

CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Collection System				
8" PVC (SDR-35) Gravity Sewer Pipe	45,524	LF	$146	$6,646,504
10" PVC (SDR-35) Gravity Sewer Pipe	6,000	LF	$157	$942,000
8" Force Main	2,600	LF	$130	$338,000
6" Force Main				
Valves & Appurtenances	1	LS	$2,700	$2,700
48" Manhole - 8" to 12" Gravity Pipe	210	EA	$9,180	$1,927,800
Traffic Control	1	LS	$324,000	$324,000
Lift Station				
Large Lift Station (Phase 2, includes electrical)	1	EA	$432,000	$432,000
Community Lift stations				
Smaller Lift Station	20	EA	$30,240	$604,800
Misc & Pavement Restoration				
Asphalt R&R (6' Wide Trench Patch)	34,349	SY	$76	$2,610,549
Jack and Bore				
Dewatering	1	LS	$27,000	$27,000
Utility Relocations	10	EA	$10,800	$108,000
Wastewater Treatment				
Package Treatment Plant Expansion (150,000 gpd)	1	EA	$2,235,600	$2,235,600
Concrete Slab for Package WWTP Plant	100	CY	$1,296	$129,600
Site Piping, Utilities & Set Train	1	LS	$194,400	$194,400
Instrumentation, Controls & SCADA	1	LS	$290,000	$290,000
Site Clearing & Grading	1	LS	$108,000	$108,000
Electrical (Wastewater Treatment)	1	LS	$81,000	$81,000
Service Connections				
Connection Services (New Lateral to Residence)	643	EA	$5,616	$3,611,088
Septic Tank Decomissioning	643	EA	$2,700	$1,736,100
			Subtotal	**$22,349,141**
General Conditions Costs				
Mobilization/Demobilization	-	-	7.0%	$1,564,440
Testing & Materials			0.5%	$111,746
Taxes	-	-	6.0%	$1,340,948
Contingency				
Contingency	-	-	10.0%	$2,536,628
Loan Costs				
Interim Loan Interest	-	-	1.5%	$335,237
Interim Loan Origination Fee	-	-	0.06%	$134,095
			Construction Subtotal	**$28,372,235**
Build America, Buy American (BABA) Impact	-	-	8.5%	$2,411,640
			Construction Total with BABA	**$30,783,875**
NON-CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Study & Report Phase				
Onsite System Evaluation	1	LS	$90,000	$90,000
Main Line ROW Issues Determination	1	LS	$60,000	$60,000
Non-Frontage ROW / Easement Issues	1	LS	$50,400	$50,400
Design Phase				
Design Management, Scheduling, and Meetings	1	LS	$85,000	$85,000
Design Survey	1	LS	$225,000	$225,000
Geotechnical	1	LS	$75,000	$75,000
Underground Utilities Investigation	1	LS	$200,000	$200,000
Collection System Design	1	LS	$717,500	$717,500
TRSD WRF Design	1	LS	$225,000	$225,000
Lift Station Design Large & Small	1	LS	$150,000	$150,000
Service Connection Design	643	EA	$260	$167,180
ADOT Permit				
Aquifer Protection Permit (APP) Application	1	LS	$22,500	$22,500
4.01 General Permit Application	1	LS	$25,500	$25,500
Bid Phase				
Bid Services	1	LS	$67,500	$67,500
Construction Phase				
Construction Management, Scheduling, and Meeti	16	MO	$8,570	$137,120
RPR Construction Engineer	16	MO	$27,500	$440,000
Onsite RPR Support (Addtional Inspector & Admin	16	MO	$22,000	$352,000
Special Inspection (Structural, Electrical)	1	LS	$25,000	$25,000
Startup Commissioning	1	LS	$28,000	$28,000
Record Drawings (Collection System)	1	LS	$35,000	$35,000
Record Drawings (WRF)	1	LS	$25,000	$25,000
GIS Phase 2	1	LS	$40,000	$40,000
O&M Manual (Collection System & Treatment)	1	LS	$25,000	$25,000
Administration				
Bond Counsel Costs	1	LS	$150,000	$150,000
District Legal Administrative Cost	1	LS	$100,000	$100,000
Financial advisor	1	LS	$350,779	$350,779
Aquifer Protection Permit (APP) Application Fee	1	LS	$25,000	$25,000
4.01 General Permit Application Fee	1	LS	$25,000	$25,000
Contingency				
Non-Construction Contingency	-	-	10.0%	$391,848
Loan Costs				
Bridge Loan Interest	-	-	-	$70,950
Bridge Loan Origination Fee	-	-	-	$26,875
			Non-Construction Total	**$4,408,152**
			Project Total	**$35,192,027**

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 3

Total Project Cost Estimate

Phase 3 TRSD Water Reclamation Facility Expansion

Phase 3 TRSD WRF Expansion Capital Costs

CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Collection System				
8" PVC (SDR-35) Gravity Sewer Pipe	44,275	LF	$146	$6,464,150
10" PVC (SDR-35) Gravity Sewer Pipe				
8" Force Main	5,500	LF	$130	$715,000
6" Force Main	7,600	LF	$126	$957,600
Valves & Appurtenances	1	LS	$78,750	$78,750
48" Manhole - 8" to 12" Gravity Pipe	205	EA	$9,180	$1,881,900
Traffic Control	1	LS	$324,000	$324,000
Lift Station				
Large Lift Station (Phase 3, includes electrical)	2	EA	$432,000	$864,000
Community lift station Hwy 188	5	EA	$78,750	$393,750
Smaller Lift Station	20	EA	$30,240	$604,800
Misc & Pavement Restoration				
Asphalt R&R (6' Wide Trench Patch)	33,183	SY	$76	$2,521,933
Jack & Bore US 60 North to South	400	LF	$683	$273,200
Dewatering	1	LS	$27,000	$27,000
Utility Relocations	10	EA	$10,800	$108,000
Wastewater Treatment				
Package Treatment Plant Expansion (150,000 gpd)	1	EA	$1,890,000	$1,890,000
Concrete Slab for Package WWTP Plant	100	CY	$1,296	$129,600
Site Piping, Utilities & Set Train	1	LS	$194,400	$194,400
Instrumentation, Controls & SCADA	1	LS	$290,000	$290,000
Site Clearing & Grading	1	LS	$108,000	$108,000
Electrical (Wastewater Treatment)	1	LS	$81,000	$81,000
Service Connections				
Connection Services (New Lateral to Residence)	537	EA	$5,616	$3,015,792
Septic Tank Decomissioning	537	EA	$2,700	$1,449,900
			Subtotal	**$22,372,775**
General Conditions Costs				
Mobilization/Demobilization	-	-	7.0%	$1,566,094
Testing & Materials			0.5%	$111,864
Taxes	-	-	6.0%	$1,342,367
Contingency				
Contingency	-	-	10.0%	$2,539,310
Loan Costs				
Interim Loan Interest	-	-	1.5%	$335,592
Interim Loan Origination Fee	-	-	0.06%	$134,237
			Construction Subtotal	**$28,402,238**
Build America, Buy American (BABA) Impact	-	-	8.5%	$2,414,190
			Construction Total with BABA	**$30,816,429**
NON-CONSTRUCTION COST				
Description	**QTY**	**UOM**	**Unit Price**	**Extended Cost**
Study & Report Phase				
Onsite System Evaluation	1	LS	$80,000	$80,000
Main Line ROW Issues Determination	1	LS	$60,000	$60,000
Non-Frontage ROW / Easement Issues	1	LS	$50,400	$50,400
Design Phase				
Design Management, Scheduling, and Meetings	1	LS	$85,000	$85,000
Design Survey	1	LS	$225,000	$225,000
Geotechnical	1	LS	$75,000	$75,000
Underground Utilities Investigation	1	LS	$200,000	$200,000
Collection System Design	1	LS	$770,000	$770,000
TRSD WRF Design	1	LS	$225,000	$225,000
Lift Station Design Large & Small	2	LS	$150,000	$300,000
Service Connection Design	537	EA	$260	$139,620
ADOT Permit	1	LS	$25,000	$25,000
Aquifer Protection Permit (APP) Application	1	LS	$22,500	$22,500
4.01 General Permit Application	1	LS	$25,500	$25,500
Bid Phase				
Bid Services	1	LS	$67,500	$67,500
Construction Phase				
Construction Management, Scheduling, and Meeti	16	MO	$8,570	$137,120
RPR Construction Engineer	16	MO	$27,500	$440,000
Onsite RPR Support (Addtional Inspector & Admin	16	MO	$22,000	$352,000
Special Inspection (Structural, Electrical)	1	LS	$25,000	$25,000
Startup Commissioning	1	LS	$28,000	$28,000
Record Drawings (Collection System)	1	LS	$35,000	$35,000
Record Drawings (WRF)	1	LS	$25,000	$25,000
GIS Phase 2	1	LS	$40,000	$40,000
O&M Manual (Collection System & Treatment)	1	LS	$25,000	$25,000
Administration				
Bond Counsel Costs	1	LS	$150,000	$150,000
District Legal Administrative Cost	1	LS	$100,000	$100,000
Financial advisor	1	LS	$370,065	$370,065
Aquifer Protection Permit (APP) Application Fee	1	LS	$25,000	$25,000
4.01 General Permit Application Fee	1	LS	$25,000	$25,000
Contingency				
Non-Construction Contingency	-	-	10.0%	$412,771
Loan Costs				
Bridge Loan Interest	-	-	-	$70,950
Bridge Loan Origination Fee	-	-	-	$26,875
			Non-Construction Total	**$4,638,301**
			Project Total	**$35,454,729**

TRSD Wastewater Collection & Treatment System Phase 2 & 3

Phase 2 & 3

Total Project Cost Estimate

Phase 2 & 3 TRSD Water Reclamation Facility Expansion

Phase 2 & 3 TRSD WRF Expansion Capital Costs

CONSTRUCTION COST						
Description	**QTY**	**UOM**	**Unit Price**	**Phase 2 & 3 Total**	**Potential Savings**	**Combined Cost**
Collection System						
8" PVC (SDR-35) Gravity Sewer Pipe	89,799	LF	$146	$13,110,654		$13,110,654
10" PVC (SDR-35) Gravity Sewer Pipe	6,000	LF	$157	$942,000		$942,000
8" Force Main	8,100	LF	$130	$1,053,000		$1,053,000
6" Force Main	7,600	0	$0	$957,600		$957,600
Valves & Appurtenances	2	LS	$2,700	$81,450		$81,450
48" Manhole - 8" to 12" Gravity Pipe	415	EA	$9,180	$3,809,700		$3,809,700
Traffic Control	2	LS	$324,000	$648,000		$648,000
Lift Station						
Large Lift Station (Phase 2 & 3, includes electrical)	3	EA	$432,000	$1,296,000		$1,296,000
Community lift station Hwy 188	5	0	$78,750	$393,750		$393,750
Smaller Lift Station	40	EA	$30,240	$1,209,600		$1,209,600
Misc & Pavement Restoration						
Asphalt R&R (6' Wide Trench Patch)	67,533	SY	$76	$5,132,483		$5,132,483
Jack & Bore US 60 North to South	400	0	$0	$273,200		$273,200
Dewatering	2	LS	$27,000	$54,000		$54,000
Utility Relocations	20	EA	$10,800	$216,000		$216,000
Wastewater Treatment						
WRF Expansion for Phases 2 & 3 (300,000 gpd)	2	EA	$1,900,000	$4,125,600	$1,000,000	$3,125,600
Concrete Slab for Package WWTP Plant	200	CY	$1,296	$259,200	$116,640	$142,560
Site Piping, Utilities & Set Train	2	LS	$194,400	$388,800	$97,200	$291,600
Instrumentation, Controls & SCADA	2	LS	$290,000	$580,000	$87,000	$493,000
Site Clearing & Grading	2	LS	$108,000	$216,000		$216,000
Electrical (Wastewater Treatment)	2	LS	$81,000	$162,000	$40,500	$121,500
Service Connections						
Connection Services (New Lateral to Residence)	1,180	EA	$5,616	$6,626,880		$6,626,880
Septic Tank Decomissioning	1,180	EA	$2,700	$3,186,000		$3,186,000
			Subtotal	**$44,721,917**	**$1,341,340**	**$43,380,577**
General Conditions Costs						
Mobilization/Demobilization	-	-	7.0%	$3,130,534	$93,894	$3,036,640
Testing & Materials	-	-	0.5%	$223,610	$6,707	$216,903
Taxes	-	-	6.0%	$2,683,315	$80,480	$2,602,835
Contingency						
Contingency	-	-	10.0%	$5,075,938	$737,880	$4,338,058
Loan Costs						
Interim Loan Interest	-	-	-	$670,829	$59,866	$610,963
Interim Loan Origination Fee	-	-	-	$268,332	$35,000	$233,332
			Construction Subtotal	**$56,774,473**	**$2,355,167**	**$54,419,306**
Build America, Buy American (BABA) Impact	-	-	8.5%	$4,825,830		**$4,825,830**
			Construction Total with BABA	**$61,600,303**	**$2,355,167**	**$59,245,137**
NON-CONSTRUCTION COST						
Description	**QTY**	**UOM**	**Unit Price**	**Phase 2 & 3 Total**	**Potential Savings**	**Combined Cost**
Study & Report Phase						
Onsite System Evaluation	2	LS	$170,000	$170,000		$170,000
Main Line ROW Issues Determination	2	LS	$120,000	$120,000		$120,000
Non-Frontage ROW / Easement Issues	2	LS	$100,800	$100,800		$100,800
Design Phase						
Design Management, Scheduling, and Meetings	2	LS	$85,000	$170,000		$170,000
Design Survey	2	LS	$225,000	$450,000		$450,000
Geotechnical	2	LS	$75,000	$150,000		$150,000
Underground Utilities Investigation	2	LS	$200,000	$400,000		$400,000
Collection System Design	2	LS	$770,000	$1,487,500	$148,750	$1,338,750
TRSD WRF Design	2	LS	$225,000	$450,000	$67,500	$382,500
Lift Station Design Large & Small	3	LS	$225,000	$450,000	$50,000	$400,000
Service Connection Design	1,180	EA	$260	$306,800		$306,800
ADOT Permit	1	LS	$25,000	$25,000		$25,000
Aquifer Protection Permit (APP) Application	2	LS	$22,500	$45,000	$14,850	$30,150
4.01 General Permit Application	2	LS	$25,500	$51,000	$16,830	$34,170
Bid Phase						
Bid Services	2	LS	$67,500	$135,000	$22,500	$112,500
Construction Phase						
Construction Management, Scheduling, and Meetings	32	MO	$137,120	$274,240	$68,560	$205,680
RPR Construction Engineer	32	MO	$27,500	$880,000		$880,000
Onsite RPR Support (Addtional Inspector & Admin)	32	MO	$22,000	$704,000	$67,500	$636,500
Special Inspection (Structural, Electrical)	2	LS	$25,000	$50,000	$12,500	$37,500
Startup Commissioning	2	LS	$28,000	$56,000	$14,000	$42,000
Record Drawings (Collection System)	2	LS	$35,000	$70,000	$17,500	$52,500
Record Drawings (WRF)	2	LS	$25,000	$50,000	$12,500	$37,500
GIS Phase 2	2	LS	$40,000	$80,000		$80,000
O&M Manual (Collection System & Treatment)	2	LS	$25,000	$50,000	$12,500	$37,500
Administration						
Bond Counsel Costs	2	LS	$150,000	$300,000		$300,000
District Legal Administrative Cost	2	LS	$100,000	$200,000	$50,000	$150,000
Financial advisor	2	LS	$360,422	$720,844	$56,844	$664,000
Aquifer Protection Permit (APP) Application Fee	2	LS	$25,000	$50,000	$12,500	$37,500
4.01 General Permit Application Fee	2	LS	$25,000	$50,000		$50,000
Contingency						
Non-Construction Contingency	-	-	10%	$804,618	$64,483	$740,135
Loan Costs						
Bridge Loan Interest	-	-	-	$141,900		$141,900
Bridge Loan Origination Fee	-	-	-	$53,750		$53,750
			Non-Construction Total	**$9,046,452**	**$709,317**	**$8,337,135**
			Project Total	**$70,646,756**	**$3,064,484**	**$67,582,272**

Andrea Jaycox

From: Paul Jepson <ptjepson@globeaz.gov>
Sent: Tuesday, December 21, 2021 8:34 PM
To: Mike Krebs
Cc: Andrea Jaycox
Subject: Re: Globe WWTP Available Capacity for TRSD Phase 3

Mike, Hey!

Sorry I am late on This!

Correct, we would like to protect our existing capacity for new growth.

I also need to follow up with you on the rate question,

Call me in the afternoon before your meeting wed if you want

I think Mayor Gameros may be attending in Person

Merry Christmas to you both!

Paul

Paul Jepson
City Manager
City of Globe
Cell: (602) 672-6024
ptjepson@globeaz.gov

From: Mike Krebs <mikekrebs@pacewater.com>
Date: Wednesday, December 15, 2021 at 8:52 AM
To: "ptjepson@globeaz.gov" <ptjepson@globeaz.gov>
Cc: Andrea Jaycox <ajaycox@pacewater.com>
Subject: Globe WWTP Available Capacity for TRSD Phase 3

Good Morning Paul,

I wanted to follow up with you regarding our discussion about the available capacity at the existing Globe WWTP for TRSD Phase 3.

It was indicated that Globe did not have any available capacity due to the City expansion of the its wastewater service to new areas.

Please confirm by responding to this email , as this information is needed for the Phase 3 Preliminary Engineering Report needed for funding.

Thanks

Mike Krebs, MBA, PE
Vice President, Environmental Water Division
C (602) 741-2115
E mikekrebs@pacewater.com - vcard

PACE AZ New Office Mailing/Physical Address:
8723 E Via de Commercio #A-204, Scottsdale, AZ 85258

PACE | Advanced Water Engineering
www.pacewater.com

Over 30 Years of Innovation in Partnership with Nature

All messages created in this system belong to the City of Globe and may be considered a public record subject to disclosure under the Arizona Public Records Law (A.R.S. 39-121). City employees, City public officials, and those who generate email to them, should be aware that these e-mails may be subject to public disclosure to the media and or individuals making a public records request.

