Julie Hoffman

From: Larry Dobrosky <ldobrosky@cityofelmirage.org>
Sent: Thursday, April 03, 2014 2:49 PM
To: Julie Hoffman
Cc: Jamie McCullough
Subject: RE: April 1, 2014 MAG Water Quality Advisory Committee Meeting

Julie,

Two small corrects to the 208.

Page 2-59 Change B to B+ (we are required to produce B+)

Figure 2.8 (map) is slightly off. A few of Surprise sewer lines are shown in El Mirage. Jamie can email you some updated maps tomorrow morning, but one question came up: is the map for sewer lines 18" and above or all lines?

Larry

From: Julie Hoffman [mailto:JHoffman@azmag.gov]
Sent: Monday, March 17, 2014 10:53 AM
To: Julie Hoffman
Subject: April 1, 2014 MAG Water Quality Advisory Committee Meeting

Members of the MAG Water Quality Advisory Committee,

A meeting of the MAG Water Quality Advisory Committee has been scheduled for Tuesday, April 1, 2014 at 1:30 p.m. at the MAG Offices for the MAG 208 Water Quality Management Plan Point Source Update. A copy of the update is being mailed to you today. The meeting agenda will be mailed one week prior to the meeting. If you have any questions, please let me know.

Thank you very much for your participation in the update! I look forward to see you on April 1st.

Julie A. Hoffman
Environmental Planning Program Manager
Maricopa Association of Governments
302 N 1st Avenue, Suite 300
Phoenix, Arizona 85003
Phone: 602.254.6300
Fax: 602.254.6490
jhoffman@azmag.gov

Julie Hoffman

From: Jamie McCullough <jmccullough@cityofelmirage.org>
Sent: Friday, April 04, 2014 10:29 AM
To: Julie Hoffman; Larry Dobrosky
Subject: RE: April 1, 2014 MAG Water Quality Advisory Committee Meeting
Attachments: COEM Wastewater System 2014 04 04.pdf

Julie,
Can you use this map in pdf or do you need a different program?

Jamie McCullough – Environmental Compliance Coordinator
City of El Mirage Public Works
12145 NW Grand Avenue, El Mirage, AZ 85335
P: 623-876-4252 | F: 623-374-7308 | E: jmccullough@cityofelmirage.org

City of
EL MIRAGE
Arizona
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From: Julie Hoffman [mailto:JHoffman@azmag.gov]
Sent: Thursday, April 03, 2014 4:23 PM
To: Larry Dobrosky
Cc: Jamie McCullough
Subject: RE: April 1, 2014 MAG Water Quality Advisory Committee Meeting

Larry,

Thank you very much for the quick response. The changes has been made to the text. Once we get the updated maps tomorrow, we will make the changes to the figure. In terms of the sewer lines shown, there is variety on the maps. In some communities, the majority of the lines are included. However, in other communities, especially the larger municipalities, only the big lines are shown.

Julie Hoffman
MAG

From: Larry Dobrosky [mailto:ldobrosky@cityofelmirage.org]
Sent: Thursday, April 03, 2014 2:49 PM
To: Julie Hoffman
Cc: Jamie McCullough
Subject: RE: April 1, 2014 MAG Water Quality Advisory Committee Meeting

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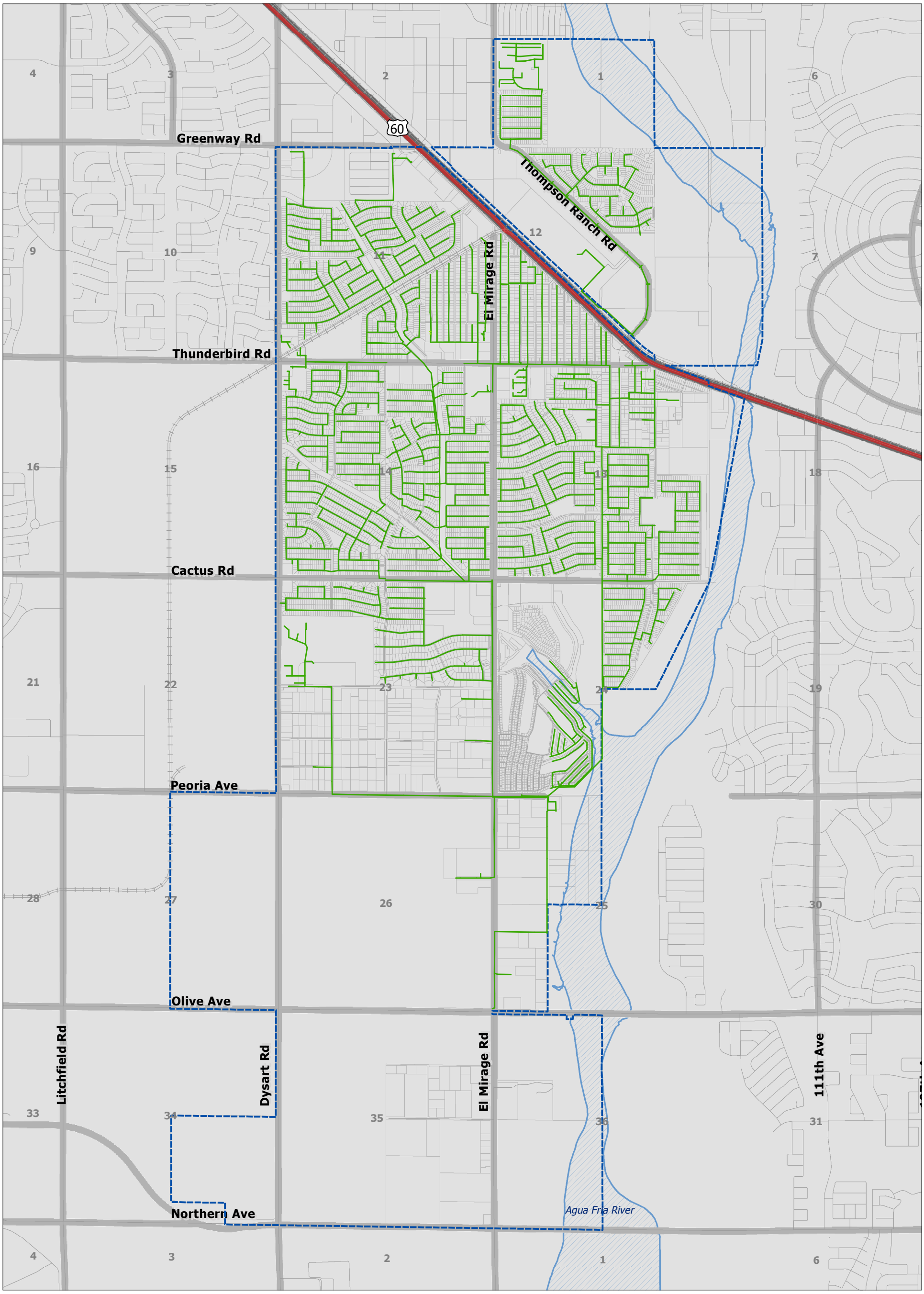
Phoenix, Arizona 85003
Phone: 602.254.6300
Fax: 602.254.6490
jhoffman@azmag.gov

Wastewater System

El Mirage, Arizona



Force Mains

Gravity Mains

City Boundary

N W E S

0 0.25 0.5 1 Miles

Source: Public Works, Wastewater Division

Prepared by:
City of El Mirage
D&CS - GIS/Planning
April 2014

City of El Mirage Arizona
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Julie Hoffman

From: Jamie McCullough <jmccullough@cityofelmirage.org>
Sent: Friday, April 04, 2014 12:33 PM
To: Julie Hoffman
Subject: FW: Wastewater Map
Attachments: COEM Wastewater System 2014 04 04 Mains.pdf; MainWestwater.shx; MainWestwater.sbn; MainWestwater.sbx; MainWestwater.shp.xml; MainWestwater.dbf; MainWestwater.prj; MainWestwater.shp

I hope one of these works for you. Let me know.

Jamie McCullough – Environmental Compliance Coordinator
City of El Mirage Public Works
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P: 623-876-4252 | F: 623-374-7308 | E: jmccullough@cityofelmirage.org

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From: Jose Macias
Sent: Friday, April 04, 2014 12:31 PM
To: Jamie McCullough
Subject: RE: Wastewater Map

Jamie

Here is the map and Shapefiles for sewer lines greater than 10" lines.

Jose A. Macias - GIS/Development Services Coordinator
Development & Community Services, Planning-GIS
12145 NW Grand Avenue, El Mirage, AZ 85335
P: 623.876.2996 | F: 623.876.4605 | E: jmacias@cityofelmirage.org

---

From: Jamie McCullough
Sent: Friday, April 04, 2014 10:17 AM
To: Jose Macias
Subject: RE: Wastewater Map

Perfect! I may just take you out to lunch someday.

Jamie McCullough – Environmental Compliance Coordinator
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From: Jose Macias
Sent: Friday, April 04, 2014 10:15 AM
To: Jamie McCullough
Subject: RE: Wastewater Map

Here you go….

Jose A. Macias - GIS/Development Services Coordinator
Development & Community Services, Planning-GIS
12145 NW Grand Avenue, El Mirage, AZ 85335
P: 623.876.2996 | F: 623.876.4605 | E: jmacias@cityofelmirage.org

From: Jamie McCullough
Sent: Friday, April 04, 2014 9:38 AM
To: Jose Macias
Subject: RE: Wastewater Map

I might be able to arrange that it you will do a presentation on something and take my stormwater class. LOL

Jamie McCullough – Environmental Compliance Coordinator
City of El Mirage Public Works
12145 NW Grand Avenue, El Mirage, AZ 85335
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From: Jose Macias
Sent: Friday, April 04, 2014 9:37 AM
To: Jamie McCullough
Subject: RE: Wastewater Map

I better be invited to next PW luncheon….. lol

Jose A. Macias - GIS/Development Services Coordinator
Development & Community Services, Planning-GIS
12145 NW Grand Avenue, El Mirage, AZ 85335
P: 623.876.2996 | F: 623.876.4605 | E: jmacias@cityofelmirage.org

From: Jamie McCullough
Sent: Friday, April 04, 2014 9:35 AM
To: Jose Macias
Subject: RE: Wastewater Map

This is good. How hard would it be to take out the manholes and sewer cleanout and just have lines? A new map? Sorry

Jamie McCullough – Environmental Compliance Coordinator
City of El Mirage Public Works
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From: Jose Macias
Sent: Friday, April 04, 2014 9:32 AM
To: Jamie McCullough
Subject: Wastewater Map

Hope this helps… let me know if you need anything else.

Jose A. Macias - GIS/Development Services Coordinator
Development & Community Services, Planning-GIS
12145 NW Grand Avenue, El Mirage, AZ 85335
P: 623.876.2996 | F: 623.876.4605 | E: jmacias@cityofelmirage.org

City of
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Arizona
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Wastewater System

El Mirage, Arizona

Greenway Rd
Thunderbird Rd
Cactus Rd
Peoria Ave
Olive Ave
Northern Ave
El Mirage Rd
Thompson Ranch Rd
Litchfield Rd
Dysart Rd
111th Ave
60
Lift Station
WWTP
Agua Fria River

Main Westwater Line (10"+)

City Boundary

0 0.25 0.5 1 Miles

Source: Public Works, Wastewater Division

Prepared by:
City of El Mirage
D&CS - GIS/Planning
April 2014

City of El Mirage Arizona
GRAND HERITAGE, BRIGHT FUTURE!

Julie Hoffman

From: Carlos Padilla <Carlos.Padilla@mesaaz.gov>
Sent: Friday, April 04, 2014 9:21 AM
To: Julie Hoffman
Cc: Dan Cleavenger
Subject: Mesa's Comments on MAG 208 Water Quality Plan
Attachments: MAG 208 Water Quality Management Plan - Mesa 4Feb14.doc

Hi Julie,

Attached are Mesa's latest comments on the Plan. Also, the map does not go south far enough to show the Greenfield Water Reclamation Plant. It is located on the west side of Greenfield Road between Germann and Queen Creek Roads (4400 S. Greenfield Rd, Gilbert). Please make this correction.

Once you complete the corrections, we would appreciate an electronic copy of the revised document.

Thanks for the opportunity to take a final look at the document. Let me know if you have any questions.

Carlos

Carlos Padilla
Assistant Director
Water Resources Department
City of Mesa
480-644-4109

2.5.4 Mesa

Wastewater collection and treatment service is provided by the City of Mesa. In ~~2009~~2012, Mesa completed a Sewer Master Plan Update. The document updated Mesa's needs for wastewater collection and treatment. The Mesa Municipal Planning Area, depicted in Figure 2.22, is generally bounded by the Salt River Pima-Maricopa Indian Community (SRPMIC) on the north; the Maricopa County line on the east; the Western Canal (from Price Road to Country Club Drive), Baseline Road (from Country Club Drive to Power Road) and Germann Road (from Power Road to the Maricopa County line) on the south; and by the City of Tempe (from the Western Canal to the Salt River) and Power Road (from Germann Road to Baseline Road for the southeastern section of the Planning Area) on the west. The Planning Area includes all of the incorporated City of Mesa (including Williams Gateway Airport) and some unincorporated areas within Maricopa County, corresponding to Regional Analysis Zones (RAZ) 289, 290,
291, 292, 293, 294, 295, 298, 299, 300, 309, 320, 321, and 322. The City of Mesa is the designated wastewater management agency for this area.

Sources of flow from outside the Planning Area include the Town of Gilbert, the Salt River Pima-Maricopa Indian Community, and the Town of Queen Creek. The City of Mesa, Town of Gilbert, and Town of Queen Creek have an agreement for regional wastewater treatment at the Greenfield Water Reclamation Plant, located in Gilbert.

Population and Flow Projections. Continued growth is projected in the Mesa Planning Area. Table 2.29 presents the 2010 through 2040 population for the City of Mesa based on the 2013 MAG population projections and extensive land utilization based flow projections. The equivalent per capita flow varies depending on the ratio of commercial/industrial vs. residential developments within the City.~~associated wastewater flows using a flow rate of 100 gpcd~~.

