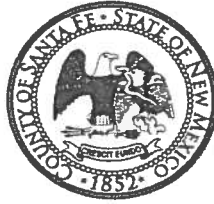


NO PACKET MATERIAL
FOR THIS ITEM

Daniel "Danny" Mayfield
Commissioner, District 1

Miguel M. Chavez
Commissioner, District 2

Robert A. Anaya
Commissioner, District 3



Kathy Holian
Commissioner, District 4

Liz Stefanics
Commissioner, District 5

Katherine Miller
County Manager

MEMORANDUM

DATE: *FEBRUARY 12, 2013*

TO: *BOARD OF COUNTY COMMISSIONERS*

FROM: *RM for*
ADAM LEIGLAND, PUBLIC WORKS DEPARTMENT DIRECTOR

VIA: *KATHERINE MILLER, COUNTY MANAGER jlm 5.13*

ITEM AND ISSUE: *BCC MEETING FEBRUARY 12, 2013 REQUEST REVIEW AND COMMENT OF CITY OF SANTA FE RECLAIMED WASTEWATER RESOURCE DRAFT PLAN (PUBLIC WORKS, ADAM LEIGLAND)*

BACKGROUND AND SUMMARY:

Currently there is not enough reclaimed wastewater produced from the City of Santa Fe Wastewater Treatment Plant to meet the peak summer irrigation needs. The City of Santa Fe began the process of updating the 1998 Treated Effluent Management Plan (TEMP), which identifies priorities of reclaimed wastewater use, in May of 2011. A task force comprised of representatives from the Santa Fe Watershed Association, La Bajada Community, Jemez y Sangre Regional Water Council, Santa Fe County, City of Santa Fe and private citizens was formed to develop a methodology to prioritize existing and future uses of reclaimed wastewater. To this end the Draft Reclaimed Wastewater Resource Plan was compiled and is presented for consideration.

In this planning process ranking criteria was flushed out by the group and categorized into four overarching themes to 1. Ensure Community Acceptability 2. Improve Water Supply Reliability 3. Protect the Environment and 4. Manage Costs. Further description the ranking process can be found in Chapter 6 of the plan. The criteria was scored using a weighted grid by elected officials, the task force and members of the public to measure the importance of these themes. Protecting the environment received the highest value followed by water supply reliability, cost and lastly community acceptability.

Based on group discussion and public input fifteen current and proposed uses for reclaimed wastewater were identified and ranked based on how well they fit the criteria. The following table is a summary of how these uses ranked, a description of how water will be used, which commissioner district this use will occur and an estimate of the quantity of reclaimed water use per year.

| Rank | Reclaimed Water User or Use | Description of Reclaimed Wastewater Use | Com. Dist | Annual Use of Recl. Water |
|---|---|--|-----------|---------------------------|
| 1 | Buckman Well Permit Compliance | Use reclaimed wastewater to offset impacts to springs due to pumping from the Buckman Well Field. | 3 | 100 acre-feet |
| 2 | Future Water Supply | Use of reclaimed wastewater to supplement potable water supply via return flow, recharge or treatment. | All | 2,200 acre-feet |
| 3 | Municipal Recreation Complex (MRC) | Reclaimed wastewater is used to irrigate fields for baseball, soccer, football, rugby, and other recreation. | 2 | 140 acre-feet |
| 4 | Southwest Activity Node (SWAN) Park | Planned park will irrigate a natural-grass field for soccer, football, rugby, lacrosse and ultimate frisbee. | 5 | 57 acre-feet |
| 5 | New Mexico Department of Game & Fish | Reclaimed wastewater is used for a small pond and native vegetation for onsite wildlife educational center. | 2 | 6 acre-feet |
| 6 | On-demand Reclaimed Water Sales | Reclaimed wastewater is sold at the treatment plant for construction, dust control and other similar uses. | 3 | 95 acre-feet |
| 7 | Caja del Rio Landfill | Reclaimed wastewater is used for dust control related to landfill operation. | 2 | 12 acre-feet |
| 8 | Southwest Irrigated Parks | City of Santa Fe plans use excess capacity of reclaimed wastewater line designated to serve the SWAN Park to irrigate nearby public facilities. | 5 | 126 acre-feet |
| 9 | Marty Sanchez Links de Santa Fe Golf Course | Reclaimed wastewater is used exclusively to irrigate the public golf course and other facility landscaping. | 2 | 390 acre-feet |
| 10 | Downstream Santa Fe River | Reclaimed wastewater not sold or used for other purposes is discharged to the Santa Fe River where it is available for irrigation. When water is available during the irrigation season land owners in La Cieneguilla, El Cañon, and the Village of La Bajada apply water to about 100 acres of land. The amount of water released by the City of Santa Fe is not based on a policy directive or regulatory requirement. | 3 | 1,843 |
| 11 | Santa Fe Downs | Reclaimed wastewater is used for irrigating the race track in field and trees other facility landscaping. | 3 | 120 acre-feet |
| 12 | USFS Livestock Watering | Reclaimed wastewater fills stock tanks on the Caja del Rio for livestock and wildlife purposes. | 2 | 3 acre-feet |
| 13 | Upstream Santa Fe River | Pump reclaimed wastewater from the WWTP upstream to a currently unspecified point and discharging to the Santa Fe River. This option would create an additional 1 to 3 miles of "living" river reach. | 2 | 543 acre-feet |
| 14 | Santa Fe Equestrian Center | The irrigated fields are used for the horse facility and also rented by local sport clubs. Currently the fields are irrigated with groundwater from the Hagerman well but previously use reclaimed water. | 3 | 126 acre-feet |
| 15 | Santa Fe Country Club Golf Course | Reclaimed Water is used to irrigate the semi-private golf course. | 5 | 400 acre-feet |
| Total Annual Volume of Reclaimed Water = 6,161 acre-feet | | | | |

Several strategies and associated implementation actions are recommended in this plan to meet the prioritized uses of reclaimed wastewater and are described in chapter 8 of this report. This prioritization and implementation strategies represent key policy decisions on the allocation of reclaimed water.

NEXT STEPS AND SCHEDULE:

March 2013 – City of Santa Fe will seek final approval of Reclaimed Water Reuse Plan from Public Utility Commission, City Council and the Board of County Commissioners.

April 2013 – Use Water Trust Board grant funds to purchase measuring equipment to better understand the amount of water necessary to meet the needs for downstream Santa Fe River irrigators. Coordinate with the city to implement recommended actions.

ACTION REQUESTED:

Staff is seeking feedback on the Draft Reclaimed Wastewater Resource Plan and policy decisions embedded within the document. Specifically does the proposed allocation of reclaimed water by the Reclaimed Wastewater Advisory Task Force reflect the direction of the Board of County Commissioners.

REPORT



City of Santa Fe

Reclaimed Wastewater Resource Plan

December, 2012





Prepared by:

Claudia Borchert¹, Water Resources Coordinator

and

The Reclaimed Wastewater Working Group: Michael Crawford, Neva Van Peski, Charlie Nylander, Jerry Lowance, David Harrington, Felicity Broennan, Karen Torres², Rick Carpenter¹, Kathleen Garcia¹, Brian Drypolcher¹, John Allen¹, Robert Wood¹, Bryan Romero¹, and Gretel Follingstad¹

1 City of Santa Fe

2 Santa Fe County

Acknowledgments

The authors would like to thank the insightful input provided to this process by the public who attended at the December 1, 2011 public meeting, by the participants of the weighted comparison exercise, and the reviewers of the report: Brian Snyder and Dale Lyons.

Photo credits:

Cover Page:



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Appendix B: 2008-2011 Reclaimed Wastewater Use Data

Appendix C: Reclaimed Wastewater Availability Calculations

Appendix D: List of All Options Considered

Process/Approach

Appendix E: Letters, Resolutions, and House Memorial Pertinent to the Downstream Santa Fe River Option

Appendix F: Forced Comparison Exercise

Appendix G: Non-weighted and Weighted Scores

Public and Stakeholder Involvement

Working Group Members

Public Meetings

Presentations

Feedback



List of Abbreviations

af = acre-feet (equivalent to 325,851 gallons)
af/mo = acre-feet per month
af/yr = acre-feet per year
BMP = best management practice
City = City of Santa Fe
County = Santa Fe County
gpdc = gallons per capita per day
LRWSP = City of Santa Fe's Long Range Water Supply Plan (2008)
mg = million gallons
mg/mo = million gallons per month
mg/yr = million gallons per year
NMED = New Mexico Environment Department
OSE = New Mexico Office of the State Engineer
RW = reclaimed wastewater
SFWA = Santa Fe Watershed Association
SJC = San Juan-Chama Project
SWQB = Surface Water Quality Bureau
TEMP = City of Santa Fe Treated Effluent Management Plan (1998)
WWD = City of Santa Fe Wastewater Division



Executive Summary

Reclaimed wastewater (RW) is a vital water resource and helps the City of Santa Fe meet its current water supplies needs. It also may play a critical role in meeting future potable water supply needs. The need for this Reclaimed Wastewater Resource Plan (RWRP) arises from the circumstance that currently **not enough RW is produced during the peak summer irrigation months to meet all desired uses**. This shortfall will be exacerbated in the future, if the City decides to provide RW to anticipated uses that are not current users. To reach this conclusion, broad-brushed assumptions were made about the amount of RW 'needed' for the Santa Fe River. Not only have the Santa Fe River water rights not been adjudicated, the objectives for the river flows are ill-defined, the river system flow dynamics are poorly quantified, and the conditions of the river are continually changing in large part because of beaver activity.

Since the adoption of the previous RW plan (the Treated Effluent Management Plan, TEMP) in 1998, the quantity of available RW has been reduced by 29% because of the City's comprehensive indoor water conservation programs (Figure 2) at the same time that RW use has more than doubled (Figure 2). Based on the City's average production of 1,838 million gallons per year (5,640 acre-foot/year) over the past five years, this RWRP assumes that 1,825 mg/yr (5,600 af/yr) and 152 mg/mo (467 af/mo) of RW is available (Section 3) at a steady daily and monthly rate.

This RWRP considers the City's RW needs currently and through the 2020s. RW availability use is projected for a 40-year period. The roadmap of implementation actions will require multiple years to realize, depending upon available resources. However, the methodology used within this plan can be applied in the future when water resource circumstances arise that were not contemplated herein; as such, the plan has been constructed as a living document.

The RW use options considered in this analysis include current uses: direct sale for dust control and other construction purposes; irrigation of municipal recreational fields at the Municipal Recreational Complex (MRC) and the infield at Santa Fe Downs; irrigation of the Marty Sanchez Links de Santa Fe and the Santa Fe Country Club golf courses; dust control at the regional landfill; watering livestock on the Caja del Rio; irrigation of the education-scape at the New Mexico Game and Fish facility; and for Santa Fe River flows downstream of the City's wastewater treatment plant to support the ecosystem and local agriculture (Section 4). The analysis also includes potential future uses: irrigation of the turf at the Santa Fe Equestrian Center (also a previous use); irrigation of the Southwest Area Node Park; irrigation of turf at schools, the library and other open space along the Southwest Sector effluent pipeline; offsetting the surface water depletions in the La Cienega area caused by the City's pumping of the Buckman well field; piping RW upstream to the Santa Fe River; and future potable water supply (Section 4).

For this analysis, an annual, monthly and maximum peak daily flow budget for all of the RW uses was determined, either based on past usage, contracts, requests, or estimates (Section 4). The options were ranked according to criteria and methodology (Section 5) approved in May 2012, by the Governing Body. Using the ranking methodology and then prioritizing uses that are not discretionary, the options order as follows (the first three retain the same ranking,



because no distinction is made within these uses required by permits or contracts):

1. Buckman Well Field Permit Compliance- 33 mg/yr; 100 af/yr
1. US Forest Service Livestock Water – 1 mg/yr; 4 af/yr
1. Santa Fe Country Club Golf Course- 130 mg/yr; 400 af/yr
4. Municipal Recreation Complex – 46 mg/yr; 140 af/yr
5. On demand Sales for Dust Control, Construction, etc – 31 mg/yr; 95 af/yr
6. Dust Control at Regional Landfill – 4 mg/yr; 12 af/yr
7. Marty Sanchez Links de Santa Fe Golf Course – 127 mg/yr; 390 af/yr
8. Recreational Infield at Santa Fe Downs – 39 mg/yr; 120 af/yr
9. Future Potable Water Supply – approximately 717 mg/yr; 2,200 af/yr
10. Southwest Area Node Park - 19 mg/yr; 57 af/yr
11. New Mexico Game and Fish Educational Landscape – 2 mg/yr; 5 af/yr
12. Southwest Area Irrigated Parks and Open Space – 41 mg/yr; 126 af/yr
13. Downstream Santa Fe River – 600 mg/yr; 1,843 af/yr
14. Upstream Santa Fe River – 177 mg/yr; 543 af/yr
15. Santa Fe Equestrian Center – 41 mg/yr; 127 af/yr

**** *Note: The presented RW budgets are subject to verification*

These option rankings and their monthly RW flow budgets were then compared to the available RW (Section 6) to see if all or only some of the RW needs could be met. The ranking was performed in three different time frames - 'current', 'near-future', and 2020s - so that only those projects relevant to the different timeframes were included within them (Section 6); some RW projects, for example, will not be shovel-ready for five years; others no earlier than ten years. The same ranking method used herein can be used in the future, should new RW alternatives not considered herein emerge and need to be compared to those evaluated herein.

This analysis showed that all but two of the 'current' RW options can be met with the available RW at this time (Figure 9); the exception is that there are insufficient flows to meet the Downstream Santa Fe River alternative estimated three mg/d target flows in June and that insufficient RW exists to meet the Santa Fe Equestrian Center RW requests in May, June and July. In the near future (approximately 2018), the shortfall in RW will be even greater: using the Plan's criteria and ranking method, the Downstream Santa Fe River, the Santa Fe Equestrian Center, and the Upstream Santa Fe River option do not have adequate supply during the summer months.

By the 2020s, when the infrastructure and permits to use RW for potable supply may be ready, no RW is available for the SF Equestrian Center or the Upstream Santa Fe River, and there continues to be insufficient RW to meet the June target flows of three mg/d for the Downstream Santa Fe River. By the 2020s, using the RW that is not needed during the irrigation season, the Plan calculates that approximately 717 mg/yr (2,200 af/yr) of RW will be available for potable supply.

RW is a valued resource. This plan reiterates the recommendation of the 2003 Wastewater Reuse Advisory Task Force that all the users of the RW, municipal, non-municipal, and commercial facilities alike, pay for their RW use (Section 8.2). As a result, all RW users are



treated equitably and RW users have incentive to use the resource more efficiently. Additionally, the costs associated with using the RW resource shifts to those that benefit from the RW use (e.g. sport recreationalists, golfers) and the RW becomes a municipal asset that can help pay for wastewater treatment and/or to implement strategies identified in this plan.

The above ground use of the RW is currently regulated by the New Mexico Environment Department (NMED) through discharge permits. The City's wastewater treatment plant produces Class 1B wastewater, as defined by the NMED Ground Water Quality Bureau Guidance: Above Ground Use of Reclaimed Domestic Wastewater, which can be used for irrigating turf provided that public physical exposure to RW is avoided through access controls, application methods, and setback distances. While the requirements set forth in this guidance document are considered protective of public health and the environment, the water quality standards and requirements may change in the future at which time treatment processes may need to be added or enhanced. Although the current regulations provide safeguards, inappropriate use of RW may result in exposure risk.

To guide current and future decision-making regarding RW, this RWRP identifies the following strategies (Section 8), grouped into water supply, economic, water quality, operational/management, stewardship, and green themes. Section 8 also lists proposed implementing actions associated with each strategy.

- Water Supply: ➤ Use RW as a non-potable water supply.
- Use RW to meet Buc kman Wells permit offset requirements.
 - Use RW to meet some of the City's future potable water needs.
 - Measure RW production and use.
- Economic: ➤ Value RW as a municipal asset.
- Use RW to generate revenue.
 - Seek financial assistance to implement recommendations of this plan.
- Water Quality: ➤ Produce high quality RW.
- Minimize the public health risk in land application of RW.
- Operational: ➤ Optimize existing RW delivery capacity.
- Develop necessary and equitable contracts, resolutions, and ordinances.
 - Determine shortage sharing and emergency guidelines.
 - Build a RW reserve into RW allocation.
- Stewardship: ➤ Provide adequate flows to the Santa Fe River.
- Collaborate and coordinate with downstream agricultural communities and other stakeholders.
- Green: ➤ Use RW efficiently.
- Use low or renewable energy sources for RW transmission and distribution.
 - Build resiliency and adaptation into RW planning and management.



1 Introduction

In the arid Southwest, generally, and in Santa Fe specifically, the use of all available water resources, including reclaimed wastewater (RW) is critical and necessary; it is, in fact, an inherent principle of sound integrated water resource management. For decades the City's wastewater treatment plant has served as a bulk supplier of RW. RW is currently used for irrigation of turf at golf courses and recreational playing fields, watering of educational landscaping, construction and dust control, and livestock water. Figure 1 identifies the quantities of RW, in million gallons used by current users; note that some uses are so small that they do not appear in the graph. The blue numbered circles in Figure 2 show the locations of current use. Two percent of the City's RW is sold and thereby offsets the cost of wastewater treatment. This effort, the Reclaimed Wastewater Resource Plan (RWRP) recognizes that not enough RW is produced, especially during the summer months, to meet all needs and, hence, allocates the limited RW resource according to current conditions and governing body priorities.