In addition, to ensure compliance with the Open Meeting Law, Council or Board/Commission members who are recipients of this message should not forward it to other members of the Council or Board/Commission of the City of Globe. Council Members or Board/Commission Members may reply to a staff member regarding this message, but they should not send a copy of a reply to other Council or Board Members.

Environmental Assessment

TRI-CITY REGIONAL SANITARY DISTRICT
WASTEWATER COLLECTION AND TREATMENT – PHASES 2 & 3
Gila County, Arizona

MARCH 2022

THIS PAGE INTENTIONALLY LEFT BLANK

Environmental Assessment

for

Tri-City Regional Sanitary District
Wastewater Collection and Treatment – Phases 2 & 3
Gila County, Arizona

Prepared For:

US Department of Agriculture - Rural Development

230 North First Avenue, Suite 206

Phoenix, AZ 85003

and

Tri-City Regional Sanitary District

P.O. Box 2198

Claypool, Arizona 85532

Prepared By:

Logan Simpson

51 West Third Street, Suite 450

Tempe, Arizona 85281

March 2022

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

AAC	Arizona Administrative Code
ac	acre
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
APE	area of potential effects
APP	Aquifer Protection Permit
ASM	Arizona State Museum
AZPDES	Arizona Pollutant Discharge Elimination System
BE	Biological Evaluation
BGEPA	Bald and Golden Eagle Protection Act
BHP	BHP Billiton
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CAG	Central Arizona Governments
CESA	cumulative effects study area
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
du	dwelling unit
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMI	Freeport-McMoRan, Inc.
FWCA	Fish and Wildlife Coordination Act
gpd	gallons per day
IPAC	Information, Planning, and Conservation
LF	Linear Feet
MBR	membrane bioreactor
MBTA	Migratory Bird Treaty Act
MGD	million gallons per day

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
PACE	Pacific Advanced Civil Engineering, Inc.
$PM_{2.5}/PM_{10}$	particulate matter
PCWWTF	Pinal Creek Wastewater Treatment Facility
PER	preliminary engineering report
RD	Rural Development
ROI	Resolution of Intention
ROW	right-of-way
RUS	Rural Utilities Service
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SWPPP	stormwater pollution prevention plan
TRSD	Tri-City Regional Sanitary District
TMP	Traffic Management Plan
USC	United States Code
USDA	US Department of Agriculture
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
UST	underground storage tank
Waters	waters of the United States
WQARF	Water Quality Assurance Revolving Fund
WQMP	Water Quality Management Plan
WRF	water reclamation facility
WWTF	wastewater treatment facility

1.0 PROJECT OVERVIEW

1.1 Introduction

The Tri-City Regional Sanitary District (TRSD) has applied for financial assistance from the U.S. Department of Agriculture (USDA) Rural Development (RD) Program to provide a wastewater collection and treatment system to its users for Phases 2 and 3. The project is located approximately 80 miles east of Phoenix between the Town of Miami (Miami) and City of Globe (Globe) in Gila County, Arizona and is associated with an overall three-phased approach based on direction from the USDA related to the funding process and availability of funds (Figure 1). The three phases have been generally defined by geography with project activities consisting of the installation of sewer collection lines throughout the TRSD service area and construction of a wastewater reclamation facility (WRF). Phase 2 is located in the central and southeastern portion of TRSD, and Phase 3 is located in the northern portion of TRSD. The Phase 2 and 3 areas include the neighborhoods of Midland City, Central Heights, Little Acres, United States Route 60 (U.S. 60), and State Route 188 (SR 188).

An EA was previously prepared separately for Phase 1. Phase 1 funding was issued by USDA-RD in August of 2018 and the Phase 1 design is currently underway. TRSD has also applied for federal financial assistance under the USDA RD/Rural Utilities Service (RUS) Water and Waste Disposal Loan and Grant Program for Phases 2 and 3. This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal and storm water drainage to households and businesses in eligible rural areas. This Loan and Grant Program also assists small, financially distressed rural communities in extending and improving water and waste treatment facilities that serve local households and businesses (USDA 2015).

Prior to providing TRSD financial assistance for Phases 2 and 3, USDA RD/RUS is required by the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321–4346), to analyze the potential environmental impacts that would occur as a result of funding and constructing the proposed project. In addition to NEPA, this Environmental Assessment (EA) was also prepared in accordance with USDA RUS's environmental policies and procedures (7 Code of Federal Regulations [CFR] 1794). The EA was developed jointly with the USDA RD Draft Preliminary Engineering Report (PER) prepared by Pacific Advanced Civil Engineering, Inc. (PACE) in accordance with 7 CFR 1780.33 (Pace 2022). The purpose of this EA is to document the environmental impacts that would occur as a result of Phases 2 and 3.

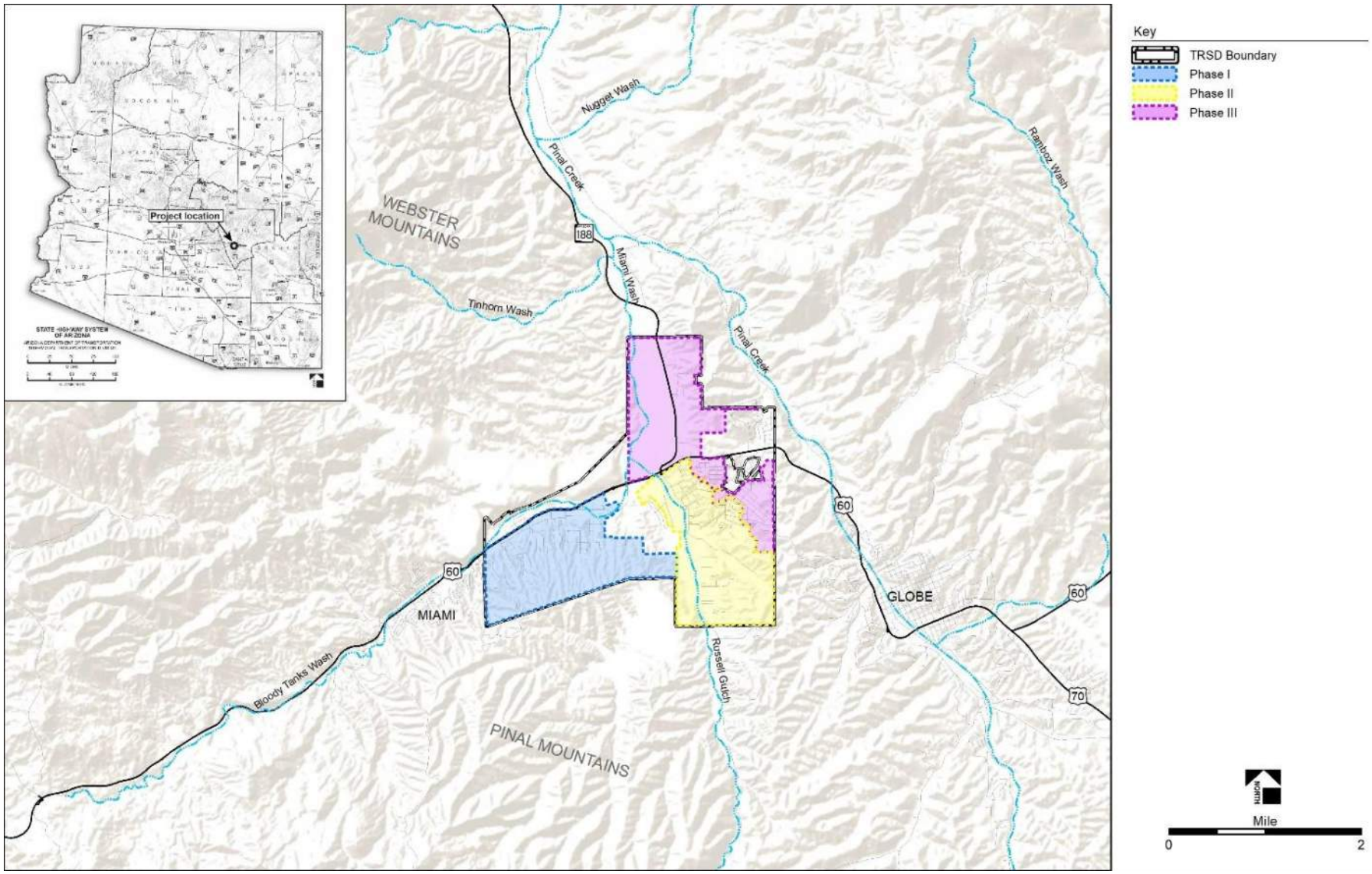


Figure 1. State Location and Project Vicinity Map

1.2 Project Background

Globe and Miami each operate their own wastewater collection and treatment systems that serve their populations. Sanitation in the area between these communities has been historically handled with outhouses and cesspools[1] constructed on an as-needed basis. TRSD was formed when the Pinal Sanitary District and the Cobre Valley Sanitary District merged in 2011in order to better manage wastewater treatment and disposal across both districts. The goal of the merger was to improve the quality of life for the Tri-City area of southern Gila County, Arizona by developing a plan to provide a new wastewater collection and treatment system. The TRSD service area encompasses approximately 5.3 square miles and lies within the Salt River Basin Watershed.

Phase 1 design currently consists of the installation of 61,000 +/- linear feet (LF) of gravity mains, 7,600 +/- LF of force main, 658 +/- new residential service connections, a new main lift station and a new 0.20 million gallons per day (MGD) membrane bioreactor (MBR) WRF. Phase 1 would serve a population of approximately 1,500.

Currently, the majority of wastewater collection and treatment in TRSD is achieved through individual on-site septic systems[2] and cesspools. No wastewater collection or treatment infrastructure physically exists at this time. The construction of cesspools was prohibited in the U.S. in the 1970s due to their inability to treat wastewater before discharge; regulations to improve septic system processes were established in 1990. The majority of homes in TRSD were constructed prior to 1990. Numerous public complaints and Notices of Violation were recorded between 2007 and 2012. Complaints and violations included situations where cesspools had collapsed and raw sewage was ponding or flowing off the property. Other issues occurred where greywater (e.g., washing machine water) was being actively pumped onto surface of the adjoining property, or where greywater from failing cesspools was pumped onto the surface to prevent the cesspool from overflowing. It is estimated that nearly 90 percent of residential systems within TRSD are currently in violation of federal and state regulations. Gila County has discontinued the process of actively seeking out properties in violation as the net outcome may result in a large portion of the community being disconnected from water services (PACE 2022).

In addition to outdated and poorly functioning septic systems, the majority of the homes within TRSD do not have enough usable land on which to install a replacement septic system. It is estimated that the average lot size in TRSD is 5,000 square feet and in the mining subdivisions, the average lot size is 3,750 square feet. Gila County requires that a parcel must have a minimum size of 10,000 square feet in order to install a septic system (Gila County 2006). Although some small lots qualify to use an alternative treatment system to overcome lot limitations, these systems typically cost more than the appraised value of the property. Due to the relatively small lot size, it is not feasible for many property owners in TRSD to replace their septic systems in order to meet current standards. In situations where violations have been reported and property owners cannot afford to replace their septic systems, some

[1] A cesspool is an excavation or non-watertight unit that receives untreated, water-carried, liquid human waste from a home or business allowing direct discharge into the soil. The use of cesspools in Arizona has been prohibited since 1976 (http://www.gilacountyaz.gov/government/community_development/wastewater_faqs.php).

[2] A septic system is a two-part sewage treatment and disposal system buried in the ground. It is composed of a septic tank and a soil drain field. The sewage flows by gravity into the septic tank where the solids settle out of the liquid. The liquid, called effluent, then flows to the drain field where it soaks into the ground and oxygen breathing bacteria consume and/or kill the remaining sewage, bacteria and viruses so that the water is clean and ready to re-enter the fresh water supply (http://www.gilacountyaz.gov/government/community_development/wastewater_faqs.php#QUESTION1).

properties within TRSD have been abandoned or used for storage because of the water service being turned off (PACE 2022).

1.3 Purpose and Need

The purpose of the project is to provide wastewater collection and treatment to properties within Phases 2 and 3 of the TRSD service area in order to address the public health issues associated with the current wastewater treatment methods. Based on a 2012 Sewage Treatment Study conducted by the Gila County Wastewater Department, there are very few permitted septic systems within the TRSD service area that do not have a high risk of failure (Gila County 2012).

The need for the project is based on concerns over the protection of public health and safety and the environment. The majority of wastewater collection and treatment in the TRSD service area is achieved through onsite individual septic systems and cesspools, of which nearly 90 percent are in violation of the Clean Water Act (CWA), Arizona Administrative Code (AAC), and/or Arizona Department of Environmental Quality (ADEQ) regulations. Although these types of systems can be capable of adequately treating wastewater, environmental and human health consequences can arise if the systems are not designed, installed, and maintained properly over time. Many of the existing septic tanks are more than 40 years old—twice their estimated normal functioning life. As these systems age, the effects of improper design and maintenance considerations are exacerbated, thereby increasing the magnitude of system failures and the resultant risks to human health and the environment.

As system failures become more frequent, the potential for waterborne illness from various pathogenic microorganisms and degradation of the environment from the release of ammonia and nitrates increases. Children, the elderly, pets and wildlife are at greatest risk and are generally more likely to come into contact with contaminated areas. Cesspools typically receive domestic sewage from the residence or another building and then allow the wastewater to percolate out from the bottom. Cesspools pose a problem because they are not designed to treat sanitary waste. They also have high levels of nitrates and coliform bacteria. In addition, other pollutants may be present in the cesspools, such as phosphates, chlorides, grease, viruses, etc. This type of treatment was outlawed under the CWA and AAC due to the risks associated with using cesspools to treat wastewater (PACE 2022).

Another environmental concern that arises with on-site treatment systems is the release of pollutants, including nitrogen, to underlying groundwater. When systems are poorly sized, located or maintained, effluent nitrogen levels can exceed the treatment capacity of the soil, allowing effluent with a high nitrogen concentration to potentially reach groundwater. The effects from excessive nitrogen loading on the region’s groundwater could be seen at Theodore Roosevelt Lake, which aside from a notable natural ecosystem, also provides water storage for the Salt River Project.

The diminishing wastewater conditions and the number of abandoned properties and/or the properties with disconnected water due to on-site wastewater management violations has negatively impacted the community. This has led to low property values and less-than-favorable living conditions. The problems that affect TRSD not only affects TRSD, but also the neighboring municipalities. In summary, potential public health, sanitation, and environmental issues arise from the failing wastewater disposal systems within Phases 2 and 3, making it crucial to implement changes to the current methods of wastewater treatment within the TRSD service area (PACE 2022).

1.4 Decision to be Made

The USDA RUS must decide whether or not to provide the financing assistance to TRSD for the installation of a wastewater collection system and WRF expansion for Phases 2 and 3 (referred to as the Proposed Action). The information presented and the analyses performed in this EA will allow the USDA RUS to determine the level of significance of environmental impacts associated with the Proposed Action. The significance of impacts identified will determine whether the impacts can be mitigated or whether a higher level of environmental documentation is necessary, i.e., Environmental Impact Statement.

1.5 Public and Agency Involvement

TRSD publicly issued a Resolution of Intention (ROI) created to introduce proposed improvements, engineer's best estimate of cost, project financing and estimated user rates and assessment costs. The ROI process required TRSD to post signs conspicuously along the proposed improvements and not more than 300 feet apart for all three phases of the project. Property owners within the TRSD area had an opportunity to protest the project. In early 2019, the protest results came back with only 4.6% protesting. TRSD also carried out voluntary community outreach efforts conveying the current wastewater treatment within TRSD and the need for the project via presentations, meetings, open discussion meetings, handouts, posters, articles and flyers (Appendix B).

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action would include the installation of a new wastewater collection system within Phases 2 and 3 which would convey wastewater from area residents and property owners to the WRF located within Phase 1 (Figure 2). TRSD would use USDA RD/RUS Water and Waste Disposal Loan and Grant Program funding for the project. The WRF (which is yet to be constructed as part of Phase 1) would be expanded as part of this project to be able to handle wastewater associated with Phases 2 and 3. The construction of the WRF has been previously covered in environmental documentation associated with Phase 1. Therefore, only actions associated with its expansion to be able to accommodate Phases 2 and 3 are being analyzed as part of this EA.

The TRSD WRF located within Phase l would be expanded and designed to have a final treatment capacity of 500,000 gallons per day (gpd) and would allow for 1,838 new residential connections in the Phase 2 and 3 areas. Expansion activities would occur within an approximately 10.53-acre area of land (Gila County parcel number 206-04-005X) currently owned by BHP Billiton (BHP). The WRF would be a package plant using a MBR process[3]. When used for domestic wastewater, this process can produce a high-quality effluent that meets ADEQ's Best Available Demonstrated Control Technology and Class A+ Reclaimed Water Standards[4]. Effluent would be discharged into Russell Gulch, located east of the TRSD WRF expansion. Approximately 20 tons of biosolids[5] are anticipated to be produced by the WRF on a weekly basis. The biosolids would be consolidated in an on-site roll-off collection bin, hauled off-site, and disposed of at a local landfill on an as-needed bases.

In addition to the expansion of the TRSD WRF, the following features are included in the Proposed Action:

- Approximately 51,000 LF (Phase 2) and 47,000 LF (Phase 3) of 8- to-10-inch sewer collection lines to collect and transfer wastewater within Phases 2 and 3 of the TRSD WRF service area; installed at an average depth of approximately six feet.
- Approximately 8,000 LF (Phase 3) of 4-inch to 6-inch force main sewer line; installed between four and six feet deep.
- Installation of approximately 435 manholes for access to the sewer collection system.
- New residential service connections (laterals) from the proposed wastewater collection system to approximately 643 (Phase 2) and 537 (Phase 3) residential properties, to include yard restoration following installation, as needed. TRSD would maintain responsibility of the laterals from the sewer

[3] A membrane bioreactor process is a hybrid of the conventional activated sludge system for wastewater treatment. The membrane bioreactor is a membrane such as a microfiltration or ultrafiltration membrane that is integrated with a biological process. While the activated sludge process uses a secondary clarifier or settlement tank for solid/liquid separation, a membrane bioreactor process uses a membrane for this function (http://www.thembrsite.com/).