Table 2.29 Mesa Population and Flow Projections
MAG 208 Water Quality Management Plan Update

Year	Population	Flow (mgd)
2010	535,928	33.5~~53.59~~
2020	608,359	45.3~~60.84~~
2030	685,071	58.2~~68.51~~
2040	717,071	68.5~~71.71~~

Existing Collection System. The wastewater collection serving the City of Mesa Planning Area consists of more than 1,600 miles of collection and interceptor sewers, 15 lift stations, and ~~17~~ 21 ~~Sulfide~~ Odor Control Stations.

The major interceptors serving Mesa include:

- Baseline Road Interceptor (BRI #1).
- Baseline Road Relief Interceptor (BRI #2).
- 8th Street Interceptor.
- Southern Avenue Interceptor (SAI).

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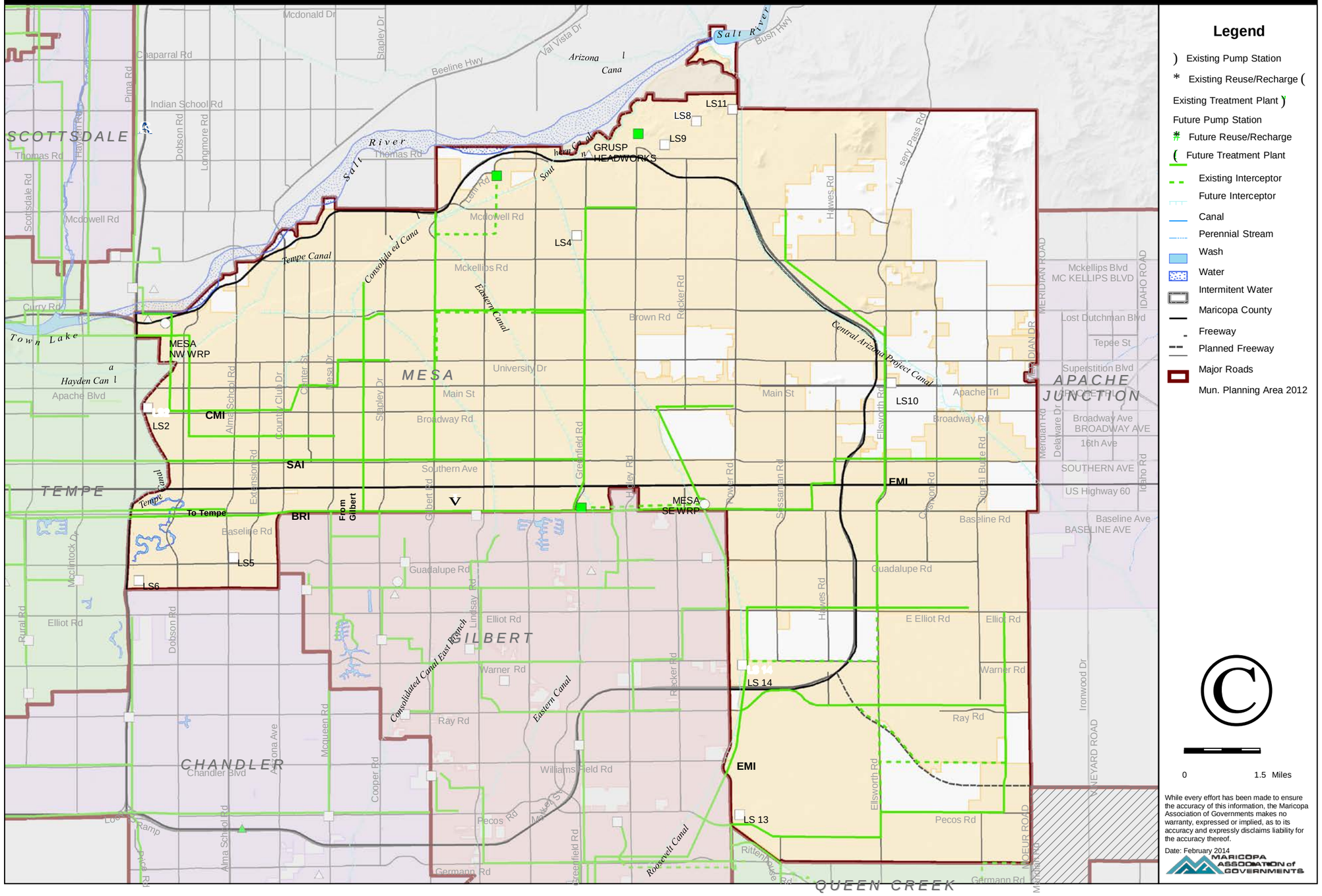
Figure 2.22 Mesa Municipal Planning Area



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- Central Mesa Interceptor (CMI).
- East Mesa Interceptor (EMI).

The Baseline Road, Southern Avenue, and 8th Street Interceptors convey wastewater from Mesa (through Tempe) to the Salt River Outfall (SRO) and the Southern Avenue Interceptor (SAI) to the SROG 91st Avenue Wastewater Treatment Plant WWTP. The City of Mesa currently owns ~~a total of 40 mgd average daily flow capacity in the SRO and SAI upstream of the 91st Avenue WWTP.~~capacities ranging from 19.6 to 36.6 mgd in the SRO ~~(capacity varies along SRO)~~ and 12 to 22 mgd in the SAI.

The CMI conveys wastewater from the northwest portion of the Planning Area to the Northwest Water Reclamation Plant (NWWRP). Flow from the CMI can also be diverted to the SRO via the 8th Street Interceptor and/or the SAI f~~.~~or treatment at the 91st Avenue WWTP.

The EMI conveys flow from the eastern portion of the Planning Area to the Greenfield Water Reclamation Plant (GWRP). A portion of this flow north of Elliot Road can also be diverted to the Southeast Water Reclamation Plant (SEWRP) and/or the BRI for treatment at the 91st Avenue WWTP.

Flows from Queen Creek and a portion of Gilbert are sent to the GWRP for treatment. Flow from the SRPMIC is pumped to the NWWRP. This flow can also be diverted to the 8th Street Interceptor for treatment at the 91st Avenue WWTP.

Existing Treatment Facilities. The City of Mesa owns and operates the Northwest Water Reclamation Plant and the Southeast Water Reclamation Plant. Mesa is also a joint owner and lead agent for the Greenfield Water Reclamation Plant along with the Town of Gilbert and Town of Queen Creek. Mesa's current ownership capacity at this facility is 4.0 mgd, with a projected build-out capacity of 26~~8~~.0 mgd, which includes a 6.0 mgd pump back from SROG. Mesa also owns 29.2 mgd of capacity at the SROG 91st Avenue WWTP.

Biosolids from the NWWRP and GWRP are treated on-site. Biosolids from the SEWRP are typically sent to the GWRP for treatment. However, they can also be sent to the BRI for treatment at the 91st Avenue WWTP.

Capacities and facilities at each reclamation plant are summarized below:

Northwest Water Reclamation Plant

- Capacity: 18 mgd (no expansion planned).
- Bar Screens.
- Primary Sedimentation.
- Activated Sludge with Nitrification and Denitrification.
- Secondary Sedimentation.
- Dual Media Filtration.
- UV Disinfection.

- Chlorine Disinfection ~~(back-up)~~.

- Dechlorination ~~(back-up)~~.
- Biosolids Treatment.
- Existing AZPDES, NPDES, and APP Permits.

Biosolids treatment consists of single stage anaerobic digesters with primary and secondary sludge thickening and sludge dewatering. The plant produces Class A+ Effluent and Class B Sludge.

Southeast Water Reclamation Plant

- Capacity: 8 mgd (no expansion planned).
- Bar Screens.
- Primary Sedimentation.
- Activated Sludge with Nitrification and Denitrification.
- Secondary Sedimentation.
- Dual Media Filtration.
- ~~UV Disinfection.~~
- Chlorine Disinfection. ~~(back-up).~~
- Dechlorination.
- Existing AZPDES and APP Permits.

The plant produces class A+ effluent. The plant does not have a solids treatment, and primary/secondary sludge is pumped to GWRP for solids treatment.

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Greenfield Water Reclamation Plant

- Capacity: 16 mgd total, 4 mgd Mesa (Build-out: 50~~52~~ mgd total, 26~~8~~ mgd Mesa, which includes a 6 mgd pumpback).
- Bar Screens.
- Grit Removal.
- Primary Sedimentation.
- Activated Sludge with Nitrification and Denitrification.
- Secondary Sedimentation.
- Media Disc Filtration.
- UV Disinfection.
- Chlorine Disinfection. ~~(back-up).~~
- Biosolids Treatment.
- Existing AZPDES and APP Permits.

Biosolids treatment consists of single stage anaerobic digesters with primary and secondary sludge thickening and sludge dewatering. The plant produces Class A+ Effluent and Class B Sludge.

Future Wastewater System Development. The City of Mesa is implementing system improvements recommended in the 2012~~09~~ Wastewater Master Plan Update. Future system improvements will include providing service to undeveloped areas and upgrades in areas that are currently served. These improvements will extend service, primarily in the southeast portion of the Planning Area, and increase capacity within the system.

Improvements are also planned that will enable the City to reduce the amount of flow sent to the SROG system for treatment and increase the flows treated at the NWWRP and

GWRP. The Brown Road Relief Sewer Project (Phase I is complete)~~, currently under construction~~, will enable the City to divert approximately 3 mgd of flow to the NWWRP that is now sent to the 91st Avenue WWTP. The Greenfield Road Pumpback Station~~, currently programmed for 2018, will allow Mesa to send~~ currently programmed for 2027, will allow Mesa to send approximately 6 mgd of flow to the GWRP for treatment that is currently being sent to the 91st Avenue plant.

Based on the ~~2009~~ 2012 Wastewater Master Plan Update and current population projections, future wastewater treatment capacity will be provided by the NWWRP, SEWRP, GWRP, and the SROG 91st Avenue WWTP. An estimate of the projected flows to each plant through the planning period is summarized in Table 2.30.

Table 2.30 Mesa Wastewater Flow Allocation Projections
MAG 208 Water Quality Management Plan Update

Year	SROG Facilities[1] (mgd)	NWWRP (mgd)	SEWRP (mgd)	GWRP[2] (mgd)	Gilbert Residuals[3] (mgd)	Total Treated Flow (mgd)
2010	17.8	8.4	4.0	3.3	0.56	33.5
2015	18.5	9.1	7.1	3.4[4]	0.62	38.7
2020	19.5	10.5[4]	5.1[5]	9.6	0.62	45.3
2025	20.4	11.9	6.1	12.7	.62	51.7
2030	21.3	13.3	7.1	15.9	.62	58.2

[1] Annual average daily flows. Includes residuals from Gilbert Neely WRF.
[2] Mesa flow only.
[3] Gilbert currently sends residuals from their Neely WRF for treatment at the 91st Avenue WWTP. ~~This is planned to stop in 2018.~~
[4] Some flow from GWRP diverted to SEWRP.
[5] Flow diversion from SEWRP to GWRP ceases.

~~Greenfield Road Pumpback Station on line 2018.~~

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Reclaimed Water Use. Effluent from the NWWRP is delivered to the Granite Reef Underground Storage Project (GRUSP), when available, for recharge. Mesa's current ownership capacity in GRUSP is approximately 24.86 percent of the current permitted volume of 200,000 acre-feet per year (AF/year) or 49,720 AF/year. However, it is anticipated that this will be reduced to approximately 25,000 AF/year when the renewal USF permit for GRUSP is finalized at 96,720 AF/year. However, the City of Phoenix has announced its desire to release its capacity of 26.88 percent ownership in GRUSP. ~~Mesa is currently contemplating this additional capacity.~~ The reclaimed water from the NWWRP is discharged to the Salt River when GRUSP is not available. The recharge basins near the plant site are not ~~longer~~ used on a regular basis, due to high ground water levels~~, and the USF permit for them has not been renewed~~.

The majority of the effluent from the SEWRP is pumped to the GWRP where it is mixed with reclaimed water from the GWRP and delivered to the Gila River Indian Community for agricultural irrigation in exchange for CAP water. ~~Also, a small portion of the reclaimed water from the SEWRP is directly delivered to Leisure World and the Superstition Springs~~

~~Golf Course where it is used for Open Access Irrigation and Fire Protection.~~ The SEWRP can also discharge to the East Maricopa Floodway (EMF) under an Aquifer Protection Permit and agreement with the Maricopa County Flood Control District.

As mentioned above, Mesa's portion of the reclaimed water from the GWRP is sent to the GRIC where it is used for agricultural irrigation. An Intergovernmental Agreement between the City of Mesa and the Gila River Indian Community stipulate an initial delivery of 7,000 AF/year with an annual increase of 1,000 AF/year to a maximum of 29,400 AF/year. Based on current flow projections, Mesa will deliver most or all of the effluent from both the SEWRP and GWRP as part of the exchange agreement. Effluent from the GWRP can also be discharged to the EMF under an Aquifer Protection Permit and agreement with the Maricopa County Flood Control District.

Summary of Proposed Wastewater System Improvements.

Estimated Capital improvements through the year 2019 are summarized below:

Item	Estimated Cost[1]
Collection System Expansion and Improvements	$35,400,000~~352,000~~~~52,293~~
GWRP Expansion[2]	$99,500,000~~37,000~~~~16,582~~
Water Reclamation Plant Improvements	$30,500,000~~482,000~~~~25,488~~
Sewer Line Rehabilitation	~~$29,300,000~~~~24,000~~
Total	$194,700,000~~695,000~~~~243,3~~

[1]~~December~~ [1]January 201~~408~~ costs ~~(~~ENR Construction Cost Index 9664~~8551)~~
[2]Mesa Cost Only

Contract Customer Service. In addition to wastewater collection and treatment for the Mesa Planning Area, the City may also provide service to contract customers outside of the designated Planning Area. Mesa currently has an agreement with the Town of Gilbert to convey residual solids from Gilbert's Neely WRF through the BRI and SAI for treatment at the SROG 91st Avenue WWTP. ~~The City currently plans on terminating this agreement by 2018.~~ Mesa also provides treatment for an area of Gilbert (Towne Meadows) bounded by Baseline Road, Power Road, Recker Road, and Guadalupe Road at their SEWRP for wastewater. It also serves a portion of Gilbert bounded by Baseline Road, Country Club Drive, W. San Angelo Street, and Center Street Alignment (Fiesta Tech). Flow from this area discharges to the BRI for treatment at the 91st Avenue WWTP. Other contract customers include the Town of Queen Creek and the SRPMIC. Service to contract customers is provided through Intergovernmental Agreements between Mesa and the individual customers.