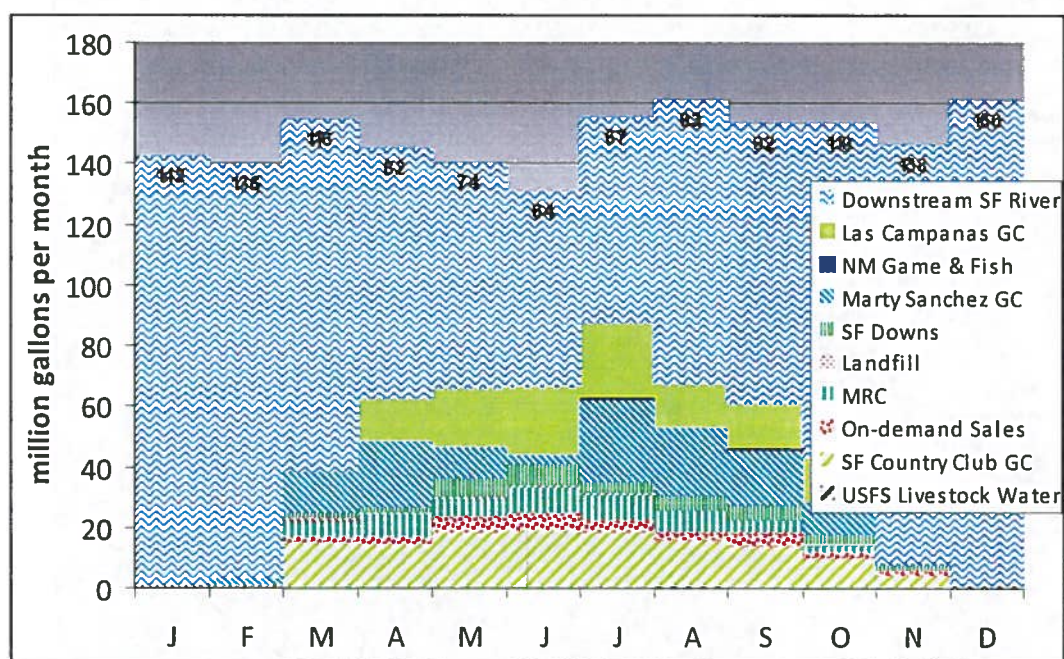


Figure 1. 2011 Reclaimed Wastewater Monthly Use

The RWRP determines the current RW volume available for non-potable reuse; estimates future RW availability; identifies current and potential future options for RW use; develops and applies a methodology and criteria to rank the options; determines a roadmap on how to use RW today and in the foreseeable future; recognizes the economic value of RW; incorporates RW quality considerations in present and future planning; and delineates RW use strategies and resulting



Reclaimed Wastewater Use Options, 2012

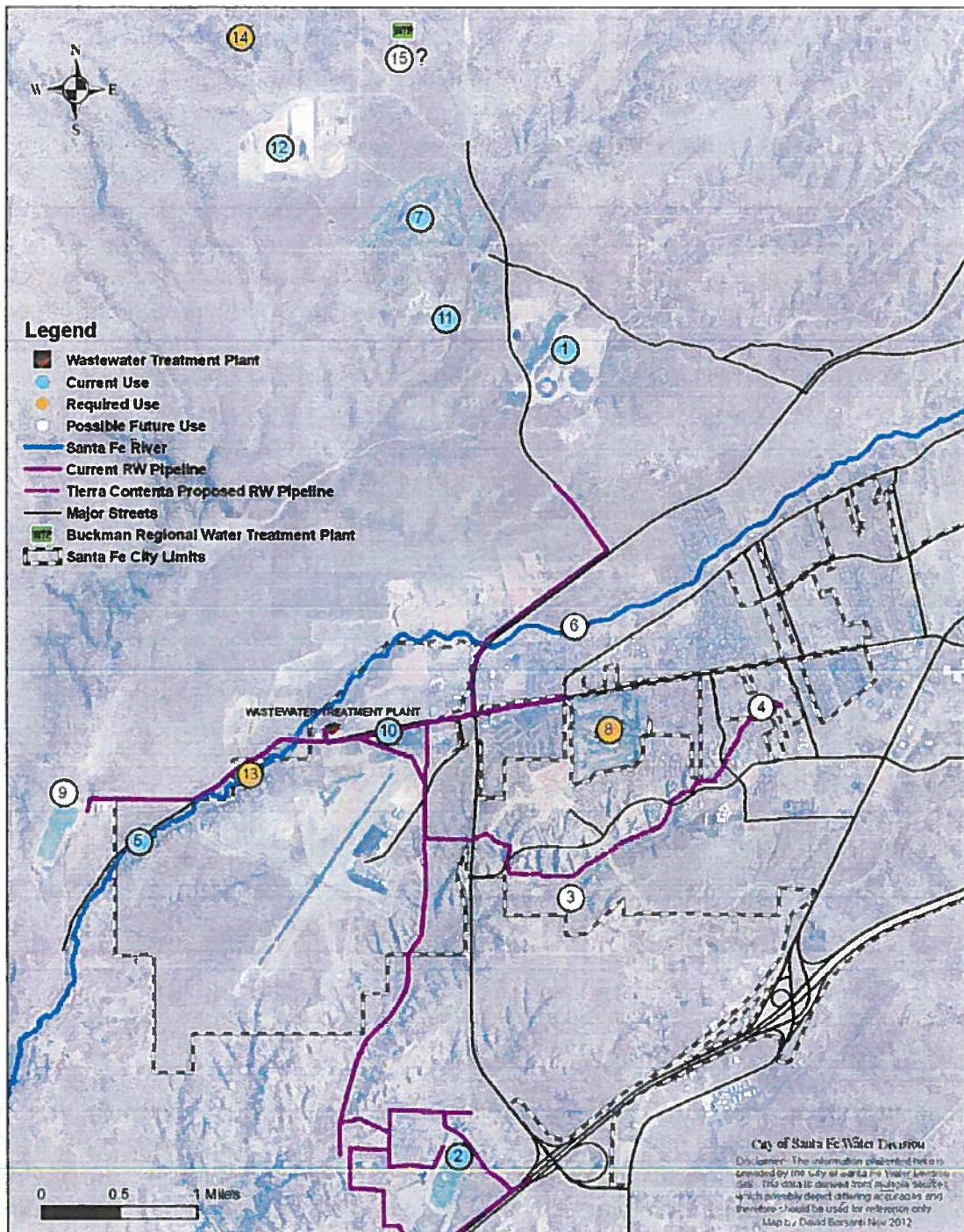


Figure 2. Location of Reclaimed Wastewater Uses- blue circles indicate current uses, orange circles indicate required uses and white circles indicate potential future uses.



implementing actions. Some of the sections or appendices in this report closely track the purposes above; however, some topics may be dispersed throughout the document.

The Plan is the product of a collaborative effort of a diverse group of dedicated, diverse, community stakeholders, who have met monthly for the past year to understand, evaluate and recommend actions with respect to the City's RW. The RW options considered herein were discussed and evaluated by working group members. The strategies presented herein evolved from the group's technical discussions. Organizations represented, officially and unofficially, include: Santa Fe County, the City's Wastewater Division, the City's Park and Open Space Division (river and golf course staff), the City's Water Division staff, the Wastewater Reuse Advisory Task Force (WRATF), the La Bajada irrigation community, Santa Fe Watershed Association, Jemez y Sangre Regional Water Council, Espanola Basin Regional Issues Forum, The Club at Las Campanas, and civil engineers.

Perhaps the single driver for the reevaluation in this Plan is the increase in RW use, especially during the summer months, compared to a decrease in RW production. In 1997 a total of 2,300

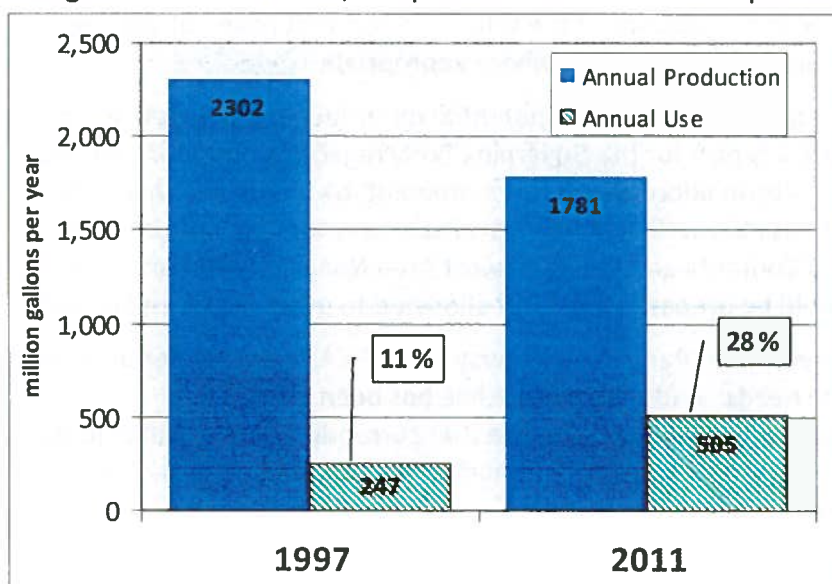


Figure 3. Comparison of Annual Reclaimed Wastewater Use: 1997 and 2011

million gallons (7,140 af) was treated at the WWTP and of that volume only 247 million gallons (750 af), or less than 11 percent, was used for turf irrigation (Figure 2). In contrast, in 2011 a total of 1,781 million gallons (5,600 af) of wastewater was treated and 505 million gallons (1,535 af), or roughly 28 percent, was reused for non-potable uses. The vast

majority (73%) of RW continues to be discharged to the Santa Fe River,

where it supports the riparian ecosystem and, seasonally, agriculture in the La Cienegilla and La Bajada areas. It is notable that Santa Fe's indoor conservation efforts such as installing low flow toilets and water efficient appliances, or grey water harvesting has reduced the amount of available RW. For instance, the 1997 per capita water consumption was 170 gallons per capita day (gpcd) and today's rate is 107 gpcd, which results in much less RW available today.

1.1 Previous Studies and Related Efforts

Recognizing the important role that RW plays in meeting water demands, the City hired Scalon



and Associates to analyze RW use in 1981 and 1984. Both studies, the Wastewater Reuse Study for Santa Fe, New Mexico and the Effluent Irrigation and Return Flow Credit Study determined that the unit cost to use RW for irrigation of parks and cemeteries in town was higher than simply continuing to use potable water (CDM, 1998).

In 1997 the City's contracted with Camp Dresser & McKee (CDM) and Lee Wilson and Associates to reconsider and prioritize the City treated effluent uses. The TEMP, approved in May of 1998, coincided with the improvements at the WWTP that included tertiary filtration and UV disinfection.

In 2003, as the City negotiated a settlement involving RW with Las Campanas, the City Council convened a Task Force in 2003 to review and advise on RW agreements and make recommendations to the Public Utilities Committee and the City Council. The Wastewater Reuse Advisory Task Force (WRATF) reexamined the RW contracts and recommended shorter contract terms, establishing RW flow budgets, and more clearly defined RW obligations. A number of the Task Force recommendations have been since been addressed while others have not been implemented. The recommendations of the WRATF report that have not yet been implemented are being incorporated into this Plan, where appropriate.

City Resolution 2006-64 directs staff to "analyze the potential for effluent lines to provide water to City parks ..." and "to prepare a report for the Governing Body regarding plans for effluent lines." This plan takes the first step in addresses that requirement, by identifying that under the allocation priorities within this Plan sufficient RW is available only for the "purple" pipeline currently planned for the Tierra Contenta and the Southwest Area Node (SWAN) Park. Plans for additional "purple" pipeline could be prepared if the RW allocated to other uses is redirected.

Efforts to pipe RW to the planned SWAN Park are underway. The SWAN park master plan relies entirely on RW for it's irrigation needs. A RW purple pipeline has been designed to approximately the same capacity as the "purple" pipeline that currently provides water to the Marty Sanchez Links de Santa Fe golf course and the Municipal Recreation Complex. The City is seeking a funding to build the pipeline.

1.2 Terminology

A note about terminology: previous efforts used the term **treated effluent** to describe the water produced by the City's WWTP. In recognition of the value of the water produced, the wastewater industry favors the term 'reclaimed wastewater'. Thus, this terminology has been adopted for this plan. The term 'reclaimed wastewater' more adeptly describes a product that begins as a waste product, and through extensive primary, secondary and tertiary treatment and disinfection, results in a product that can be beneficially reused.

2 Management, Production, Regulations, and Risks

RW is recycled wastewater that has been treated to meet specific water quality criteria, in part, with the intent of being reused for beneficial purposes. In Santa Fe, RW is produced from the collection and treatment of wastewater (sewage) from homes, businesses, and industry that is



then treated at the City's wastewater treatment plant (WWTP) located off Airport Road and adjacent to the Santa Fe River. The wastewater is treated by a combination of primary sedimentation, secondary biological treatment, and tertiary multi-media filtration before being disinfected with ultraviolet (UV) disinfection. On an annual average basis, about 60 percent of the potable water delivered to Santa Fe residences and businesses is collected as wastewater, the other 40 percent is consumed. Currently about 5 million gallons per day (mg/d) of wastewater is treated at the City's WWTP.

2.1 Management of Reclaimed Wastewater

The WWD is responsible for the implementation and management of the RW use program. As a bulk provider of RW, the WDD responsibilities include: providing a finished RW product that is in compliance with state regulations; coordinating the use of RW among users; gathering metering information; where appropriate, billing RW users; producing the use information required under the City's discharge plan; maintaining the WWTP effluent discharge flow meter to the Santa Fe River, secures short-term contracts; and informs decision makers on the status of the RW program. In many ways WWD staff act as the mayor domo of RW. The WDD is not responsible for maintaining distribution systems and pumping stations, or for the operation and maintenance, and the respective O&M costs, associated with the delivery of RW.

During the irrigation season, WWD staff determines a schedule whereby different users can withdraw RW. RW is diverted from the outfall channel after the RW is treated via tertiary treatment and UV disinfection. RW is metered as it enters the six primary distribution lines that leave the WWTP: SF Country Club GC, SF Downs, the pipeline to the on-demand stand pipe on the east end of the property, the northern purple pipeline (MRC, Marty Sanchez GC, Landfill, etc), Las Campanas via a 2 MG storage tank (not currently in use), and SF Equestrian Center (not currently in use). The pumping equipment and the meters are housed in the small buildings on either side of the canal in the photo above. The RW flows that are discharged to the Santa Fe River are measured via an ultrasonic level recorder at the effluent Parshall flume gage that records depth and flow every 15 minutes.



Figure 4. Reclaimed Wastewater Channel and Users Pumphouses

In addition to the inflow metering, the RW is submetered by various entities. The SF Country club meters the movement of RW from one storage pond to the other and the amount of RW that is land applied. SF Downs meters the water that is used for landscape irrigation that is



beyond the quantity needed for infield turf grass irrigation. The water exiting the MRC pond is metered as it is applied to the MRC recreational fields. RW is metered as it is distributed among the storage ponds at the Marty Sanchez GC and at the places where the NM Game & Fish and the Landfill divert water. The Landfill measures the RW it delivers to the USFS livestock watering pipeline. The WDD maintains this flow metering data and will occasionally conduct a flow balance to confirm that the metering data appears reasonable and correct. [Is the flow balance within reason or are certain meters suspect and need refinement?]

All of the RW distribution infrastructure, beginning with the meters [Are the meters the responsibility of the WDD or users? Who collects and monitors the RW flows?] and pumping stations shown in the photograph above, are maintained by the RW users.

To comply with its National Pollutant Discharge Elimination System (NPDES) permit, the WWD must report the quantity and quality of the water discharged to the Santa Fe River and the quantity and quality of RW that is distributed and land applied [Is this an NPDES requirement or a separate permit?]. The WWD receives reports from all the entities that land apply RW and includes those numbers to the state and federal regulatory agencies.

Currently, the WWD notifies the RW users if RW is not of sufficient quality for land application and denies delivery of RW under those situations. The WWD does not currently have a protocol or a list of priorities by which the RW users receive RW under shortage scenarios during critical summer months.

2.2 Santa Fe's Reclaimed Wastewater Reuse Quality

The City's wastewater treatment plant produces and discharges RW in compliance with its USEPA National Discharge Elimination System (NPDES) permit and NMED GWB discharge permit. The effluent from the Santa Fe WWTP also meets the Class 1B standards for RW reuse. The standards that must be met for discharging wastewater under the City's NPDES permit and NMED DP vary slightly from regulations that govern RW use (Table 1).

Table 1

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

The RW quality from the Santa Fe WWTP consistently and reliably meets the discharge requirements for biochemical oxygen demand (BOD5), total suspended solids (TSS). There have been rare occasions when the fecal coliform standard of 200 colonies per 100 ml of sample has been exceeded due to inefficient disinfection. In these instances it has been necessary to cease the distribution of RW to the end users until proper disinfection is achieved and the fecal coliform levels drop to below the 200 colonies/100 ml level. The USEPA guidelines suggest that a chlorine residual of greater than 1 mg/l be provided in RW to be used in areas where public exposure is likely to occur. Santa Fe switched from disinfection from chlorine to the current UV disinfection in 1995.