[4] ADEQ's Class A+ Reclaimed Water is wastewater that has undergone secondary treatment, filtration, nitrogen removal treatment, and disinfection. Standards refers to a class of reclaimed water quality that allows for open public access and water that is pathogen-free, denitrified, and has been filtrated to meet turbidity levels of less than two nepholometric turbidity units (NTUs) (http://www.azwater.gov/azdwr/WaterManagement/documents/ARTICLE3ReclaimedWaterQualityStandards.pdf).

[5] Biosolids are nutrient-rich organic materials resulting from the treatment of domestic sewage. When treated and processed, these residuals can be recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth (https://www.epa.gov/biosolids/basic-information-about-biosolids).

main to the property line, while the property owners would be responsible for maintaining the lateral from the property line to the existing plumbing, following installation by TRSD.

- Effluent flow would be conveyed via a conventional wastewater collection system that relies on gravity to carry flows. However, due to the topography in some portions of the Phases 2 and 3, installation of low-pressure grinder pumps[6] may be required. Where grinder pumps are needed, grinder pump stations would be installed for various groups of homes. The homes would be connected to the gravity lines that would flow to the community grinder. The number and location of grinder pump stations, if needed, would be determined during the project design.

Prior to construction, geotechnical activities would occur to characterize the soil that would be encountered in the area. Although the new sewer collection system would be located within existing right-of-way (ROW) and easements, new ROW and easements may be necessary. Under the Proposed Action, construction of Phases 2 and 3 may occur concurrently or staggered in which one phase is constructed before the other based on available funding. Upon completion of the project, approximately 2,463 residents would directly benefit from this new collection and treatment system and the entire community would begin to see some environmental and economical improvements in the area (PACE 2022).

The design criteria used in the development of the Proposed Action would include RUS design policies (7 CFR 1780.57), AAC R-18-9, and ADEQ Engineering Bulletin No. 11 in addition to the following design features:

- Where sewer lines would cross jurisdictional waters (Waters) of the United States, and/or the US 60, installation would be completed using trenchless technologies such as jack-and-bore methods with steel casings. All other sewer installations would be completed by conventional open-trench methods.
- New sewer system installation would include interceptors, laterals and house service connections within the TRSD's existing service area.
- No substantive hard materials would be encountered during excavation for the sewer line replacement.
- Existing on-site septic systems and cesspools would be left in place and closed in accordance with the closure requirements found in AAC R18-9-A309.

[6] Grinder pumps are devices that grinds waste into a fine slurry and then pumps it into the main gravity sewer line.

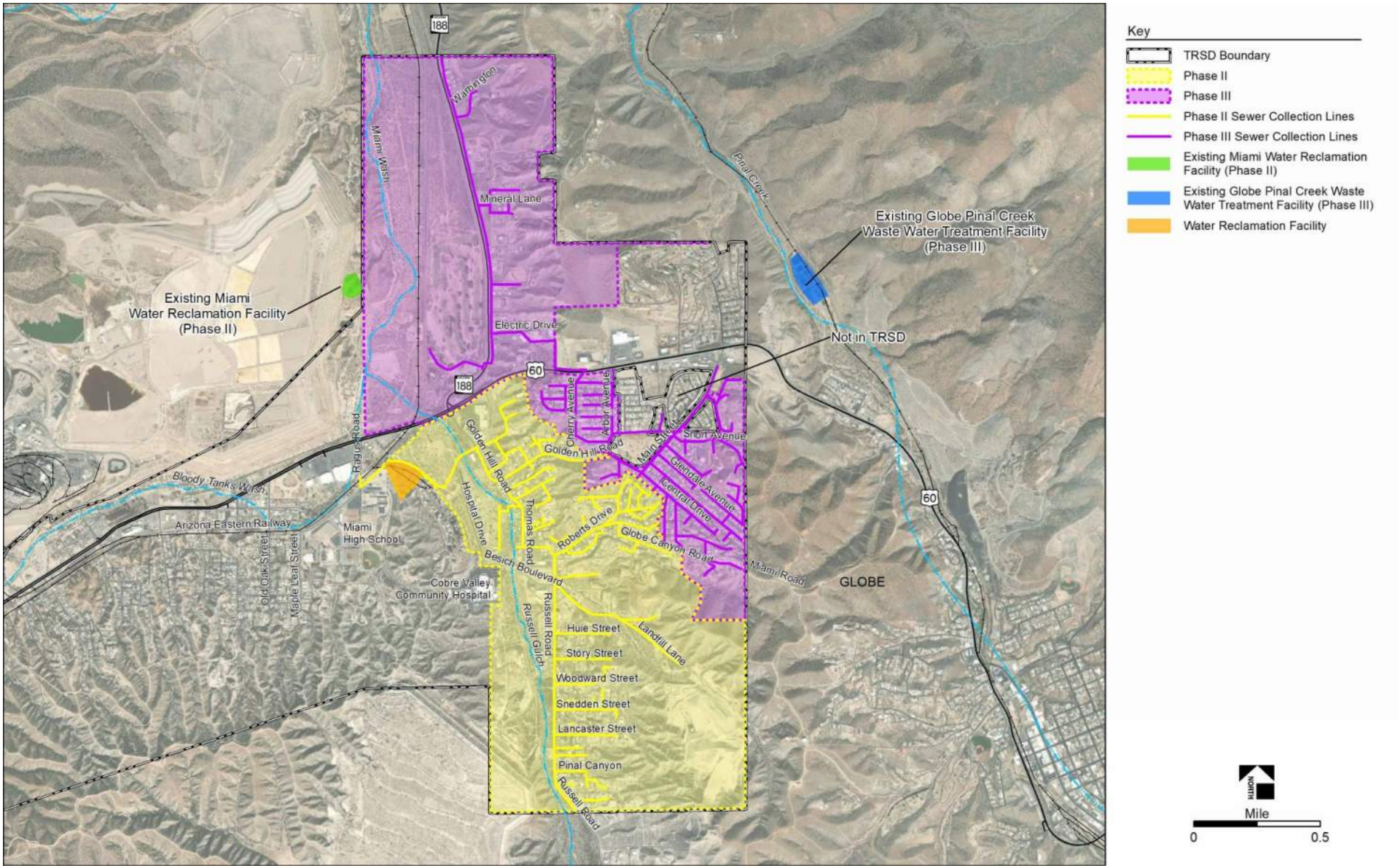


Figure 2. Proposed Action Map

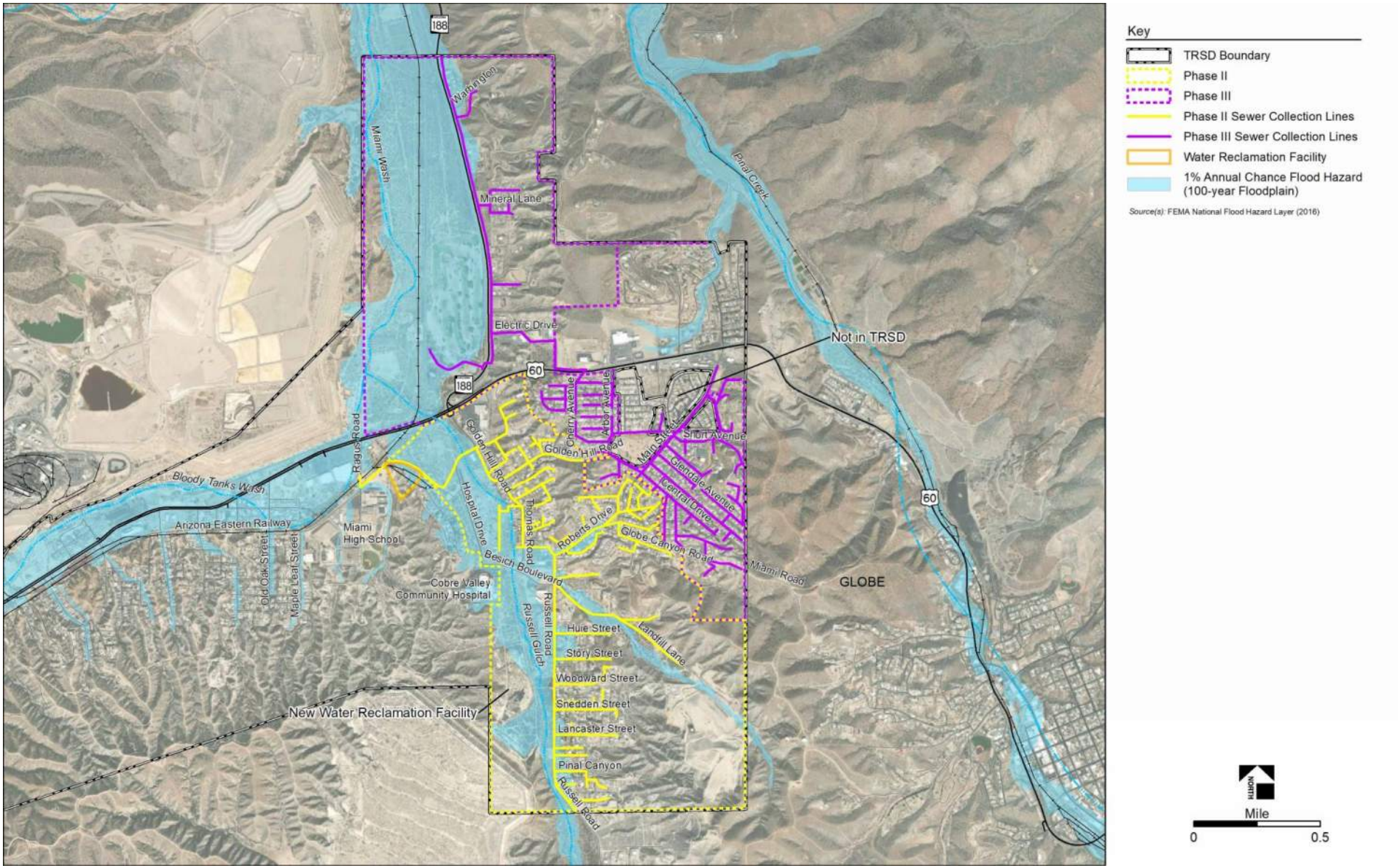


Figure 3. Floodplain Map

2.2 No Action Alternative

Under the No Action Alternative, current wastewater treatment within the TRSD service area would not be improved and there would be no changes to the TRSD infrastructure for the Phase 2 and 3 areas. Under this alternative, individual property owners would continue to be responsible for septic tank operations including maintenance and replacement. The nearly 90 percent of residential systems within the TRSD currently in violation of federal and state regulations would remain in violation unless homeowners replace or repair failing systems, which is not financially feasible for most residents. The condition of the existing wastewater facilities would continue to deteriorate resulting in the increased potential for septic tank overflow, septic tank failure, cesspool overflow and the introduction of pollutants into the environment.

2.3 Alternatives Considered but Eliminated from Detailed Study

2.3.1 Proposed Action with Globe PCWWTF Conveyance Alternative for Phase 2

One variation of the Proposed Action considered was to construct the sewer lines as outlined in the Proposed Action. However, instead of sending flows to the expanded TRSD WRF, wastewater flows associated with Phase 2 would be sent to the existing Globe Pinal Creek Wastewater Treatment Facility (PCWWTF). The Globe PCWWTF is located approximately 1 mile northeast of the Phase 2 area and sits at an elevation of 3,385 feet above sea level. This alternative was eliminated because it would not be cost effective due to the distance and the geography of its location relative to that of the project area.

2.3.2 Proposed Action with Miami WRF and Globe PCWWTF Conveyance Alternatives for Phase 3

Another variation of the Proposed Action was to construct the sewer lines as outlined in the Proposed Action. However, instead of sending flows to the expanded TRSD WRF, wastewater flows associated with Phase 3 would be sent to the existing Miami WRF. Due to the terrain and long distance from Phase 3 of the system to the Miami WRF, this alternative would not be cost effective, and no further consideration was given

Sending flows associated with Phase 3 to the Globe PCWTF was also considered. However, this would result in higher costs due to the distance and geography. Additionally, this alternative was not compatible with Globes future wastewater use.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter provides details of the existing or baseline conditions (affected environment) occurring within and around the Phase 2 and 3 areas and analyzes the potential impacts associated with the two alternatives identified in Chapter 2. If the affected environment indicates that the resource is not present, then an analysis of the potential environmental consequences for that resource was not completed.

3.1 Land Use and Ownership/Jurisdiction

3.1.1 Affected Environment

The majority of Phases 2 and 3 is located within unincorporated Gila County, Arizona and a small portion is located in Globe. The TRSD service area encompasses approximately 5.3 square miles and includes the neighborhoods of Lower Miami, Claypool, Midland City, Central Heights, and Little Acres. The majority of the Phase 2 and 3 areas consists of privately owned land and local roadways. Portions of the project area along US 60 and SR 188 would be within the existing roadway corridor, segments of which are Arizona Department of Transportation (ADOT) and Gila County ROW. The location of the TRSD WRF expansion is within an approximately 10.53-acre area of land (Gila County parcel number 206-04-005X) owned by BHP Billiton (BHP). Land ownership adjacent to Phases 2 and 3 is private landowners, including several mining operations. Regional land jurisdiction includes Bureau of Land Management (BLM) lands, lands administered by the Arizona State Land Department, the Tonto National Forest, and the San Carlos Apache Reservation. Greater than 93 percent of lands in Gila County are United States Forest Service (USFS) or Indian Reservations (Gila County 2003).

According to the Gila County Community Land Use Plan, land use within the project area predominately consists of medium-to-high density residential (2-10 dwelling units/acre [du/ac]), with the remainder of the TRSD service area comprised of mixed use, community commercial, light industrial and heavy industrial (Gila County 2012). The dominant land use of the areas surrounding the TRSD service area are light and heavy industrial, primarily consisting of the numerous copper mines and smelting operations, as well as light-density residential (less than 2 du/ac) and the incorporated communities of Miami and Globe (Gila County 2003).

Gila County has identified goals for balanced land use and development for the unincorporated areas around Globe and Miami. According to the Gila County Comprehensive Plan, the existing mineral extraction and ore processing operations are an important part of the local community and a major contributor in the local economy (Gila County 2012). Development in the area has historically and largely been a result of the need to provide local mine workers with housing and support services. As a result of the extensive failures of cesspools and septic systems, the Comprehensive Plan discourages the use of individual septic systems and encourages the formation of service districts to provide regional and community-wide wastewater treatment facilities (Gila County 2003).

The Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. For the purpose of the Act, “farmland” includes prime farmland, unique farmland and land of statewide or local importance. Prime farmland is defined as land that has the best physical and chemical characteristics for producing crops. Unique farmland is land other than prime farmland that has unique characteristics for the production of specific crops. Farmland does not have to be actively used for cropland to be subject to

the Act's requirement and can include forest land, pastureland, cropland or other land, but not water or urban built-up land. No actively cultivated fields or agricultural operations were identified within the Phase 2 and 3 areas. A review of the USDA Natural Resources Conservation Service's (NRCS) Web Soil Survey indicates that no prime farmland, unique farmland, or farmland of statewide or local importance are located within or adjacent to Phases 2 and 3 (NRCS 2021).

Formally classified lands is a USDA RD/RUS classification that includes properties administered by federal, state or local agencies or properties afforded special protection. Formally classified lands include but are not limited to: national parks and monuments; natural landmarks; national historic sites and parks; wilderness areas; wild and scenic and recreational rivers; wildlife refuges; national seashores, lakeshores, and trails; state parks; BLM-administered lands; national forests and grasslands; tribal lands; or leases administered by the Bureau of Indian Affairs. There are no formally classified lands within the project area that have been given special protection through formal legislative designation. The majority of the Phase 2 and 3 areas consist of private land and ADOT and Gila County ROW. Adjacent to the TRSD service area, there are state trust lands and lands which are administered by BLM, but these lands have not been given special protection through formal legislative designation.

3.1.2 Impacts to Land Use and Ownership/Jurisdiction

Proposed Action

The Proposed Action consists of the installation of sewer collection lines within Phases 2 and 3 and expansion of the TRSD WRF. Construction impacts would be limited largely to previously disturbed areas, as the sewer collection system would be installed within or adjacent to existing roadway ROW. The TRSD WRF expansion would be located on land currently owned by BHP. Installation of new sewer lines within roadway ROW would require an ADOT encroachment permit for the construction and maintenance. Encroachment permits and/or other authorizations would also be required from BHP and Gila County. Roadways typically account for the addition of future linear utilities within the ROW, but new ROW/easements may be necessary. Adverse impacts may occur if new ROW/easements are needed from landowners, particularly nearby residents. However, due to the nature of the project, ROW and easement acquisition is expected to be a minor, adverse impact. Construction activities would need to be coordinated with Gila County, ADOT, adjacent residents, local businesses, and BHP.

The Proposed Action would be consistent with the Gila County Comprehensive Plan, which discourages the use of individual septic systems and encourages the formation of service districts to provide regional and community-wide treatment facilities (Gila County 2003). The Proposed Action would help reduce residential and commercial properties from becoming vacant over time because it would provide functional wastewater collection and treatment. The TRSD WRF expansion would be located on a 10.53-acre area currently owned by BHP. This area is not being mined. There would be no change in land use for this parcel because it currently serves as a leach field and the remainder of the parcel not used for the WRF expansion would remain undeveloped and consistent with its present condition.

Effects associated with the Proposed Action would include the potential to encourage new development as a result of the improved wastewater treatment. This would help reduce declining property values so that the current Phase 2 and 3 area land use would remain unchanged. The Proposed Action is anticipated to have no impacts on land jurisdiction but would have short and long-term beneficial impacts on land use.