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2.5.5 Queen Creek

The Planning Area for Queen Creek includes the incorporated limits of the Town, as depicted on Figure 2.23. The MAG 208 planning boundary is the Maricopa County boundary. Portions of Queen Creek outside of Maricopa County are within Central Arizona Governments planning area for 208 planning purposes and processes. The portion of the Queen Creek Municipal Planning Area within Maricopa County corresponds to Regional Analysis Zone (RAZ) 339.

Population and Flow Projections. The Town of Queen Creek is expected to more than double its population in the next 20 years. The Town's estimated population projections, as well as wastewater flow projections, are presented in Table 2.31. Population data are based on the 2013 MAG population projections. Flow projections are based on a rate of 75 gpcd.

Table 2.31 Queen Creek Population and Flow Projections MAG 208 Water Quality Management Plan Update

Year	Population[1]	Flow (mgd)[2]
2010	33,120	1.30
2020	51,488	3.86
2030	70,342	5.28
2040	76,292	5.72

[1] Population projections include the Maricopa County portion of Queen Creek only.
[2] The 2010 values is based on actual average daily flow.

Existing Wastewater System. At present, there are no treatment facilities in Queen Creek. All flow from the Town of Queen Creek is collected at one of three outfalls, Rittenhouse, Queen Creek, and Ocotillo Road, and then conveyed to the Greenfield Water Reclamation Plant. The GWRP is jointly owned by the City of Mesa, the Town of Gilbert, and the Town of Queen Creek and is operated by the City of Mesa with an Intergovernmental Agreement to service incoming flow from the Town of Queen Creek. The Town of Queen Creek currently owns 4 mgd of treatment capacity, with the current IGA allowing for an ultimate treatment capacity of 8 mgd, average daily flow.

The collection system has been divided in four separate zones, each with a network of sewers leading to an outfall, or multiple outfalls, for conveyance and treatment elsewhere. Collector sewers will be constructed along one-mile section line roads with laterals extending into developments in the individual sections. All four zones have been developed to some extent, while only Zone 1 has all major infrastructure installed.

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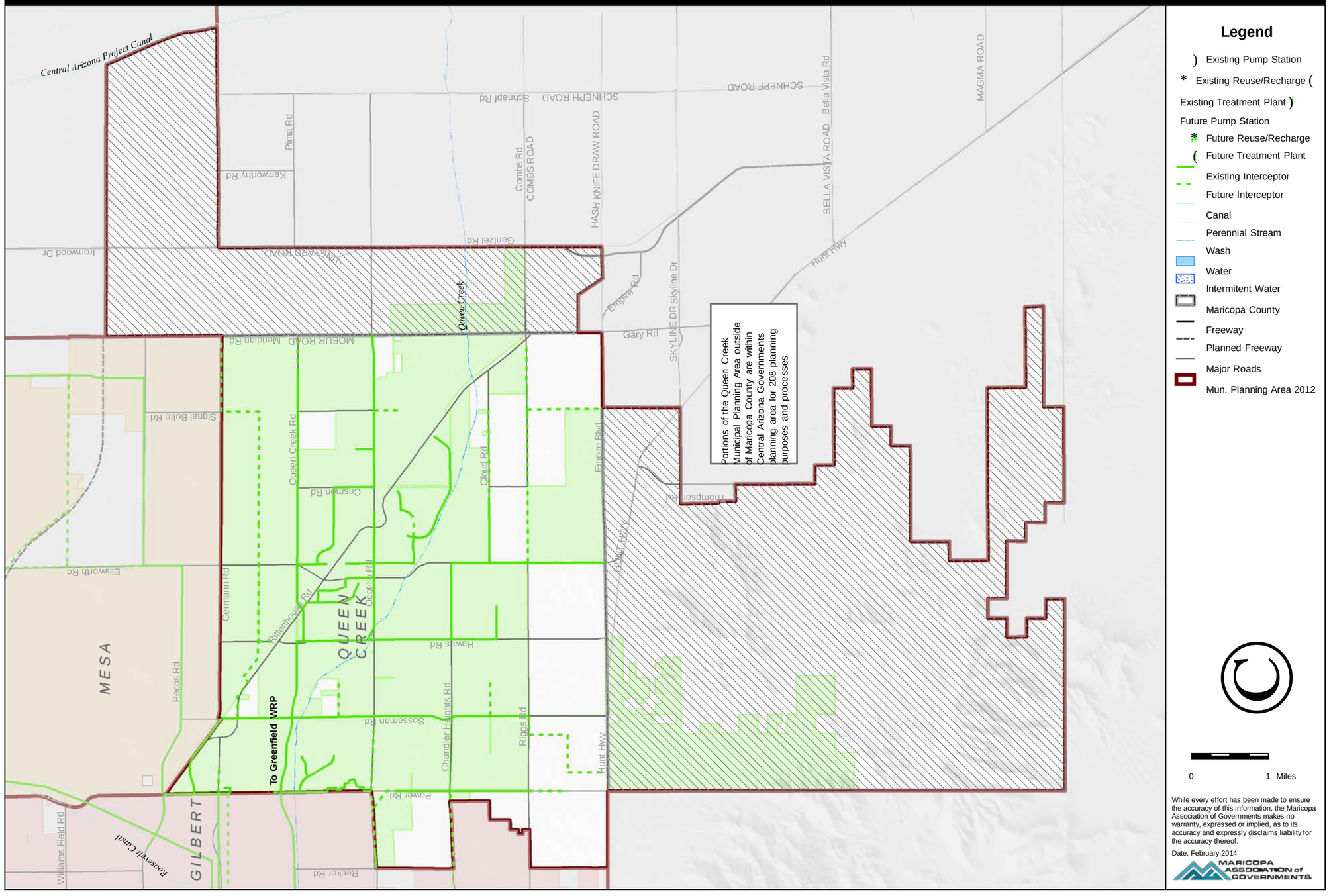
Figure 2.23 Queen Creek Municipal Planning Area



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Zone 1 is an area southwest of Rittenhouse Road and northwest of the Queen Creek Wash and includes the Town Center and portions of Queen Creek located southwest of the Southern Pacific Railroad. The major infrastructure required for this zone is in place. The sewers from this zone combine at the Rittenhouse Outfall and are then conveyed to the GWRP.

Zone 2 is located in the northeast section of Queen Creek, east of Ellsworth Road and northeast of the Southern Pacific Railroad. The major infrastructure for this zone is partially in place. The sewage generated by Zone 2 is collected at the Rittenhouse Outfall and conveyed to the GWRP.

Zone 3 consists of the area south of Queen Creek Wash, in the southwestern section of Queen Creek. The major infrastructure for this zone is partly in place. The sewage generated from this zone is partly collected at all three Outfalls (Rittenhouse, Queen Creek, and Ocotillo Road) depending on the area or origin. All three outfalls convey the sewage to the GWRP.

Zone 4 consists of one-half mile wide industrial zoned corridor along the south side of Germann Road from the County Line to Ellsworth Road; the area from Hawes Road to Sossaman Road north of the Southern Pacific Railroad and south of Germann Road; and the area north of Germann Road, south of the railroad between Sossaman Road and Power Road. Currently only the area north of Germann Road, south of the railroad, between Sossaman Road and Power Road has the major infrastructure in place. The sewage generated from this area is collected at the Rittenhouse Outfall and conveyed to the GWRP.

Future Wastewater System Development. As urban development of Queen Creek occurs, additional infrastructure in Zones 2 through 4 of the wastewater collection system will be installed. The configuration of the collection system will be determined by the Interceptor Sewer Modeling & Wastewater Town Master Plan-2011 (Town Sewer Master Plan) and by the size and location of the developments.

As development occurs in Zones 2 through 4, new infrastructure will be added to the existing infrastructure according to the Town Sewer Master Plan. In Zone 4, infrastructure will be added to the areas of the one-half mile wide industrial zoned corridor along the south side of Germann Road from the County Line to Ellsworth Road and the area from Hawes Road to Sossaman Road north of the Southern Pacific Railroad and south of Germann Road. All sewage from Zones 2 and 4 will be collected at the Rittenhouse Outfall and conveyed to the GWRP. Sewage from Zone 3 will be collected at all three outfalls, depending on the area of origin, and then conveyed to the GWRP.

The Town of Queen Creek will implement recommendations that are in the Town Sewer Master Plan.

Summary of Wastewater System Improvements. The sewer collection system will be constructed using development and impact fees, as the Town does not yet have the tax base to finance the new infrastructure. Additional treatment capacity and agreements may be necessary depending on actual development versus projected development.

Item	Estimated Cost[1]
Zone 2 Collection System	$1,659,000
Zone 3 Collection System	9,916,000
Zone 4 Collection System	5,761,000
Wastewater Master Plan Recommendations	1,525,000
Total	$18,861,000

[1] Town Sewer Master Plan - Engineers Probable Costs.

Julie Hoffman

From: Carlos Padilla <Carlos.Padilla@mesaaz.gov>
Sent: Friday, April 04, 2014 1:52 PM
To: Julie Hoffman
Cc: Dan Cleavenger
Subject: FW: Mesa's Comments on MAG 208 Water Quality Plan

Julie,

Also, the year when the GWRP expansion is projected to be completed is 2018. See below.

Thanks!

Carlos

Carlos Padilla
Assistant Director
Water Resources Department
City of Mesa
480-644-4109

From: Julie Hoffman [mailto:JHoffman@azmag.gov]
Sent: Friday, April 04, 2014 11:42 AM
To: Carlos Padilla
Cc: Dan Cleavenger
Subject: RE: Mesa's Comments on MAG 208 Water Quality Plan

Carlos,

Thank you very much for your comments. We will make the changes and provide you with the revised document. Since the Greenfield WRP is located in Gilbert, a description of the facility is included in their section as well, which is provided below. Based on your comments, I will contact Gilbert on Monday regarding the capacity change from 28 to 26 mgd for Mesa and 52 to 50 mgd ultimately since this information is also mentioned in their section. Please let me know if there are any other changes that may be needed to the description below.

Gilbert, Mesa, and Queen Creek partnered to construct the Greenfield Water Reclamation Plant located just west of Greenfield Road, approximately one-half mile north of Queen Creek Road. Mesa is the operating partner of the plant. Unit processes include primary clarification, biological nutrient removal through the use of aeration basins, secondary clarification, filtration, and UV disinfection (with chlorine backup). Solids generated by the plant are handled on-site through the use of thickeners, digesters, and mechanical dewatering. The plant is currently sized at 16 mgd and Gilbert owns 8 mgd of the capacity. At the beginning of calendar year 2011, average influent from Gilbert to the GWRP was approximately 4.5 mgd. Reclaimed water from the GWRP is used in the southern part of Gilbert and recharged at the South Recharge site located at the northeast corner of Higley and Ocotillo Roads. A 5.0 million gallon reservoir/booster station, located adjacent to the GWRP, allows reclaimed water to be distributed to end users throughout the planning area.

The next phase of development primarily involves expanding the Greenfield WRP. The next phase of plant expansion is currently scheduled to be complete in 2018. Ultimately, the plant will be expanded

to treat approximately 50 mgd (Gilbert - 16 mgd, Mesa - 26 mgd, Queen Creek - 8 mgd). The Neely WRF has reached its ultimate capacity of 11.0 mgd.

Thanks.

Julie Hoffman
MAG

From: Carlos Padilla [mailto:Carlos.Padilla@mesaaz.gov]
Sent: Friday, April 04, 2014 9:21 AM
To: Julie Hoffman
Cc: Dan Cleavenger
Subject: Mesa's Comments on MAG 208 Water Quality Plan

Hi Julie,

Attached are Mesa's latest comments on the Plan. Also, the map does not go south far enough to show the Greenfield Water Reclamation Plant. It is located on the west side of Greenfield Road between Germann and Queen Creek Roads (4400 S. Greenfield Rd, Gilbert). Please make this correction.

Once you complete the corrections, we would appreciate an electronic copy of the revised document.

Thanks for the opportunity to take a final look at the document. Let me know if you have any questions.

Carlos

Carlos Padilla
Assistant Director
Water Resources Department
City of Mesa
480-644-4109

Julie Hoffman

From: Richard Cohen <rcohen@buckeyeaz.gov>
Sent: Thursday, April 10, 2014 11:05 AM
To: Julie Hoffman
Subject: City of Buckeye Corrections
Attachments: Buckeye 208 Section March 17 2014 Draft.docx

Julie, please find attached the minor corrections noted as we talked about. Hope this helps. Let me know if you have any questions.
Thanks

Richard Cohen

City of Buckeye
Water Resources
Environmental Coordinator
Direct: (623) 349-6127
Cell: (623) 249-9953
Fax: (623) 349-6850
Email: rcohen@buckeyeaz.gov

2.2.2 Buckeye

The City of Buckeye Municipal Planning Area corresponds to Regional Analysis Zones (RAZ) 253, 277, 278, 279, 340, 341, and 343. The Town is the designated wastewater management agency for this area. Encompassing approximately 590 square miles of planning area, Buckeye has concentrated their planning efforts in a core planning area bounded by Interstate 10, Beloat Road, Jackrabbit Trail, and Turner Road, within RAZs 278 and 279. The City of Buckeye Sewer Master Plan developed in 2000 addresses only the core planning area; however, Buckeye is projected not only to experience growth in their core planning area, but also in the surrounding perimeter planning areas. Due to this expected growth, wastewater treatment plans for the entire Municipal Planning Area boundary have been developed. The Buckeye Municipal Planning Area is depicted in Figure 2.4.

Population and Flow Projections. Table 2.5 presents population projections, based on the 2013 MAG population projections for the City. Based on the populations and a 100 gpcd unit flow rate, wastewater flow projections are also presented in Table 2.5.