2.3 Reclaimed Wastewater Use Regulations

There are currently no federal regulations specific to RW use. State regulations for RW are not uniform across the country. In New Mexico, as well as most states, RW regulations or guidelines are based on impact of treated water on the receiving environment, not rigorous risk assessment methodology. The United States Environmental Protection Agency (USEPA) has published suggested guidelines for RW use that are based in part on a review and evaluation of existing state regulations and guidelines, but not on risk assessments.

State guidelines for RW have been developed by the New Mexico Environment Department (NMED) and are summarized in the "NMED Ground Water Quality Bureau Guidance: Above Ground Use of Reclaimed Domestic Wastewater (2007)". The guidance document identifies four classes of RW (Class 1A, Class 1B, Class 2 and Class 3) based on the RW quality and the likelihood of public exposure. The Class 1B designation requires, for example, that irrigation occurs at times when public exposure is unlikely and 100-foot setbacks from dwelling units or occupied establishments must be maintained.

2.4 Inherent Risks of Using Reclaimed Wastewater

Municipal wastewater contains a wide range of biological and chemical compounds, some of which can be harmful to public health and ecosystems if not properly treated. It should therefore be recognized that it is possible for RW to pose a risk due to changes in influent wastewater quality, equipment malfunctions, or operator error. This is particularly true relative to bacteriological exposure from pathogens in the wastewater.

As RW use expands across the United States, it is likely that the USEPA will eventually develop federal standards that are more protective of public health and more reliable as a result of improved technology. Historically, USEPA has implemented Best Available Technology (BAT) to minimize public exposures. If such a recommendation to implement BAT were to be promulgated it would be likely that microfiltration technology (that was not available 10 years ago) would be required as BAT. This technology would provide much better treatment, including consistent and reliable removal of fecal coliform. While the Santa Fe RW treatment process is in compliance with the majority of state and federal guidelines and no changes in treatment are perceived in the near term, it should be recognized that the development of microfiltration, the expanded use of RW nationally and the likelihood of more stringent federal or state regulations will at some point mandate more sophisticated and costly treatment in the future.

3 Assumptions

Multiple assumptions, listed below, underlie this report. The assumptions often constrain the parameters of the analysis, so that an apple-to-apple comparison can be made, as much as possible.

Assumptions:

- The RW flow budgets for the options are based on how they operate and function currently. The full extent of the contractual right, while identified (Appendix A), is not the basis for the analysis, nor are possible future changes in demand (although this Plan does recognize the need to address projected climate change impacts).
- The planning horizon of this Plan spans 40 years.
- The City's Wastewater Division (WWD) will continue to deliver bulk RW to customers at the effluent outfall of the wastewater treatment plant (WWTP). The WWD is not currently responsible for constructing or maintaining the storage, pumping or pipeline infrastructure or for the operation and maintenance costs associated with the movement and delivery of RW from the WWTP to the RW use location.
- Although some of the RW availability and timing constraints could be remedied by storing the excess RW from the winter months and using it in the summer months, the magnitude of the storage needed is tens to hundreds of millions of gallons, and hence not considered feasible for this Plan. Storage is an option that may be considered in the future.
- In the future, the RW pipelines may be used for both 'raw' Rio Grande water and RW, thus enabling RW users to receive delivery from either or both sources.
- The methodology within this Plan may be used to rank RW uses that were not contemplated by this effort.
- WWD is responsible to produce RW of sufficient quality to meet current federal guidelines and NMED discharge requirements (NMED Above Ground Use of Reclaimed Domestic Wastewater) that comply with current and future regulations. This plan does not address future changes to RW quality standards.
- RW users who land apply RW have the responsibility to apply the RW in accordance with the NMED Above Ground Use of Reclaimed Domestic Wastewater.
- The current state regulations allow RW with fecal coliform concentrations as high as 200 colonies/100 ml to be applied to sites in which public exposure is likely. In addition, the USEPA recommends that RW should have a chlorine residual of greater than 1 mg/l. The WWD does not disinfect with chlorine and therefore does not provide a finished RW with a chlorine residual. Further, there have been occasions when the fecal coliform standard has been exceeded. The City runs some public health exposure risk by using RW for irrigation of public recreation areas. City facilities will use Best Management



Practices in using the RW resource for irrigation of public areas, but it is recognized that the treatment and monitoring program for application of wastewater is not without risk.

- The City owns the RW produced by the WWTP and may decide on how use or discharge the RW for beneficial use (based on the *City of Roswell* case). The City recognizes that the adjudication of the Santa Fe River basin may affect the relative rights of the appropriators on the Santa Fe River. Representatives of the NM Office of the State Engineer (OSE) state that, unless priorities change, adjudication of this basin is still decades away. However, City of Santa Fe founding documents support the notion that a portion of the City's Santa Fe River water rights have a 1609 priority date, placing the City's rights among the oldest in the watershed.
- Projected climate change impacts suggest that less stream flow will be available in the future and that more RW discharged to the Santa Fe River will be needed to irrigate the same acreage because of projected hotter and possibly drier weather conditions. Under current conditions, the discharge of RW to the Santa Fe River represents approximately XX percent of the base flow in the Santa Fe River at the WWTP outfall.
- The Club at Las Campanas (the golf course association) will no longer purchase the City's RW; it forfeited the right to the RW by not renewing the renewal term under the 2003 Settlement Agreement. The City will have the option to purchase of the 2 million gallon storage tank at the WWTP. The effluent pipeline and ancillary infrastructure that extends from the WWTP to the Las Campanas wastewater facility remains the property of Las Campanas Sewer Cooperative.



4 Reclaimed Wastewater Availability

4.1 Past Availability

As discussed in the introduction, significantly more RW was available in the 1990s than in the past decade (Figure 5). During the same time period, the RW use increased until 2006, and has

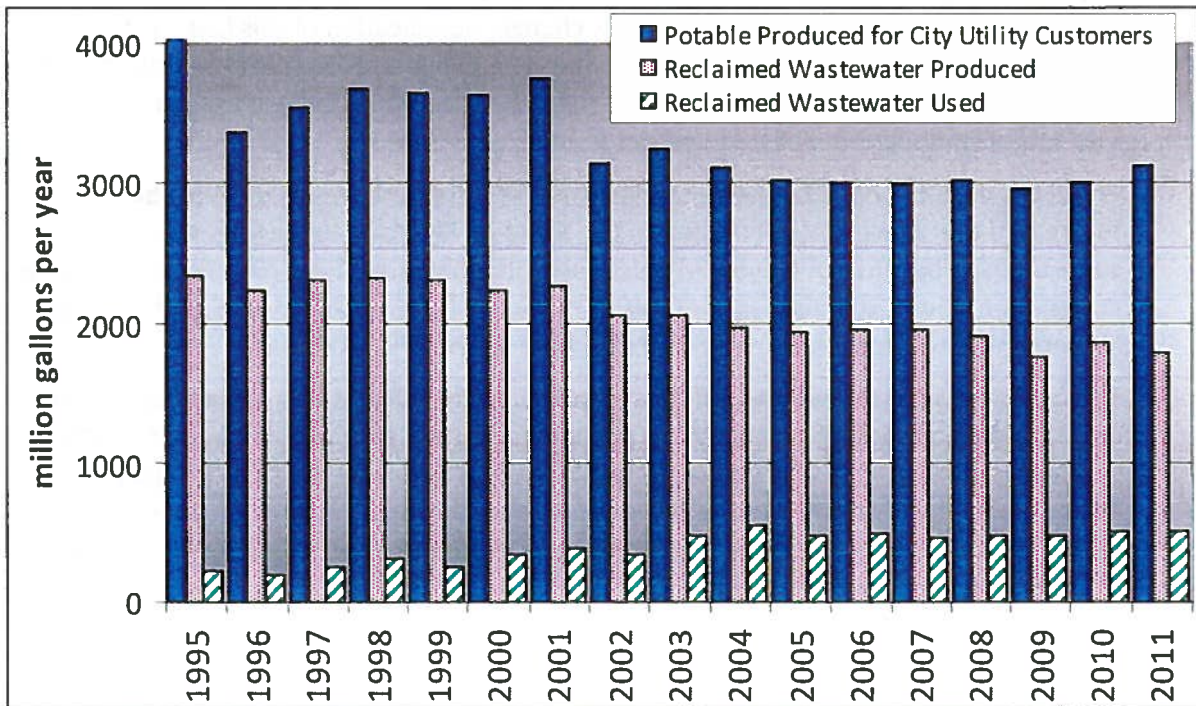


Figure 5. Potable Water Production, Reclaimed Wastewater Production, and Reclaimed Wastewater Use, 1995-2011

since decreased. In 1995, the Santa Fe Country Club, Santa Fe Horse Park (now called the Santa Fe Equestrian Center) and the Santa Fe Downs used RW for turf irrigation during the growing season. By 1996 RW was delivered to the Marty Sanchez Golf Course via the northern purple pipeline, and use by the Municipal Recreational Complex followed within a year. In 2002, The US Forest Service and the Caja del Rio Landfill were added as RW users. By 2007, the Santa Fe Horsepark stopped using RW, as did the Las Campanas golf course by 2012.

4.2 Current Availability

The amount of RW produced at the WWTP varies from year to year. Annual production from 2007-2011 ranged from 1,773 mg/yr (5,442 af/yr) to 1,899 mg/yr (5,826 af/yr), with an average of 1,817 mg/yr (5,575 af/yr). Average daily production from 2007-2011 ranged from 4.8 mg/d (14.8 af/d) to 5.2 mg/d (16 af/d), with an average of 5.0 mg/d (15.3 af/d). Monthly values over the same time period averaged 152 mg/mo (466 af/mo), with an inter-monthly variance up to 8%. The variance is largely explained by the variation in the number of days per month. The data on which these summaries are based are included in Appendix A.



The available RW quantity is, on average, 60% of the potable water supplied by the City to its customers, known as the RW return factor. In general, the RW return factor does not include the potable water produced for the City's wholesale customers, like Santa Fe County or Las Campanas, whose customers usually do not contribute to the wastewater returned to the WWTP via the sanitary sewer system. Of the RW produced, generally between 20 and 25% (500 mg or 1,535 af in 2011) is routed to current RW users with the remaining 70-75% released to the Santa Fe River. The percentage of RW released to the river in 2011 varied from 99% in January to 43% in July (Appendix A). In 2011 RW met 14% of the City's water demand.

4.3 Future Availability

Projecting the quantity of RW available into the future requires estimating a population growth rate, the percentage of potable water that is returned as RW, and the gallon per capita per day (gpcd) use rate for the population. Potable demand is estimated by multiplying the gpcd by the population (adjusted for the year), which is then decreased by the RW return factor:

$$\text{Available RW per year} = \text{City customer population} \times \text{gpcd} \times \% \text{ of RW return factor}$$

The annual population growth rates herein range from 0.68-1.37% and are the same as those used in the Long Range Water Supply Plan (LRWSP, Appendix D, 2008) derived from the Jemez y Sangre Regional Water Planning Bureau of Business and Economic Research (2003) analysis. Future population is derived by multiplying the annual growth rates times the municipal population from the 2010 City census data (plus the addition of Santa Feans that live outside the City municipal boundary but are served by City water). The growth rates estimated in 2003 are likely higher than the estimates would be if a study were carried out today; however, they serve as a reasonable and conservative estimate.

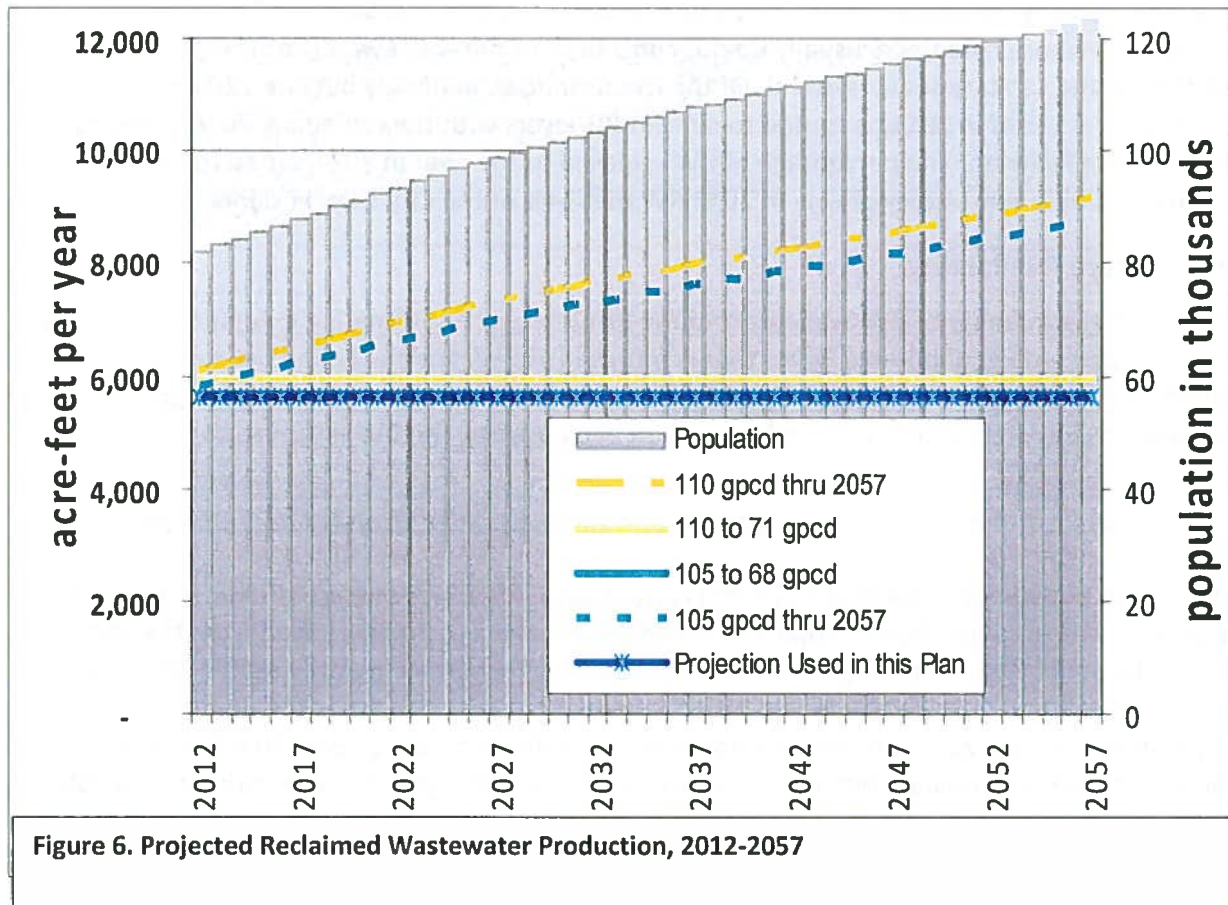
For the future projection, the RW rate of return on potable water produced for City customers is assumed to be 60%, based on the actual RW return factor discussed above.

Figure X shows future potable water demand calculated under four different assumptions. In two of these calculations, constant gpcds of 105 (teal dashed line, Figure X) and 110 (yellow dashed line, Figure X) are used, which result in both a growing amount of potable water demand and RW production. The 105 gpcd reflects the City's average water use over the past few years. The 110 gpcd value was assumed for the City's LRWSP. The other two scenarios assumed that while our population continues to grow, the City's water conservation efforts keep pace, so that the amount of water produced today will satisfy all the water needs of the 2057 population. This means that today's 105 gpcd will drop to 68 gpcd (teal solid line that is also the blue line, Figure 3) and the 110 gpcd will drop to 71 gpcd (yellow solid line, Figure 3).

Any of the scenarios above are possible. The availability of RW in this plan is based on a realistic gpcd of 105 starting point with the ambitious water conservation targets to derive a conservative RW availability projection (blue solid line with 'x' markings). The ambitious water conservation targets are used because of the defined Water Conservation Committee's stated target of a reduction of 1 gpcd per year. This means that the average annual RW production of 1,825 mg/yr (5,600 af/yr), monthly average RW production of 152 mg/mo (467 af/mo), and daily



RW production of 5.0 mg/d (15 af/day) remain constant for the planning horizon. The calculations for all the methods are provided in Appendix X.



4.4 Working with Uncertainty

Uncertainty is inherent in planning projections. Influencing factors, like population growth, water use, water right adjudications, future public policies, regulatory requirements and climate change impacts, may slightly or significantly alter the roadmap laid out in this plan. However, because the chosen RW projections are conservative and include ambitious conservation targets, we assume that RW production will not be less than the projected amount; RW in excess of the amount projected in this plan can be allocated according to the methodology in this plan. Additionally, this plan has been designed to be flexible and adaptive, so that as changes arise in the future, the same methodology applied herein can be modified to evaluate changed RW availability, the need for different RW budgets, or new options that were not previously considered.