No Action Alternative

Under the No Action Alternative, installation of a municipal sewer collection system and expansion of the WRF would not occur, and residents within the Phases 2 and 3 would continue to use existing individual septic systems. As individual septic systems continue to age and property values fall, the existing land use would potentially shift to more vacant and abandoned properties. Since there would be no construction activities, there would be no short-term impacts as a result of the No Action Alternative. Long-term adverse impacts on land use are anticipated from the No Action Alternative, as properties would continue to rely on aging and failing septic systems and additional residential properties would become vacant. There would be no impacts to jurisdiction or land ownership as a result of the No Action Alternative.

3.2 Floodplains

A floodplain is generally level land subject to periodic flooding from an adjacent body of water. Floodplains are delineated and managed by the Federal Emergency Management Agency (FEMA). Floodplains are sensitive to construction or heavy/intense human use, which can result in changes to surface and/or hydrological features. Executive Order (EO) 11988, Floodplain Management, requires federal agencies to avoid to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid support of floodplain development wherever there is a practicable alternative.

3.2.1 Affected Environment

The *Gila County Floodplain Management Ordinance,* dated December 1986 and most recently amended October 2015, was developed to conform to federal standards. This ordinance includes provisions that regulate the location and construction of buildings and other man-made structures within a designated floodplain. Gila County issues floodplain-use permits in unincorporated areas of Gila County for all structures or improvements constructed within a regulatory floodplain.

A 100-year flood is a storm having a 1 percent chance of being exceeded in magnitude in any given year. A review of FEMA National Flood Hazard Layer dated 2019 indicates that Phases 2 and 3 of the TRSD service area includes areas of 100-year floodplain associated with two major drainages (Bloody Tanks Wash and Russell Gulch), as well as numerous tributaries to these waterways (Figure 3). Areas of 500-year floodplain were not identified within Phase 2 and 3 of the TRSD service area. Considerable residential, commercial, and industrial development presently occurs within the 100-year floodplain (Federal Emergency Management Agency [FEMA] Flood Insurance Rate Map 04007C2112D) (FEMA 2022).

3.2.2 Impacts to Floodplains

Proposed Action

Installation of the Phases 2 and 3 sewer collection lines are designed to occur outside the floodplain where possible to reduce potential impacts on the floodplains. However, in areas where installation of the sewer system within the floodplain is unavoidable, the collection system would be installed within previously disturbed areas to the greatest extent possible and would be installed so as not to alter or raise the existing floodplain elevation. Piping would be placed below ground level and backfill would be compacted to the existing grade level. Surface cover would be replaced to pre-construction conditions.

WRF Expansion– The land to be acquired that is associated with the WRF expansion area would be partially located within the 100-year floodplain. However, the wastewater treatment equipment for Phases 2 and 3 would be located outside the 100-year floodplain. Thus the 100-year floodplain (base elevation) is not anticipated to be altered.

The Proposed Action would not result in an increase in surface water flows that may cause flooding nor would the construction-related activities alter the floodplain elevation either temporarily or permanently. Additionally, best management practices (BMPs) would be implemented to protect project components and the vicinity (refer to Chapter 5.0 for description of BMPs). Therefore, the Proposed Action would have no impacts to floodplains.

No Action Alternative

Under the No Action Alternative, installation of a municipal sewer collection system and the WRF expansion would not occur. Residents within the project area would continue to use existing individual septic systems, and the potential for these systems to back-up or fail would continue to exist. Under the No Action Alternative, no construction activities would be completed. Therefore, there would be no impacts on the floodplains from the No Action Alternative.

3.3 Wetlands

A review of the online National Wetlands Inventory maintained by the United States Fish and Wildlife Service (USFWS) indicates that there are no wetlands within the Phases 2 and 3 area. Since no wetlands have been identified in the project area, no additional analysis or discussion has been included.

3.4 Water Resources

The Clean Water Act (CWA) is the primary federal statute governing discharge of pollutants into Waters which, in Arizona, include perennial, intermittent, and ephemeral watercourses and their tributaries and adjacent wetlands. The CWA establishes structure for regulating standards for surface waters and requires states to set standards to protect water quality, including regulation of stormwater and wastewater discharges during construction and operation of a facility. Section 402 of the CWA regulates construction sites on an acre or more of land, municipal, industrial, and commercial facilities discharging wastewater or stormwater into Waters, which are under the jurisdiction of ADEQ. Section 404 of the CWA protects areas vital to surface water, namely wetlands, and regulates dredging, filling, or otherwise altering wetland habitat or Waters, which are under the jurisdiction of the US Army Corps of Engineers. Water quality issues are those that relate to surface or groundwater resources, discharges from wastewater treatment or solid waste facilities, groundwater protection programs (sole-source aquifers and recharge areas) and water quality degradation from temporary construction activities.

3.4.1 Affected Environment

The TRSD service area is located within the Central Arizona Governments (CAG) regional planning district, established to provide effective regional planning services to Gila and Pinal counties. The CAG currently has several plans and strategies in place, including the Section 208 Water Quality Management Plan (WQMP) (CAG 2016), which is a regional water quality plan developed under Section 208 of the CWA. The plan constitutes an agreement between CAG, entities operating

wastewater utilities within the region, ADEQ and the Environmental Protection Agency (EPA) to implement strategies and processes to protect water quality (CAG 2016).

3.4.1.1 Surface Water

The Phases 2 and 3 area is within the Upper Salt River watershed. The two principal drainages in Phases 2 and 3 are Bloody Tanks Wash and Russell Gulch, which are ephemeral drainages that flow northwest to Pinal Creek, a tributary of the Salt River (Figure 3). Several unnamed smaller ephemeral drainages occur within the Phases 2 and 3 area, draining into Bloody Tanks Wash. Ephemeral drainages receive flow from heavy precipitation and snowmelt and are not recharged by groundwater. The majority of precipitation occurs during the months of July and August. Some surface water may seep through to groundwater, but it is typically dissipated by runoff and evaporation. No perennial streams (continuously flowing) or intermittent streams (dependent on groundwater/high water table) were identified in the Phases 2 and 3 area and no unique, impaired or non-attaining waters are located in or near the project area.

Stormwater refers to water runoff from either pervious or impervious surfaces as the result of rain or snow. Stormwater can capture chemicals, sediment and general debris and transport them to adjacent waterbodies. Stormwater pollution can originate from many sources including water runoff from parking lots, residential areas, industrial facilities, construction projects, streets, and various urban areas. In the project area, stormwater is conveyed by naturally occurring ephemeral drainages, some of which have been manipulated and paved with streets and curbs.

3.4.1.2 Groundwater

In the Salt River Lakes sub-basin of the Salt River groundwater basin that occupies the portion of Gila County in the general vicinity of the project area, unconsolidated sands and gravels within the floodplains of streams and washes form an alluvial aquifer (Arizona Department of Water Resources [ADWR] 2009). In the Globe-Miami area, most of the area's municipal and industrial water supply comes from the Gila conglomerate that forms a local aquifer (ADWR 2009). Groundwater in the area is located at a depth of 15-to-30 feet (ADWR 2009). Water is also supplied to the Globe-Miami area by a limestone aquifer and small basin-fill deposits forming isolated groundwater aquifers. Mining activities in the vicinity of the project area have impacted water quality in the alluvial aquifer along Miami Wash and Pinal Creek, consisting of elevated concentrations of metals and sulfate (ADWR 2009).

Groundwater contamination has been identified within the proposed project area associated with the Pinal Creek Water Quality Assurance Revolving Fund (WQARF) site. This WQARF site follows the floodplains of Bloody Tanks Wash and Russell Gulch, to their confluence with Pinal Creek. The ADEQ WQARF program investigates and cleans up contaminated soil sites and groundwater across the state (ADEQ 2017a). The primary pollutants of concern are waste rock from nearby mining activities and heavy metals from acid-metal runoff from tailings (ADEQ 2012). Contamination is also found in the alluvial aquifer of Bloody Tanks Wash-Miami Wash-Pinal Creek, in the regional Gila conglomerate aquifer (ADEQ 2010). Groundwater from the alluvial aquifer is generally not used because it is contaminated. Water provided by the American Water Company or the Globe to the residents of Miami, Globe, and Claypool comes from the Gila conglomerate aquifer outside of the boundaries of the WQARF site and is tested to ensure it meets all state and federal drinking water standards (ADEQ 2010). Cleanup of the Pinal Creek WQARF site resulting from decades of mining contamination is ongoing.

The existing residential treatment systems, consisting of cesspools and septic systems, currently used for wastewater disposal within the TRSD service area have generated concerns about the quality of groundwater in the area. Many of the septic systems in use have been improperly maintained and/or were poorly located and improperly designed and installed, resulting in discharge of untreated wastewater and pollutants (e.g., nitrogen) into the environment, ultimately affecting groundwater (PACE 2022). The majority of wastewater disposal within the TRSD service area is facilitated through individual treatment systems for residences and some businesses. Although these systems can adequately treat wastewater, the lack of proper maintenance can result in the release of improperly treated or untreated wastewater into the environment.

Both Globe and Miami have municipal wastewater collection and treatment systems for the areas under their jurisdiction. Freeport-McMorRan Inc. (FMI) completed construction of a new WRF for Miami that nearly doubles the treatment capacity from the previous wastewater system. Treated wastewater from the Miami WRF meets all EPA and ADEQ standards, and treated effluent is used by FMI for mining operations and golf course irrigation, as well as to replenish the aquifers. The PCWWTF receives domestic wastewater from residential and commercial sources in Globe. Treated wastewater from this facility is discharged into Pinal Creek and meets all EPA and ADEQ standards (City of Globe 2011).

3.4.2 Impacts to Water Resources

3.4.2.1 Surface Water

Proposed Action

In small segments of the Phases 2 and 3 area, installation of the sewer collection system would involve the need to cross named drainages and other potential Waters. Design features would be included to implement strategies to minimize potential impacts and reduce the disturbance areas. For potential crossings, jack-and-bore construction activities would occur in Waters. This would be necessary where there are existing roadway crossings of the two previously named drainages. It is not anticipated that disturbance in these areas would exceed the 0.5-acre threshold allowed for at each crossing under a Section 404 Nationwide Permit Number 58 (Utility Line Activities for Water and Other Substances). All construction activities would comply with the terms and conditions of the Section 404 Permit and Section 401 Water Quality Certification, which would be obtained from the appropriate agencies prior to construction.

To comply with the terms and conditions of these permits, discharges of fill or dredged material (including all earthwork activities, such as clearing, grading, filling, and excavating) into watercourses would be minimized or avoided to the maximum extent practicable. Fill or dredged material would not involve the use of unsuitable material or pollutants in toxic amounts. In addition, no excess concrete, curing agents, formwork, loose embankment materials or fuel would be disposed of within the project area. Vegetation cover similar to present levels would be reestablished relatively quickly reducing the potential for soil erosion and increased sedimentation.

Grading and development can increase runoff from undisturbed lands. The Proposed Action would include construction activities on both disturbed and undisturbed areas within the Phases 2 and 3 area. The sewer collection lines would be generally located within a disturbed roadway ROW below ground level and would be backfilled and compacted to the existing grade level. Surface cover would be replaced to pre-construction conditions. As part of the Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit, a Stormwater Pollution Prevention Plan (SWPPP) would be

prepared and implemented, which would minimize potential sediment transport by requiring the use of stormwater and erosion control BMPs.

At full buildout, approximately 500,000 gpd of Class A+ effluent is proposed for discharge to Russell Gulch; located east of the WRF expansion. Russell Gulch is a tributary of Pinal Creek, and it is anticipated that the 500,000 gpd discharge of reclaimed water to Russell Gulch would contribute to surface flow, thereby improving the ongoing clean-up efforts of the Pinal Creek WQARF site. The additional daily flows may help move contaminants in the drainageway downstream toward the WQARF water treatment plant, contributing to the overall environmental clean-up of the region. The addition of 500,000 gallons of daily surface flow to Russell Gulch may also result in the ponding of water and establishment of wetlands and/or wildlife habitat downstream of the WRF.

As the Phases 2 and 3 area would be connected to a sewer collection system rather than individual septic tanks, more land has the potential for development which may result in additional impervious surfaces and potential runoff. An increase in runoff affects surrounding properties as well as downstream properties. Gila County has developed a Grading and Drainage Ordinance (Number 08-01) to promote the public health, safety, and general welfare and to minimize public and private losses by regulating grading and drainage of all land within the unincorporated area of Gila County, Arizona. The Proposed Action would require obtaining a grading permit from the Gila County Public Works Director or designee. In addition, construction impacts would be confined to the minimum area necessary to complete the project.

As part of Phase 1, TRSD prepared an amendment to the CAG Section 208 WQMP. This amendment included an administrative change to identify TRSD as the Designated Management Agency covering the areas of the former Cobre Valley Sanitary District and Pinal Sanitary District, which merged to form the TRSD in 2011. Additionally, TRSD added the plans for the TRSD WRF expansion in this amendment and outlined the proposed service area for the treatment facility, including a description of the phasing and future expansion that would encompass the entire TRSD service area at full buildout. Once specific design plans for the TRSD WRF (Phase 1) and the expansion (Phases 2 and 3) have been developed, TRSD would coordinate with ADEQ to obtain the necessary permits/certifications for the operation of the WRF, including an Aquifer Protection Permit (APP), an AZPDES Permit for the secondary discharge of effluent to Russell Gulch, and an Operator Certification for Water and Wastewater Systems.

As a result of the stormwater control measures, implementation of the SWPPP, and compliance with necessary permits required for the construction and operation of the facilities, no short-term impacts to surface water would occur as a result of the Proposed Action. Providing existing septic users, and potential future development, with connection to a municipal sewer collection system would eliminate potential impacts to surface waters from septic fields and cesspools located in Phases 2 and 3. Long-term beneficial impacts would occur to surface water as failing septic systems are abandoned, thereby eliminating the risk of system failures and untreated wastewater being discharged into the environment. Additionally, long-term beneficial impacts may occur if daily surface discharge to Russell Gulch expedites efforts to clean up the Pinal Creek WQARF site and if wetlands and/or wildlife habitats are created downstream of the WRF.

No Action Alternative

Under the No Action Alternative, installation of a municipal sewer collection system and expansion of the WRF would not occur, and residents within Phases 2 and 3 would continue to use existing individual septic systems. Occasional septic system failures would continue to occur, resulting in the

release of untreated or improperly treated sewage into the environment. Septic system failures could lead to raw sewage entering drainageways and eventually reaching surface waters.

Water quality would continue to degrade under this alternative, resulting in long-term moderate adverse impacts. Since no construction would occur there would be no short-term impacts to surface waters.

3.4.2.2 Groundwater

Proposed Action

Under the Proposed Action, the installation of a municipal sewer system and WRF expansion would provide a municipal collection and treatment system within TRSD's Phases 2 and 3 service area. Providing existing septic users and potential future development with connection to a municipal sewer system would eliminate potential groundwater pollution from septic fields. Connecting current septic users to a municipal sewer system would also help to protect the health and safety of the community through the protection of groundwater quality in the area. The installation of municipal sewer lines and the TRSD WRF expansion would eliminate potential groundwater pollution from approximately 1,434 residential properties with nitrogen-rich septic tanks in the Phases 2 and 3 area, which could contaminate the upper aquifer. The WRF expansion would be designed in compliance with the CAG Section 208 WQMP.

With the implementation of BMPs (refer to Chapter 5.0), compliance with any/all permits required for the project (including appropriate measures for the removal and/or closure of septic systems), no short-term impacts to groundwater would occur as a result of the Proposed Action. Long-term, beneficial, impacts would occur to groundwater as failing septic systems are abandoned, thereby eliminating the risk of system failures and untreated wastewater potentially reaching the groundwater. Additionally, long-term, beneficial impacts would occur with the removal of failing septic tanks and the potential expedited cleanup of the Pinal Creek WQARF site.

No Action Alternative

Under the No Action Alternative residents within Phases 2 and 3 would continue to use the current individual septic systems for wastewater disposal. Since many of the septic systems in use have been improperly maintained, poorly located, and improperly designed and installed, discharge of untreated wastewater, household chemicals, and other contaminants and pollutants (e.g., nitrogen) into the groundwater is expected to continue. Septic system failures could lead to raw sewage entering drainageways and eventually reaching groundwater. The Pinal Creek WQARF site is located within portions of the Phases 2 and 3 TRSD service area and is in the process of remediation. Water for the service area would still be provided by the American Water Company or the Globe coming from the Gila conglomerate aquifer outside of the boundaries of the WQARF site.

With the continued use of the existing septic systems and the potential for additional system failures, the No Action Alternative is anticipated to have long-term, moderate, adverse impacts to groundwater. Since no construction would occur there would be no short-term impacts to groundwater.

3.5 Cultural Resources

Since the proposed project may receive financial assistance from USDA RD/RUS's Water and Environmental Program, it is an action subject to compliance with Section 106 of the National Historic Preservation Act (NHPA), as amended (16 USC 470 et seq.). Section 106 (36 CFR Part 800, as amended, August 5, 2004) requires federal agencies to consider the effects of their undertakings on

historic properties and to consult with the State Historic Preservation Office (SHPO) and Native American tribes.

Historic properties include prehistoric and historic districts, sites, buildings, structures or objects included in or eligible for inclusion in the National Register of Historic Places (NRHP). The term “cultural resources” as used in this document refers to any location of human activity, occupation, or use identifiable through inventory, historical documentation, or oral evidence. The term also includes archaeological, historical, or architectural sites, landscapes, buildings, structures, objects, and places that possess historic and/or cultural significance as well as places with important public and scientific uses and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Cultural resources may be but are not necessarily eligible for the NRHP.