Table 2.5 Buckeye Population and Flow Projections MAG 208 Water Quality Management Plan Update

	Core Planning Area (RAZ 278 & 279)		Future Planning Areas			
Year	**Population**	**Flow (mgd)**	**Population**	**Flow (mgd)**	**Total Population**	**Total Wastewater Flow (mgd)**
2010	44,128	4.41	22,983	2.30	67,111	6.71
2020	65,184	6.52	45,926	4.59	111,110	11.11
2030	100,794	10.08	93,846	9.38	194,640	19.46
2040	156,481	15.65	178,845	17.88	335,326	33.53

On January 30, 2008, the MAG Regional Council approved the MAG 208 Water Quality Management Plan Comprehensive Amendment for Buckeye (CMX, 2007). The amendment identified the wastewater treatment needs for the City over the 20 year planning period and ultimately build-out. As part of that analysis, Buckeye evaluated the MAG population projections, projected growth given more recent development activity, and build-out conditions for the City of Buckeye. According to the amendment, the Buckeye planning area will have a build-out population of 2,031,000. The ultimate capacities provided for the wastewater treatment facilities are based on build-out of the Buckeye Municipal Planning Area, which extends far beyond the 20 year planning period. The ultimate wastewater flow from the Buckeye Municipal Planning Area is anticipated to be 241.2 mgd (CMX, 2007).

Existing Collection System. The existing collection system is in the center of the core planning area, primarily located to the south of Interstate 10 and north of Beloat Road, between Miller Road on the west and Apache Road on the east. There is one sewer trunk line along Apache Road from Broadway to the treatment plant, providing the

backbone of the existing collection system. The collection system requires no pumping for transport of wastewater to the treatment plant.

Existing Treatment System. The MAG 208 Water Quality Management Plan Comprehensive Amendment for Buckeye described the six existing wastewater treatment facilities within the Buckeye Municipal Planning Area, including the Arizona State Prison Complex-Lewis Wastewater Treatment Plant located on Patterson Road at State Route 85. With a capacity of 0.75 mgd, the Arizona State Prison Complex-Lewis facility is intended to only serve the Prison Complex. The treatment process includes an extended aeration, activated sludge process, with clarification, tertiary filtration, and ultraviolet disinfection. Effluent is reused on softball fields, gardens, recreational fields, and a turf farm located on the prison property. Any excess effluent is land applied on a turf farm. Sludge is aerobically digested and dried (CMX, 2007).

The Central Buckeye Wastewater Treatment Plant is located south of Beloat Road, between Miller and Apache Road. It began receiving flow as a 0.6 mgd facility. Improvements to the process and expansion of the facility increased the capacity to 1.5 mgd and a second expansion to 4.0 mgd occurred in 2007. Actual average flows were approximately 0.912 mgd as of July 2007. An additional 3.0 mgd facility expansion has been designed to reach a treatment capacity of 7.0 mgd (CMX, 2007).

Previously, the Central Buckeye facility consisted of screening facilities, an oxidation ditch equipped with a “boat” clarifier for solids removal, effluent chlorination, and belt filer press. The 2007 expansion of the facility included the following updates to the treatment process: influent pumping, mechanically and manually cleaned bar screens, grit removal, secondary treatment (Bardenpho process for nitrification/denitrification), secondary clarification, tertiary filtration and chlorination/dechlorination. The sludge is processed through a belt filter press prior to landfill disposal (CMX, 2007).

The Central Buckeye WWTP currently discharges effluent into the Buckeye Water Conservation Drainage Ditch (BID)~~ Arlington Canal~~ under an Arizona Pollutant Discharge Elimination System (AZPDES) permit. The effluent is used downstream for irrigation of nonedible agricultural crops. The facility does not currently recharge.~~ or directly reuse effluent~~. Direct reuse is to the Earl Edgar Park, with other possible sites dependant upon the construction of~~may occur if~~ the facility reuse infrastructure ~~is constructed~~ to serve potential customers. Recharge would likely need to be performed off-site due to waterlogged conditions at the facility site (CMX, 2007).

Located along Wagner Wash near Sun Valley Parkway is the Festival Ranch Water Reclamation Facility. This facility has a capacity of 1.0 mgd with average flows of 0.026 mgd as of July 2007. The facility consists of fine screens at the headworks followed by a sequencing batch reactor (SBR) for secondary treatment. Also included in the treatment process are tertiary filtration and ultraviolet disinfection. Effluent is currently~~will be~~ reused for irrigation on three golf courses, public access parks, turf facilities at schools and irrigation of rights-of-way landscaping. Reclaimed water infrastructure is being constructed which will include recharge facilities, a pump station at the facility, a pipe network throughout the Festival Ranch development, and storage lakes at the golf courses. Effluent in excess of the reuse demand will be recharged.

There is also an AZPDES permit for emergency discharges to the Wagner Wash (CMX, 2007).

Residents in the Sundance, Blue Horizons, and other central Buckeye developments are served by the Sundance Wastewater Treatment Plant. The Blue Horizons Villages WWTP was included in the 2002 MAG 208 Plan to serve the Blue Horizons development; however, the plant was never built. In 2005, the MAG Regional Council approved a 208 Amendment to expand the Sundance WWTP to include flows from additional developments, including Blue Horizons. The Sundance facility is located east of Dean Road and north of Roosevelt Canal (CMX, 2007).

The first phase of the Sundance WWTP had a capacity of 1.2 mgd. The average flows were at 0.692 mgd as of July 2007. The facility consists of a biological treatment process that removes biological oxygen demand (BOD), provides nitrification and denitrification, aerobic sludge digestion, sludge dewatering, odor scrubbing equipment and basin covers. The facility has been upgraded to increase capacity to 2.4 mgd. Effluent is currently reused as irrigation for a golf course. An effluent line ~~is being constructed to~~ also conveys flows to the Buckeye Canal. ~~In the future,~~ E~~e~~ffluent in excess of reuse demand is ~~will be~~ discharged to the Buckeye and/or Roosevelt Canals under AZPDES permits. Recharge may not be feasible onsite due to constrained site conditions. Potentially, recharge facilities could be constructed; however, further investigation may be needed into the groundwater conditions in the area (CMX, 2007).

The Tartesso West Water Reclamation Facility is located at approximately McDowell Road and the 315th Avenue alignment and has a capacity of 1.2 mgd. As of July 2007, the facility was receiving flows of 0.112 mgd. The facility utilizes an activated sludge process within hybrid SBRs. The facility is equipped with screening, grit removal, biological oxidation, nitrification/denitrification, clarification, filtration, and ultraviolet disinfection with back-up chlorination. Effluent from the Tartesso West Water Reclamation Facility (WRF) will be recharged at a facility adjacent to the plant site. Potential reuse may include irrigation for a golf course and public park. During wet weather or emergency cases, effluent may be discharged to a local wash, tributary to the Hassayampa River, under an AZPDES permit (CMX, 2007).

The Verrado Water Reclamation Facility in Buckeye is privately owned and operated by EPCOR Water (formerly Arizona American Water Company). It serves the Verrado development, located on the east side of the White Tank Mountains, and the Fireside at Sienna Hills development. Located at Tuthill Road and McDowell Road, the facility had an average flow of 0.141 mgd, as of July 2007. The current capacity is 0.45 mgd. The SBR treatment facility includes screening, secondary treatment with biological nitrogen removal, and chlorination. Effluent from Phase 1 is reused for golf course irrigation and recharged. Once the development grows and future expansions of the facility are needed, there may be additional opportunities for reuse. Effluent in excess of that reused and recharged may be discharged to the White Tanks Flood Retarding Structure (FRS) No. 4 and/or the Roosevelt Canal under an AZPDES permit (CMX, 2007).

Future Wastewater System Development. Except for the Arizona State Prison Complex Wastewater Treatment Plant, all of the existing facilities are anticipated to

increase in capacity as growth occurs within the Buckeye Municipal Planning Area. Since the Arizona State Prison Complex WWTP serves only the Prison Complex and therefore a relatively fixed population, there are no plans for plant expansion beyond 0.75 mgd. Given the limited service area and the elevation in relation to the developable land in the area, this facility will ultimately be decommissioned and flows sent to the future Gila Rainbow Water Reclamation Facility (CMX, 2007).

The Central Buckeye Wastewater Treatment Plant will expand the Bardenpho treatment process in 3.0 mgd increments based on population increases or as decided by Buckeye. Future expansions will result in an ultimate capacity of 45.8 mgd (CMX, 2007).

The Festival Ranch WRF is expected to expand in phases to an ultimate capacity of 17.3 mgd at build-out. For the Sundance WWTP, future planned upgrades include increasing capacity to 3.6 mgd. The ultimate capacity for the facility at build-out will be 13.9 mgd. The Tartesso West WRF is expected to reach an ultimate capacity of 24.2 mgd. At build-out, the Verrado WRF is planned to reach a capacity of 3.6 mgd. Expansions of these facilities will occur as dictated by development in the Buckeye planning area (CMX, 2007).

Planned Facilities. In addition to addressing the existing treatment facilities within the Buckeye Municipal Planning Area, the MAG 208 Water Quality Management Plan Comprehensive Amendment for Buckeye identifies planned and future facilities. The six planned facilities are anticipated to be constructed in the near future (CMX, 2007).

The Anthem at Sun Valley South Water Reclamation Facility is planned on the east side of Sun Valley Parkway, south of the Bethany Home Road alignment. The first phase of the facility would have a capacity of 1.125 mgd. Future expansion would occur in 1.125 mgd increments with an ultimate capacity of 4.5 mgd. The multi-phase SBR facility would consist of influent wet well and lift station including flow metering, fine screening, grit removal, secondary treatment with biological nitrogen removal, secondary equalization/clarification, tertiary filtration, ultraviolet disinfection, nitrification and denitrification, effluent pump station including flow metering, standby generator, laboratory and control building, effluent reuse and sludge treatment (CMX, 2007).

Effluent from the Anthem at Sun Valley South WRF will primarily be reused for irrigation of landscape areas and open space, community parks, golf courses, and other turf managed facilities. Recharge may also occur for flows that exceed the reuse demand. Effluent in excess of what is recharged and reused will be discharged to a local unnamed wash that is tributary to the White Tanks Wash. Flows from the wash are retained behind FRS No. 1, north of I-10. The FRS is operated and maintained by the Flood Control District of Maricopa County. Any flow exceeding the 100-year storm would discharge to the Hassayampa River. This AZPDES permit discharge would only occur during wet or emergency conditions (CMX, 2007).

The Douglas Ranch Water Reclamation Facility is planned at approximately 339th Avenue and Waddell Road alignments in the northwestern part of the Buckeye Municipal Planning Area. The facility would primarily serve the Douglas Ranch

development and include a multi-phased activated sludge treatment process. Although, it may operate as an extended aeration plant without primary treatment initially. Phase 1 of the facility will have a capacity of 1.0 mgd and consist of influent pumping, fine screening, extended aeration activated sludge, flow equalization, secondary clarification, filtration, ultraviolet disinfection, belt press dewatering, reclaimed water storage, and effluent distribution pumping. Ultimate capacity for the facility will be 31.9 mgd (CMX, 2007).

A majority of the effluent from the Douglas Ranch WRF will be reused for irrigation on golf courses, lakes, open space green belt areas, schools, and public access parks. Effluent in excess of the reuse demand will be recharged. An AZPDES permit will also be obtained for discharge into the local Jackrabbit Wash during wet weather or emergencies (CMX, 2007).

The planned Palo Verde Road Wastewater Treatment Plant will be located on Palo Verde Road approximately one-half mile north of Broadway Road. Phase 1A of the facility would have a capacity of 0.5 mgd and include a multi-phased SBR system. The full first phase will have a capacity of 1.0 mgd with a facility build-out capacity of 11.7 mgd. The plant will consist of screening, secondary biological treatment using the activated sludge process, secondary clarification, tertiary filtration, ultraviolet disinfection, nitrification/denitrification, either aerobic or anaerobic sludge digestion, sludge dewatering, a sludge disposal strategy and flow equalization (CMX, 2007).

Effluent from the Palo Verde Road WWTP will primarily be reused for irrigation of public and/or private open spaces. Any effluent in excess of what could be reused will be recharged. Beyond reuse and recharge demand, effluent will be discharged to the Buckeye or Roosevelt canals. The water is then used downstream for agricultural irrigation. The facility may also obtain an AZPDES permit discharge to the Hassayampa River for flows that exceed direct reuse, recharge, and indirect reuse demand. This will only occur during wet weather or emergency situations (CMX, 2007).

The Tartesso East Water Reclamation Facility is planned at the intersection of I-10 and Turner Road with an ultimate capacity of 10.7 mgd. The first phase will have a capacity of 1.2 mgd and operate using an SBR activated sludge treatment system with advanced tertiary treatment. Buckeye will have the option of converting the facility to the Bardenpho process once the capacity is approximately 3.0 to 5.0 mgd. The treatment train will ultimately consist of screening, grit removal, biological nutrient removal through anoxic and aerobic zones, clarification, nitrification/denitrification, filtration and ultraviolet disinfection. Sludge storage, treatment and processing capabilities will also be incorporated. Odor and noise control and other aesthetic measures will be included (CMX, 2007).

Effluent from the Tartesso East WRF will be recharged and potentially reused for irrigation, golf courses, and lakes, if developed. In addition, an AZPDES permit will be obtained for emergencies and wet weather conditions. The receiving stream will be a local unnamed wash that is retained behind FRS No. 1, north of I-10. Flows beyond the 100-year storm event would discharge from FRS No. 1 into the Hassayampa River (CMX, 2007).

Located in the western portion of the Central Buckeye Region will be the Town of Buckeye Water Reclamation Facility at Cipriani, planned for the southwest corner of Johnson and Southern Avenues. The first phase of the facility will be a 1.2 mgd multi-phase SBR with the capability for future expansions. The facility will consist of influent wet well and lift station, fine screening, grit removal, secondary treatment with biological nitrogen removal, secondary equalization/clarification, tertiary filtration, ultraviolet disinfection, nitrification/denitrification, effluent pump station including flow metering, standby generator, laboratory and control building, effluent reuse and sludge treatment. Future phasing will be modular and flexible depending on population growth. The ultimate capacity for the facility will be 12.0 mgd (CMX, 2007).