5 Reclaimed Wastewater Use Options

This section identifies the multiple RW use options that were considered within this Plan. City has been using RW since at least the 1950s. Figure 4 shows that since 2004, RW is purchased from the standpipe for dust control and other construction purposes; irrigates the recreational fields at the Municipal Recreational Complex (MRC), the infield at the Downs, and the Santa Fe Equestrian Center; irrigates Las Campanas, the Marty Sanchez Links de Santa Fe and the Santa Fe Country Club golf courses; controls dust at the regional landfill; provides water for

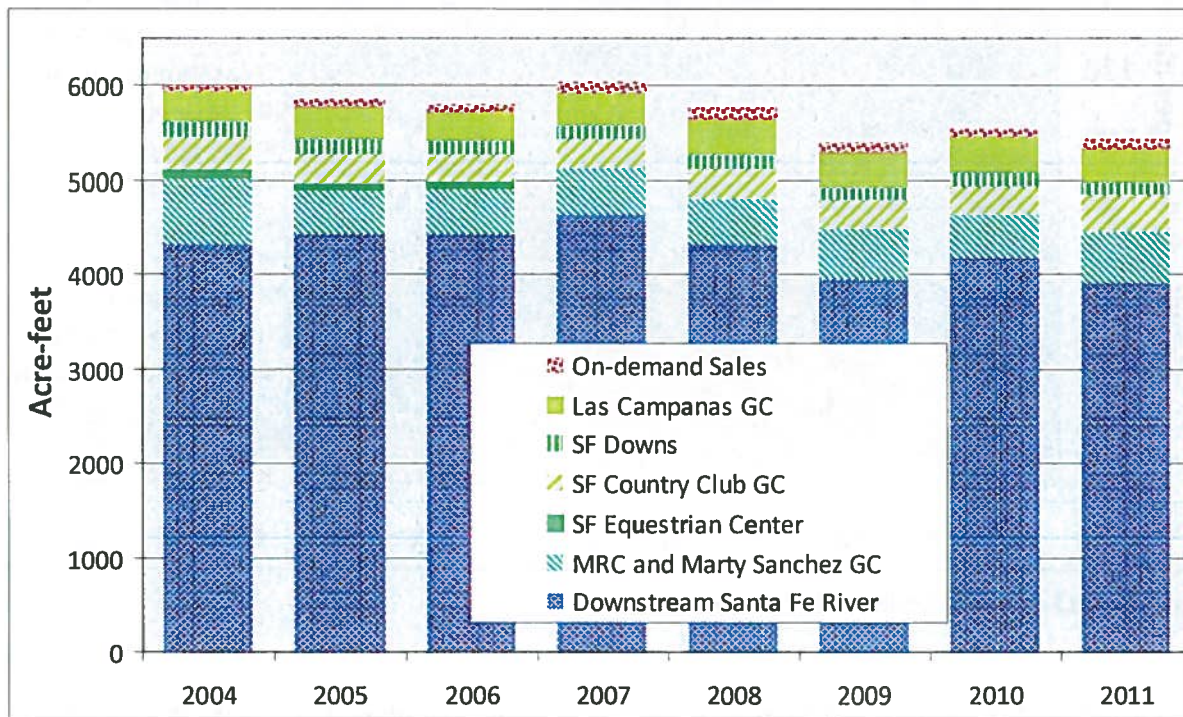


Figure 7. Reclaimed Wastewater Uses Since 2004.

livestock on the Caja del Rio; and offers flows to the Santa Fe River downstream of the City's wastewater treatment plant.

5.1 Identifying RW Options

All of the current RW uses are considered within this Plan, as well as some additional potential future uses. Initially, the working group brainstormed potential options for RW use that ranged from present uses to highly unpredictable future uses (e.g. endangered species obligations, water right obligations under an adjudication of the Santa Fe Basin). The group also developed three different ways in which RW could augment future potable water supplies. At the public meeting in the fall of 2011, the City solicited input on what additional options should be considered; the attendees provided no additional suggestions. After initial analyses, the twenty one options (Appendix D) were culled to the fifteen described below and analyzed herein.



5.2 Annual versus Peak Month RW Availability

Although the City's wastewater treatment plant produces a relatively steady stream of RW, the use pattern of the RW users is highly seasonal (Figure 8). Therefore, a robust analysis must look

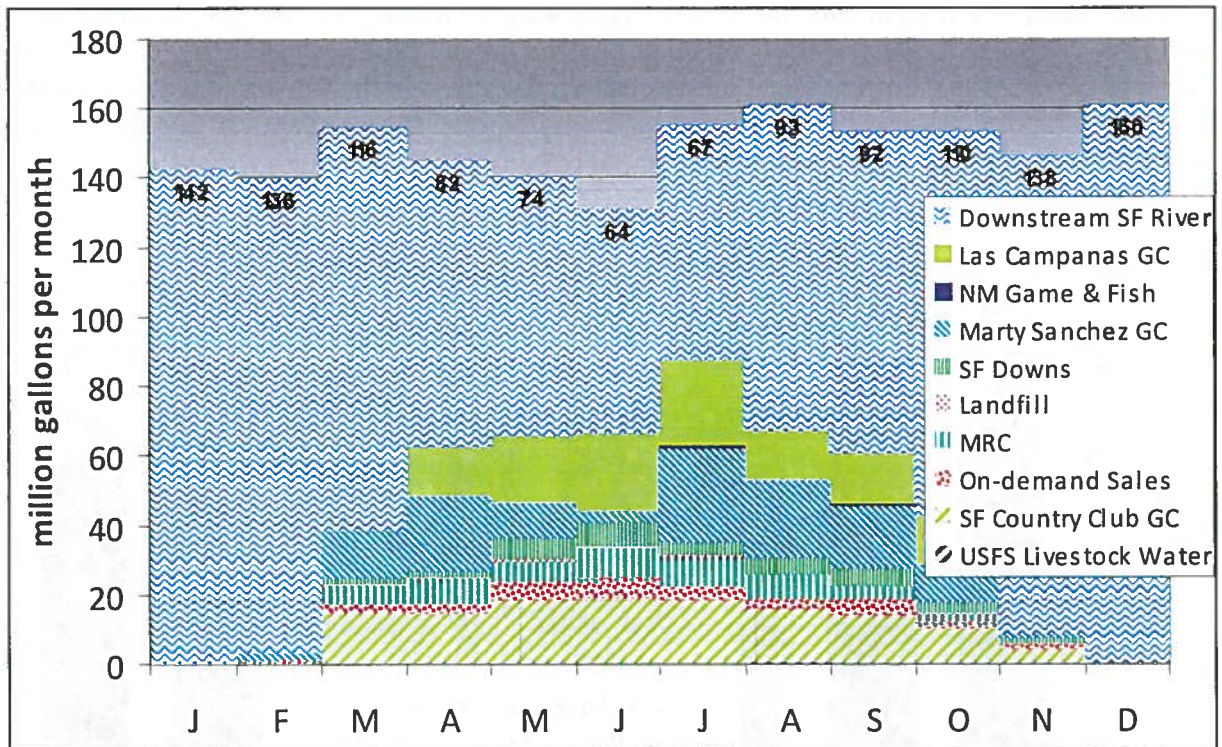


Figure 8. 2011 Monthly Reclaimed Wastewater Use

not only at the RW annual availability to meet the needs of a combined group of RW users (i.e. a RW use portfolio), but also consider the ability to meet the RW needs during peak irrigation season. This is illustrated with Figure 9, which would seem to suggest that with an annual lens at least 30% of the RW flow returned to the Santa Fe River could be reallocated. Using a seasonal approach, however, actual use in 2011 indicates that during June and July less than 80 mg/mo is released to the Santa Fe River, and depending upon how the RW budget for the river is defined, there may be RW available for other (future) RW users only if some current uses diminish or cease.

5.3 Identifying the Flow Budget for Each RW Option

In order to build RW use portfolios, in which a series of options is combined and evaluated against the RW availability, the RW options need to be clearly defined both descriptively and quantitatively with a RW flow budget (with daily, monthly, and annual maximums). The 2013 RW use rate of \$3.03/ 1000 gallons is included applied to the annual RW flow budget, as an indication of what value of the RW might be for each option.

RW budgets identified below are primarily based on the actual RW used over the past three



years. If this data is not available, the RW flow budgets originated from design parameters (e.g. SWAN park), requests (e.g. Santa Fe Equestrian Center), comparable use estimates (e.g. Southwest RW pipeline), or guesstimates (e.g. Santa Fe River). The RW flow budget for the Santa Fe River has a high degree of uncertainty because the system is not well measured and the objectives of water budget are not well defined.

Each option is described below.

1. **MRC:** RW is used at the Municipal Recreation Complex (MRC) to irrigate playing fields for baseball, soccer, football, rugby, and other recreational play. RW is piped from the WWTP via the "northern purple pipeline" to a storage pond just north of the MRC. From this pond, RW is metered, pumped and used on the MRC irrigated fields. A City resolution from 1995 permits up to 2 mg/d for use by Marty Sanchez Golf Course and the MRC via the "northern" RW distribution system. Since the installation of the pipeline- 3 additional users (US Game & Fish, Caja del Rio Landfill and USFS) are also supplied by the pipeline. City Parks Department pays its share of the electric costs to pump RW from the WWTP to the storage pond.
 - **RW flow budget:** Annual: 46 mg/yr (140 af/yr); Peak month: 9.3 mg/mo (29 af/mo); Daily maximum: 300,000 g/d. The annual value of the RW is \$138,000.
2. **SF Downs:** RW at the Downs of Santa Fe is used both for irrigating the race track infield (92%) and for irrigating trees. The infield is made available for recreational sport play like soccer and football. An agreement signed between the Pueblo of Pojoaque and the City defines that Pojoaque will pay \$2.59/1,000 gallons for any RW **not** used to irrigate the infield, which generated \$16,000 in revenue in 2011. The City pays Pojoaque \$1 for the use of the infield playing area.
 - **RW flow budget:** Annual: 39 mg/yr (120 af/yr); Peak month: 8 mg/mo (25 af/mo); Daily maximum: 400,000 g. The annual value of the RW that is not sold is \$109,000.
3. **SWAN Park:** The design for the planned Southwest Activity Node (SWAN) Park identifies one large, natural-grass, irrigated, recreational area: the Field Sports Area. The area is designed to accommodate organized sports groups like soccer, football, rugby, lacrosse and Ultimate Frisbee. RW will be used to establish some park landscaping during start-up (5-7 years), while other areas (orchards) will continue to receive RW irrigation for the long term. The Field Sports Area is planned to be constructed during Phase II (possibly finished 2016). The sole source of irrigation water for the park is via a proposed RW pipeline from the WWTP and a 200,000 gallon on-site RW storage tank. As currently designed, RW will be pumped into the RW pipeline using the same lift station that also pumps RW north toward the MRC and Marty Sanchez GC. For this analysis, the SWAN Park RW budget is assumed to be constant into the future, beginning in 2014, even though the park's development is phased and that the xeric landscaping may require less water in the long term once established. The working assumption is that City Parks will pay for the pumping costs and annual O&M costs associated with the RW pipeline.



- **RW flow budget:** Annual: 19 mg/yr (57 af/yr); Peak month: 4 mg/mo (11 af/mo); Daily maximum: 120,000 g. The annual value of the RW is \$56,000.
- 4. **SW Irrigated Parks:** The RW pipeline designed for SWAN Park has excess capacity than the water needs of the planned park. The entire RW pipeline (identified as the Southwest Effluent pipeline in some City capital improvement plans) has a similar capacity of the RW pipeline that supplies the “northern” uses (MRC, Marty Sanchez GC, etc) and will share the RW lift station of the northern RW pipeline. The pipeline’s planned route extends near other public facilities (e.g. Capital High School, Southside Library, Cesar Chavez Elementary School, Ortiz Middle School) that could use RW for irrigation. However, since the exact RW uses along the “southwest RW pipeline” have not been determined, an overall RW budget for the pipeline, excluding SWAN was developed by allocating approximately the same RW budget as is currently used by the MRC. Because the pipeline shares the lift station with the “northern” pipeline, RW storage on the system is needed to be able to pipe RW when it is available and then use RW as needed. The combined flow budget of SWAN Park plus this option of 0.39 mg/d is less than 1/6th of the 2.0 mg/day pipeline capacity. The working assumption is that City Parks will pay for the pumping costs and annual O&M costs associated with the RW pipeline.
 - **RW flow budget:** Annual: 41 mg/yr (126 af/yr); Peak month: 8 mg/mo (26 af/mo); Daily maximum: 270,000 g. The annual value of the RW is \$124,000.
- 5. **Downstream SF River:** The Santa Fe River downstream of the WWTP currently receives over 70% of the RW produced. The RW flows through the Santa Fe’s Rural Protection Zone (RPZ, City property west of the Santa Fe Airport), then land owned by Santa Fe County, the Bureau of Land Management, and private land owners. The stream flow is used for irrigation by land owners in La Cienegilla, El Cañon Ranch, Tres Rio Ranch, and the village of La Bajada. The City Attorney’s office legal opinion at this time is that the City currently has no legal obligation to deliver RW to water right holders downstream, because Cities control the use of artificial waters under the City of Roswell case and the New Mexico statute, NMSA 1978, § 72-5-17 (Appendix E). A decade of restoration in the RPZ has created a thriving beaver population and lush riparian and wetland areas. It is unknown how much water is needed to support the restoration areas as well as the needs of the downstream agricultural needs. The irrigators of approximately 100 acres of land downstream of the WWTP and the Santa Fe County Commissioners request that the City release “sufficient reclaimed water to the downstream users of La Cienegilla, La Cienega, the Village of La Bajada and the Pueblo of Cochiti for historic and agricultural traditions” (Board of County Commissioners of Santa Fe County Resolution 2012-XXX; Appendix X). The governing body of the County and the State Legislature approved a similar resolution (2011-191) in 2011 (Appendix E). For this analysis, the working group assumed a minimum flow ranging from 0.5 mg/d in the winter season to three mg/d during the peak irrigation months. It should be recognized that of all the options, the estimated flow for the Downstream SF River is not based on actual flow monitoring, a



policy directive, or regulatory requirement. The 3 mg/d critical summer flow value is based on a broad-brush understanding of stream flow conditions and downstream agricultural needs. This option assumes that within the annual water budget, the RW from the WWTP can be patterned to accommodate irrigation needs, although it appears that if 3 mg/d is assumed, not all existing RW uses can be accommodated during the critical summer months. In moving forward, obtaining actual flow values for a variety of conditions will be critical to appropriately assess this use of RW. This option has no ongoing O&M or distribution costs.

➤ **RW flow budget:** Annual: 600 mg/yr (1843 af/yr); Peak month: 93 mg/mo (285 af/mo); Daily maximum: 3,000,000 g. The annual value of the RW is \$1.82 million.

6. Upstream SF River: This option involves pumping water from the WWTP upstream to a currently unspecified point and delivering about 0.5 mg/d or 0.75 cfs of RW to the Santa Fe River daily. The pattern of release could be altered, but may be constrained during the summer months by other RW demands. The purpose of the option would be to create another “living” river reach. The quantity of water would probably provide surface water flow for 1-3 miles, depending upon weather and river channel conditions. The City would need to pay for the capital costs to install the pipeline and pumping equipment and be responsible for the continued pumping and O&M costs.

➤ **RW flow budget:** Annual: 177 mg/yr (543 af/yr); Peak month: 15 mg/mo (45 af/mo); Daily maximum: 500,000 g. The annual value of the RW is \$536,000.

7. Marty Sanchez GC: The Marty Sanchez Links de Santa Fe golf course currently uses exclusively RW to irrigate the golf course and other facility landscaping. RW is piped from the WWTP via the “northern purple pipeline” to a storage pond just north of the MRC. A City resolution from 1995 permits up to 2 mg/d for use by Marty Sanchez Golf Course and the MRC via the “northern” RW distribution system. From there, RW is pumped to a series of ponds around the golf course before being distributed by the irrigation system. City Parks Department pays its share of the electric costs to pump RW from the WWTP to the storage pond, and then to the golf course.

➤ **RW flow budget:** Annual: 127 mg/yr (390 af/yr); Peak month: 27 mg/mo (83 af/mo); Daily maximum: 868,000 g. The annual value of the RW is \$385,000.