3.5.1 Affected Environment

An assessment of cultural resources was completed for this project and is documented within the report titled, *A Class III Cultural Resources Survey and Historic Building Reconnaissance Survey for Phases II and III of the Tri-City Regional Sanitary District Project, Gila County, Arizona* (Levstik 2022). The Class III cultural resources survey conducted within the Phases 2 and 3 area resulted in the identification of three previously recorded sites, AZ V:9:392(ASM)/Arizona Eastern Railroad, AZ V:2:101(ASM)/US Highway 60, AZ V:5:197(ASM)/State Road 188; one newly recorded site, AZ V:9:687(ASM); and one Isolated Occurrence. The historic building reconnaissance survey conducted during both phases resulted in the documentation of portions of seven subdivisions, five of which are historic in age, which consist of residential and commercial buildings along SR 188, as well as one IO. One of the subdivisions is recommended eligible for the NRHP. The IO is recommended not eligible for inclusion in the NRHP, and no additional research or preservation is required.

Additionally, a separate cultural resources inventory effort was completed which included the proposed TRSD WRF expansion area. The results are documented in the report titled, *A Cultural Resources Inventory of 42 Acres at Miami Gardens near the BHP Solitude Tailings Storage Facility, Gila County, Arizona* (Westland Engineering & Environmental Services 2021). No NRHP-eligible resources or sites were found within the WRF area.

3.5.2 Impacts to Cultural Resources

Proposed Action

The Arizona Eastern Railroad, AZ V:9:392(ASM), has previously been determined eligible for inclusion in the NRHP under Criterion A, with multiple SHPO concurrences related to several previous projects (site card on file, AZSITE). The site is the historic Arizona Eastern Railroad constructed in 1909 to connect the copper mines around Miami to the Gila Valley, Globe, and Northern Railway in Globe. Logan Simpson recommends that any future ground-disturbing undertakings avoid this site. If avoidance is not possible, then the site should be subjected to an appropriate data recovery plan that includes archival research and intensive documentation. The proposed undertaking will not have a direct effect on any of the characteristics of the railroad that qualify it for inclusion in the NRHP. Therefore, no further cultural resources investigations are recommended for the property in advance of the improvement project.

US Route 60, AZ V:2:101(ASM), has previously been determined eligible for inclusion in the NRHP under Criteria A and D, with multiple SHPO concurrences related to several previous projects (site card on file, AZSITE). The site is the historic US Route 60 constructed during the 1920s and early 1930s. The historic structure has been determined eligible for inclusion in the NRHP by SHPO under Criteria A and D. The proposed undertaking will not have a direct effect on any of the characteristics of the road that qualify it for inclusion in the NRHP. Therefore, no further cultural resources investigations are recommended for the property in advance of the planned improvement project.

State Road 188, AZ V:5:197(ASM), has been previously determined eligible for inclusion in the NRHP under Criteria A and D, multiple SHPO concurrences related to several previous projects (site card on file, AZSITE). The site is the historic SR 188 constructed in 1904. The historic structure has been determined eligible for inclusion in the NRHP by SHPO under Criteria A and D. The proposed undertaking will not have a direct effect on any of the characteristics of the road that qualify it for inclusion in the NRHP. Therefore, no further cultural resources investigations are recommended for the property in advance of the improvement project.

AZ V:9:687(ASM) is a late historic-period artifact scatter comprised primarily of wood fragments. It is unlikely that the site contains intact, buried cultural deposits, and it is doubtful that further investigation of the site would yield additional information useful for understanding the mid-twentieth century occupations in the Globe area. The site does not contain integrity of materials, location, feeling, setting, design, workmanship, or association and is therefore recommended not eligible for inclusion to the NRHP. No further work is recommended.

The proposed undertaking will occur in either previously disturbed roadways or roadway ROW and will be subterranean; therefore, it will not be visually or physically intrusive on any historic-age property in or adjacent to the APE; therefore, the planned TRSD improvement project will have no adverse effect on historic properties. Thus, no further cultural resources investigations are recommended within the boundaries of any of the historic building reconnaissance survey area subdivisions, specifically the areas of the subdivisions situated along SR 188.

In the event that previously unreported cultural resources are encountered during ground disturbing activities, all work must immediately cease within 30 meters (100 feet) until a qualified archaeologist has documented the discovery and evaluated its eligibility for the NRHP in consultation with the USDA Rural Utilities Service, the State Historic Preservation Office (SHPO), and Tribes, as appropriate. Work must not resume in this area without approval of the USDA.

If human remains are encountered during ground-disturbing activities, all work must immediately cease within 30 meters (100 feet) of the discovery and the area must be secured. The Arizona State Museum (ASM), USDA, SHPO, and appropriate Tribes must be notified of the discovery, per Arizona Revised Statute (A.R.S. § 41-844 and 41-865, as appropriate), and work must not resume in this area without authorization from ASM and the USDA.

Based on the above information, USDA-RD/RUS had determined that a finding of **'[no adverse effect]'** is appropriate for the Proposed Action, and the SHPO concurred on **[DATE]** (see Appendix A). USDA RD/RUS also consulted with the **[INSERT SUMMARY OF TRIBAL CONSULTATION]**.

No Action Alternative

Under the No Action Alternative, installation of a municipal sewer collection system and expansion of the WRF would not occur, and residents within Phases 2 and 3 would continue to use existing

individual septic systems. No impacts on cultural resources or historic properties would occur under the No Action Alternative.

3.6 Visual Resources

The term “visual resources” refers to the composite of basic terrain, geologic, hydrologic features, vegetative patterns and built features that influence the visual appeal of a landscape. Visual resources in the region are a function of geology, climate and historical processes, and are influenced by topographic relief, vegetation, water and land-use activities.

3.6.1 Affected Environment

Human uses and activities adjacent to and within the Phases 2 and 3 area also influence the overall visual character and visual quality of the area. Uses and activities that dominate the visual setting of the Phases 2 and 3 area include open-pit mining, commercial and industrial land uses, urban infrastructure (streets, overhead transmission lines, lighting and signage) and residential development. The pattern of the existing infrastructure and residential and commercial development is strongly influenced by the numerous ephemeral drainages running generally in a north-south direction in between small, rounded ridges covered by sparse, open vegetation. Vegetation within Phases 2 and 3 is sparse and generally consists of low-stature shrubs with isolated and dispersed trees. Views from the Phases 2 and 3 area is of the surrounding foothills of the Pinal Mountains and other notable landforms including the Gerald Hills, Webster Mountains, and the mine-related modified landforms.

The built architectural structures within the Phases 2 and 3 area consist of a variety of materials, styles and colors. Residential structures are generally one-story. The majority of the residences within the Phases 2 and 3 are located within the drainages between the ridgelines. The commercial buildings are typically one-story block structures with parking and signage in front of the business.

The overall scenic quality value of the landscape within the Phases 2 and 3 area is relatively low because there are no unifying elements or patterns to create a cohesive or memorable visual setting. There are also numerous discordant built features present that distract and draw attention away from the natural features within and adjacent to Phases 2 and 3.

3.6.2 Impacts to Visual Resources

Proposed Action

The proposed sewer lines, force main sewer lines and lateral service connections would be located beneath previously disturbed areas within Phases 2 and 3. The parcel of land selected for the TRSD WRF expansion is primarily undeveloped with minimal vegetation. However, this parcel would be disturbed during the initial WRF construction as part of Phase 1. Temporary visual impacts associated with construction activities would include earth-moving activities, the presence of construction equipment, the removal of existing vegetation and increased dust that would subtly lower visibility. The project may require installing grinder pumps due to the project area topography. The grinder pumps would generally be installed below ground within the disturbed area for the installation of the sewer system lines and connections and would have no visual impacts. Temporary visual impacts would be minimized with implementation of BMPs (refer to Chapter 5.0). Adding increased flows of treated effluent to Russell Gulch may result in beneficial impacts with the potential to increase vegetation growth and habitat establishment over the long-term. In addition, long-term, beneficial impacts may

result as the improved service would provide increased opportunity for adaptive reuse of vacant or deteriorating properties.

No Action Alternative

Under the No Action Alternative, installation of the municipal sewer system and expansion of the WRF would not occur and residents within Phases 2 and 3 would continue to use existing individual septic systems and cesspools. The potential for septic tanks to back up or fail would continue and the vacant and deteriorating properties would remain and potentially increase over time. Therefore, the No Action Alternative would have localized, long-term, adverse impacts that would be minor in severity.

3.7 Biological Resources

Biological resources include general wildlife and vegetation, federal and state protected plant and animal species, and wildlife connectivity. These resources are regulated under various state and federal regulations including the Endangered Species Act of 1973, Arizona Native Plant Law, Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), and the Fish and Wildlife Coordination Act (FWCA).

3.7.1 Affected Environment

A Biological Evaluation (BE) was prepared for the project to document impacts to biological resources (Appendix C). The Phases 2 and 3 area has largely been developed for residential, industrial and commercial uses, and exhibits highly disturbed terrestrial habitat. Mining operations in the general project vicinity have resulted in additional alteration of the landscape and habitat of the area. No perennial water occurs in the vicinity of or within Phases 2 and 3, and no aquatic species are anticipated to be present.

Phases 2 and 3 are within the Semidesert Grassland Biotic Community (Brown 1994), which is typically characterized by the presence of perennial grasses in an otherwise scrub-dominated landscape. Stem and leaf succulents are also well-represented. Vegetation in this particular area is transitional, with many plant species present that are more indicative of lower-elevation desert scrub communities and higher-elevation chaparral communities. There is a general lack of native vegetation within most of Phases 2 and 3, as the proposed improvements are primarily located within previously disturbed urban areas such as roadway ROWs. Fauna typically occurring in the biotic community associated with the project area include black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus auduboni*), brush mouse (*Peromyscus boylii),* coyote (*Canis latrans),* mule deer (*Odocoileus hemionus*), common raven (*Corvus corax*), scaled quail (*Callipepla squamata*), roadrunner (*Geococcyx californianus),* mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), black-chinned sparrow (*Spizella atrogularis*), and lark sparrow (*Chondestes grammacus*).

Federally listed species are those plant and animal species listed as threatened or endangered under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq., U.S. Congress 1973). Proposed and candidate species are those being considered for listing as threatened or endangered. These species may be rare because of specialized habitat needs or due to threats such as habitat destruction or climate change. To comply with the requirements of the ESA, a field visit was completed as part of the BE (Appendix C) to identify threatened and endangered species with the potential to occur within the vicinity of the Phases 2 and 3 area. The USFWS and Arizona Game and Fish Department (AGFD) were contacted to obtain species lists during the preparation of the BE. Based on information available in the USFWS's Information, Planning, and Conservation (IPAC) decision support

system, seven species were determined to have some potential to occur within the project vicinity (refer to BE in Appendix C). Due to the high level of urban disturbance, it was determined that there is no suitable habitat within the Phases 2 and 3 area for federally listed species. The project area was also surveyed for the presence of protected native plants and the following plants protected under the Arizona Native Plant Law were found within the project area: foothills paloverde (*Parkinsonia microphylla*), blue paloverde (*Parkinsonia florida*), soaptree yucca (*Ucca elata*), and velvet mesquite (*Prosopis velutina*).

Migratory birds that may be present within Phases 2 and 3 are protected under the Migratory Bird Treaty Act of 1918 (MBTA) (16 USC 703-712, as amended). Bald and golden eagles receive additional protection under BGEPA (16 USC 668-668d, as amended). The USFWS has statutory authority and responsibility for enforcing the MBTA which prohibits the taking, killing, possession, transportation and importation of migratory birds, their eggs, parts and nests (USFWS 1918). Species covered under the MBTA are all native species. Some common species covered under the MBTA that may be found within Phases 2 and 3 include: red-tailed hawk (*Buteo jamaicensis*), Costa's hummingbird (*Calypte costae*), gray vireo (*Vireo vicinior*), and loggerhead shrike (*Lanius ludovicianus*). Any person or organization that plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures. Based on the field survey conducted, bird nests were noted within the project area. There are records of both bald and golden eagles in Gila County; however, no suitable habitat for bald or golden eagles was observed in Phases 2 and 3 during the site visit.

3.7.2 Impacts to Biological Resources

Proposed Action

Under the Proposed Action there would be clearing of trees and shrubs in the areas of sewer line installation and the proposed WRF expansion. Vegetation cover similar to current levels would reestablish relatively quickly after construction has been completed. Protected native plants (i.e., foothill paloverde and velvet mesquite trees) were observed in the Phases 2 and 3 area. Although native plants may be disturbed during construction, the number of plants that may be removed would not be detrimental to the overall population of native plants present in the vicinity of Phases 2 and 3. Since protected native plants were found within the project area, notification to the Arizona Department of Agriculture is required for the destruction or removal of plants protected under the Arizona Native Plant Law. Adding increased flows of treated effluent to Russell Gulch may result in impacts with the potential for increased vegetation growth over the long-term. Therefore, with the implementation of BMPs (refer to Chapter 5.0), the Proposed Action would have localized, short-term, negligible, adverse impacts and long-term, negligible, beneficial impacts on vegetation. The Proposed Action would result in negligible, adverse impacts to protected plants.

Wildlife would no longer be at risk of occasional exposure to untreated and improperly treated wastewater discharged into properties within the Phase 2 and 3 areas. Short-term disturbance to wildlife and to surrounding habitat during construction could lead to temporary avoidance by species. Impacts to general wildlife habitat would not be measurable because of the abundance of habitat available in the vicinity and surrounding areas outside of Phases 2 and 3. There would be no impacts to fish species or their aquatic habitat since there are no perennial waterbodies within the Phases 2 and 3 area. Adding increased flows of treated effluent to Russell Gulch may result in impacts with the potential to increase vegetation growth and habitat establishment over the long-term. Therefore, with

the implementation of BMPs (refer to Chapter 5.0), the Proposed Action would have localized, short- and long-term, negligible, adverse impacts and short and long-term, negligible, beneficial impacts on general wildlife.

The Proposed Action would have no effect on any federally listed species because there is no suitable habitat within Phases 2 and 3 for any of the seven species identified with the potential to occur within the vicinity. No coordination with the USFWS would be necessary.

The installation of a sewer collection system and WRF expansion would not likely affect migratory birds because of the short duration of these activities. Noise associated with the presence construction workers and equipment may temporarily displace birds present in Phases 2 and 3. If birds are active during construction activities, workers and their vehicles and/or equipment would create noise and visual disturbances that may cause birds to flush and leave the immediate area. Some ground nests and nests in and on cacti, sapling trees and shrubs may occur in Phases 2 and 3, and small numbers of undetected nests could be at risk from temporary disturbance while crews are constructing the Proposed Action. The construction of the Proposed Action would not alter the availability of prey populations. Prey species such as small mammals may be affected by disturbance if their range is restricted to certain microhabitats. However, many small mammals live in burrows where they can retreat during disturbance by vehicles, equipment noise, and construction workers. Direct contact with migratory birds would be unlikely due to their flight ability. Due to the presence of bird nests noted during the biological survey, it is recommended that if vegetation clearing or other construction activities will occur during the migratory bird breeding season (March 1–August 31), the contractor shall avoid and maintain a 20-foot buffer of any active bird nests. During the non-breeding season (September 1–February 28) vegetation removal and other construction activities are not subject to this restriction. With the implementation of BMPs (refer to Chapter 5.0) the Proposed Action would result in temporary impacts to migratory birds that would be negligible to minor in severity.

No Action Alternative

Under the No Action Alternative, installation of a municipal sewer collection system and the WRF expansion would not occur, and residents within Phases 2 and 3 would continue to use individual septic systems and cesspools. Septic tank back-up or failure has previously resulted in the release of untreated wastewater. Wildlife would continue to be at risk from occasional exposure to untreated and improperly treated wastewater, which could result in sick, diseased, or mortality for individuals. There would be no impacts to fish species or their aquatic habitat since there are no perennial waterbodies within Phases 2 and 3. Therefore, the No Action Alternative would have localized, short and long-term, minor, adverse impacts on general wildlife and no impact on fish species.

3.8 Environmental Justice

3.8.1 Affected Environment

Title VI of the Civil Rights Act of 1964 states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance". Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and USDA Departmental Regulation 5600-2, *Environmental Justice* directs federal agencies to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income

populations". Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health and Safety Risks*, was introduced in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children and to ensure that federal agencies' policies, programs, activities, and standards address environmental health risks and safety risks to children.

These directives require the consideration of low-income, minority, disabled, and elderly populations during the NEPA process. A minority person refers to a person who is racially classified as African American, Asian American, Native American or Alaskan Native or anyone who classifies as "other" race. Hispanics are identified as minorities, regardless of their racial affiliation. Elderly refers to individuals 60 years of age and over. The poverty threshold is $26,496 for a family of four based on the 2020 Census. Non-institutionalized civilians who are 16 years of age and older are considered to be disabled if they report a mobility disability or a self-care limitation or are work disabled. To assess whether minority, elderly, low-income or disabled populations are disproportionately represented near the Phases 2 and 3 area, data for census block groups is compared with data for Gila County and the state of Arizona (Tables 1 through 3).

Phases 2 and 3 span portions of U.S. Census Tracts[7] 8, 9 and 10 within Gila County, Arizona. Census Tract 8 within the project area includes Block Group 2, Census Tract 9 includes Block Group 2 and Census Tract 10 includes Block Groups 2, 3, 4 and 5. Because the boundaries of the block groups do not align with Phases 2 and 3, some portions of the block groups extend outside of the Phases 2 and 3 area. Consequently, the exact population and demographic characteristics of the Phases 2 and 3 area may vary from the data presented in Tables 1 through 3.