The flows from the Town of Buckeye WRF at Cipriani will be reused and recharged. Effluent will be reused for irrigation of parks and turf managed facilities. Recharge will occur at the constructed underground storage facility (USF) within the Stone House Wash. A recharge facility may also be constructed by the Desert Creek development. Effluent in excess of flows that are reused and recharged may be discharged to the Stone House Wash, a tributary to the Hassayampa River, in cases of emergencies or wet weather. This discharge would be permitted under the AZPDES program (CMX, 2007).

The Trillium West Wastewater Treatment Facility is planned along Peoria Avenue adjacent to the Hassayampa River. It will be a multi-phase SBR facility with an initial capacity of 0.32 mgd. The first phase will include an influent pump station consisting of one duty and one standby submersible pump and a wet well. There will be a lift station equipped with an odor control system and headworks consisting of flow metering and fine screens. Biological treatment will consist of a SBR system. The system will be programmed to include anoxic sequences within the treatment cycles to reduce the nitrogen levels in the mixed liquor. An aerobic digester will be used to further reduce the volatile solids. Thickened sludge will be processed in the sludge handling facility to produce sludge cake that could be safely disposed of in a landfill. The treatment process will also include filtration and ultraviolet radiation to disinfect the tertiary effluent. A chlorination system will be provided for backup disinfection. Full noise and odor control will be provided at the facility (CMX, 2007).

Effluent from the Trillium West WWTF will initially be recharged via onsite percolation basins. As growth occurs, effluent will also be reused for irrigation of gateway entrances, parks, open space landscaping, schools, and other amenities. An AZPDES permit may also be obtained for discharge into the Hassayampa River or Wagner Wash during wet weather or emergency conditions. The Trillium West WWTF will transition from the initial 0.32 mgd SBR system to a full process with an ultimate capacity of 3.2 mgd (CMX, 2007).

<u>Future Facilities</u>. Buckeye has also identified seven future facilities to serve the remaining portions of its planning area, which were included in the MAG 208 Water Quality Management Plan Comprehensive Amendment for Buckeye. These facilities are conceptual and the areas to be served had not identified a sewer solution. According to the amendment, flows from these areas are unable to go to another facility

due to topographic constraints. Buckeye is identifying the future facilities to achieve the goal of planning for the wastewater treatment necessary to meet the growth of the City over the next 20 years and ultimately at build-out. The locations of the future facilities are approximate given that they are planned far into the future. Adjustments will be made at the discretion of Buckeye (CMX, 2007).

The future facilities include the Gila 85 Water Reclamation Facility. This facility is planned at a location along the Gila River (Section 14 of Township 1 South, Range 4 West). Locating the facility on land owned by the Flood Control District of Maricopa County is being explored; however, private land in the area may be pursued. The WRF will be a multi-phase SBR. The treatment train will include preliminary screening, biological treatment using the activated sludge process, clarification, nitrification/denitrification, filtration and ultraviolet disinfection. Sludge storage, treatment, and processing capabilities may also be incorporated. In addition, the facility will include odor and noise control and other aesthetic measures (CMX, 2007).

The Gila 85 WRF will have a Phase 1 capacity of 1.2 mgd. Once the flow level reaches approximately 5.0 mgd, the facility will be planned to upgrade to one of four Bardenpho alternative technologies. The facility will have an ultimate capacity of 9.1 mgd. Effluent may be reused for irrigation and recharged. Recharge is not recommended at the facility site due to high groundwater levels; however, Buckeye is evaluating other alternatives and locations. An AZPDES permit may also be obtained for discharge into the Arlington Canal, Hassayampa River, or Gila River under planned and emergency conditions (CMX, 2007).

The Gila Hassayampa Water Reclamation Facility is planned near the intersection of Narramore and Bruner Roads outside the floodways of the Gila and Hassayampa Rivers. The WRF will be a multi-phase SBR and the treatment train will include preliminary screening, biological treatment using the activated sludge process, clarification, nitrification/denitrification, filtration and ultraviolet disinfection. Sludge storage, treatment, and processing capabilities may also be incorporated. The facility will also include odor and noise control and other aesthetic measures. Once flows reach a level of approximately 5.0 mgd, the facility will be planned to upgrade to one of four Bardenpho alternative technologies (CMX, 2007).

Effluent from the Gila Hassayampa WRF may be reused for irrigation and recharged. Due to the high groundwater level at the plant site, Buckeye is evaluating other alternatives and locations for recharge. Planned or emergency discharges may occur into the Arlington Canal, Hassayampa River, or Gila River. The Gila Hassayampa WRF will have a Phase 1 capacity of 1.2 mgd with an ultimate capacity of 7.8 mgd (CMX, 2007).

The Gila Rainbow Water Reclamation Facility will be built along the Gila Bend Canal (Section 36 of Township 2 South, Range 5 West). Located near the Arizona State Prison Complex-Lewis, this facility will ultimately provide municipal wastewater service to the prison. The ASPC-Lewis WWTP would then be decommissioned. The Gila Rainbow WRF will have a Phase 1 capacity of 1.2 mgd and an ultimate capacity of 13.2 mgd (CMX, 2007).

The facility will be a multi-phase SBR and the treatment train will include preliminary screening, biological treatment using the activated sludge process, clarification, nitrification/denitrification, filtration and ultraviolet disinfection. Sludge storage, treatment, and processing capabilities may also be incorporated. In addition, odor and noise control and other aesthetic measures will be included. Once flows reach a level of approximately 5.0 mgd, the facility will be planned to upgrade to one of four Bardenpho alternative technologies. Effluent may be reused and/or recharged. An AZPDES permit may also be obtained for planned and emergency discharges to the Gila River, Gila Bend Canal, or Rainbow Wash (CMX, 2007).

The Gila Southwest Water Reclamation Facility will be located in the southwest corner of the Buckeye Municipal Planning Area (Section 29 of Township 3 South, Range 4 West) and have an ultimate capacity of 7.5 mgd. Phase 1 will have a capacity of 1.2 mgd. The facility will be a multi-phase SBR with a treatment train that consists of preliminary screening, biological treatment using the activated sludge process, clarification, nitrification/denitrification, filtration and ultraviolet disinfection. Consistent with all the future facilities, sludge storage, treatment, and processing capabilities may also be incorporated. In addition, the facility will include odor and noise control and other aesthetic measures. The facility will be planned to upgrade to one of four Bardenpho alternative technologies as flows reach a level of approximately 5.0 mgd. Effluent will be reused and/or recharged. In addition, an AZPDES permit may be obtained for discharges into the Gila River or Gila Bend Canal that is in excess of the effluent that could be reused and recharged (CMX, 2007).

The Hassayampa North Water Reclamation Facility will serve an area in the northernmost portion of the Buckeye Municipal Planning Area. The facility would be located near the Hassayampa River (Section 4 of Township 4 North, Range 4 West) and be a multi-phase SBR. The treatment train will include preliminary screening, biological treatment using the activated sludge process, clarification, nitrification/denitrification, filtration and ultraviolet disinfection. Sludge storage, treatment, and processing capabilities may also be incorporated and the facility will include odor and noise control and other aesthetic measures. The Phase 1 capacity will be 1.2 mgd. When flows are at approximately 5.0 mgd, the facility will be planned to upgrade to one of four Bardenpho alternative technologies (CMX, 2007).

Effluent from the Hassayampa North WRF will be reused and recharged. Flows that exceed the amount that would be reused and recharged may be discharged into the Hassayampa River or an unnamed wash that is directly tributary to the Hassayampa River. This AZPDES permit discharge would only occur during wet weather and emergency conditions. The facility will have an ultimate capacity of 9.4 mgd at build-out (CMX, 2007).

The future Sun Valley Water Reclamation Facility is planned near the intersection of Johnson Road and Northern Avenue. The facility will be a multi-phase SBR and have an ultimate capacity of 13.2 mgd. Phase 1 will be 1.2 mgd. The treatment train will consist of preliminary screening, biological treatment using the activated sludge process, clarification, nitrification/denitrification, filtration and ultraviolet disinfection.

Sludge storage, treatment, and processing capabilities may also be incorporated. The facility will include odor and noise control and other aesthetic measures. Once the facility has flows that reach approximately 5.0 mgd, it will be planned to upgrade to one of four Bardenpho alternative technologies. Effluent will be reused and recharged. An AZPDES permit may also be obtained for discharge into the Hassayampa River or White Tanks Wash. The AZPDES permit discharge would only occur during wet weather or emergency conditions (CMX, 2007).

The Waterman Wash WRF will be located within approximately Section 6 of Township 2 South, Range 2 West. It would serve a relatively limited piece of private land along the southeastern boundary of the Buckeye Municipal Planning Area. It is anticipated that the Phase 1 capacity will be 1.2 mgd with an ultimate capacity of 2.2 mgd at build-out. The Waterman Wash WRF will be a multi-phase SBR and the treatment train will include preliminary screening, biological treatment using the activated sludge process, clarification, nitrification/denitrification, filtration and ultraviolet disinfection. Sludge storage, treatment, and processing capabilities may also be incorporated along with odor and noise control and other aesthetic measures. Effluent from the facility will be reused and recharged. Excess effluent which cannot be reused or recharged may be discharged to the Waterman Wash. This AZPDES permit discharge would only occur during wet weather or emergency conditions (CMX, 2007).

Table 2.6 presents the anticipated wastewater flow projections for each treatment facility at build-out, based on the information provided in the MAG 208 Water Quality Management Plan Comprehensive Amendment for Buckeye (CMX, 2007).

Table 2.6 Buckeye Treatment Facilities and Wastewater Flows at Build-Out MAG 208 Water Quality Management Plan Update	
Wastewater Treatment Facility	**Ultimate Capacity at Build-Out (mgd)**
Existing Facilities	
Arizona State Prison Complex WWTP	0.0[1]
Central Buckeye WWTP	45.8
Festival Ranch WRF	17.3
Sundance WWTP	13.9
Tartesso West WRF	24.2
Verrado WRF	3.6
Planned Facilities	
Anthem at Sun Valley South WRF	4.5
Douglas Ranch WRF	31.9
Palo Verde Road WWTP	11.7
Tartesso East WRF	10.7
Town of Buckeye WRF at Cipriani	12.0
Trillium West WWTF	3.2
Future Facilities	
Gila 85 WRF	9.1
Gila Hassayampa WRF	7.8
Gila Rainbow WRF	13.2
Gila Southwest WRF	7.5
Hassayampa North WRF	9.4
Sun Valley WRF	13.2
Waterman Wash WRF	2.2
Total Wastewater Flows at Build-Out	**241.2**

[1] The Arizona State Prison Complex WWTP will ultimately be phased out of service. The existing service area for the facility is assumed to be served by the Gila Rainbow WRF in the future.

While the majority of Buckeye residents will receive wastewater service through the facilities identified above, the Buckeye has agreed to have two properties within its Municipal Planning Area be served by facilities within the Goodyear Municipal Planning Area. The Litchfield Park Service Company doing business as Liberty Utilities owns and operates the Palm Valley Water Reclamation Facility and future Sarival Water Reclamation Facility (currently a lift station) in Goodyear. These facilities were identified in the 2002 MAG 208 Plan. On May 24, 2006, the MAG Regional Council approved a MAG 208 Water Quality Management Plan Amendment for the Service Area Expansion of the Litchfield Park Service Company Palm Valley and Sarival Water Reclamation

Facilities (Wood, Patel & Associates, 2006). This amendment expanded the LPSCo dba Liberty Utilities service area to include portions of the Buckeye and Glendale Municipal Planning Areas and unincorporated areas of Maricopa County.

The Palm Valley and Sarival WRFs are each identified in the 2002 MAG 208 Plan with an ultimate capacity of 8.2 mgd. The total ultimate capacity of 16.4 mgd for the two facilities include a 38 percent reserve capacity of 6.3 mgd. The expanded service area would utilize 3 mgd of the reserve capacity. The Palm Valley WRF was constructed and placed into service in February 2001. The Sarival Lift Station was constructed to provide interim pumping capacity to the Palm Valley facility until such time that the flows increase to a level that would support startup and continuous operation of the Sarival WRF. The expanded service area includes two properties in Buckeye which are bound by Jackrabbit Trail and the Beardsley Canal on the west, Camelback Road on the south, Perryville Road on the east and Peoria Avenue on the north (Wood, Patel & Associates, 2006).

Summary of Proposed Improvements. Construction of the planned and future water reclamation facilities and expansion of the existing plants is dependant on many factors. The rate in which development occurs and the actual wastewater flows generated from these developments will determine construction schedules (CMX, 2007).

Currently in the City Buckeye, developers pay for the design and construction of the facilities. The developer finances the portion of the cost of the plant that serves their area. This financing model is also expected to be used for future expansions. Community facilities districts may be formed with the City as a financing mechanism. As the phases are completed, tested, and accepted by Buckeye, facility ownership will be transferred to Buckeye. Ultimately, the City will be responsible for operating and maintaining the facilities within its Municipal Planning Area except for the Verrado WRF (CMX, 2007).

Julie Hoffman

From:	Julie Hoffman
Sent:	Monday, April 14, 2014 2:54 PM
To:	'MFrank@FTMCDOWELL.ORG'
Cc:	'Kate Rosier'; Alfonso Rodriguez; 'jkanovich@FTMCDOWELL.ORG'; Nathan Pryor; Lindy Bauer
Subject:	RE: Fort McDowell Yavapai Nation Section of the Draft MAG 208 Plan Point Source Update
Attachments:	FMYN 208 Section Revised Draft 4.14.14.docx; MAG_208_Review_Fort_McDowell.pdf

Mark,

Thank you very much for the updated information. The revised Fort McDowell Yavapai Nation section of the MAG 208 Plan Point Source Update is attached. Please note that based on our phone conversation earlier today, we did not make any changes to the population projections identified for the Nation in the draft document. These numbers include the resident population projections approved by the MAG Regional Council on June 19, 2013 as well as the season and transient population projections. In addition, the figure has been revised to delete the old facility and reflect that the future Reuse/Recharge site and WWTP south of the Beeline Highway are now existing .

Thanks again.