8. SF Country Club GC: The Santa Fe Country Club has been irrigating its golf course with RW since the 1950s. RW is pumped during the day from the WWTP to two on-site storage ponds, and then applied to the golf course during the evening hours. The RW budget presented herein is based on actual use, not the existing, in-perpetuity contract, which allows the SF Country Club GC to use up to 700,000 gpd all year long (an equivalent of 256 mg/yr or 784 af/yr). SF Country Club’s RW use has increased from 102 mg/yr (314 af/yr) in 2009, 103 mg/yr (317 af/yr) in 2010 to 130 mg/yr (400 af/yr) in 2011. SF Country Club GC maintains the conveyance pipeline and pays its share of the



- electric costs to pump RW from the WWTP to its storage ponds. In exchange for allowing the public to play on the golf course, the Club does not pay for the RW.
- **RW flow budget:** Annual: 130 mg/yr (400 af/yr); Peak month: 20 mg/mo (60 af/mo); Daily maximum: 700,000 g. The annual value of the RW is \$395,000.
9. **SF Equestrian Center:** The Santa Fe Equestrian Center used RW from the City to irrigate the polo fields through 2007; no RW contract currently exists between the parties. The irrigated fields are used for the horse facility and also rented by local sports clubs. Currently the fields are irrigated with groundwater from RG-590 (e.g. Hagerman well) with some water rights leased from Santa Fe County. The water budget herein originates from a 12/5/2011 letter from a SF Equestrian Center representative to the City stating interest in securing at least a 10-year agreement with the City for effluent. In the past, SF Equestrian Center maintained the conveyance pipeline and was responsible for the electric costs to convey RW from the WWTP to its facility.
- **RW budget:** Annual: 41 mg/yr (127 af/yr); Peak month: 12 mg/mo (38 af/mo); Daily maximum: 400,000 g. A RW agreement with the SF Equestrian Center could generate \$125,000 annually.
10. **On-demand Sales:** The WWD has a stand pipe to provide RW to customers for construction, dust control and other similar uses. The City's water conservation ordinances require the use of RW for all appropriate construction purposes. On-demand sales have been less in recent years than in the past, perhaps because of the slowed economy. During fiscal year 2011/2012, the sales from the standpipe equaled approximately \$90,000. The RW budget for on-demand sales used in this analysis is 5% greater than actual use of the past three years.
- **RW flow budget:** Annual: 31 mg/yr (95af/yr); Peak month: 6 mg/mo (17 af/mo); Daily maximum: 180,000 g. The stand pipe sales will generate approximately \$94,000 annually.
11. **NM Game & Fish:** The New Mexico Department of Game and Fish has their headquarters on One Wildlife Way off Caja del Rio Road. The agency uses RW for a small pond and native vegetation that is all part of an on-site wildlife educational center. Water is pumped to NM Game & Fish from one of the storage ponds at Marty Sanchez GC. Relative to other uses, very little RW is used. The annual contract with NM Game & Fish allows the agency to use up to 1.6 mg/yr (5 af/yr).
- **RW flow budget:** Annual: 1.6 mg/yr (5 af/yr); Peak month: 0.23 mg/mo (0.23 af/mo); Daily maximum: 10,000 g. The City will collect about \$5,000 under this contract, beginning in 2013.
12. **Landfill:** Caja del Rio Landfill uses RW for dust control during landfill operation. Use has varied between 2. to 9 mg/yr (7- 18 af/yr).



- **RW flow budget:** Annual: 4 mg/yr (12 af/yr); Peak month: 1.1 mg/yr (3.4 af/yr); Daily maximum: 36,000 g. RW use by the Landfill will generate approximately \$12,000 per year.

13. **BW Permit Compl.:** The Buckman Well Field Permit Compliance option is a way for the City to fulfill to a New Mexico Office of the State Engineer (OSE) permit condition associated with pumping the City's Buckman wells (RG-20516 et al). Annually, the OSE's groundwater model is used to calculate the impacts that pumping groundwater at the Buckman wells has on the surface waters and springs in the La Cienega area. Over the past decades, the release of RW to the Santa Fe River has mitigated the impacts. The City is currently seeking recognition and inclusion of this recharge source to the annual groundwater model calculations. Other downstream discharges, like Option 5, could likely also to be counted toward permit compliance. If so, then this option is duplicative with Option 5. The RW budget presented herein is preliminary. This budget assumes an constant pattern of release over the course of a year.

- **RW flow budget:** Annual: 33 mg/yr (100 af/yr); Peak month: 3/mg/mo (8 af/mo); Daily: 90,000 g. The annual value of the RW use is \$99,000.

14. **USFS Livestock Water:** Historically, US Forest Service well RG-29725 supplied livestock and wildlife water to the Caja del Rio. Among other difficulties, the drop in groundwater levels from Buckman well field pumping reduced the viability of the deep well, which currently only has a 17-foot water column. When water supply is interrupted, the livestock seek water from the Santa Fe River or the accessible portions of the Rio Grande. To increase water supply reliability, the City has been providing RW as a replacement water supply for livestock and wildlife on the mesa since 2006. By providing the water to the USFS, the City's impacts on the well are offset and livestock intrusion into sensitive riparian areas can be reduced. The RW, pumped from the Marty Sanchez storage ponds, reaches the stock tanks on the mesa through approximately 26 miles of small-diameter, above ground PVC lines. The budget herein is based on the RW agreement between USFS and the City. Actual use has reached 2.9 mg (9 af) in one year.

- **RW flow budget:** Annual: 1.2 mg/yr (3.7 af/yr); Peak month: 0.1 mg/mo (0.3 af/mo); Daily maximum: 15,000 g. The annual value of the RW is \$3,600.



15. **Future Potable Supply:** This option considers the use of RW as a supplement to the City's other potable water supply sources. This could be accomplished in one of at least three ways: returning the water via a pipeline to the Rio Grande and diverting an equal amount at the Buckman Direct Diversion; direct potable reuse (DPR); or by recharging the groundwater with RW and then extracting it in the future. "Direct potable reuse (DPR) projects benefit public water supplies, agriculture, the environment, and energy conservation" (NWRI, 2012). This plan proposes a separate work effort to evaluate the merits of one approach versus another; herein the quantity of water available for potable water supply is estimated by using the water available during the non-irrigation season.



- **RW flow budget:** Annual: approximately 717 mg/yr (2,200 af/yr). No monthly or daily maximum is identified since this option uses what remains after other obligations are met. The annual value of the RW is \$2.15 million.

The *annual* RW demand of all the options combined equals 2,008 mg/yr (6,141 af/yr), which is 10% more than the 1,825 mg/yr (5,600 af/yr) conservatively projected to be available (Figure X).

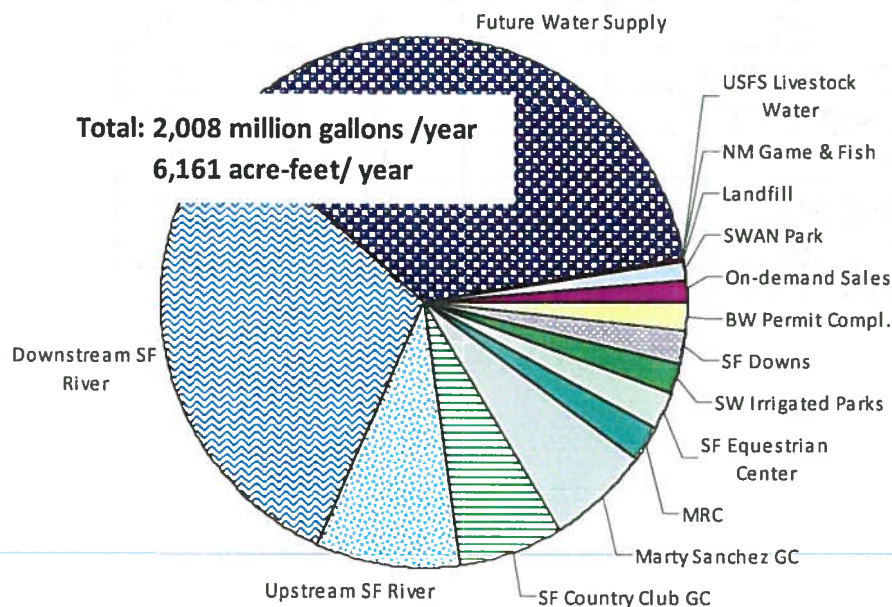


Figure 8. The annual volume in acre-feet and relative proportion of all RW options combined.



The combined *daily* demand of all the options except RW for potable water supply is 6.9 mg/d, 38% more than the daily amount of available RW (Table 2). Hence, RW demand is greater than available supply under current average conditions and likely higher during dry, stressed summer periods.

Table 2. Summary of Options Listed from Least to Greatest Annual Budgets

| Option ID | Option Name | Annual Use (mg/yr) | Maximum Monthly Use (mg/mo) | Maximum Daily Use (mg/d) |
|-----------|----------------------|--------------------|-----------------------------|--------------------------|
| 14 | USFS Livestock Water | 1 | 0.1 | 0.02 |
| 11 | NM Game & Fish | 2 | 0.2 | 0.01 |
| 12 | Landfill | 4 | 1 | 0.04 |
| 3 | SWAN Park | 19 | 4 | 0.18 |
| 10 | On-demand Sales | 31 | 6 | 0.18 |
| 13 | BW Permit Compl. | 33 | 3 | 0.09 |
| 2 | SF Downs | 39 | 8 | 0.40 |
| 4 | SW Irrigated Parks | 41 | 8 | 0.27 |
| 9 | SF Equestrian Center | 41 | 12 | 0.40 |
| 1 | MRC | 46 | 9 | 0.30 |
| 7 | Marty Sanchez GC | 127 | 27 | 0.87 |
| 8 | SF Country Club GC | 130 | 20 | 0.70 |
| 6 | Upstream SF River | 177 | 15 | 0.48 |
| 5 | Downstream SF River | 600 | 93 | 3.0 |
| 15 | Future Water Supply | 717 | | - |

Note: Shaded area indicates current use



6 Prioritizing Options

6.1 Ranking Options Using Approved Criteria

The methodology used within this analysis scored then ranked options identified in Section 5 according to criteria and performance measures (below) developed by the Working Group and approved by the City Council on November 30, 2011. The criteria are also similar to those used to evaluate long-range water supply options in the City's 2008 LRWSP.

Primary Objectives

Performance Measures

| | |
|----------------------------------|--|
| Ensure Community Acceptability | <i>Maximize community and cultural values</i> <i>Maximize quality of life for community</i> <i>Maximize municipal use of reclaimed wastewater</i> |
| Improve Water Supply Reliability | <i>Minimize water shortage during drought</i> <i>Maximize long-term water supply sustainability</i> <i>Maximize ability to meet peak day demands</i> |
| Protect the Environment | <i>Minimize impact on ecosystems</i> <i>Maximize "greenness"</i> |
| Manage Costs | <i>Minimize overall project costs</i> <i>Minimize ongoing government costs</i> |

The options were individually scored by the RWRP working group members according to how well the option meets the performance measure. Each criteria received a maximum score of fifteen points which were divided up equally among the performance measures- (e.g. if the criteria has three performance measures, each performance measure is worth five points). The RWRP working group decided to collectively score the 'cost' criterion, since there is a quantitative versus qualitative basis. The individual and averaged scores of Working Group members, and the initial ranking based on the scoring are included in Appendix G. (Appendix G shows the results of two scoring methods, but only the second, labeled 'universal scores for costs', has been used for the remainder of the prioritization methodology.

6.2 Ranking Options Using Weighted Criteria

The rankings were further refined by weighing the criteria based on polled preferences and by prioritizing contract, permit requirements, and past City policy.

While all the criteria above are important, some individuals place higher value on one criterion versus another. To identify the relative preference among the criteria, the community was surveyed via a 'forced-comparison' exercise (Appendix F), in which the participants are forced



to choose between criteria. Seventy-six people, including elected officials, Working Group members, and public meeting attendees, participated. The survey was also posted on the City's website, but no surveys were received from this avenue. The forced comparison results were compiled and grouped according to the following categories: elected officials, public, RWRP working group members and all respondents (Figure 9).

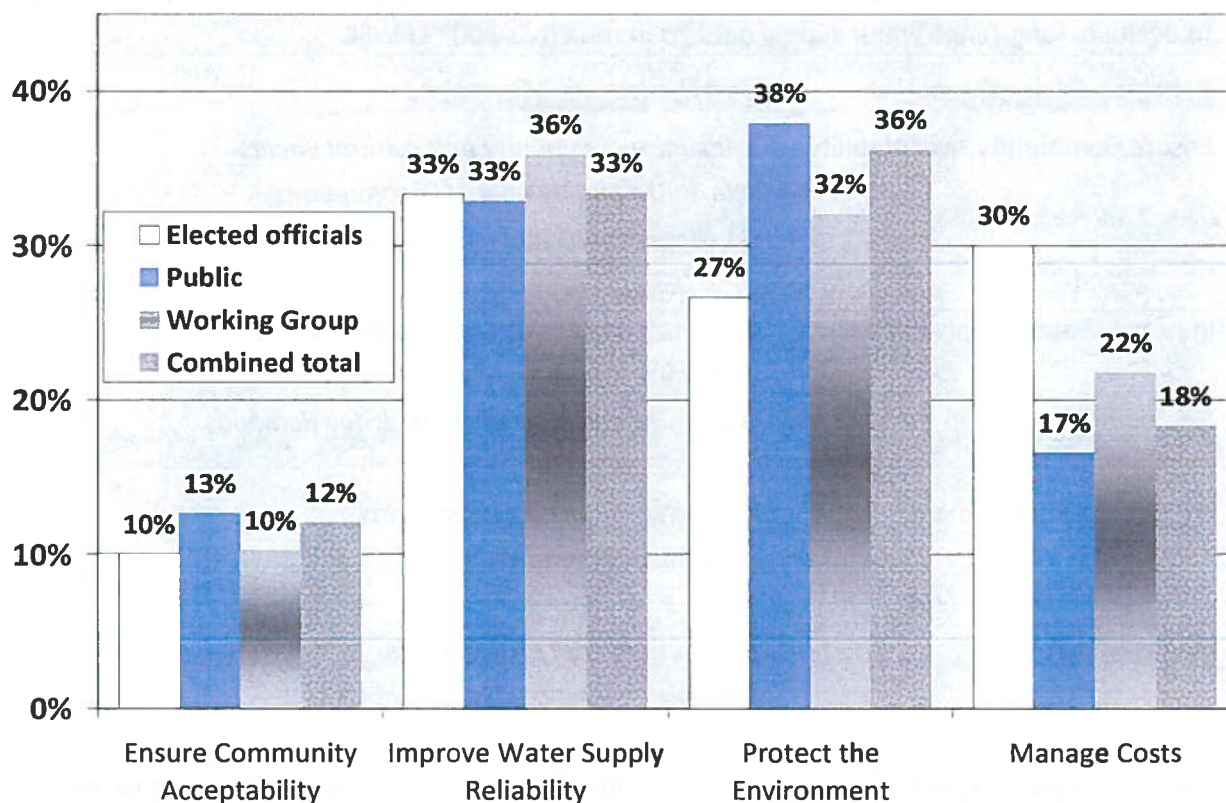


Figure 9. Results from the forced-comparison survey of the evaluation criteria.

Of the four criteria, overall the participants felt that protecting the environment (36%) was most important followed by improve water supply reliability (33%). Managing costs (18%) was less important and least important was community acceptability (12%). The scored options were then weighted and resorted with the criteria weighted according to the survey findings. G).

The results (Table 3) indicate that by adding the criteria weighting both the overall score of the options and their ranking changed. Most notably, because the 'Improve Water Supply Reliability' was considered important in the survey, and costs less so, the costly option to use RW for future potable water supply changed from a ranking of eleventh to second. Other options whose rank changed by at least two positions are shaded in Table 4.



Table 3. Comparison of Option Ranking: Weighted vs Non-weighted

| Option Number | Option Name | Weighted Score | Non-weighted Score | Weighted Ranking | Non-weighted Ranking |
|---------------|----------------------|----------------|--------------------|------------------|----------------------|
| 13 | BW Permit Compl. | 9.84 | 11.3 | 1 | 1 |
| 15 | Future Water Supply | 8.94 | 10.7 | 2 | 11 |
| 1 | MRC | 8.79 | 10.3 | 3 | 2 |
| 3 | SWAN Park | 8.45 | 10.1 | 4 | 6 |
| 11 | NM Game & Fish | 8.44 | 10.2 | 5 | 5 |
| 10 | On-demand Sales | 8.34 | 9.6 | 6 | 3 |
| 12 | Landfill | 8.23 | 10.1 | 7 | 4 |
| 4 | SW Irrigated Parks | 8.03 | 9.7 | 8 | 10 |
| 7 | Marty Sanchez GC | 7.83 | 8.8 | 9 | 8 |
| 5 | Downstream SF River | 6.87 | 9.6 | 10 | 9 |
| 2 | SF Downs | 7.69 | 9.3 | 11 | 7 |
| 14 | USFS Livestock Water | 7.28 | 9.3 | 12 | 12 |
| 6 | Upstream SF River | 6.97 | 8.0 | 13 | 14 |
| 9 | SF Equestrian Center | 6.09 | 8.5 | 14 | 13 |
| 8 | SF Country Club GC | 5.58 | 6.4 | 15 | 15 |

Note: The non-weighted rankings shaded show a change in ranking of at least 2 positions.

6.3 Ranking Options Combining Weighted Criteria with Requirements and Past City Policy

After refining the ranking with weighted criteria, a final adjustment was made to the ranking. First, the three options that are governed either by existing contracts or permit requirements (BW Permit Comp., USFS Livestock Watering, and SF Country Club GC) were moved to the top of the prioritized list (Table 4). Then all current uses that have been approved by past City policy (e.g. ordinance or resolution), yet remain under the purview of the City's governing body were also prioritized and kept in the relative order of the ranking. These options include the MRC, on-demand sales, dust control at the landfill, and Marty Sanchez golf course (Table 4). The SF Downs is also included in the list, since the infield provides recreational playing fields that augment City municipal fields, and thus currently functions like a municipal facility.