Table 1. 2020 Population and Racial Demographics

Area	Total Population	No. of White (%)	No. of African American (%)	No. of Native American (%)	No. of Asian (%)	No. of Native Hawaiian/ Pacific Islander (%)	No. of Other (%)	No. of Two or More Races (%)
Census Tract 8, Block Group 2	691	465 (67.3)	2 (0.3)	14 (2.0)	6 (0.9)	0 (0.0)	124 (17.9)	80 (11.6)
Census Tract 9, Block Group 2	1,426	930 (65.2)	22 (1.5)	48 (3.4)	11 (0.8)	1 (0.1)	216 (15.1)	198 (13.9)
Census Tract 10, Block Group 2	1,787	1,206 (67.5)	21 (1.2)	71 (4.0)	12 (0.6)	0 (0.0)	211 (11.8)	266 (14.9)
Census Tract 10, Block Group 3	627	451 (71.9)	6 (0.9)	30 (4.8)	0 (0.0)	0 (0.0)	60 (9.6)	80 (12.8)
Census Track 10, Block Group 4	829	528 (63.7)	9 (1.1)	50 (6.0)	1 (0.1)	0 (0.0)	100 (12.1)	141 (17.0)
Census Tract 10, Block Group 5	546	446 (81.7)	1 (0.2)	10 (1.8)	0 (0.0)	0 (0.0)	30 (5.5)	59 (10.8)
Census Tract/ Block Group Total	5,906	4,026 (68.1)	61 (1.0)	223 (3.8)	30 (0.5)	1 (0.0)	741 (12.6)	824 (14.0)

[7] A census block is the smallest geographic area for which the Bureau of the Census collects and tabulates census data. They are formed by streets, railroads, streams, other visible physical and cultural feature, and legal boundaries (https://www2.census.gov/geo/pdfs/reference/GARM/Ch11GARM.pdf).

Area	Total Population	No. of White (%)	No. of African American (%)	No. of Native American (%)	No. of Asian (%)	No. of Native Hawaiian/ Pacific Islander (%)	No. of Other (%)	No. of Two or More Races (%)
Gila County	53,272	35,904 (67.4)	282 (0.5)	8,928 (16.8)	445 (0.8)	48 (0.1)	3,073 (5.8)	4,592 (8.6)

Source: U.S. Census Bureau 2020.
Note: No. = number; % = percent.

According to 2020 U.S. Census data, the six block groups occurring in Phases 2 and 3 of the TRSD service area have a total population 5,906 people, of which, 68.1 percent identify themselves as White (Table 1). Those identifying as Hispanic, which is considered an ethnicity rather than a race, are the second largest group and comprise 37.8 percent[8] of the population (Table 2). The percent of Hispanic population is more than double the 17.4 percent reported for all of Gila County. While the Hispanic percentage of the population is larger than it is for the County, the percentage of Native Americans (3.8 percent) is much lower than that of Gila County (16.8 percent). The minority population (53.7 percent), which excludes the White non-Hispanic population, is significantly higher within Phases 2 and 3 area than Gila County (23.2 percent).

Table 2. 2020 Hispanic and Minority Population

Area	No. of Hispanic (%)[a]	No. of Minority (%)[b]
Census Tract 8, Block Group 2	313 (45.3)	459 (66.4)
Census Tract 9, Block Group 2	608 (42.6)	906 (63.5)
Census Tract 10, Block Group 2	654 (36.6)	865 (48.4)
Census Tract 10, Block Group 3	191 (30.5)	287 (45.8)
Census Track 10, Block Group 4	318 (38.4)	467 (57.7)
Census Tract 10, Block Group 5	146 (26.7)	187 (34.2)
Census Tract/Block Group Total	2,230 (37.8)	3,171 (53.7)
Gila County	9,283 (17.4)	12,356 (23.2)

Source: U.S. Census Bureau 2020.
Note: No. = number; % = percent.
[a] *Hispanic* refers to the total population, with the exception of the white non-Hispanic population.
[b] *Minority* refers to ethnicity, not a separate race, and is derived from the total population.

The combined percentage of the elderly population in the six block groups (27.7 percent) is lower than that of Gila County (37.2 percent) (Table 3). The percentage of households under the poverty threshold in the Phases 2 and 3 area (19.4 percent) is slightly greater than Gila County (17.9 percent). The percentage of disabled individuals living within the Phases 2 and 3 area (15.7 percent) is higher than the percentage within Gila County (9.8 percent) and more than double that of the state (6.0 percent).

Table 3. Age 60 Years and Over and Households Below Poverty Level

Area	No. of Age 60 Years and Over (%)	No. of Households Below Poverty Level (%)
Census Tract 8, Block Group 2	242 (32.6)	47 (17.2)

[8] As Hispanic is considered an ethnicity rather than a race, the Hispanic population may count towards more than one racial demographic, thereby exceeding a total of 100%.

Census Tract 9, Block Group 2	375 (31.9)	20 (4.4)
Census Tract 10, Block Group 2	381 (27.4)	158 (25.7)
Census Tract 10, Block Group 3	244 (35.7)	32 (11.8)
Census Tract 10, Block Group 4	207 (25.6)	83 (24.0)
Census Tract 10, Block Group 5	159 (15.9)	125 (28.4)
Census Tract/Block Group Total	1,608 (27.7)	465 (19.4)
Gila County	19,894 (37.2)	3,934 (17.9)

Source: U.S. Census Bureau 2019.
Note: No. = number; % = percent.

3.8.2 Impacts to Environmental Justice

Proposed Action

The Proposed Action would provide approximately 1,434 new service connections to residential and commercial properties in Phases 2 and 3. The affected population within the Phases 2 and 3 would be afforded equal access to the services the Proposed Action would provide; no group would be disproportionately or adversely affected by any impacts associated with construction or operation of the WRF. The Proposed Action would provide benefits to the entire population of Phases 2 and 3, regardless of race, age or financial status. Therefore, no disproportionate environmental justice impacts are anticipated to occur as a result of the Proposed Action.

No Action Alternative

Under the No Action Alternative, no disproportionate environmental justice impacts are anticipated to occur as a result.

3.9 Socioeconomics

Social and economic considerations related to project impacts include relocations and displacements, access to existing properties, emergency access, impacts on existing businesses and impacts on neighborhood continuity, community services, schools and recreation facilities.

3.9.1 Affected Environment

In the greater Globe-Miami community, over 20 percent of the employment in the area is related to mining and production of copper. The mining sector remains robust with five mining companies continuing operations in the immediate area. Other major employment industries include education, healthcare, social assistance, recreation services, and retail trade (http://www.azcommerce.com/a/profiles/ViewProfile/65/Globe-Miami/).

The communities of Miami, Claypool and Central Heights-Midland City have all experienced a decline in population ranging from 13 percent to 21 percent between 1990 and 2020. The population decrease in these communities is attributed to fluctuations in mining activity as well as a result of properties that have had their water service discontinued due to violations of onsite wastewater management, leading to abandoned properties (PACE 2022). Since 2010, the population has been relatively stable with Globe-Miami population at 9,335 in 2020 according to the Arizona Office of Economic Opportunity. Data available from the *2019 American Community Survey 5-year Estimates* from the U.S. Census

Bureau indicates that the median household income in the block groups of the Phases 2 and 3 is $38,423, which is slightly lower than Gila County ($43,524), and below the state median household income ($58,945). The unemployment rate is 5.1 percent, which is lower than Gila County (8.8 percent), but equal to the state average of 5.1 percent.

3.9.2 Impacts to Socioeconomics

Proposed Action

Upon completion of the project, Phases 2 and 3 residents would benefit from the new wastewater collection and treatment system. Beneficial impacts on the health and safety of the local population would result from the improved wastewater collection and treatment from the construction and operation of the Proposed Action. Effects to socioeconomics resulting from the Proposed Action would include relief of a financial burden to property owners that have limited options to address failing septic systems. A properly installed system for wastewater treatment which complies with the current local code can cost between $25,000 and $35,000 (PACE 2022). The Proposed Action would result in off-setting adverse financial impacts on property owners resulting from the creation of a monthly service fee for wastewater services. However, the net effect is anticipated to be beneficial, as the costs for a regional treatment facility expansion and collection system would be spread out over decades. Connection to a sewer collection system and treatment facility would help reduce declining property values. With the implementation of the Proposed Action, beneficial effects would include the potential to encourage new development as a result of connectivity to the TRSD WRF expansion.

The Proposed Action would have beneficial impacts on public health because the release of untreated wastewater into the environment from septic tank back-up or failure would be eliminated. With the removal of septic tanks, local septic pumping businesses would experience a loss in business because of the Proposed Action.

Short-term impacts would occur from an increase in temporary employment and associated secondary spending in the area during construction activities. During construction there would also be temporary access restrictions and inconveniences to individual residential and business and brief disconnections in service. Residents may experience temporary traffic interruptions associated with construction of the sewer collection system. This impact would be worse for residents on narrow streets and additional coordination would be necessary to avoid obstructing home access. Disturbances to private land would be temporary during installation of new service connections, and private yards would be restored following the completion of the new service connections. After completion of Phases 2 and 3, customers would be assessed for their service.

The net effect of the Proposed Action is anticipated to have a substantial effect on socioeconomics within the Phases 2 and 3 area by providing reliable wastewater services to areas that are currently served by aging and failing septic systems. Therefore, with the implementation of BMPs (refer to Chapter 5.0), the Proposed Action would have localized, long-term, moderate, beneficial impacts on socioeconomics and short-term, negligible adverse impacts.

No Action Alternative

Under the No Action Alternative, installation of a municipal sewer collection system and the WRF expansion would not occur, and residents of the Phases 2 and 3 service area would continue to use existing individual septic systems and cesspools, most of which are in violation. The potential for these

systems to back up or fail would continue to exist resulting in financial hardship for the community and environmental impacts. The maintenance and replacement of septic systems would continue to be the responsibility of the homeowners. Septic system replacement would cost each homeowner approximately $5,000 to $12,000 depending on the type, size and complexity required (Gila County, Arizona, 2014; Gila County, Arizona - Wastewater Department, 2014; SepticTankGuide.com, 2018). Furthermore, this expense may be worsened as many homeowners do not have adequate land and would therefore have to purchase additional property as required by current regulations to accommodate the septic system. Septic system replacement for most residents is not financially feasible. As individual septic systems continue to age and property values fall, it would be increasingly difficult for property owners to replace their septic systems, potentially resulting in more vacant and abandoned properties.

The lack of adequate infrastructure would continue to influence growth opportunities in the area. Neighborhoods within Phases 2 and 3 could become blighted as a result of an increasing number of abandoned properties, which could contribute to declining home values and become a socioeconomic burden on the community and its residents. Therefore, the No Action Alternative would have localized, long-term, moderate adverse impacts on socioeconomics.

3.10 Air Quality

3.10.1 Affected Environment

The Clean Air Act (CAA) regulates air emissions from mobile (e.g., motor vehicles) and stationary sources (e.g., industrial development). The CAA requires the EPA to establish National Ambient Air Quality Standards (NAAQS) for maximum allowable concentrations of six principal pollutants which can be harmful to the public health and the environment. The six pollutants are carbon monoxide (CO), lead, ozone (O_3), nitrogen dioxide (NO_2), particulate matter ($PM_{2.5}$ and PM_{10})[9], and sulfur dioxide (SO_2). The standards are set at a level that protects public health with an adequate margin of safety. The EPA is authorized to designate areas that exceed the NAAQS as “non-attainment areas.” Geographic areas that are lower than or meet the NAAQS criteria are considered to be in attainment.

Arizona is located within EPA Region 9, and the ADEQ Air Quality Division has jurisdiction over air quality in the state, including on state, local and private lands. The CAA permitting in Arizona is the shared responsibility of the state and three counties that have received delegated authority (i.e., Maricopa, Pima, and Pinal), as well as EPA Region 9. The EPA requires each state to prepare a State Implementation Plan (SIP) to comply with the CAA and to achieve and maintain attainment of NAAQS. Arizona’s SIPs are a compilation of all air pollution strategies, state statutes, state rules, and local ordinances that will be used to bring geographic areas into compliance with all NAAQS. The SIPs are enforceable by federal and state government (ADEQ 2017b).

Primary factors affecting pollutant dispersion are wind direction and speed, temperature, atmospheric stability, the presence or absence of inversions and topography. Odors can also impact air quality and are generated by a wide range of operations including wastewater treatment plants.[10] The potential impact of any odor depends upon the source of odorous emissions, their concentration, and the

[9] $PM_{2.5}$ is composed of inhalable particles, with diameters that are generally 2.5 micrometers and smaller. PM_{10} is composed of inhalable particles, with diameters that are generally 10 micrometers and smaller.

[10] Offensive odors and smells can also be a result of industrial and agricultural operations such as livestock feedlots and asphalt plants.

frequency and duration of exposure. Odor sources near Phases 2 and 3 include the Miami WRF, Globe PCWWTF and on-site septic system leach fields (AMEC 2011). Vehicle emissions are major sources of CO, NO_2, O_3, and lead. Sources of PM_{10} and $PM_{2.5}$ include the suspension of dust through ground-disturbing activities, road dust from vehicles, and emissions from internal combustion engines (EPA 2021a).

The Phases 2 and 3 service area is located within the Miami Nonattainment Area for SO_2 (2010 standard), and the Miami Nonattainment Area for PM_{10} Moderate (1987 standard) (EPA 2021b; ADEQ 2017c).[11] Smelting metal is a source of SO_2. FMI made improvements to the Miami operations in 2017 to reduce SO_2 emissions. In 2019 EPA approved Arizona's SIP revision for attaining the 2010 1-hour SO_2 NAAQS for the Miami Nonattainment Area, effective April 11, 2019 (ADEQ 2019). Sources of PM_{10} are manufacturing of metal, open burning and wildfires, and windblown dust. PM_{10} in the air in Miami has recently been below NAAQS. ADEQ is submitting a redesignation request for EPA to reclassify the Miami Nonattainment Area as an attainment area. Part of this request, ADEQ must include an updated emissions inventory, modeling demonstration and a strategy for Exceptional Events.

Exposure to PM_{10} levels exceeding current standards can result in increased lung and heart-related respiratory illness. The EPA has concluded that finer particles are more likely to contribute to health problems than those greater than 10 microns in diameter (EPA 2021c). High concentrations of SO_2 may aggravate existing human cardiovascular and respiratory disease; people with asthma, emphysema or bronchitis are the most sensitive. SO_2 also contributes to acid rain, which can damage trees and lead to the acidification of lakes and streams.

3.10.2 Impacts to Air Quality

Proposed Action

Air emissions resulting from the Proposed Action would include fugitive dust ($PM_{2.5}$ and PM_{10} emissions) associated with construction activities (such as trenching, grading and installation of project elements), clearing of vegetation, and vehicles driving on unpaved surfaces. Exhaust from construction worker vehicles, material delivery vehicles, and other equipment during construction of the proposed action, such as portable electrical generators would result in localized, short-term increases in carbon monoxide (CO) and nitrogen oxide emissions. Estimated emissions associated with the installation of the proposed sewer collection system were calculated during the preparation of the 2011 Environmental Report and were found "to be well below the general conformity thresholds defined under 40 CFR 51.853" (AMEC 2011).

Potential air emissions from the operation of the TRSD WRF would primarily occur at locations where liquid is turbulent, such as the aerated grit tanks, aerated channels, aeration basins, clarifier wells, or other areas that have high turbulence. Emissions would vary in relation to the flow received by the facility, maintenance and odor control operations (e.g., prechlorination and chlorination to control algal growth). Use of the MBR process would reduce the footprint of the WRF and the need for secondary

[11] Particulate matter or PM (also called particle pollution) is a term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope. Some are emitted directly from a source, such as fields, unpaved roads, construction sites, smokestacks, or fires. Most particles form in the atmosphere as a result of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industries, and automobiles (EPA 2021b).

clarifiers and tertiary filtration process (The MBR Site 2017). In addition, the aeration basin volume may be able to be reduced. These improvements in technology would reduce the volume of air emissions from the facility. Infrequent use of a diesel-fueled emergency-power generator[12] would also contribute to air emissions; however, emergency-power generators typically run less than 200 hours per year and have a very small impact on local air quality (PLC Enterprises 2013).

A review of construction operations has been performed and determined that emissions are expected to remain below the *de minimis* thresholds of 100 tons per year for PM_{10} and SO_2, as required in 40 CFR Part 93 Subpart B, it is anticipated that no additional conformity analysis would be expected. The Proposed Action would have localized, long-term, negligible, adverse impacts on air quality from the operation of the facilities and short-term, minor adverse impacts from construction activities. This would be a localized condition that would be discontinued when the Phases are completed.

No Action Alternative

Under the No Action Alternative, installation of the collection system and expansion of the TRSD WRF would not occur, and residents within Phases 2 and 3 would continue to use individual septic systems. The No Action Alternative would not result in construction activities or increases in traffic volumes that would cause an increase in dust and emissions. Criteria pollutants would not be affected, and no impacts on air quality would occur with the No Action Alternative.

3.11 Noise

3.11.1 Affected Environment

The Noise Control Act establishes a national policy to promote an environment that is free from noise that jeopardizes the population's health or welfare. Ambient sound conditions within the environment are highly variable and depend on a combination of elements such as season of the year, weather conditions, population density, land use, terrain, vegetation type and density, water bodies and the quantity and types of vehicles and aircraft present. Existing ambient noise levels within the Phases 2 and 3 area result from traffic activity on US 60, SR 188 and local roads, train-hauling activities into and out of the Phases 2 and 3 area, and mining operations (e.g., industrial machinery, heavy trucks, blasting, etc.). Noise-sensitive receptors and land uses include but are not limited to residences, hospitals, churches, schools, parks, cemeteries, some recreational facilities and historical/cultural facilities. The primary noise receptors in the vicinity of the Phases 2 and 3 include a hospital, residential areas, churches and schools.

3.11.2 Impacts to Noise

Proposed Action

Potential noise effects would result from the Proposed Action's construction activities and from the operation of the expanded WRF. Temporary construction noise would result from noise generated from pumps and compressors, which operate at a constant noise level under normal operation and are classified as non-impact equipment. Jackhammers and pavement breakers produce variable and intermittent noise and frequently produce impact-type noises. Impact equipment generates impulsive noise that is defined as, "noise of short duration, high intensity, abrupt onset, rapid decay and often

[12] Generator installation that only operates during the loss of normal power source, such as the utility or main electrical grid.

rapidly changing spectral composition" (Federal Highway Administration [FHWA] 2015). Mobile equipment such as bulldozers, graders, excavators and heavy trucks (e.g., haul/dump trucks and water trucks) operate in a cyclic fashion. The establishment of a construction staging area would reduce noise from transport of some of these vehicles to and from the construction site. In addition, operators would be directed to use hearing-protection equipment as required. In general, temporary noise associated with construction is anticipated to range from approximately 65-to-95 decibels. Intermittent construction noise levels (e.g., jackhammer, pavement breaker) could be higher depending on the equipment used. The close proximity of construction activities to sensitive receptors (e.g., residential areas and schools) would be localized and temporary. Noise impacts would also result from new service connections for residential and commercial properties including yard restoration following installation.