Julie A. Hoffman
Environmental Planning Program Manager
Maricopa Association of Governments
302 N 1st Avenue, Suite 300
Phoenix, Arizona 85003
Phone: 602.254.6300
Fax: 602.254.6490
jhoffman@azmag.gov

From: Nathan Pryor
Sent: Monday, April 14, 2014 9:59 AM
To: Julie Hoffman
Cc: Lindy Bauer
Subject: FW: Fort McDowell Yavapai Nation Section of the Draft MAG 208 Plan Point Source Update

Here is an update from Ft McDowell. See Frank's email below.

Nathan Pryor
Government Relations Manager
Maricopa Association of Governments
(602) 254-6300
npryor@azmag.gov

From: Mark Frank [mailto:MFrank@FTMCDOWELL.ORG]
Sent: Monday, April 14, 2014 9:58 AM

To: Nathan Pryor
Cc: Alfonso Rodriguez; Joe Kanovich
Subject: FW: Fort McDowell Yavapai Nation Section of the Draft MAG 208 Plan Point Source Update

Dear Nathan,

I have reviewed the Fort McDowell Yavapai Nation description of the wastewater collection and treatment system. Please note the following updates;

- Population and Flow Projections – the current (2014) population of FMYN is 1,072.
- Existing Wastewater Collection and Treatment – The Fort McDowell Yavapai Nation currently operates a 238,000 gallons
  per day wastewater treatment plant on a site south of the Beeline Highway and west of Fort McDowell Road. A gravity
  sewer system has been constructed to serve commercial, governmental, and residential users. The WWTP (completed in 2003) is a sequential batch reactor with effluent filters and UV disinfection. Effluent is reused on a limited basis to irrigate two eighteen hole golf courses with the remainder evaporated and recharged.
  Solids are aerobically digested, dewatered, and sent to a landfill for disposal.

- Future Wastewater System Development – The WWTP has been constructed for modular expansion as flows increase.
  - The collection system will be completed as funding becomes available.

If you have any questions, please call or email me at mfrank@ftmcdowell.org or 480-789-7163

Regards,

Mark Frank
Acting Environmental Manager
FMYN

P.S. Hi Lindy!

From: Nathan Pryor [mailto:NPryor@azmag.gov]
Sent: Thursday, April 10, 2014 3:24 PM
To: Kate Rosier
Cc: Julie Hoffman; Mark Frank; Alfonso Rodriguez; Lindy Bauer
Subject: RE: Fort McDowell Yavapai Nation Section of the Draft MAG 208 Plan Point Source Update

Kate,

Julie Hoffman and I left you a voice message on this a few minutes ago.

As stated in our conversation this morning, the Draft MAG 208 Water Quality Management Plan Point Source Update will be out for public review and comment starting Friday, April 18, 2014. We have already provided public notice to this effect. Please know that to meet the start date of the public comment period, we need to have the (sizeable) document finalized, printed and distributed by the end of next week. Given the start of the public comment period and the timing of document production, this is why updates/comments were requested to be submitted by Friday, April 11, 2014.

We were recently informed that Carole Klopatek has been out of the office and appreciate the constraints facing Fort McDowell Yavapai Nation in providing updates/comments to the draft plan. Prior drafts had been sent to Ms. Klopatek. We will be happy to assist in explaining the nature of the document, why we are requesting updates from MAG member agencies, and the nature of the updated information that is being requested. We are here to assist the Nation.

Julie and I are ready to assist and can be reached at the MAG main phone number below.

Thank you,
Nathan

Nathan Pryor
Government Relations Manager
Maricopa Association of Governments
(602) 254-6300
npryor@azmag.gov

From: Kate Rosier [mailto:krosier@FTMCDOWELL.ORG]
Sent: Thursday, April 10, 2014 10:58 AM
To: Nathan Pryor
Cc: Julie Hoffman; Mark Frank; Alfonso Rodriguez
Subject: RE: Fort McDowell Yavapai Nation Section of the Draft MAG 208 Plan Point Source Update

Mr. Pryor – We will have the updated information for you by next week. Sorry for this inconvenience. Best, Kate

---

From: Kate Rosier
Sent: Thursday, April 10, 2014 9:27 AM
To: 'Nathan Pryor'
Cc: Julie Hoffman
Subject: RE: Fort McDowell Yavapai Nation Section of the Draft MAG 208 Plan Point Source Update

Thank you! I appreciate your help.

From: Nathan Pryor [mailto:NPryor@azmag.gov]
Sent: Thursday, April 10, 2014 9:19 AM
To: Kate Rosier
Cc: Julie Hoffman
Subject: FW: Fort McDowell Yavapai Nation Section of the Draft MAG 208 Plan Point Source Update

Kate,

Please see the email below and attachments regarding the Draft MAG 208 Water Quality Management Plan.

We are seeking comments/updates on the Ft McDowell portion of the plan from you, or the appropriate staff member, by tomorrow.

Please contact Julie Hoffman or me if you have any questions.

Thank you,
Nathan

Nathan Pryor
Government Relations Manager
Maricopa Association of Governments
(602) 254-6300
npryor@azmag.gov

From: Julie Hoffman
Sent: Thursday, April 10, 2014 9:06 AM
To: Nathan Pryor
Subject: Fort McDowell Yavapai Nation Section of the Draft MAG 208 Plan Point Source Update

Nathan,

The information included in the Fort McDowell Yavapai Nation section of the Draft MAG 208 Water Quality Management Plan Point Source Update is attached. The entire draft document is located on the MAG website at http://www.azmag.gov/Documents/WQAC_2014-03-25_Draft-MAG-208-Water-Quality-Management-Plan-Point-Source-Update.pdf. We would appreciate any comment by tomorrow.

Thanks!

Julie Hoffman
MAG

2.7.5 Fort McDowell Yavapai Nation

The Fort McDowell Yavapai Nation is a member of the Maricopa Association of Governments. The Nation is responsible for planning and development of wastewater systems within its boundaries. The Fort McDowell Yavapai Nation covers approximately 40 square miles and straddles the Verde River from its boundary with the Salt River Pima-Maricopa Indian Community on the south to the northern boundary along Tonto National Forest as shown on Figure 2.29. The western boundary includes the Town of Fountain Hills and McDowell Mountain Regional Park. The eastern boundary is the Tonto National Forest.

Population and Flow Projections. The projected population of the Fort McDowell Community corresponds with MAG Regional Analysis Zone (RAZ) 251. Table 2.41 shows population forecast through the year 2040. Wastewater generation as estimated in the Facility Plan of August 1997 is 1.9 mgd at build-out.

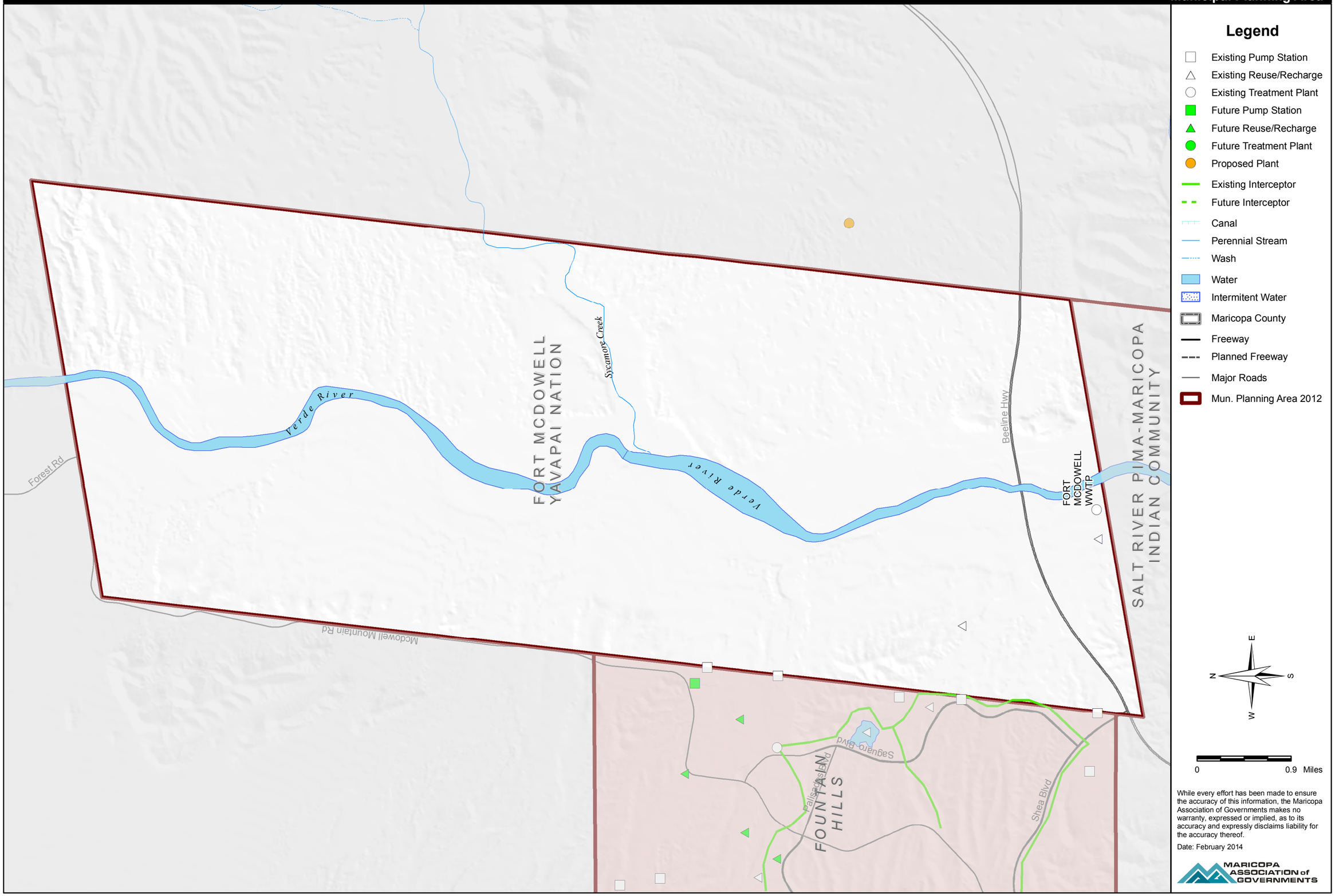
Table 2.41 Fort McDowell Yavapai Nation Population Projections MAG 208 Water Quality Management Plan Update

Year	Population
2010	1,436
2020	1,636
2030	1,824
2040	2,010

Existing Wastewater Collection and Treatment. The Fort McDowell Yavapai Nation currently operates a 238,000 gallons per day wastewater treatment plant on a site south of the Beeline Highway and west of Fort McDowell Road. A gravity sewer system has been constructed to serve commercial, governmental, and residential users. The WWTP (completed in 2003) is a sequential batch reactor with effluent filters and UV disinfection. Effluent is reused on a limited basis to irrigate two 18-hole golf courses with the remainder evaporated and recharged. Solids are aerobically digested, dewatered, and sent to a landfill for disposal.

Future Wastewater System Development. The WWTP has been constructed for modular expansion as flows increase. The collection system will be completed as funding becomes available.

Figure 2.29 Fort McDowell Yavapai Nation Municipal Planning Area



While every effort has been made to ensure the accuracy of this information, the Maricopa Association of Governments makes no warranty, expressed or implied, as to its accuracy and expressly disclaims liability for the accuracy thereof.

Date: February 2014

MARICOPA ASSOCIATION of GOVERNMENTS

Julie Hoffman

From: Kenneth Morgan <Kenneth.Morgan@gilbertaz.gov>
Sent: Tuesday, April 15, 2014 12:40 PM
To: Julie Hoffman
Cc: Mark Horn
Subject: Gilbert 208 Section 4 8 14
Attachments: Gilbert 208 Section 4 8 14.docx

Julie,

I identified a minor edit as referenced in the attached.

Thanks

From the Gilbert Green Team: Please consider the environment before printing this email.

Under Arizona Law, email to and from public entities may be public records subject to release upon request. This message (including any attachments) contains information intended for a specific individual and purpose. If you are not the intended recipient, please notify the sender immediately by either reply email or by telephone and delete this message from your system.

2.5.3 Gilbert

The Town of Gilbert Planning Area, depicted in Figure 2.21, consists of Regional Analysis Zones (RAZ) 311, 312, 318, 319, and 329. The Planning Area is approximately bounded by Baseline Road to the north, the Mesa and Queen Creek Planning Areas to the east, Hunt Highway to the south and the Chandler Planning Area to the west.

Population and Flow Projections. The Town of Gilbert has experienced record growth with a 2010 population surpassing 200,000. Given future development and infrastructure improvement, the Town can expect continued growth in the future. Presently, a majority of the Town's population resides in the northern half of the Planning Area. Although future growth in the south is somewhat controlled by provisions of the San Tan Area Plan, which establishes land use and population densities for a majority of the Planning Area south of Germann Road, pockets throughout the south and west have grown rapidly as new developments draw residents into formerly agricultural regions. Although a few areas, mainly county islands, are still served by septic tanks, a vast majority of the Town is sewered. There are two small segments in the northeast and northwest corners of Gilbert that are currently serviced by the City of Mesa.

This update applies population projections based on the 2013 MAG projections, and a unit wastewater flow of 80 gpcd as used by the Town of Gilbert for planning purposes. The per capita flow figure is generated based on actual flow data from the Town and specific master planning. Table 2.28 depicts population and wastewater flow projections through the planning period.

Table 2.28 Gilbert Population and Flow Projections
MAG 208 Water Quality Management Plan Update

Year	Population	Flow (mgd)
2010	219,491	17.56
2020	267,833	21.43
2030	305,715	24.46
2040	335,753	26.86

Existing Collection System. The existing collection system continues to expand south and east as new developments spread to formerly undeveloped regions of the Planning Area. The current system serves a majority of the area north of Queen Creek Road and west of ~~Recker~~ Power Road. Most of the flows originating in the northern half of the Planning Area are collected in an interceptor on the mid-section line between Guadalupe and Elliot Roads. A majority of the flows from the east are conveyed by gravity.