Table 4. Option Ranking with Weighted Criteria, Requirements and City Policies

| Option Number | Option Name | Ranking with Required Uses and Past Policy | Ranking from Weighted Criteria |
|---------------|----------------------|--|--------------------------------|
| 13 | BW Permit Compl. | 1 | 1 |
| 14 | USFS Livestock Water | 1 | 12 |
| 8 | SF Country Club GC | 1 | 15 |
| 1 | MRC | 4 | 3 |
| 10 | On-demand Sales | 5 | 6 |
| 12 | Landfill | 6 | 7 |
| 7 | Marty Sanchez GC | 7 | 9 |
| 2 | SF Downs | 8 | 11 |
| 15 | Future Water Supply | 9 | 2 |
| 3 | SWAN Park | 10 | 4 |
| 11 | NM Game & Fish | 11 | 5 |
| 4 | SW Irrigated Parks | 12 | 8 |
| 5 | Downstream SF River | 13 | 10 |
| 6 | Upstream SF River | 14 | 13 |
| 9 | SF Equestrian Center | 15 | 14 |

Note: The weighted rankings shaded show a change in ranking of at least 3 positions.



7 Reclaimed Wastewater Use Portfolios

The final step in this analysis combines RW options (i.e., portfolios) that allocates the volume of RW according to the rankings in Table 4 of the previous section and compares the RW current demand to the 150 mg/mo (467 af/mo) of RW available. Three distinct portfolios are presented for different time frames: the current; the near-term - the future when the infrastructure for most of the RW options can be designed and constructed, and the allocated RW used; and the 2020s when the mechanism for using RW to augment potable water supply has been defined, designed and implemented. The portfolios compile the appropriate RW options and their associated monthly RW flow budgets for each of the three timeframes, stacked from bottom to top according to the rankings in Table 4.

7.1 Current Portfolio

The 'current' allocation looks very similar to the way RW is currently used (Figure 10). Enough RW exists to satisfy all the options except the Downstream Santa Fe River in the peak month of June and the SF Equestrian Center in May, June, and July (Figure 10). Note that options with RW budgets of less than 2 mg/mo (6 af/mo) do not show up well in Figure 10. The SWAN park use is not shown here because, although Phase 1 may be completed by 2014, Phase 1 will not consume the majority of the RW allocated for the park. The Upstream SF River, SW Irrigated Parks and Potable Supply options are not included, because none are existing uses. In the 'current' portfolio, all RW potentially earmarked for potable supply in the future flows into the Santa Fe River, downstream from the WWTP, as it does today.

While the analysis of supply versus demand of RW on a monthly basis shows supply roughly equal to existing demand, a closer look on a Maximum Day basis (see Figure ??) shows that current demand (roughly 6 mg/d) exceeds current supply (5 mg/d) of RW by 20 percent, and it is generally agreed that during critical dry summer conditions the supply of RW will likely be depressed such that demand could easily be as high as 150 percent of supply. Further, since most contracts are established on a maximum day basis, this localized shortage of RW could be expected to occur anytime during the summer months (not just June), depending on rainfall.

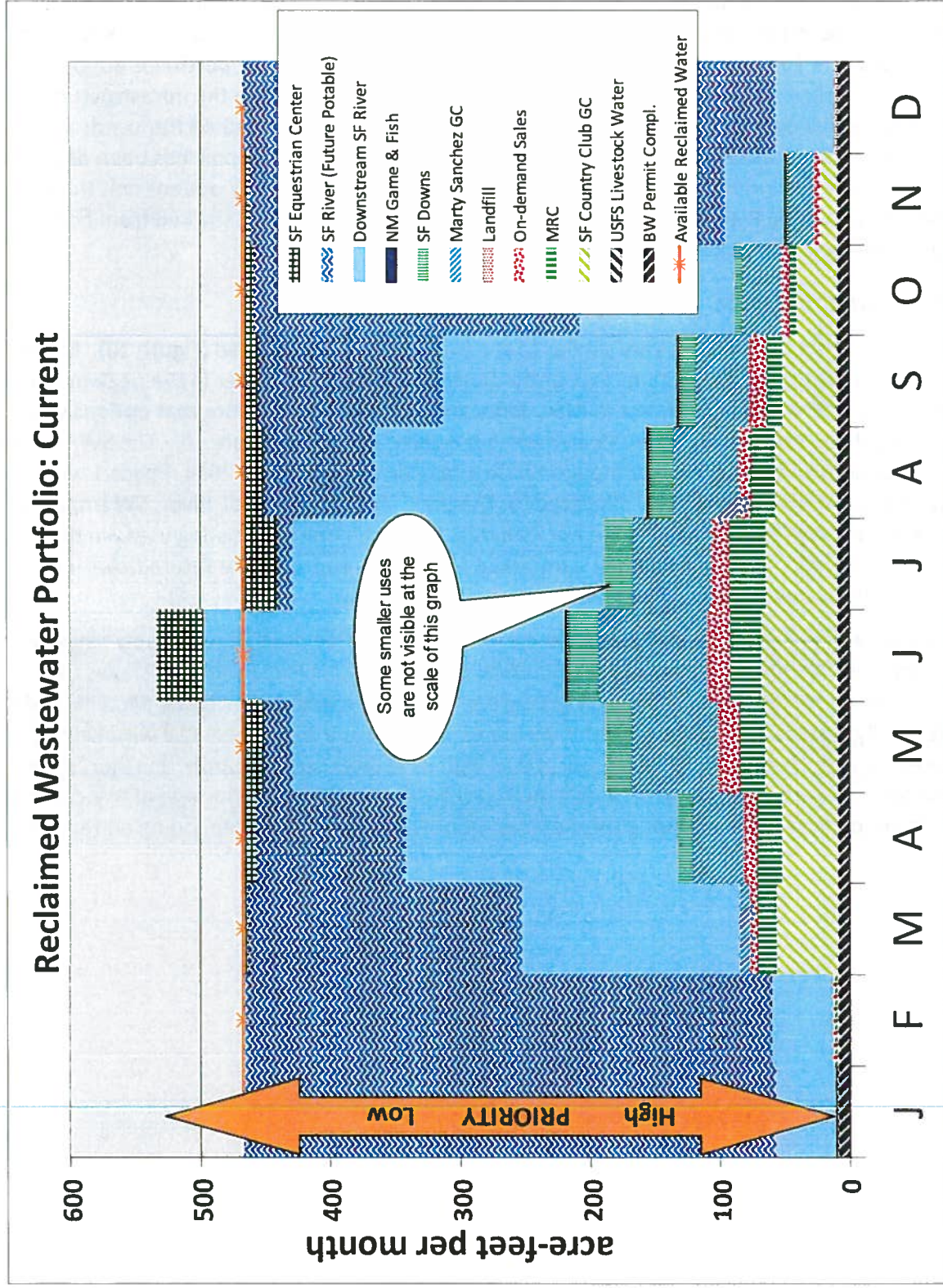


Figure 10: Current Reclaimed Wastewater Portfolio



7.2 Near-Future Portfolio

Five years into the future, the RW portfolio changes because by this time the City has had the time to implement the highly ranked RW options - like the SWAN Park, the SW irrigated parks and possibly Upstream SF River (Figure 11). The RW flow budgets of all options are met except those for the Downstream SF River in June, SF Equestrian Center in May-July, and the Upstream SF River in May- July (Figure 11). In the current ranking (Table 4), the Potable Supply option is valued as more important than Upstream Santa Fe River, and the two options directly compete for the same RW. Should the governing body proceed with the Upstream SF River option, it will likely reduce the amount of water available for potable supply in future years by 25%. Similar to the above analysis, while the maximum month comparison of RW supply versus demand shows a disconnect, the maximum day analysis further shows that available RW is even more stressed as these new highly ranked projects come on-line.

7.3 2020s Portfolio

The third RW portfolio presented herein applies to the decade in which the City begins using RW to augment potable water supply (Figure 12). Because using RW for potable supply ranks higher (Table 4) than the SF Equestrian Center or Upstream SF River, the RW demand of these options cannot be met. The amount of RW available for potable supply is approximately 717 mg/yr (2,200 af/yr). The governing body could allocate additional potable water supply from any other City-controlled RW options, like Downstream SF River, Marty Sanchez GC, MRC, SWAN Park or SW Irrigated Parks, should that be desired.

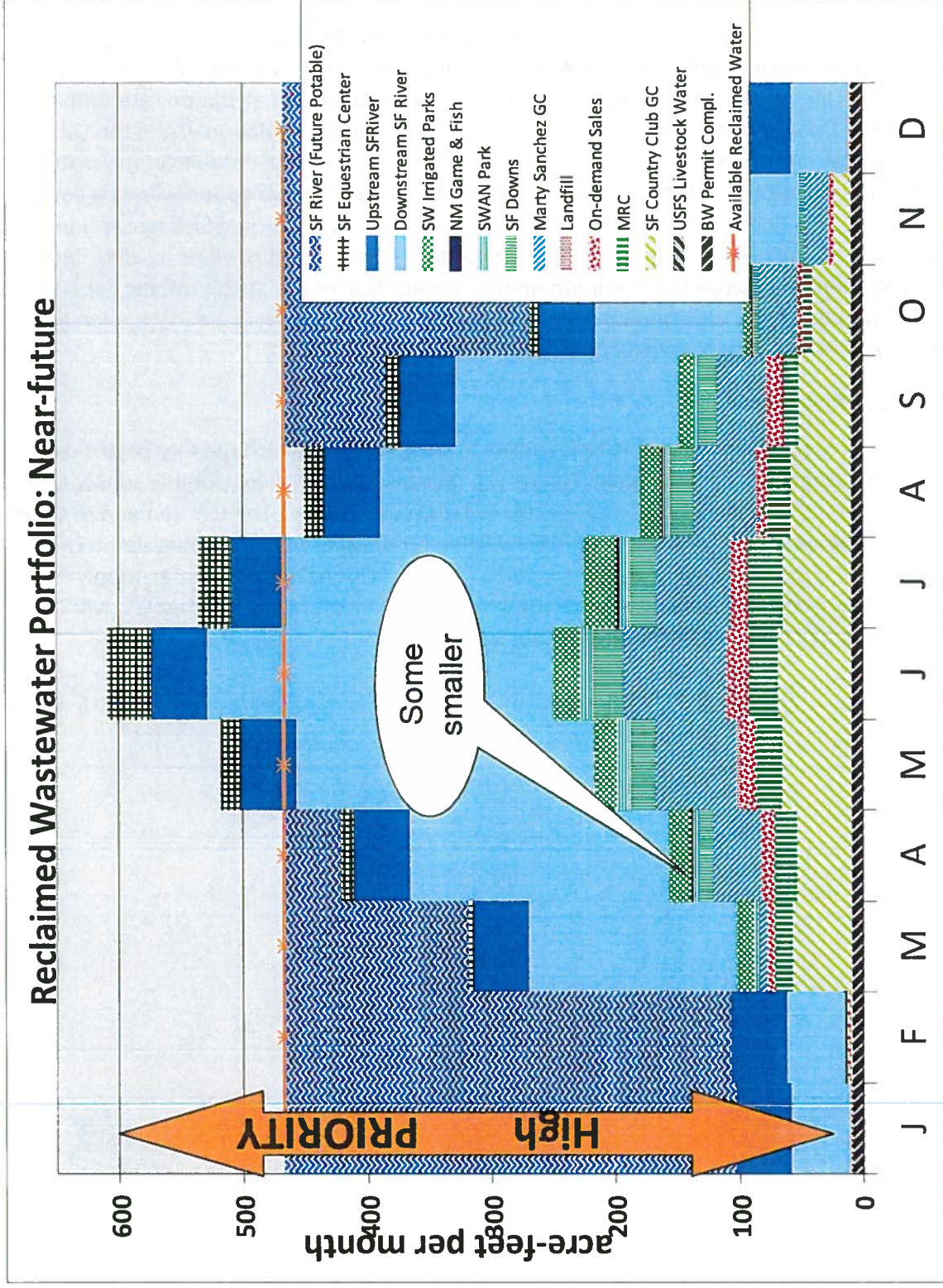


Figure 11: Near-future Reclaimed Wastewater Portfolio

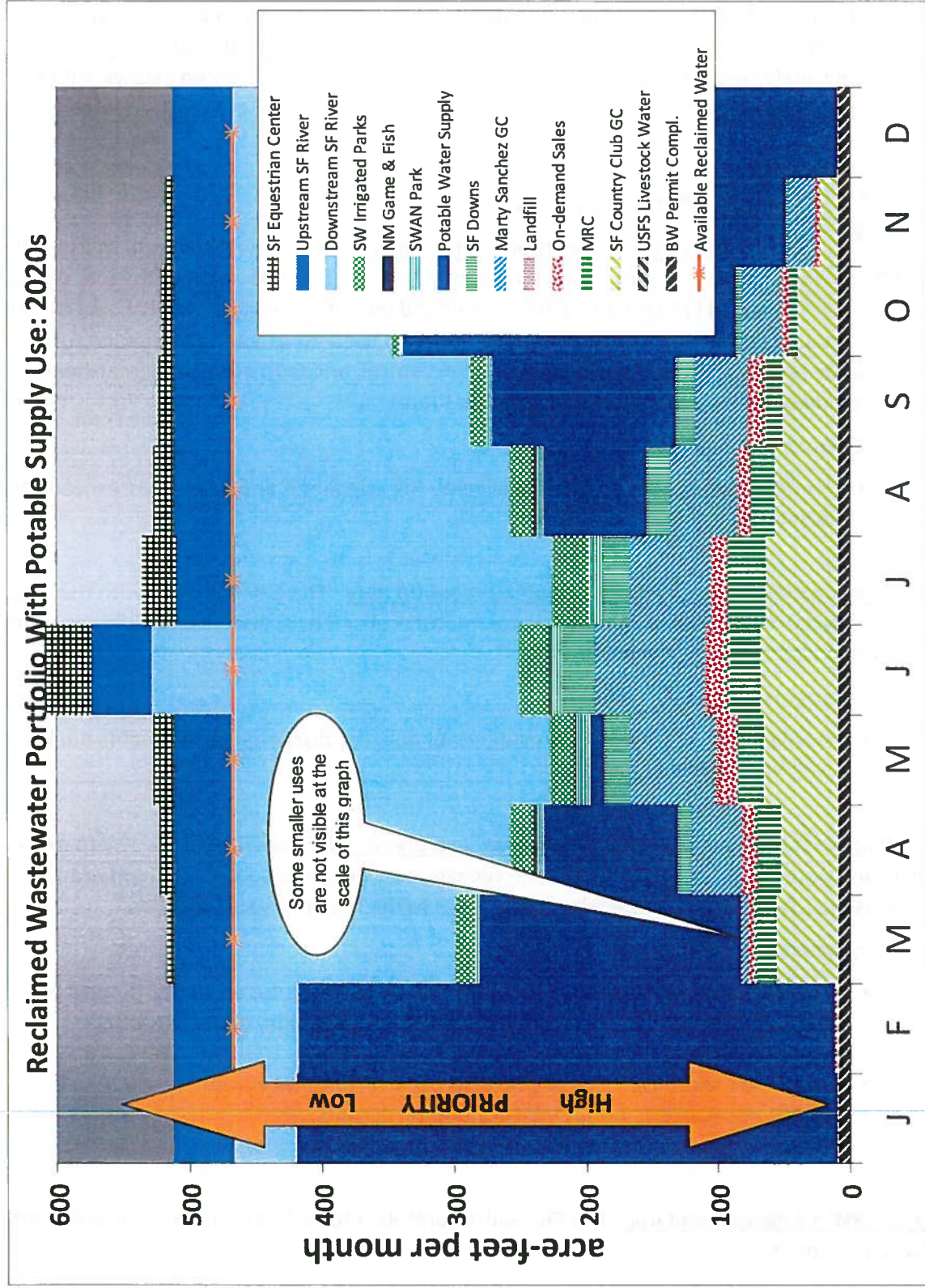


Figure 13. 2020s Reclaimed Wastewater Portfolio



8 Reclaimed Wastewater Resource Strategies and Implementation Actions

Based on the findings of this Plan, the City establishes the following strategies related to the use of RW currently and in the future. The strategies are grouped into the following themes: water supply, water quality, economic, operational and management, 'green', stewardship. Although the policies are categorized under these headlines, they are often interrelated.



8.1 Water Supply Theme

Use RW as a non-potable water supply. The City will continue to use RW as a water supply source. Currently 1.34 mg/d (1,500 af/yr) of the City's 10.3 mg/d (11,500 af/yr) annual demand (about 13 %) is met by RW, and as much as 17% is supplied during summer months. The supply is used for irrigating recreation turf (playing fields, golf courses, etc), construction, dust control, and with additional treatment could supplement potable drinking sources in the future.

Implementing Actions:

- Use the methodology herein to allocate RW supplies if and when they exceed the amounts assumed in this plan.

Use RW to meet Buckman Wells permit offset requirements. The City will work with the OSE to use released RW to offset the surface water impacts caused by groundwater pumping from the Buckman well field.

Implementing Actions:

- Provide OSE with hydrologic evidence of how the discharge of RW meets Buckman well field permit conditions.

Use RW to meet some of the City's future potable water needs. The City will use RW to meet some future potable water supply needs and recognizes that expeditious implementation of this RW use has hydrological and ecological benefits to the region's water supplies.