During the operation of the Proposed Action there would be some incremental changes to future ambient noise levels within Phases 2 and 3 that would occur intermittently. Examples of these noise sources include aerators and settling tanks, occasional truck traffic hauling biosolids from the TRSD WRF to the local landfill, workers arriving to and departing from work, and intermittent landscaping and facility maintenance activities. Therefore, with the implementation of BMPs (refer to Chapter 5), the Proposed Action would have localized, long-term, negligible, adverse noise impacts and short-term, adverse noise impacts.

No Action Alternative

Under the No Action Alternative, installation of the collection system and expansion of the WRF would not occur, and ambient noise levels would remain consistent with current levels. Therefore, under the No Action Alternative, there would be no impacts on noise.

3.12 Public Health and Safety

3.12.1 Affected Environment

Approximately 90 percent of residential properties within the TRSD have on-site treatment systems in violation of state and federal regulations. Potential public health and safety concerns are arising from the failing wastewater disposal systems. Current treatment methods require crucial changes and updates. Wastewater in on-site treatment systems could release pollutants to underlying groundwater. Onsite systems that are poorly sized, located or maintained can release large quantities of effluent and overwhelm the ability of the land to treat effluent properly. This could result in nitrogen levels that exceed treatment capacity of the soil, and potentially allow high nitrogen concentrations to reach groundwater in Phases 2 and 3.

A desktop review was conducted for the project area. Based on a review of the U.S. EPA NEPAssist tool (EPA 2021d) and the ADEQ eMaps tool (ADEQ 2021), there are hazardous waste sites located within the project area. The Pinal Creek WQARF site was listed as a Superfund site in 1998 due to groundwater contamination from previous mining activities. The Pinal Creek WQARF site is mapped in and around the Globe, Miami, Claypool and includes drainages and aquifers of Miami Wash, Bloody Tanks Wash, Russell Gulch and Pinal Creek/floodplain. Remediation activities are currently ongoing. Additionally, there are two documented occurrences of leaking underground storage tanks (UST) associated with fuel stations along US 60; both are listed as closed for the status.

For the majority of the project area within TRSD, wastewater collection and treatment is only achieved through individual on-site septic systems and cesspools. Sewage waste is considered hazardous and

can pose many health risks to humans and the environment. There are no wastewater collection or treatment infrastructure at this time. The construction of cesspools was prohibited in the US in the 1970s due to their inability to treat wastewater before discharge; regulations to improve septic system processes were established in 1990. The majority of homes in the TRSD were constructed prior to 1990 and thus approximately 90% of residential properties with the TRSD have onsite treatment systems in violation of state and federal regulations largely due to improper size, location and maintenance. Potential public health and safety concerns are arising from the failing wastewater disposal system. Numerous public complaints and Notices of Violation were recorded between 2007 and 2012. Complaints and violations included situations where cesspools had collapsed and raw sewage was ponding or flowing off the property. Other issues occurred where greywater (e.g., washing machine water) was being actively pumped onto surface of the adjoining property, or where greywater from failing cesspools were pumped onto the surface to prevent the cesspool from overflowing.

3.12.2 Impacts to Public Health and Safety

Proposed Action

The Proposed Action would directly improve wastewater treatment conditions within the project area which would improve public health and safety for the community. A new wastewater collection system would be installed, and wastewater would be sent to the expanded TRSD WRF for treatment where it would be treated to meet ADEQ standards. Approximately 2,463 residents would directly benefit from the project. Biosolids produced would be hauled off site to be disposed at a landfill. The risk of pollutants associated with wastewater being released into the environmental would be greatly reduced which would improve the environment and quality of life for the community. Therefore, the Proposed Action would have long-term beneficial impacts on public health and safety that would be minor to moderate in severity. The Proposed Action would not impact any mapped hazardous waste sites within the vicinity and would reduce the potential for further groundwater contamination associated with the Pinal Creek WQARF.

A Phase l Environmental Site Assessment was prepared in April 2017 and included the proposed TRSD WRF area located on BHP property (Gila County assessor parcel 206-04-005X) (Stantec Consulting Services, Inc. 2017). The report documented various environmental-related concerns including soil and groundwater contamination associated with the Pinal Creek WQARF site, the presence of nearby leach fields, potential for previous herbicide use, a nearby highway, partially buried metal drum, potential for previous mining activities, various piles of debris and trash present, and potential wells and asbestos-containing materials present. Additional investigations were conducted as part of a Phase ll Environmental Site Assessment effort and included soil testing and investigations of various concerns. The results of the Phase ll Environmental Site Assessment determined that no further action is warranted (Stantec Consulting Services, Inc. 2018).

As with most construction projects, there would be temporary impacts to public health and safety associated with general construction practices. There are numerous roadways, side streets and residential properties within the vicinity of the project area. Since sewer collection lines would be installed within ROW and easement, there may be short-term traffic interruptions associated with work. Additionally, trenching and other earthwork would occur which poses a hazard. This may include hazards and obstructions such as work vehicles and equipment, traffic barricades, etc. Those at the greatest risk would be the construction workers themselves compared to the public. These risks would be reduced by BMPs (refer to Chapter 5.0). A Traffic Management Plan (TMP) would be prepared prior

to construction and affected homeowners and business owners would be notified in advance of any access restrictions. Traffic control measures would be implemented to maintain at least one access point to residences and businesses wherever possible. Lastly, traffic control signage would be installed at suitable locations no less than five business days before the beginning of construction to announce construction and upcoming lane closures to the commuting public. Therefore, the Proposed Action would result in short-term, negligible adverse impacts to public health and safety.

No Action Alternative

Under the No Action Alternative, installation of the wastewater collection system and the TRSD WRF expansion would not occur and the wastewater needs of the project area would not be addressed. Individual property owners would continue to be responsible for septic system operations and maintenance. On-site treatment systems would remain (most of which are in violation) and continue to pose great risk to community activities. Septic system replacement is not financially feasible for many property owners. With an average lot size of 3,750 square feet, the majority of the homes within the TRSD do not have enough usable land on which to install a replacement septic system. Therefore, not only would many residents be responsible for costs associated with replacing their own septic systems, but many would also need to purchase additional land to meet the minimum square foot size (10,000 square feet) per Gila County regulations in order to install a septic system. Under the No Action Alternative, it is expected that conditions affecting public health and safety would continue to worsen and residents may continue to abandon properties which would further perpetuate contamination. Existing wastewater systems would continue to fail increasing the potential for waterborne illness from pathogens and degradation of the environment. Current conditions also present an increased risk to groundwater as the failing systems do not adequately treat wastewater which increases the potential for pollutants to enter groundwater. Due to the high number of residences within the project area, the potential risk for contamination would be relatively high with those at the greatest risk being children and elderly. Therefore, under the No Action Alternative, there would be short and long-term adverse impacts on public health and safety.

3.13 Transportation

3.13.1 Affected Environment

US 60 is the primary route through Gila County and links Miami and Globe to the Phoenix metropolitan area to the west. Within the Phases 2 and 3 area, US 60 is classified as an urban principal arterial[13] according to the Globe 2035 General Plan (Globe 2014). Secondary roads or arterial/collector roads connect to US 60 and enable vehicle movement to commercial and industrial areas throughout the two communities. Local streets such as Main Street and Golden Hill Road are urban collectors[14]. These residential streets that form a grid pattern, are paved, include one lane in each direction and experience light traffic. Existing wastewater system lines have been constructed within the ROW for several roads within the vicinity, including US 60. Existing sewer mains and other collections lines are parallel to or cross beneath the existing pavement of US 60 and local streets.

[13] An urban principal arterial is designated to move high volumes of traffic over substantial distances but may also provide direct access to adjacent properties. US 60 is the only principal arterial in the Globe-Miami area (Globe 2014).

[14] Collector roads provide for traffic movements between arterial and local streets. They typically service residential/local streets; and relieve traffic within, adjacent to, or between subdivisions (Gila County 2003)

Other transportation facilities within Phases 2 and 3 include the Arizona Eastern Railroad, which principally provides services related to the mining industries. The Arizona Eastern Railroad extends from the Miami-Globe area to the east through Safford and meets the main Union Pacific line at Bowie, Arizona (Gila County 2003). The Cobre Valley Community Transit System currently serves Miami, Globe, and the unincorporated areas of Gila County. Within the Phases 2 and 3 area, the Red and Blue Routes operate along US 60 providing several stops and a transfer location between 6:30 am and 6:00 pm during the weekdays. There are no designated bikeways within Phases 2 and 3 (Globe 2014).

3.13.2 Impacts to Transportation

Proposed Action

No construction work or lane closures would occur along US 60 during the installation of Phases 2 and 3 sewer collection system under the Proposed Action. There would be impacts on traffic patterns, such as detours, traffic delays and increased presence of work vehicles on some of the local streets as workers install sewer collection lines, the new force main sewer line, and manholes. No road closures would be anticipated and single-lane closures would be used wherever possible to facilitate construction activities.

Although the lane closures would create temporary delays and reduce traffic movement, the remaining lanes would accommodate the expected volume of traffic on the roadways. Construction activities would not generally occur for longer than a few days in a specific area. Temporary closures of driveways would typically result in restricted access for 30 minutes or less; driveway access to businesses and residential roadways would be maintained during construction, where possible. Any temporary detours needed for pedestrian traffic or alternative routes selected for safety would be well-marked with appropriate signage. The traffic control measures and notification prior to and during construction would help minimize impacts on local traffic. The Proposed Action would have no impacts on the bus routes or schedule. Therefore, with the implementation of BMPs (refer to Chapter 5.0), the Proposed Action would have localized, short-term minor adverse impacts.

No Action Alternative

Under the No Action Alternative, installation of a municipal sewer system and expansion of the WRF would not occur, and residents within Phases 2 and 3 would continue to use existing individual septic systems. Transportation and circulation would not be affected. Therefore, there would be no impacts on transportation in the Phases 2 and 3 from the No Action Alternative.

4.0 CUMULATIVE IMPACTS

A cumulative effect is defined under NEPA as “the change in the environment which results from the incremental impact of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other action.” Past, present and reasonably foreseeable future actions incrementally add to the potential adverse or beneficial cumulative impacts of the Proposed Action and the other alternatives that are considered in this EA.

The USDA RD instructions for preparing EAs recommends that geographic (spatial) and time (temporal) boundaries be established for cumulative effects analysis (USDA 2016). Due to the nature of the Proposed Action and No Action Alternative considered in this EA, the spatial limits, referred to as the cumulative effects study area (CESA), for individual resources has been identified as Gila County. Cumulative effects can occur during the implementation of individual project components associated with the No Action Alternative and the Proposed Action and/or after implementation of actions in specific locations as the infrastructure of the communities of Miami and Globe become reestablished. The planning period established by the TRSD for the life cycle of the facility is 20 years. This will serve as the temporal limits for the analysis of cumulative impacts.

Cumulative Impacts on Resources

For this analysis, cumulative resource impacts for the CESA are the combined effects of the present and reasonably foreseeable future actions, plus the impacts of the No Action Alternative and the Proposed Action. The levels of cumulative impacts are categorized as major, moderate, or minor. In addition, if the impacts were considered to be none or negligible as a result of the No Action Alternative or the Proposed Action, there would be no contribution to the resource’s cumulative impacts. Similar short-term impacts or temporary impacts have been determined to have no contribution to the resource’s cumulative impacts.

The No Action Alternative and the Proposed Action would both result in long-term, adverse and beneficial impacts to resources. The Proposed Action would employ BMPs to reduce adverse impacts to the extent possible. Based on the analysis of impacts, neither the No Action Alternative or the Proposed Action would have long-term, minor, moderate, or major effects on land use and ownership/jurisdiction, floodplains, wetlands, cultural resources, visual resources, biological resources, environmental justice, air quality, noise, public health and safety or transportation. There would be no incremental contribution to the resource’s respective cumulative impacts; therefore, there is no cumulative effects analysis for these resources. The analysis of impacts from the No Action Alternative and the Proposed Action are provided in Chapter 3 (refer to the specific resource subsection for detailed information). There would be long-term, minor, moderate, or major beneficial effects on water resources and socioeconomics.

Based on the analysis of potential effects from the No Action Alternative, there would be long-term, moderate adverse impacts on land use because of the potential change from occupied residential land use to abandoned, vacant parcels within Phases 2 and 3. Cumulatively, effects of the No Action Alternative, when combined with past, present, and reasonably foreseeable future actions (including development and construction of TRSD Phase 1), would result in a minor, beneficial cumulative impact on land use within the CESA as current undeveloped lands are developed based on Gila County’s proposed land use plan (Gila County 2003) and the completion of infrastructure improvements within the Miami-Globe area. The No Action Alternative would have a negligible contribution to the cumulative

effect on land use within the CESA because the Phases 2 and 3 area represent less than 0.1 percent of the land area of the County.

4.1 Water Resources

Activities on private, state, federal and tribal lands within the CESA related to motor vehicle use, mining and cattle grazing are commonly associated with potential soil erosion and the deterioration of surface waters. Soil erosion, which can be caused by loss of vegetation in areas of sheet flow near water bodies, on banks and floodplains of perennial and intermittent stream beds, and in streams with increased stream flows, can impact surface waters. These actions can also affect the amount of available groundwater due to pumping; however, maintenance and management goals of affected areas minimize potential cumulative impacts to water resources.

Long-term beneficial impacts would occur to surface water as failing septic systems are abandoned, thereby eliminating the risk of system failures and untreated wastewater being discharged into the environment. Connecting current septic users and potential future development to a municipal sewer system would help to protect the health and safety of the community through the protection of surface water and groundwater in the area. This would be a beneficial, cumulative impacts considering the ongoing remediation efforts associated with the Pinal Creek WQARF and TRSD Phase 1. There are also several options for potential effluent reuse for the TRSD WRF expansion that would be beneficial for the community. One option is conveying effluent to mining companies to utilize. Another option is a local golf course; Cobre Valley County Club has expressed interest in using the effluent for irrigation of the course. Lasty effluent could be utilized to create a regional community park lake for recreational use.

Therefore, the incremental effects of the Proposed Action, when added to the past, present and reasonably foreseeable future actions, would result in negligible, beneficial cumulative impacts on the water resources within the CESA. The Proposed Action would have a negligible contribution to the cumulative effect on water resources because the Phases 2 and 3 area represents less than 0.1 percent of the land area of the County.

4.2 Socioeconomics

Under the Proposed Action, the installation of a new municipal sewer system and expansion of the WRF would not occur, and residents within Phases 2 and 3 would not continue to use existing individual septic systems. Effects to socioeconomics resulting from the Proposed Action would include relief of a financial burden to property owners that have limited options to address failing septic systems. The Proposed Action within the Phases 2 and 3 would provide reliable wastewater services to areas that are currently served by aging and failing septic systems. Connection to a sewer collection system and treatment facility would help reduce declining property values and would have the potential to encourage new development as a result of connectivity to a regional WRF. Implementation of TRSD's Phases 2 and 3 sewer system improvements and the County's and municipalities other capital infrastructure projects would result in beneficial effects on socioeconomic resources.

Based on the analysis of potential effects in this EA, the Proposed Action would have localized, long-term, moderate, beneficial impacts on socioeconomics. This beneficial impact would be improved by the development of the TRSD Phase 1. Cumulatively, effects of the Proposed Action, when combined with past, present, and reasonably foreseeable future actions, would result in a negligible, beneficial cumulative impact on socioeconomics within the CESA. The Proposed Action would have a negligible

contribution to the cumulative effect on socioeconomics of the CESA because the Phases 2 and 3 area represent approximately 4 percent of the population and less than 0.1 percent of the land area of the County.

5.0 BEST MANAGEMENT PRACTICES

As part of the Proposed Action, the contractor(s) will adhere to all federal, state and local requirements and provide appropriate compliance documentation. Additionally, the contractor would adhere to all requirements within the project specifications.

Land Use and Ownership/Jurisdiction

- TRSD would coordinate with ADOT, Gila County, BHP, and private landowners for encroachment permits or for the preferred real estate mechanisms (Utility Occupancy License, Utility License agreement, right of entry, etc.).

Floodplains

- TRSD would coordinate with the Gila County Public Works Department for a Floodplain Use Permit prior to the initiation of construction activities. Project components that would occur within the 100-year floodplain would be completed in accordance with the permit and Section 5.2 Standards for Construction of the Gila County Floodplain Management Ordinance, as amended (Gila County 2015). These measures include, but are not limited to the following required standards in all areas of special flood hazard:
    - All new construction and substantial improvements would be anchored to prevent flotation, collapse, or lateral movement of the structure;
    - All new construction and substantial improvements would be constructed using materials and utility equipment resistant to flood damage;
    - Adequate drainage paths around structures on slopes would be required to guide flood waters around and away from proposed or existing structures;
    - Structures would be flood-proofed below the regulatory flood level; to be watertight with walls substantially impermeable to the passage of water;
    - Structural components would be capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and,
    - Construction would be certified by a registered professional engineer or architect.

Cultural Resources

- In the event that previously unreported cultural resources are encountered during ground disturbing activities, all work must immediately cease within 100 feet until a qualified archaeologist has documented the discovery and evaluated its eligibility for the NRHP in consultation with the USDA Rural Utilities Service (RUS), the Arizona State Historic Preservation Office (SHPO), and Tribes, as appropriate. Work must not resume in this area without approval of the USDA.
- If human remains are encountered during ground-disturbing activities, all work must immediately cease within 100 feet of the discovery and the area must be secured. The Arizona State Museum (ASM), USDA, SHPO, and appropriate Tribes must be notified of the discovery. All discoveries would be treated in accordance with NAGPRA (Public Law 101-601; 25 USC 3001-3013) or Arizona Revised Statutes (A.R.S. § 41-844 and A.R.S. § 41-865), as appropriate, and work must not resume in this area without authorization from ASM and the USDA.