The Islands, Neely, and Candlewood Lift Stations are responsible for pumping a bulk of the flows from the northwest portion of the Planning Area to the existing wastewater reclamation facility, located on Neely Road approximately one-half mile north of Elliot Road (Neely WRF). The Islands Lift Station, located on the western edge of the Planning Area between Guadalupe and Elliot Roads, pumps flows to the existing Neely WRF via an

18-inch force main. The Neely Lift Station, located on Neely Road at Guadalupe Road, pumps flows to the Neely WRF via a 12-inch force main. The Candlewood Lift Station, located on Cooper Road north of Warner Road, discharges to a 42-inch interceptor along Cooper Road, which ultimately discharges to the Neely WRF.

The Rancho Del Verde Lift Station, located on Ray Road between Cooper and Gilbert Roads, and the Western Skies Lift Station, located south of Warner between Lindsay and Val Vista Roads, assist in transferring flows from several new developments to the Neely WRF. Although neither station acts as a "pumper," both are capable of raising the hydraulic grade line, thereby allowing gravity flow to the treatment facility. The Gilbert Commons Lift Station, located on Gilbert Road, north of Pecos Road, pumps flows from several developments to either the Greenfield Water Reclamation Plant (GWRP) or the Neely WRF via 18-inch and 12-inch force mains. The Crossroads Lift Station, located on Greenfield Road, north of Williams Field Road, pumps flows from the area generally bounded by Pecos Road, Power Road, Elliot Road, and Greenfield Road. This lift station sends flows to the Greenfield WRF via 18-inch and 24-inch force mains. The San Tan Lift Station, located on Higley and Pecos Roads, pumps flows from the San Tan Ranch Development to the GWRP.

Several other small lift stations, including the Spring Meadows, Baseline, and Commerce Lift Stations, deliver flows from several smaller developments in the northern half of the Planning Area to the Neely WRF.

In addition, two major lines were installed in the southern portion of the Planning Area. A large trunk line, which runs along the western portion of the Planning Area, transfers flows from the southwest portion of the Planning Area to the West San Tan Lift Station located near the intersection of Queen Creek and Lindsay Roads. Flows entering this lift station are pumped to the GWRP site. A second new trunk line, which runs from Chandler Road, across Ocotillo Road to Greenfield Road, assists in transferring flows from the southeast portion of the Planning Area to the GWRP site.

The Town of Queen Creek delivers flows from a portion of its Planning Area to the GWRP site via a 24-inch line on Queen Creek Road. The City of Mesa also has the ability to deliver flows to the GWRP site via a 21-inch line, which runs along Germann Road.

Existing Treatment System. The Town's existing wastewater treatment plant, the Neely WRF, is an 11.0 mgd facility located on Neely Road between Guadalupe and Elliot Roads. Unit processes at the facility include biological nutrient removal through the use of oxidation ditches and separate denitrification basins, secondary clarification, filtration, and chlorination. At the start of the year 2011, average influent flow to the WRF was approximately 8 mgd.

Reclaimed water from the Neely WRF is reused in several capacities including irrigation of landscaping, golf courses and agriculture as well as filling of recreational lakes. During the summer months when demand for reclaimed water is high, most or all of the flow from the Neely WRF is distributed directly to reclaimed water users. During this time, very little

water is recharged. However, during winter months, when reclaimed water use is somewhat diminished and production exceeds demand, reclaimed water that cannot be reused directly may be recharged in a Riparian Preserve located southwest of the facility. The Town also operates two recharge wells on its Municipal Center site south of Warner Road and east of Gilbert Road. If desired, reclaimed water from the Neely WRF can also be pumped to a second Riparian Preserve located on the southeast corner of Guadalupe and Greenfield Roads near the Town's Water Treatment Plant. The Town operates three reclaimed water reservoir/pump stations: 1) 1.25 million gallon located on Elliot Road, east of Greenfield Road; 2) 2.0 million gallon located adjacent to the Neely WRF; and, 3) 5.0 million gallon located adjacent to the Greenfield WRP.

Waste sludge from the Neely WRF is currently pumped to the Baseline Road Interceptor (BRI) for treatment at the 91st Avenue WWTP.

Gilbert, Mesa, and Queen Creek partnered to construct the Greenfield Water Reclamation Plant located just west of Greenfield Road, approximately one-half mile north of Queen Creek Road. Mesa is the operating partner of the plant. Unit processes include primary clarification, biological nutrient removal through the use of aeration basins, secondary clarification, filtration, and UV disinfection (with chlorine backup). Solids generated by the plant are handled on-site through the use of thickeners, digesters, and mechanical dewatering. The plant is currently sized at 16 mgd and Gilbert owns 8 mgd of the capacity. At the beginning of calendar year 2011, average influent from Gilbert to the GWRP was approximately 4.5 mgd. Reclaimed water from the GWRP is used in the southern part of Gilbert and recharged at the South Recharge site located at the northeast corner of Higley and Ocotillo Roads. A 5.0 million gallon reservoir/booster station, located adjacent to the GWRP, allows reclaimed water to be distributed to end users throughout the planning area.

Future Collection System. The Town of Gilbert plans to extend its existing collection system to meet projected growth patterns. In keeping with current development trends, most of the near future expansion and improvements will be concentrated in the eastern and southern regions of the wastewater Planning Area.

The Town will continue to work with developers to construct new sewers, which will connect formerly undeveloped regions to the collection system. In addition, the Town plans to construct relief sewers and rehabilitate existing lines in presently developed regions.

Future Treatment System. The next phase of development primarily involves expanding the Greenfield WRP. The next phase of plant expansion is currently scheduled to be complete in ~~2017~~ 2018. Ultimately, the plant will be expanded to treat approximately ~~52~~ 50 mgd (Gilbert - 16 mgd, Mesa ~~-~~ – ~~28~~ 26 mgd, Queen Creek - 8 mgd). The Neely WRF has reached its ultimate capacity of 11.0 mgd.

Future development will also include expansion of the Town's reclaimed water distribution and recharge system. The South Recharge site (northeast corner of Higley and Ocotillo

Roads) will be expanded in 2017, in coordination with the GWRP expansion, and injection wells may be added to increase recharge capacity.

Summary of Proposed Improvements.

Item	Estimated Cost[1]
Sewer Rehabilitation	$1,349,000
Reclaimed Water System Improvements	15,650,000
Lift Station & Force Main Installation	9,940,000
Well Construction	825,000
Greenfield Water Reclamation Plant	
Expansion to 16 mgd Capacity	74,793,000
Total	$102,557,000

[1] All costs are in January 2010 dollars (ENR Construction Cost Index = 6000).

Julie Hoffman

From: randy.gottler@phoenix.gov
Sent: Monday, May 05, 2014 10:04 AM
To: Julie Hoffman
Subject: Fw: MAG 208 Plan Updates
Attachments: MAG 208 Plan 2014.pdf

Julie,
Hate to do this, but several of our consultants picked this up and made comments. I received them the middle of last week and ran them by our engineers/planners who reviewed the document (again) and agreed with the comments provided. See attached email for a few more details. Question for you: Does the plant need to be certified for the new flow rates in order to be included in the 208 plan? If not, we'd like to include the consultant's comments.
Sorry about this...thought our staff had done a thorough review.
Randy

Randy Gottler
Deputy Water Services Director
City of Phoenix Water Services - Environmental Services
2474 S. 22nd Ave.
Phoenix, AZ 85009
Telephone: 602 534-2921
Fax:: 602 534-7151
Email: randy.gottler@phoenix.gov

----- Forwarded by Randy Gottler/WSD/PHX on 05/05/2014 09:52 AM -----

Brandy Kelso/WSD/PHX

05/03/2014 07:34 AM

To Randy Gottler/WSD/PHX@PHXENT,
cc
Subject Re: Fw: MAG 208 Plan UpdatesLink

Hi Randy!
I'm fine with the changes made to page 2-173 regarding Tres Rios. As for the comments on page 2-10 & 11, we purposely left the UP05 stuff as "will be" because the plant has not been certified at the new flow rates (mainly due to the multi-phase issues). But I'm not sure if this matters one way or another.

Thank you,
Brandy A. Kelso, P.E.
Water Services Deputy Director

City of Phoenix Water Services Department
Water Resources and Development Planning
200 W. Washington, 9th Floor
Phoenix, AZ 85003
Phone: 602-495-7676
Fax: 602-495-5843
Email: brandy.kelso@phoenix.gov

Randy Gottler/WSD/PHX

05/01/2014 10:09 AM

To Brandy Kelso/WSD/PHX@PHXENT,
cc
Subject Fw: MAG 208 Plan Updates

Brandy,
In a bit of a hurry on this one since the public hearing is scheduled for 21st of this month. Is your staff okay with the changes noted by B&V? If so, I'll forward to MAG.
Randy

DRAFT

MAG 208 WATER QUALITY MANAGEMENT PLAN
POINT SOURCE UPDATE

APRIL 2014

MARICOPA
ASSOCIATION of
GOVERNMENTS

2.1 CENTRAL AREA

2.1.1 Phoenix

The Planning Area for Phoenix consists of Regional Analysis Zones (RAZ) 203, 205, 206, 216 through 219, 223 through 228, 241 through 246, 259 through 261, 267 through 271, 275, 276, 283 through 287, 296, 304 through 306, 313 and 314, and is depicted on Figure 2.2. The City of Phoenix is the designated wastewater management agency for this area. Phoenix provides wastewater collection and treatment service to almost all of this area. Some low-density areas, including the area in Laveen Village between Carver Mountain and South Mountain and some of the far northern areas, are served by septic tanks.

Population and Flow Projections. Table 2.1 presents the population and flow projections for the Phoenix Municipal Planning Area based on the 2013 MAG population projections and 62 gallons per capita per day (gpcd) unit flow.

Table 2.1 Phoenix Population and Flow Projections MAG 208 Water Quality Management Plan Update

Year	Population	Flow (mgd)
2010	1,600,831	99.0
2020	1,842,691	114.0
2030	2,111,147	131.0
2040	2,378,641	147.0

Existing Collection System. All wastewater generated in Phoenix is currently collected and conveyed to either the 23rd Avenue or 91st Avenue Wastewater Treatment Plants (WWTPs). In general, flows from the central portion of Phoenix are conveyed to the 23rd Avenue WWTP. Flows from north, south, and portions of west Phoenix are collected and transported to the 91st Avenue WWTP, along with wastewater from the other communities belonging to the Multi-City Subregional Operating Group (SROG). The Multi-City SROG members own treatment capacity on the 91st Avenue WWTP under a Joint Exercise of Powers Agreement. The Agreement provides that the City of Phoenix is the lead agency and operates the plant.

Existing Wastewater Treatment. The 91st Avenue and 23rd Avenue Plants currently provide the wastewater treatment for the whole study area. The Cave Creek Water Reclamation Plant (WRP) that was constructed to service areas north of the Central Arizona Project (CAP) Aqueduct or Jomax Road has entered a temporary cessation of operations due to lower than anticipated loadings.

(UPDI)

The 91st Avenue Wastewater Treatment Plant Unified Plant Expansion Phase 1 was completed in 2008 and commissioned in 2009. The total treatment plant capacity was expanded to 205 million gallons per day (mgd), and the Phoenix purchased capacity was

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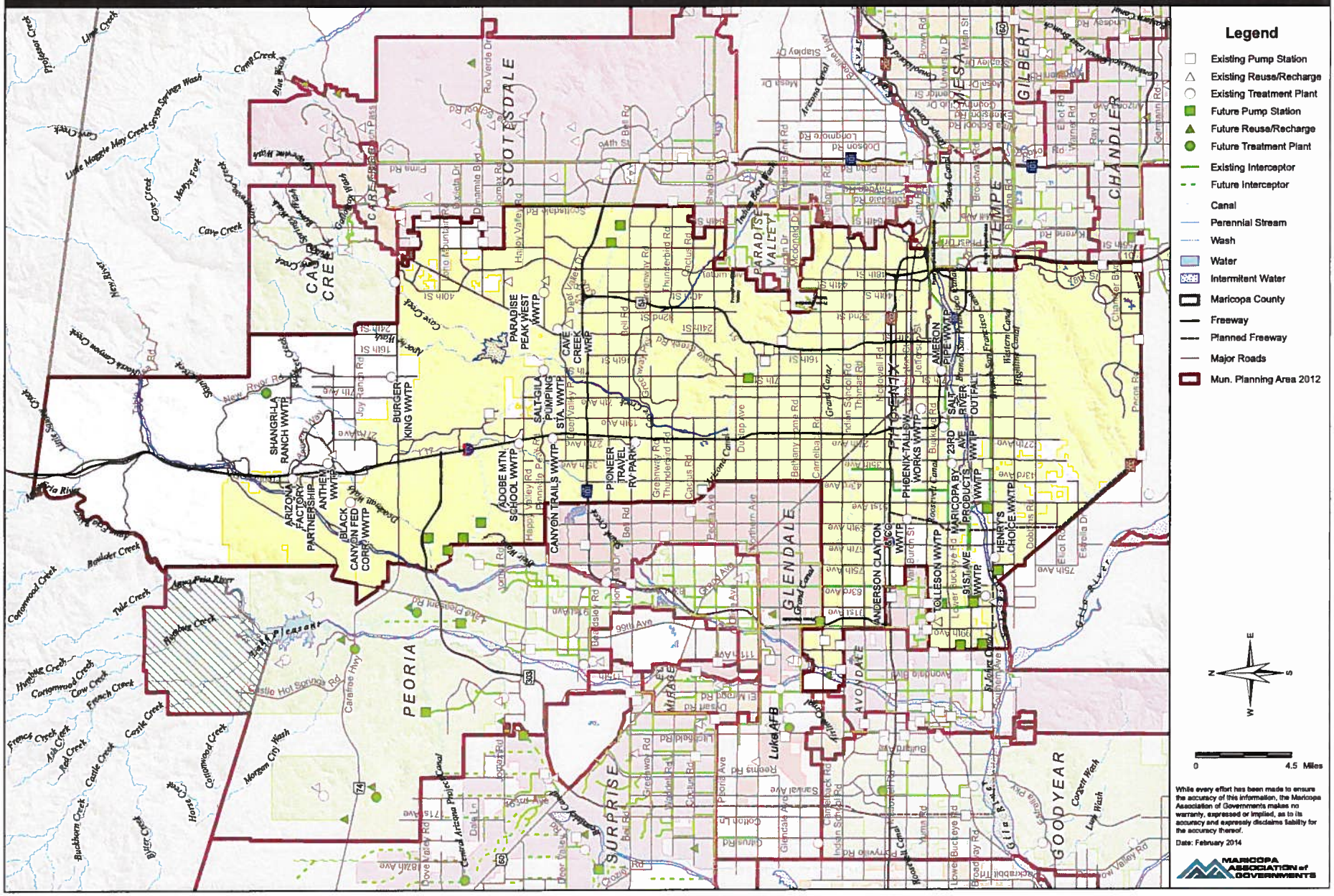
Figure 2.2 Phoenix Municipal Planning Area