Implementing Actions:

- Conduct a feasibility analysis of the options and timing for using RW for potable supply (e.g. return flow credit pipeline to the Rio Grande, direct use with treatment, or aquifer storage and recovery).
- Determine water right requirement to use RW for potable use.
- Secure necessary water and environmental permits.
- Design and construct the chosen RW potable supply option.

Measure RW production and use. The City will accurately track RW production, use, and Santa Fe River discharges.



Implementing Actions:

- Develop a program to more accurately quantify RW use. The program may include RW meter reading and calibration requirements, standard RW recording and calculation procedures, and additional meters.
- Build a cooperative RW meter calibration program wherein qualified Public Utilities staff members calibrate meters of RW users for a nominal fee.
- Annually calculate unaccounted RW and if necessary identify ways to reduce RW losses.



8.2 Economic Theme

Value RW as a municipal asset. Currently, water and wastewater rate payers subsidize non-paying RW uses. As was recommended in the 2003 WRATF report, an equitable economic model entails all facilities benefiting from the RW paying for the use of the resource.

Implementing Actions:

- Require all RW users to pay equitably for the resource.

Use RW to generate revenue. Currently, the City's wastewater users through their payment of wastewater rates fund the collection and production of RW. The current RW pricing is not consistent (varies from no charge to \$3.20 per 1,000 gallons of RW). Revenues collected by the sale of additional RW could be used to further defray treatment costs. One of the largest RW revenue sources, Las Campanas Golf Course, will no longer be paying \$300,000 to \$400,000 annually to the WWD beginning in 2012. Figure X graphically displays the revenues that could be obtained if only 50 percent of the RW was purchased at the \$3.03/1,000 gallon rate, the recent revenues from Las Campanas and the anticipated revenues for all other sources.

Implementing Actions:

- The true cost and value of RW should be identified. Determine the historic, current and future capital cost for producing RW, managing RW use, the RW opportunity cost (either the market value or the value to City for other uses), and the RW economic value. Include factors like cost avoidance, recreational and environmental services, and aquifer sustainability.
- Determine a RW rate structure that considers the various economic factors above. The rate factor may differ for different types of users (municipal, regional governmental, federal government, commercial, etc.), but the program should be systematic and transparent rather than arbitrary.
- Seek compensation for RW released to the Santa Fe River explicitly for the benefit of users downstream.
- Claim and market the RW stored in the aquifer near the WWTP from RW passively infiltrating via the Santa Fe River.



Seek financial assistance to implement recommendations of this plan. Many of the implementing actions in this Plan require financial resources to implement. Some funding may be available within current City departmental budgets; much will need to be secured through local, state, federal and non-profit organizations grants and loans.

Implementing Actions:

- Seek grants and low-cost loans to implement the recommendations herein from federal (e.g. Bureau of Reclamation Title 16, WaterSMART program), state (e.g. Water Trust Board, 319) and non-profit (e.g. River Network) sources.



8.3 Water Quality Theme

Produce high quality RW. The City's WWTP produces RW that meets the state regulatory requirements and federal guidelines. Periodically and as needed, the WWTP upgrades its processes and facilities to meet new regulatory requirements and enhance the quality of RW produced. The development of membrane filtration technologies over the past 10-years has resulted in a movement towards higher quality RW effluent.

Implementing Actions:

- Monitor the development of RW discharge standards in other states and monitor EPA's adoption of more stringent guidelines in the future.
- In order to better assure meeting bacteriological discharge requirements and to minimize potential adverse health effects due to exposure of RW, consider appropriate advanced treatment technologies or improvements to the multi-media filtration and disinfection unit operations. This would also permit the WWD RW to meet Class 1A Reclaimed Wastewater rather than the current Class 1B standard.
- Support existing household pharmaceutical disposal program to decrease pharmaceutical products in the City's wastewater, RW, and Santa Fe River.

Minimize the public health risk in land application of RW. Because of inherent RW exposure risk, federal and state regulations dictate under what conditions RW can be used for irrigation. While the WWD produces RW and is required to meet the conditions of the discharge permit, the division does not oversee the land application

Implementing Actions:

- Cooperate with RW land applicators to assure discharge permit compliance.
- Review and update protocols and Best Management Practices for municipal entities that irrigate with RW.
- Collect and centralize use data, compliance reports and other RW use related documents from municipal RW users.
- Add release of liability statements into contracts with non-municipal RW irrigators.



8.4 Operational and Management Theme



Optimize existing RW delivery capacity. Currently, no standard operating procedure exists on how to allocate daily RW among the users. Additionally, some key infrastructure may assist in the ability to meet multiple, often competing demands for RW. Enhanced management allows better use of the resource.

Implementing Actions:

- Develop an RW diversion and delivery protocol identifying which users can divert when, how much, and for how long.
- Conduct a RW infrastructure improvement study to determine how existing or new RW infrastructure can be optimized to best supply existing and future (e.g. SWAN Park) RW users.
- Consider how increased storage (e.g. the 2 million gallon RW tank), other infrastructure improvements, automation, variable frequency pumping, etc. can be used to achieve equity, timing, and shortage-sharing objectives.
- Identify if the Las Campanas RW pipeline can assist in creating system redundancy or optimization and seek necessary use agreements.

Develop necessary and equitable contracts, resolutions, and ordinances. Current RW users receive RW under varying circumstances, rates, and conditions.

- Unify contract provisions, renewal processes, and RW rates.
- Seek compensation for all RW use. In instances where the municipality or another entity does not pay for RW, recognize the value of the RW being provided
- Streamline process for short-term contract renewal.
- Seek short-term, non summer month RW contracts.

Determine shortage sharing and emergency guidelines. Currently, no guidelines exist on how to curtail RW during shortages or emergencies, as recommended within the WRATF Final 2003 Report. Additionally, no provisions exist for back-up water supply for some uses.

Implementing Actions:

- Develop criteria, strategies, processes, and protocols for addressing shortages, water quality changes, back-up supplies, and emergencies to better adapt to future conditions.
- Revise RW use agreements to include sharing shortage parameters, water quality constraints, and other circumstances of non-diversion.

Build a RW reserve into RW allocation. A RW water reserve would help mitigate the natural daily and seasonal fluctuations that occur in RW production. The reserve would also provide some water for unforeseen conditions.

Implementing Actions:



- Allocate between 1-5% of the total monthly RW and/or RW storage to a reserve account, perhaps storing water in the regional aquifer



8.5 Stewardship Theme

Provide adequate flows to the Santa Fe River. The City recognizes the environmental, recreational and water quality services provided by the Santa Fe River and specifically the Santa Fe Rural Protection Zone.

Implementing Actions:

- Determine the minimum and target flow requirements to maintain the ecological services provided by the Rural Protection Zone.

Collaborate and coordinate with downstream agricultural communities and other stakeholders. The City recognizes that the RW from the WWTP provides water that downstream agriculture has become dependent upon since natural spring flows in the area have decreased.

Implementing Actions:

- Provide WWTP output data regularly to interested parties.
- Collectively develop and implement a stream flow monitoring program to better understand water budgets in the La Cienegilla, La Cienega, and La Bajada region.
- Convene a public workshop with water right experts to develop a common understanding of the water rights issues and to better understand the City's legal obligations.
- Develop an operating arrangement with daily, monthly and annual stream flow targets, within the adopted RW priority system.
- Participate in planning processes of area communities, encourage rural-urban relationships, and seek multi-party win-win solutions to issues identified.



8.6 Green Theme

Use RW efficiently. Like all others water resource, RW is precious. By using RW efficiently, the number of RW uses can expand.

Implementing Actions:

- Initiate a required irrigation efficiency analysis for each RW user. Consider the efficacy of converting irrigated recreational areas to artificial turf and the use of more advanced irrigation technology.
- Institute annual, monthly and daily water budgets and maximums for each RW user and, to the extent possible, define the use quantity, either by contract or governing body action.



- Provide incentives and resources for RW users to increase efficiency.
- Identify locations where irrigation of RW can be reduced or eliminated (e.g. implementing more efficient irrigation systems, by monitoring application rates by evapotranspiration (ET) or by artificial turf replacement)

Use low or renewable energy sources for RW transmission and distribution. Some RW uses can be served primarily via gravity. Others require some or significant pumping. As little energy as possible should be used to transmit RW from the WWTP to its use location.

Implementing Actions:

- Size infrastructure to optimize energy use.
- Promote RW uses that require less transmission power.

Build resiliency and adaptation into RW planning and management. While RW production is relatively immune to the impacts of climate change, RW irrigation demand will likely increase under hotter and drier conditions. The management of RW needs to plan for, adapt, and thus become more resilient to projected climate change effects.

Implementing Actions:

- Determine projected climate change impacts on RW demand and build into RW budgets, management, and operations procedures.
- Bank excess RW in local aquifers, particularly during the fall and spring shoulder months and throughout the winter.



Appendix A. References

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Water Reuse in the West: State Programs and Institutional Issues, Western States Water Council, July 2011.



Appendix B. 2008-2011 Reclaimed Wastewater Use Data

| 2007 Santa Fe Effluent Water | SF RIVER Flow MG Monthly Totals | Las Campanas Flow MG Monthly Totals | SF Country Club Flow MG Monthly Totals | Santa Fe Horse Park Flow MG Monthly Totals | MRC Pipe System ¹ Flow MG Monthly Totals | SF Downs Flow MG Monthly Totals | Standpipe/ Process Flow MG Monthly Totals | Monthly Flow SUM MG |
|---------------------------------------|---|--|---|---|---|---|--|------------------------------|
| Jan | 153.945 | 0 | 0 | 0 | 0.0246 | 0 | 0.4445 | 154.4141 |
| Feb | 139.148 | 0 | 0 | 0 | 1.1953 | 0 | 1.0974 | 141.4407 |
| Mar | 138.737 | 3.3193 | 5.8981 | 0 | 10.7698 | 0 | 2.9787 | 161.7029 |
| Apr | 115.531 | 11.031 | 9.44 | 0 | 15.8538 | 2.355 | 3.137 | 157.1478 |
| May | 104.738 | 17.506 | 10.776 | 0 | 22.3269 | 5.444 | 3.6384 | 164.4293 |
| Jun | 90.695 | 20.519 | 15.433 | 0 | 28.5375 | 8.122 | 4.3155 | 167.622 |
| Jul | 93.6676 | 23.501 | 14.387 | 0 | 18.112 | 5.469 | 4.4991 | 159.6357 |
| Aug | 85.1816 | 20.035 | 17.298 | 0 | 21.4063 | 8.25 | 5.4569 | 157.6278 |
| Sep | 111.095 | 14.264 | 11.799 | 0 | 16.0564 | 6.002 | 4.0606 | 163.277 |
| Oct | 134.7019 | 12.971 | 10.852 | 0 | 16.7598 | 4.875 | 6.3359 | 186.4956 |
| Nov | 165.1593 | 0 | 6.057 | 0 | 9.3423 | 1.977 | 3.3679 | 185.9035 |
| Dec | 142.913 | 0 | 0 | 0 | 0.0076 | 0 | 1.0666 | 143.9872 |
| Sum | 1475.51 | 123.15 | 101.94 | 0.00 | 160.19 | 42.49 | 40.40 | 1943.68 |

1. The MRC Pipe System serves Caja Del Rio, Marty Sanchez, City of SF Sports Complex, NM Game & Fish, and US Forest Service.

Reclaimed Wastewater 2008 Monthly Totals - (MG)

| 2008 Santa Fe Effluent Water | SF RIVER Flow MG Monthly Totals | Las Campanas Flow MG Monthly Totals | SF Country Club Flow MG Monthly Totals | Santa Fe Horse Park Flow MG Monthly Totals | MRC Pipe System ¹ Flow MG Monthly Totals | SF Downs Flow MG Monthly Totals | Standpipe/ Process Flow MG Monthly Totals | Monthly Flow SUM MG |
|---------------------------------------|---|--|---|---|---|---|--|------------------------------|
| Jan | 165.43 | 0 | 0 | 0 | 0.02 | 0 | 1.61 | 167.06 |
| Feb | 153.61 | 0 | 0 | 0 | 0.01 | 0 | 1.41 | 155.03 |
| Mar | 143.52 | 7.85 | 5.09 | 0 | 5.84 | 2.25 | 4.04 | 168.59 |
| Apr | 95.53 | 14.33 | 11.81 | 0 | 13.51 | 4.5 | 2.62 | 142.3 |
| May | 96.55 | 18.92 | 14.19 | 0 | 13.67 | 6.63 | 3.2 | 153.16 |
| Jun | 72.22 | 22.69 | 18.02 | 0 | 28.09 | 9.61 | 5.25 | 155.88 |
| Jul | 90.66 | 25.39 | 15.94 | 0 | 25.29 | 6.57 | 3.23 | 167.08 |
| Aug | 97.68 | 19.01 | 14.38 | 0 | 23.65 | 7.47 | 3.93 | 166.12 |
| Sep | 101.46 | 15.37 | 11.62 | 0 | 16.75 | 5.74 | 3.24 | 154.18 |
| Oct | 116.99 | 9.67 | 7.86 | 0 | 20.57 | 3.08 | 2.18 | 160.35 |
| Nov | 130.4 | 0 | 7.24 | 0 | 9.11 | 1.95 | 1.81 | 150.51 |
| Dec | 155.32 | 0 | 0 | 0 | 2.27 | 0 | 0.97 | 158.56 |
| Sum | 1419.39 | 133.24 | 106.14 | 0.00 | 158.79 | 47.79 | 33.48 | 1898.82 |

Reclaimed Wastewater 2009 Monthly Totals (MG)

| 2009 Santa Fe Effluent Water | SF RIVER Flow MG Monthly Totals | Las Campanas Flow MG Monthly Totals | SF Country Club Flow MG Monthly Totals | Santa Fe Horse Park Flow MG Monthly Totals | MRC Pipe System ¹ Flow MG Monthly Totals | SF Downs Flow MG Monthly Totals | Standpipe/ Process Flow MG Monthly Totals | Monthly Flow SUM MG |
|---------------------------------------|---|--|---|---|---|---|--|------------------------------|
| Jan | 153.1 | 0 | 0 | 0 | 0.82 | 0 | 1.03 | 154.95 |
| Feb | 127.84 | 0 | 3.11 | 0 | 4.41 | 0 | 2.3 | 137.66 |
| Mar | 117.36 | 9.32 | 9.47 | 0 | 12.52 | 1 | 2.75 | 152.42 |
| Apr | 101.49 | 12.28 | 11.5 | 0 | 17.26 | 3.66 | 2.38 | 148.57 |
| May | 95.76 | 19.45 | 14.34 | 0 | 22.62 | 4.77 | 2.09 | 159.03 |
| Jun | 80.75 | 21.88 | 14.26 | 0 | 22.57 | 5.51 | 2.38 | 147.35 |
| Jul | 90.64 | 24.47 | 14.77 | 0 | 27.73 | 6.62 | 2.27 | 166.5 |
| Aug | 67.33 | 22.17 | 15.41 | 0 | 27.73 | 5.72 | 2.26 | 140.62 |
| Sep | 81.62 | 12.76 | 10.36 | 0 | 19.92 | 3.6 | 1.82 | 130.08 |
| Oct | 92.66 | 9.77 | 5.86 | 0 | 15.56 | 3.07 | 3.19 | 130.11 |
| Nov | 133.92 | 0 | 3.13 | 0 | 0.26 | 1.5 | 3.65 | 142.46 |
| Dec | 144.22 | 0 | 0 | 0 | 1.97 | 0 | 0.78 | 146.97 |
| Sum | 1286.67 | 132.10 | 102.21 | 0.00 | 173.37 | 35.45 | 26.89 | 1756.72 |



Reclaimed Wastewater Resource Plan Draft

December, 2012

Effluent Reuse 2010 Monthly Totals (MG)

| 2010 Santa Fe Effluent Water | INFLUENT Flow MG Monthly Totals | Las Campanas Flow MG Monthly Totals | SF Country Club Flow MG Monthly Totals | Santa Fe Horse Park Flow MG Monthly Totals | SF Downs Flow MG Monthly Totals | Standpipe/ Process Flow MG Monthly Totals | Caja Del Rio Flow MG Monthly Totals | Marty Sanchez Flow MG Monthly Totals | Sports Complex Flow MG Monthly Totals | NM Game and Fish Flow MG Monthly Totals | US Forest Service Flow MG Monthly Totals | Total Users Flow MG Monthly Totals | SF River Flow MG Monthly Totals | TOTAL FLOW MG Monthly Totals |
|---------------------------------------|---|--|---|---|---|--|--|---|--|--|---|---|---|--|
| Jan | 231.31 | 0 | 0 | 0 | 0 | 0.87 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 1.01 | 144.14 | 145.15 |
| Feb | 212.25 | 0 | 0 | 0 | 0 | 0.22 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 135.28 | 135.52 |
| Mar | 233.51 | 0 | 1.57 | 0 | 0 | 0.49 | 0.08 | 1.97 | 0.00 | 0.00 | 0.00 | 4.11 | 150.9 | 155.01 |
| Apr | 223.61 | 13.63 | 8.719 | 0 | 2.78 | 2.77 | 0.48 | 13.74 | 3.87 | 0.00 | 0.00 | 45.98 | 105.29 | 151.27 |
| May | 233.17 | 19.64 | 16.184 | 0 | 7.47 | 4.4 | 0.93 | 23.44 | 8.51 | 0.00 | 0.19 | 80.77 | 75.09 | 155.86 |
| Jun | 229.62 | 23.45 | 19.702 | 0 | 8.23 | 5.43 | 1.14 | 27.44 | 9.23 | 0.41 | 0.21 | 95.23 | 70.48 | 165.71 |
| Jul | 246.13 | 25.34 | 13.219 | 0 | 6.26 | 3.67 | 0.35 | 13.51 | 5.06 | 0.41 | 0.00 | 67.81 | 97.13 | 164.94 |
| Aug | 244.49 | 18.60 | 15.305 | 0 | 6.38 | 2.32 | 0.41 | 24.43 | 6.61 | 0.22 | 0.21 | 74.49 | 96.47 | 170.96 |
| Sep | 249.97 | 17.74 | 15.185 | 0 | 6.67 | 2.11 | 0.71 | 19.84 | 6.70 | 0.00 | 0.34 | 69.29 | 91.69 | 160.98 |
| Oct | 269.58 | 16.02 | 7.885 | 0 | 2.25 | 1.42 | 0.42 | 11.36 | 4.24 | 0.00 | 0.30 | 43.88 | 116.54 | 160.22 |
| Nov | 255.12 | 0 | 3.405 | 0 | 1.49 | 1.53 | 0.26 | 6.58 | 0.86 | 0.00 | 0.34 | 14.46 | 130.26 | 144.72 |
| Dec | 260.26 | 0 | 2.429 | 0 | 0 | 0.78 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 3.30 | 143.44 | 146.74 |
| Total | 2889.02 | 134.42 | 103.40 | 0.00 | 41.52 | 25.99 | 5.04 | 142.31 | 45.09 | 1.03 | 1.59 | 500.38 | 1356.71 | 1857.09 |