Visual Resources

- The contractor would be required to minimize the amount of vegetation clearing and would avoid damaging vegetation that is to remain in place (outside the approved clearing limits).
- Vegetation designated to remain in place would be protected and avoided through fencing, flagging, marking or other approved methods.
- Straight-line clearing would be avoided by varying the width of the area to be cleared or by leaving selected clumps of vegetation, rock formations, and/or boulders near the edge of the clearing limit. This would create a naturally appearing vegetative border in cut areas.
- The contractor would be required to restore the areas affected by ground-disturbing activities to conditions deemed acceptable by TRSD.
- Low-profile structures would be designed, whenever possible, to reduce their visibility and they would be painted an appropriate color for the landscape or setting in order to reduce their visual contrast.

Biological Resources

- Surveys for protected native plants should be conducted prior to commencement of proposed project activities to ensure compliance with the Arizona Native Plant Law. TRSD would notify the Arizona Department of Agriculture regarding the destruction or removal of plants protected under the Arizona Native Plant Law. In accordance with the Arizona Native Plant Law, TRSD would ensure that a Notice of Intent to Clear Land is submitted to the Department of Agriculture prior to any vegetation clearing activities.
- Minimize vegetation removal in areas with native vegetation, wherever possible, to reduce impacts on native vegetation and the habitat it may provide for wildlife species.
- The contractor would be required to minimize the amount of vegetation clearing and avoid damaging vegetation that is to remain in place. In addition, the contractor would be required to restore the areas affected by ground-disturbing activities to conditions deemed acceptable by the TRSD.
- All unpaved, disturbed soils that would not be landscaped or otherwise permanently stabilized by construction should be seeded using species native to the project vicinity.
- To prevent the introduction of invasive species seeds, all hauling and construction equipment should be washed at the contractor's storage facility. All vehicles and equipment should be free of all attached soil, mud, vegetation and other debris.
- To prevent invasive-species seeds from leaving the site, the contractor should inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.
- Habitat loss would be minimized by clearing the smallest amount of vegetation necessary to construct the project. Any trenches left open overnight would have a 1:1 (horizontal: vertical) slope at each end to allow wildlife to easily exit the trench.

Water Resources

- Prior to any project construction, a survey should be conducted to identify any additional Waters occurring within the project site. During construction, the contractor would comply with the terms

and conditions of CWA Section 404 regulations (Nationwide Permit Number 12), including, but not limited to:

  - Discharges of fill or dredged material (including all earthwork activities, such as clearing, grading, filling and excavating) into watercourses would be minimized or avoided to the maximum extent practicable.
  - No excess concrete, curing agents, formwork, loose embankment materials or fuel would be disposed of within the project area.

- TRSD would ensure a stormwater pollution prevention plan is prepared to meet the requirements of the construction general permit, including sampling and analysis plan, as necessary.
- TRSD would prepare and submit a notice of intent for the project to the ADEQ.
- TRSD would prepare and submit a notice of termination upon achieving final stabilization for the project to the ADEQ.
- No grading work would be performed without first having obtained a grading permit from the Gila County Public Works Director or his designee.
- Construction impacts would be confined to the minimum area necessary to complete the project.
- Closure of existing septic tanks must abide by the Title 18 Chapter 9 of the AAC (R18-9-A309) General Provisions for On-site Wastewater Treatment Facilities, Section D. Closure requirements. Provisions include, but would not be limited to:
  - Remove all sewage from the facility and dispose of the sewage in a lawful manner;
  - Disconnect and remove electrical and mechanical components;
  - Remove or collapse the top of any tank or containment structure.
  - Cut and plug both ends of the abandoned sewer drain pipe between the building and the on-site wastewater treatment facility not more than 5 feet outside the building foundation if practical, or cut and plug as close to each end as possible; and
  - Notify the Department within 30 days of closure.

Socioeconomics

- Traffic control measures would be implemented to maintain at least one access point to residences and businesses wherever possible.
- Affected homeowners and business owners would be notified in advance of any access restrictions.
- Affected homeowners and businesses would be notified of construction schedules and any planned disconnections in service.

Air Quality

- Operators of trucks/vehicles would not leave engines idling for longer than necessary.
- Fugitive dust would be controlled with water trucks.
- Clearing of vegetation would be avoided when and wherever possible.

- Vehicular speeds would be reduced on unpaved roads, and vehicles would remain on paved surfaces wherever possible.
- Soil stockpiles would be covered or kept wet to prevent wind erosion.
- Backfilled soils would be compacted to the existing grade level and reseeded with a native seed mix to reduce wind erosion in areas where erodible soil would remain exposed after construction.
- The contractor shall comply with all local air quality and dust control rules, regulations and ordinances.

Noise

- Special equipment such as noise-damping devices (i.e., sound blankets, deflective barriers, mufflers) would be used and/or scheduling restrictions (e.g., working hours between 8:00 a.m. and 6:00 p.m.) would take place. No nighttime work would occur.

Transportation

- During construction activities, work would be limited to the amount of roadway that could be closed while maintaining operation of the road.
- A TMP would be required for approval by TRSD and Gila County prior to construction.
- Notification of potential access restrictions would be provided a minimum of 72 hours in advance to businesses, residences and emergency response departments (i.e., police/sheriff, fire, ambulance).
- Traffic control signage would be installed at suitable locations no less than five business days before the beginning of construction to announce construction and upcoming lane closures to the commuting public.
- During construction, a flag crew would be present at all detour sites and points of congestion.

6.0 MITIGATION MEASURES

Additional measures to avoid, minimize and mitigate impacts are listed below:

Floodplains

- During the final design of the sewer collection system, and WRF expansion, additional analysis would be performed to ensure that the footprint would lie outside of the 100-year floodplain, where possible. Berms, additional grading and/or other features would be incorporated into the final design, as necessary, to provide proper protection to the WRF expansion from 500 and 100-year flood events.

Cultural Resources

- As the Arizona Eastern Railroad, AZ V:9:392(ASM) has previously been determined eligible for inclusion in the NRHP under Criterion A, any future ground-disturbing undertakings would avoid this site. If avoidance is not possible, then the site should be subjected to an appropriate data recovery plan that includes archival research and intensive documentation.

Biological Resources

- If clearing activities are scheduled during migratory bird breeding season (March 1 to August 31), the Contractor shall have a qualified biologist conduct a field survey to flag active bird nests to be avoided. TRSD's contractor would avoid and maintain a 20-foot buffer around any active bird nests. If the active nests cannot be avoided, the contractor should notify an approved and qualified biologist to evaluate the situation.

7.0 REFERENCES

AMEC Earth and Environmental, Inc. (AMEC). 2011. *Draft Environmental Report Tri-City Regional Sanitary District Waste Water Collection System, Gila County, Arizona*, prepared for Tri-City Regional Sanitary District.

Arizona Department of Environmental Quality (ADEQ). 2010. Registry Report – Pinal Creek Water Quality Assurance Fund Site. Accessed October 2021. http://legacy.azdeq.gov/environ/waste/sps/download/state/pnlckb.pdf.

_____. 2012. "Fact Sheet: Pinal Creek Water Quality Assurance Revolving Fund Site, July 2012." Accessed October 2021. http://legacy.azdeq.gov/environ/waste/sps/download/state/pinal.pdf.

_____. 2017a. Waste Programs Division: Superfund/Water Quality Assurance Revolving Fund (WQARF). Accessed October 2021. http://legacy.azdeq.gov/environ/waste/sps/index.html.

_____. 2017b. "What is Arizona's State Implementation Plan (SIP)?". Accessed October 2021. http://www.azdeq.gov/node/229.

_____. 2017c. *Arizona State Implementation Plan Revision: Miami Sulfur Dioxide Nonattainment Area for the 2010 SO_2 NAAQS*. Air Quality Division. October 15, 2021. Accessed November 2021. http://static.azdeq.gov/aqd/so2_miami_sip.pdf.

_____. 2019. *Final Arizona State Implementation Plan Miami PM_{10} Nonattainment Area*. Air Quality Division. Accessed October 2021. http://www.azdeq.gov/node/3945.

_____. 2021. "eMaps." Accessed November 2021. http://gisweb.azdeq.gov/arcgis/emaps/.

Arizona Department of Water Resources (ADWR). 2009. Arizona Water Atlas Volume 5: Central Highlands Planning Area. Accessed October 2021. Arizona Water Atlas Volume 5 - Central Highlands Planning Area (azwater.gov).

Brown, D. E. 1994. "Semidesert Grassland." In *Biotic Communities: Southwestern United States and Northwestern Mexico*, edited by D. E. Brown, 123–131. Salt Lake City: University of Utah Press.

Central Arizona Governments (CAG). February 2016. *Section 208 Water Quality Management Plan.* Accessed October 2021. FINALCAG208WQMP_Feb2016.pdf (cagaz.org).

City of Globe (Globe). 2011. "Globe Public Works Pinal Creek Wastewater Treatment Facility." Accessed October 2021. http://www.globeaz.gov/departments/public-works#Wastewater.

_____. 2014 *Globe 2035 General Plan – February 2014*. Draft. Accessed October 2021. GP2035 Draft March 2014 - 3-12 (globeaz.gov).

Environmental Protection Agency. 2021a. *Summary of the Clean Air Act*. https://www.epa.gov/laws-regulations/summary-clean-air-act. Site accessed October 2021.

_____. 2021b. *Particulate Matter (PM) Pollution*. Accessed October 2021. https://www.epa.gov/pm-pollution.

_____. 2021c. *Particulate Matter (PM) Pollution; Particulate Matter (PM) Basics*. Accessed October 2021. https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#effects.

_____. 2021d. *NEPAssist*. Interactive Map. https://www.epa.gov/nepa/nepassist. Accessed October 2021.

Federal Emergency Management Agency (FEMA). 2022. "Map Service Center Flood Insurance Rate Maps." Accessed January 2022. https://msc.fema.gov/portal.

Gila County. 2003. *Gila County Comprehensive Plan – Amended 2018*. Accessed October 2021. http://www.gilacountyaz.gov/documents/docs/CommunityDevelopment/Planning/ComprehensivePlan.pdf.

____ _.2006. Gila County Community Development Division Planning and Zoning Department. *Minor Land Division Application*. December 2006.

_____. 2012. Gila County Wastewater Department (Jake Garrett and Jim Berry). *Sewage Treatment Study, Tri-City Regional Sanitary District*. November 2012.

_____. 2015. *Gila County Floodplain Management Ordinance, as amended. Section 5.2 Standards for Construction.*

Jennifer M. Levstik, Catherine Vaughn, Grant Fahrni, and Tyler Theriot. 2022. *A Class III Cultural Resources Survey and Historic Building Reconnaissance Survey for Phases II and III of the Tri-City Regional Sanitary District Project, Gila County, Arizona.* Technical Report 185120a. Logan Simpson, Tucson, Arizona.

Natural Resources Conservation Service (NRCS). 2021. *Web Soil Survey*. Accessed October 2021. http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

Pacific Advanced Civil Engineering, Inc. (PACE). 2022. *USDA-RD Preliminary Engineering Report (PER) Update Wastewater Facilities – Phase 2 & 3*. Prepared for Tri-City Regional Sanitary District.

Pacific Advanced Civil Engineering, Inc. (PACE). 2022. Floodplain Impacts Analysis Memorandum for Tri-City Regional Sanitary District (TRSD) Water Reclamation Facility/Lift Station.

PLC Enterprises. 2013. *EPA Emissions Standards for Emergency Standby Diesel Generator Sets*. Information Sheet #48. Central Power Systems & Services. Accessed October 2021. EPA Diesel Generator Emissions Standards | EPA Tiers (buckeyepowersales.com).

Stantec Consulting Services, Inc. 2017. *Miami Gardens Phase I Environmental Site Assessment.* Project No.: 185803901

_____. 2018. *Miami Gardens Phase II Environmental Site Assessment.*

The MBR Site. 2017. Membrane Bioreactors. Accessed October 2021. http://www.thembrsite.com/about-mbrs/design/biotreatment-process-configurations/.

US Census Bureau. 2020. American FactFinder. Accessed October 2021. http://factfinder.census.gov/.

_____. 2015–*2019 American Community Survey 5-Year Estimates*. Accessed November 2021. http://factfinder.census.gov/.

US Department of Agriculture, Rural Development (USDA RD). 2015. *Water & Waste Disposal Loan & Grant Program* factsheet. September 2015. Accessed October 2021. https://www.rd.usda.gov/files/fact-sheet/RD-FactSheet-RUS-WEPDirect.pdf.

_____. 2016. *Instruction Part 1970 -C– NEPA Environmental Assessments*. April 2016. https://www.rd.usda.gov/publications/regulations-guidelines/instructions.

US Fish and Wildlife Service (USFWS). 1918. *Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service Migratory Bird Treaty Act of 1918*. Accessed October 2021. https://www.fws.gov/laws/lawsdigest/migtrea.html.

WestLand Engineering & Environmental Services, Inc. 2021. *A Cultural Resources Inventory of 42 Acres at Miami Gardens near the BHP Solitude Tailings Storage Facility, Gila County, Arizona*

Wetlands Professional Services. 2019. *Intermittent and Ephemeral Streams and Ditches*. Accessed October 2021. http://www.wetlandsprofessional.com/intermittent-and-ephemeral-streams.html.

8.0 LIST OF PREPARERS

USDA, Rural Development/Rural Utilities Services

Lam Ho, Civil Engineer

Logan Simpson

Patricia McCabe, Senior Associate Environmental Planner

Marshall Hayes, Environmental Planner

Devin McAllister, Environmental Planner

Chris Garraty, Cultural Resources Director

Ian Tackett, Senior Biologist

Roy Baker, Senior GIS Analyst

Victoria Niedzielski, Technical Editor

PACE | Advanced Water Engineering

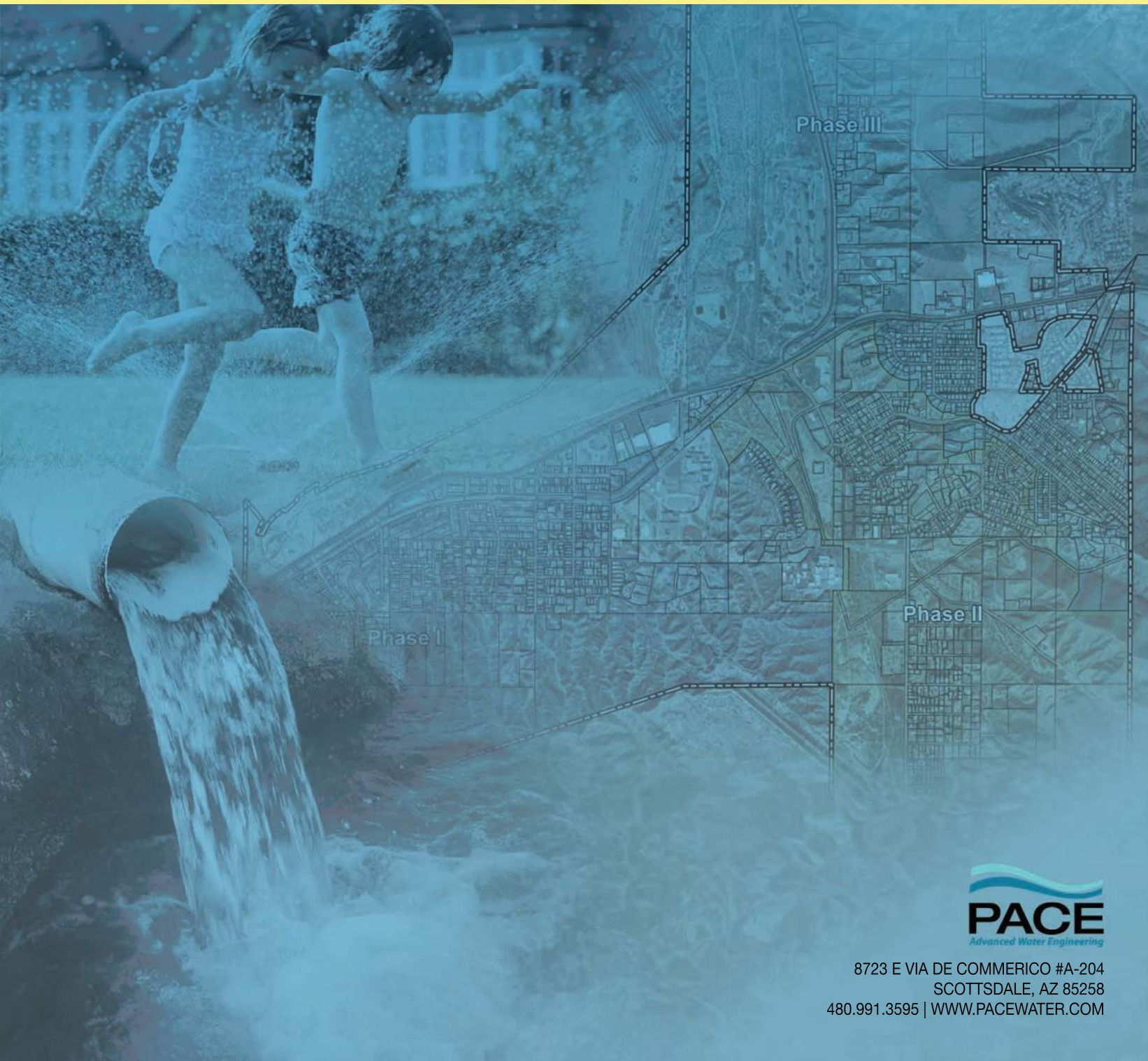
Mike Krebs, Vice President – Environmental Water Division

Andrea Jaycox, Project Coordinator

APPENDIX A – SHPO CONCURRENCE – [PENDING]

APPENDIX B – COORDINATION AND CONSULTATION

APPENDIX C – BIOLOGICAL EVALUATION



PACE
Advanced Water Engineering

8723 E VIA DE COMMERICO #A-204
SCOTTSDALE, AZ 85258
480.991.3595 | WWW.PACEWATER.COM