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The 91st Avenue Wastewater Treatment Plant Unified Plant Expansion Phase I (UP01) was completed in 2008 and commissioned in 2009. The total treatment plant capacity was expanded to 205 million gallons per day (mgd), and the Phoenix purchased capacity was expanded to 112.9 mgd. The Unified Plant Expansion Phase 2 (UP05) was started in 2009 and completed in 2010. Completion of the Unified Plant Expansion Phase 2 (UP05) expanded the total treatment plant capacity to 230 mgd, and the Phoenix purchased capacity was expanded to 134.8 mgd.

completed in 2010. (UPOS)

expanded to 112.8 mgd. The Unified Plant Expansion Phase 2 was started in 2009 and ~~is currently in progress~~. ~~After the~~ completion of ~~all~~ the Unified Plant Expansion Phase 2 (UPOS) improvement elements, ~~the total treatment plant capacity will be~~ expanded to 230 mgd, and the Phoenix purchased capacity ~~will be~~ was expanded to 134.8 mgd. the total treatment plant capacity

The 91st Avenue WWTP includes the following unit processes: screening, grit removal, primary sedimentation, fine-bubble aeration, secondary clarification, effluent chlorination/dechlorination, and solids treatment with anaerobic sludge digesters. The sludge digestion process is being upgraded to a multiphase process at both the 23rd and 91st Avenue WWTPs. The plant performs secondary treatment using the nitrification/denitrification process. A portion of the effluent from the 91st Avenue WWTP is delivered to the Palo Verde Nuclear Generating Station (PVNGS) under an agreement that ends in 2050. The SROG is obligated to make up to 80,000 acre-feet per year of 91st Avenue WWTP effluent available to PVNGS on an annual basis. Effluent not delivered to PVNGS is discharged to the Salt River for delivery to Buckeye Irrigation Company for reuse. The Tres Rios Flow Regulation Wetlands have been constructed and in operation. Discharge to the Tres Rios Flow Regulating Wetlands began in August 2010. Discharge from the Tres Rios Flow Regulating Wetlands is either to the Salt River or the newly constructed Tres Rios Overbank Wetlands.

The 23rd Avenue WWTP treatment capacity has been expanded and upgraded to 63 mgd. The modified plant performs biological nutrient removal as well as filtration and dechlorination, in addition to the other treatment processes of screening, primary sedimentation, secondary sedimentation, and chlorination plus anaerobic digestion. Effluent from the 23rd Avenue WWTP is discharged to a Roosevelt Irrigation District canal or to the Salt River depending on the irrigation demand.

Residual solids from both the 91st and 23rd Avenue Treatment Plants are stabilized and dewatered, and then removed by a contract hauler from the treatment plants for agricultural land application.

The Cave Creek WRP is an 8 mgd water reclamation plant that has entered a temporary cessation of operations since November 2009 due to lower than anticipated loadings from the service areas north of the CAP Aqueduct. This plant includes the following unit processes: screening, primary sedimentation, nitrification/denitrification, secondary sedimentation, filtration, and UV disinfection. The effluent system includes storage, pumping, and pipelines to enable delivery of effluent to users such as golf courses and parks. Effluent may also be discharged to a wash that is tributary to Cave Creek Wash and recharge to either spreading basins or vadose zone injection wells. The facility is being maintained with the intent of returning to operational status at a future date dependent on loadings. During the cessation, wastewater is being diverted to the 91st Avenue Wastewater Treatment Plant.

No solids processing facilities are included in the facility and all solids are discharged to the plant drain for conveyance to the 91st Avenue WWTP.

Additional small wastewater treatment plants, not operated by the City of Phoenix but within the Phoenix Planning Area, are summarized in Table 2.2.

Table 2.2 Small Wastewater Treatment Plants (Within Phoenix Planning Area) MAG 208 Water Quality Management Plan Update

Facility Name	Design Capacity (gpd)	Process
Paradise Peak West	75,000	--
Arizona Dept. of Corrections - Adobe Mountain School	--	--
Ameron Inc. Pipe Division	--	--
Anderson, Clayton & Co.	--	--
Central Arizona Project - Gila/Salt Pumping Station	5,000	Activated Sludge
Maricopa Byproducts	--	--
Phoenix Tallow Works (Baker Commodities)	30,000	Lagoons
Arizona Factory Shops	50,000	Activated Sludge
Burger King Restaurant	15,000	Activated Sludge
Black Canyon Federal Detention Center	--	--
Henry's Choice	17,000	Facultative Lagoons
Pioneer Travel RV Park	35,000	Activated Sludge
Shangri-La Ranch	20,000	Activated Sludge

Future Wastewater System Development. As underdeveloped areas are urbanized, wastewater collection and treatment service will be extended to those areas. It is planned that areas south of the CAP Aqueduct or Jomax Road will continue to be served by the 23rd and 91st Avenue WWTPs. The remaining area north of either the CAP Aqueduct or Jomax Road (Desert View and North Gateway) will be served by either the Cave Creek WRP or the 91st Avenue Wastewater Treatment Plant. The Cave Creek WRP will be expanded as the Desert View area develops.

Wastewater flow projections (annual average flow in mgd) for each potential treatment plant service area are presented in Table 2.3.

Table 2.3 Phoenix Wastewater Flow Allocation Projections MAG 208 Water Quality Management Plan Update				
Year	Cave Creek WRP[1,2]	23rd Ave. WWTP[1]	91st Ave. WWTP[3]	Total Treated Flow
2010	0.00	32.0	82.0	114.0
2020	TBD	32.0	82.0	114.0
2030	TBD	34.0	97.0	131.0
2040	TBD	35.0	112.0	147.0

[1] Local WRP flow less residual (effluent total).
[2] Phoenix anticipates that the Cave Creek WRP will be off line until at least 2015 at which time the decision to remain off line will be reevaluated. The decision to return the facility to operation is dependent on development and loading from the area.
[3] Annual average daily flows. Includes residuals from WRPs.

Preliminary indications are that the current arrangements for sludge disposal will remain in place for the foreseeable future.

Summary of Proposed Improvements. The City of Phoenix is currently in the process of updating its master plan.

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2.6 MULTI-CITY SROG SUMMARY

The Sub-Regional Operating Group (SROG) was formed by a joint exercise of powers agreement in 1979 (Agreement No. 22699). The SROG is made up of five member communities: cities of Glendale, Mesa, Phoenix, Scottsdale, and Tempe. The Town of Youngtown withdrew from SROG in 1995 and now its flows are treated with Sun City's by EPCOR Water (formerly Arizona American Water Company). The SROG provides wastewater treatment for its member communities at the 91st Avenue Wastewater Treatment Plant. In addition, some communities that are not SROG members discharge various flows into the SROG system. The Town of Gilbert sold its purchased SROG capacity to Mesa in 1981; but continues to discharge sludge to the SROG facilities through the Mesa collection system. The Town of Paradise Valley and Boulders-Carefree are not SROG members, but are served by the cities of Phoenix and Scottsdale and ultimately by SROG facilities. Similarly, the Town of Guadalupe is served by the City of Tempe and ultimately by SROG facilities. The City of Phoenix acts as the lead agency, and acting as permittee or applicant, is responsible for compliance with all environmental permits and federal controls. The City of Phoenix is also responsible as lead agency for the construction, operation, maintenance, and replacement of the 91st Avenue WWTP and appurtenant facilities.

The City of Phoenix also operates the 23rd Avenue WWTP, which serves only the City of Phoenix and is not a SROG facility. Each of the SROG members now own and operate Water Reclamation Facilities which can treat wastewater for local reuse. Solids are discharged from the WRFs for treatment at 91st Avenue WWTP.

The service area includes all of the wastewater service areas of the five member communities. The SROG provides service for most of these areas except for the 23rd Avenue WWTP service area, a few areas served by septic tanks, and flows treated by the member cities' local water reclamation plants. Based on information provided by the SROG cities, Table 2.34 depicts expected annual average flows to 91st Avenue, adjusted for planned local WRPs.

Table 2.34 Projected SROG Service Areas Annual Average Flow, mgd MAG 208 Water Quality Management Plan Update

Community	2010	2020	2030	2040
Phoenix				
Total Flow, mgd	114.0	114.0	131.0	147.0
Local WRP/WWTP Treated	32.0	32.0	34.0	35.0
91st Ave. WWTP Flow, mgd	82.0	82.0	97.0	112.0
Mesa				
Total Flow, mgd	33.5	45.3	58.2	
Local WRP/WWTP Treated	15.7	25.8	36.9	
91st Ave. WWTP Flow, mgd	17.8	19.5	21.3	

Table 2.34 Projected SROG Service Areas Annual Average Flow, mgd MAG 208 Water Quality Management Plan Update				
Community	**2010**	**2020**	**2030**	**2040**
Tempe				
Total Flow, mgd	19.2	20.8	24.0	24.9
Local WRP/WWTP Treated	0.5	0.0	0.0	0.0
91st Ave. WWTP Flow, mgd	18.8	20.8	24.0	24.9
Glendale				
Total Flow, mgd	16.7	19.0	19.6	
Local WRP/WWTP Treated	8.6	10.9	11.5	
91st Ave. WWTP Flow, mgd	8.1	8.1	8.1	
Scottsdale				
Total Flow, mgd	20.55	28.86	37.93	
Local WRP/WWTP Treated	9.91	15.95	21.37	
91st Ave. WWTP Flow, mgd	10.64	12.91	16.56	
Total				
91st Avenue WWTP Flow	137.34	143.31	166.96	

Existing Treatment Facilities. The anticipated capacity allocation among SROG members through 2040 is shown in Table 2.35.

Table 2.35 Sub-Regional Operating Group (SROG) Treatment Capacity Allocations MAG 208 Water Quality Management Plan Update				
	Treatment Capacity Allocations, mgd			
Community	**2010**	**2020**	**2030**	**2040**
Phoenix	112.80	112.80	112.80	112.80
Mesa	29.22	29.22	29.22	29.22
Tempe	29.03	29.03	29.03	29.03
Glendale	13.20	13.20	13.20	13.20
Scottsdale	20.25	20.25	20.25	20.25

Unit processes at the 91st Avenue WWTP include: screening, grit removal, primary sedimentation, fine-bubble aeration, secondary clarification, chlorination, and dechlorination. Secondary treatment uses the nitrification/denitrification process. The 91st Avenue WWTP at present also receives sludge from some non-SROG treatment facilities. The sludge is transported through the interceptor system to the treatment plant and is

therefore mixed in the influent wastewater. The solids treatment at 91st Avenue WWTP is by anaerobic digestion and centrifuge dewatering. The process is being upgraded to multiphase digestion.

(PVNGS)

There are two contracts which provide for reuse of effluent generated at the 91st Avenue WWTP. The Palo Verde Nuclear Generating Station has contract options for 80,000 acre-feet per year of effluent under an agreement that ends in 2050. The City of Phoenix entered into a contract on June 1, 1971 with Buckeye Irrigation Company (BIC) to provide 30,000 acre-feet/year of reclaimed water for a period of forty years. On August 19, 1994 the SROG cities and BIC signed an agreement to extend the contract. When the original contract expired in the year 2011, the new agreement became effective, which consists of a series of five-year options which gives the BIC the right to purchase a specific amount of reclaimed water per calendar year for the option period subject to a minimum of 20,000 acre-feet/year and a maximum of 40,000 acre-feet/year.

Residual solids from the 91st Avenue WWTP are stabilized, dewatered, and then removed for agricultural reuse by a privately owned company.

Future Treatment Facilities. Significant modifications were completed to the 91st Avenue WWTP to conform to evolving regulatory considerations. Future expansions are being planned in consideration of the change in philosophy from each SROG city sending all their wastewater to the 91st Avenue WWTP for treatment to one in which decentralized water reclamation plants treat wastewater closer to points of reuse. For economic and aesthetic reasons, most of these WRPs do not have on-site facilities to treat residuals, but the concentrated residuals are discharged to SROG interceptors for treatment at 91st Avenue.

As a result of this changed philosophy, ownership in the SROG treatment facility is now being expressed in both hydraulic (flow capacity) and loading conditions (Chemical Oxygen Demand [COD] and Total Suspended Solids [TSS]). The current and projected (Year 2040) ownership is shown for each of these parameters in Table 2.36.

Effluent not sent to PVNGS is sent to the Tres Rios Flow Regulating Wetlands. Discharge from the Tres Rios Flow Regulating Wetlands is either to the Salt River or the Tres Rios Overbank Wetlands and then to the Salt River.

Table 2.36 Ownership Parameters MAG 208 Water Quality Management Plan Update			
Community	**Parameter**	**Current**	**Projected 2040**
Phoenix	Hydraulics COD TSS	112.80 mgd 601,000 lbs/day 288,000 lbs/day	112.80 mgd 601,000 lbs/day 288,000 lbs/day
Mesa	Hydraulics COD TSS	29.22 mgd 160,000 lbs/day 88,000 lbs/day	29.22 mgd 160,000 lbs/day 88,000 lbs/day
Tempe	Hydraulics COD TSS	29.03 mgd 207,000 lbs/day 86,000 lbs/day	29.03 mgd 207,000 lbs/day 86,000 lbs/day
Glendale	Hydraulics COD TSS	13.20 mgd 103,000 lbs/day 61,600 lbs/day	13.20 mgd 103,000 lbs/day 61,600 lbs/day
Scottsdale	Hydraulics COD TSS	20.25 mgd 115,000 lbs/day 88,000 lbs/day	20.25 mgd 115,000 lbs/day 88,000 lbs/day
Total	Hydraulics COD TSS	204.50 mgd 1,186,000 lbs/day 611,600 lbs/day	204.50 mgd 1,186,000 lbs/day 611,600 lbs/day