Reclaimed Wastewater 2011 Monthly Totals (MG)

| 2011 Santa Fe Effluent Water | INFLUENT Flow MG Monthly Totals | Las Campanas Flow MG Monthly Totals | SF Country Club Flow MG Monthly Totals | Santa Fe Horse Park Flow MG Monthly Totals | SF Downs Flow MG Monthly Totals | Standpipe/ Process Flow MG Monthly Totals | Caja Del Rio Flow MG Monthly Totals | Marty Sanchez Flow MG Monthly Totals | Sports Complex Flow MG Monthly Totals | NM Game and Fish Flow MG Monthly Totals | US Forest Service Flow MG Monthly Totals | Total Users Flow MG Monthly Totals | SF River Flow MG Monthly Totals | TOTAL FLOW MG Monthly Totals |
|---------------------------------------|---|--|---|---|---|--|--|---|--|--|---|---|---|--|
| Jan | 257.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.27 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 | 141.56 | 141.90 |
| Feb | 238.03 | 0.00 | 0.50 | 0.00 | 0.00 | 0.64 | 0.10 | 1.61 | 0.09 | 0.00 | 0.00 | 2.94 | 136.43 | 139.36 |
| Mar | 254.83 | 0.00 | 15.43 | 0.00 | 2.41 | 1.98 | 0.46 | 12.98 | 4.83 | 0.12 | 0.14 | 38.36 | 116.23 | 154.59 |
| Apr | 251.32 | 14.36 | 14.24 | 0.00 | 2.09 | 2.60 | 0.53 | 20.87 | 7.42 | 0.14 | 0.28 | 62.52 | 82.34 | 144.86 |
| May | 261.80 | 19.68 | 18.47 | 0.00 | 6.30 | 4.74 | 0.39 | 9.77 | 6.25 | 0.12 | 0.19 | 65.91 | 74.33 | 140.23 |
| Jun | 252.99 | 23.30 | 19.30 | 0.00 | 7.03 | 5.71 | 0.68 | 2.68 | 7.82 | 0.17 | 0.22 | 66.92 | 64.03 | 130.94 |
| Jul | 259.38 | 25.46 | 18.08 | 0.00 | 4.01 | 3.88 | 0.56 | 26.94 | 8.58 | 0.18 | 0.29 | 87.99 | 67.34 | 155.34 |
| Aug | 250.08 | 14.69 | 15.77 | 0.00 | 4.85 | 2.47 | 0.27 | 22.08 | 6.77 | 0.12 | 0.34 | 67.37 | 93.38 | 160.75 |
| Sep | 233.53 | 14.88 | 13.82 | 0.00 | 4.90 | 4.20 | 0.32 | 18.19 | 4.09 | 0.25 | 0.27 | 60.88 | 92.02 | 152.90 |
| Oct | 238.98 | 14.48 | 10.19 | 0.00 | 3.50 | 1.60 | 0.21 | 10.23 | 2.31 | 0.04 | 0.18 | 42.74 | 110.15 | 152.89 |
| Nov | 226.34 | 0.00 | 4.44 | 0.00 | 1.71 | 1.14 | 0.07 | 0.71 | 0.00 | 0.04 | 0.29 | 8.41 | 137.69 | 146.10 |
| Dec | 231.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.07 | 0.10 | 0.32 | 160.33 | 160.64 |
| Total | 2954.31 | 126.83 | 130.23 | 0.00 | 36.81 | 29.37 | 3.67 | 126.07 | 48.17 | 1.25 | 2.31 | 504.70 | 1275.82 | 1780.51 |



Appendix C: Reclaimed Wastewater Availability Calculations



Appendix D: Options Considered

Option ID

Option Name

Public Park/Greenspace Irrigation:

- 1 Multi-Use Recreation Complex
- 2 Santa Fe Downs Infield Playing Fields
- 3 SWAAN: Planned Recreation Park
- 4 SW Sector: Other Irrigation Parks
- 5 SF River Rural Protection Zone
- 6 SF River, Upstream of 599, 0.75 cfs

Public Golf Course Irrigation:

- 7 Santa Fe Country Club Golf Course
- 8 Marty Sanchez Golf Course

Revenue Generating:

- 9 Las Campanas Golf Course
- 10 SF Equestrian Center

Conservation, Education, and Resource Management

- 11 Reclaimed, On-Demand Water Sales for Construction, Dust Control, etc
- 12 Educational Center, NM Game and Fish (Pond)
- 13 Caja del Rio Regional Landfill

Traditional Irrigated Agriculture

- 14 SF River Downstream WWTP Flow: 1.5 cfs (in addition to Option #5)
- 15 SF River Downstream WWTP Flows: 2.0 cfs (in addition to Option #5)
- 16 SF River Downstream WWTP Flows: 0.75 to 2.0 cfs (in addition to Option #5)

Buckman Well Permit Compliance (Office of the State Engineer Requirements):

- 17 Discharge credit
- 18 USFS: well replacement

Future Water Supply:

- 19 Return flow credit via Rio Grande
- 20 Direct Reuse
- 21 Aquifer storage (AS) - for later recovery

Possible Future Ecosystem Requirements:

- 22 Wetlands
- 23 Santa Fe Basin Adjudication
- 24 ESA requirements on Rio Grande



Appendix G: Non-weighted and Weighted Scores

NON-WEIGHTED SCORING OF RECLAIMED WASTEWATER OPTIONS

| | ENSURE COMMUNITY ACCEPTABILITY | | | | | IMPROVE WATER SUPPLY RELIABILITY | | | | |
|-------------------------------|--|---|---|---|---|---------------------------------------|---|---|---|---|
| | Maximum community and cultural values (On this support test to the community?) | | | | | Maximum Quality of Life for Community | | | | |
| | 5 | 4 | 3 | 2 | 1 | 5 | 4 | 3 | 2 | 1 |
| Max Score | | | | | | | | | | |
| ALL SCORES INDIVIDUALLY BASED | | | | | | | | | | |
| 1 MRC | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 13 BW Permit Compl. | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 10 On-demand Sales | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 12 Landfill | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 3 SWAN Park | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 15 Future Water Supply | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 11 NM Gains & Fish | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 7 Marty Sanchez GC | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 5 Downstream SF River | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 2 SW Irrigated Parks | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 2 SF Dams | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 6 Upstream SF River | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 14 USFS Livestock Water | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 9 SF Equestrian Center | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 8 SF Country Club GC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UNIVERSAL SCORES FOR COSTS | | | | | | | | | | |
| 13 BW Permit Compl. | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1 MRC | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 10 On-demand Sales | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 12 Landfill | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 11 NM Gains & Fish | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 3 SWAN Park | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 2 SF Dams | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 7 Marty Sanchez GC | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 5 Downstream SF River | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 4 SW Irrigated Parks | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 15 Future Water Supply | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 14 USFS Livestock Water | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 9 SF Equestrian Center | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 6 Upstream SF River | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 8 SF Country Club GC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



NON-WEIGHTED SCORING OF RECLAIMED WASTEWATER OPTIONS (continued)

| | | PROTECT THE ENVIRONMENT | | | MANAGE COSTS | | |
|-------------------------|---|-------------------------------|-----|-----|---|-----|------|
| | | Minimize impact on ecosystems | | | Minimize overall project cost | | |
| | | Maximize "greenness" | | | Minimize government cost (impact on water and wastewater rates) | | |
| | | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 15.0 |
| Max Score | | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 15.0 |
| ALL SCORES INDIVIDUALLY | | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 15.0 |
| 1 MRC | 5 | 2 | 4 | 4 | 4 | 2 | 5 |
| 13 BW Permit Compl. | 8 | 3 | 8 | 3 | 8 | 3 | 19 |
| 10 On-Demand Sales | 5 | 2 | 5 | 4 | 5 | 4 | 16 |
| 12 Landfill | 4 | 2 | 4 | 3 | 4 | 3 | 11 |
| 3 SWAN Park | 3 | 2 | 3 | 3 | 3 | 3 | 9 |
| 15 Future Water Supply | 5 | 5 | 5 | 5 | 5 | 5 | 25 |
| 11 NM Game & Fish | 7 | 2 | 4 | 4 | 4 | 4 | 22 |
| 7 Mary Sanchez GC | 6 | 0 | 6 | 1 | 6 | 1 | 13 |
| 5 Downstream SF River | 8 | 0 | 8 | 0 | 8 | 0 | 16 |
| 4 SW Irrigated Parks | 2 | 2 | 4 | 4 | 4 | 4 | 14 |
| 2 SF Downs | 4 | 2 | 4 | 4 | 4 | 4 | 16 |
| 6 Upstream SF River | 5 | 3 | 5 | 4 | 5 | 4 | 17 |
| 14 USFS Livestock Water | 6 | 2 | 6 | 2 | 6 | 2 | 14 |
| 9 SF Equestrian Center | 5 | 1 | 4 | 4 | 4 | 4 | 13 |
| 8 SF County Club GC | 2 | 0 | 2 | 2 | 2 | 2 | 6 |
| UNIVERSAL SCORES | | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 15.0 |
| 13 BW Permit Compl. | 6 | 3 | 8 | 3 | 8 | 3 | 19 |
| 1 MRC | 5 | 2 | 4 | 4 | 4 | 2 | 16 |
| 10 On-Demand Sales | 5 | 2 | 5 | 4 | 5 | 4 | 16 |
| 12 Landfill | 4 | 2 | 4 | 3 | 4 | 3 | 11 |
| 11 NM Game & Fish | 7 | 2 | 4 | 4 | 4 | 4 | 22 |
| 3 SWAN Park | 3 | 2 | 3 | 3 | 3 | 3 | 9 |
| 2 SF Downs | 4 | 2 | 4 | 4 | 4 | 4 | 16 |
| 7 Mary Sanchez GC | 6 | 0 | 6 | 1 | 6 | 1 | 13 |
| 5 Downstream SF River | 8 | 0 | 8 | 0 | 8 | 0 | 16 |
| 4 SW Irrigated Parks | 2 | 2 | 4 | 4 | 4 | 4 | 14 |
| 15 Future Water Supply | 5 | 5 | 5 | 5 | 5 | 5 | 25 |
| 14 USFS Livestock Water | 6 | 2 | 6 | 2 | 6 | 2 | 14 |
| 9 SF Equestrian Center | 5 | 1 | 4 | 4 | 4 | 4 | 13 |
| 6 Upstream SF River | 5 | 3 | 5 | 4 | 5 | 4 | 17 |
| 8 SF County Club GC | 2 | 0 | 2 | 2 | 2 | 2 | 6 |

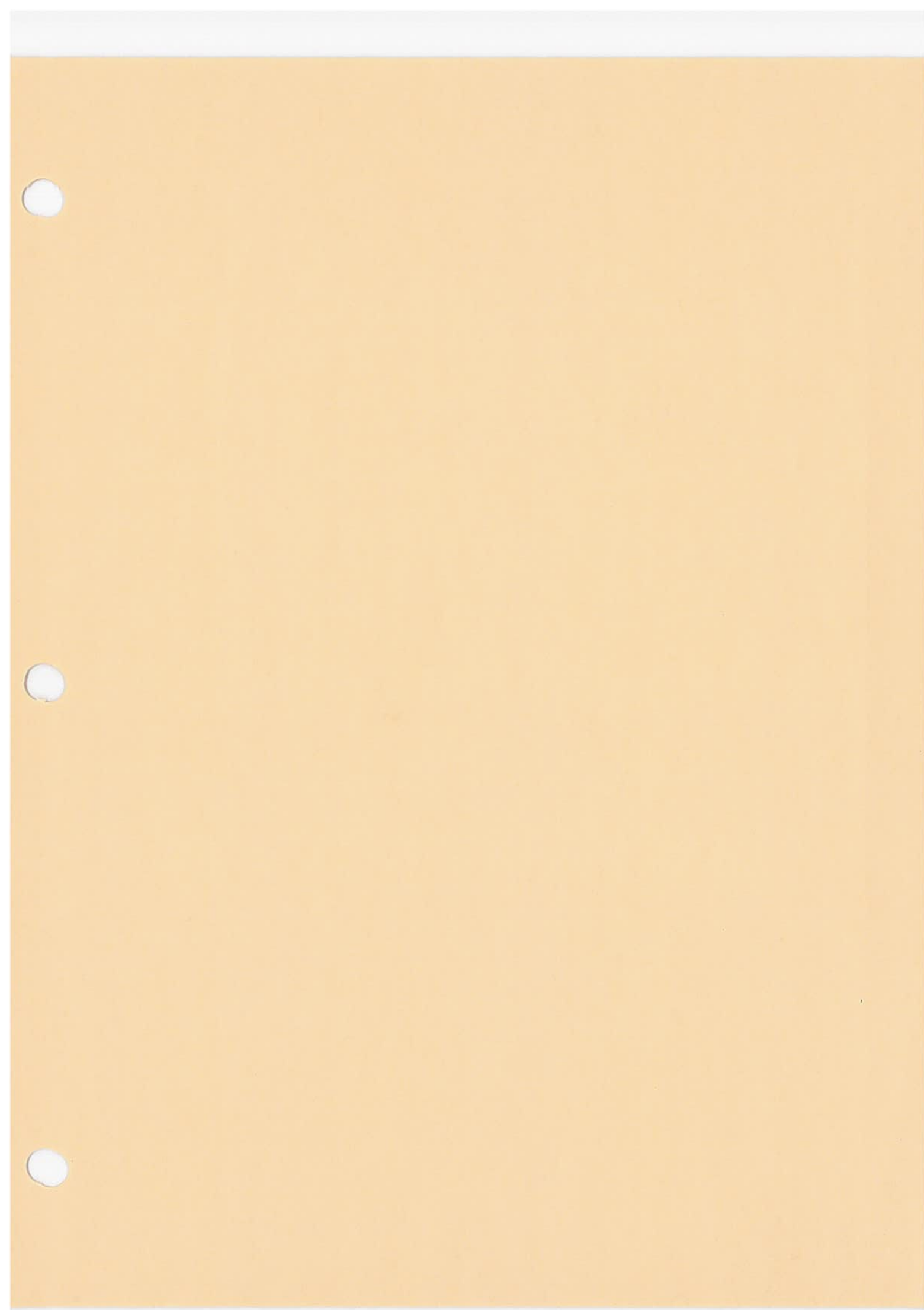


WEIGHTED SCORING OF RECLAIMED WASTEWATER OPTIONS

| | | ENSURE COMMUNITY ACCEPTABILITY | | | | IMPROVE WATER SUPPLY RELIABILITY | | | |
|--------------------------------------|---|---|---|---|---|---------------------------------------|---|---|---|
| | | Measure community and public values (On the subject last in the community?) | | | | Measure water shortage during drought | | | |
| | | Measure Municipal Use of 2010water | | | | Measure long-term water supply | | | |
| | | Measure ability to meet peak demands | | | | | | | |
| New Score | | 5 | 4 | 3 | 2 | 5 | 4 | 3 | 2 |
| ALL SCORES INDIVIDUALLY BASED | | | | | | | | | |
| 13 BW Permit Camp | 4 | 2 | 1 | 3 | 2 | 4 | 3 | 2 | 1 |
| 15 Female Water Supply | 4 | 2 | 1 | 3 | 2 | 4 | 3 | 2 | 1 |
| 1 MRC | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 10 On-Demand Sales | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 3 SWAN Park | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 11 NM Game & Fish | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 12 Lardell | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 4 SW Migrant Palms | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 5 Downtown SF River | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 7 Mary Satcher U/C | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 2 SF Downs | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 4 Uptown SF River | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 14 USFS Live Oak Water | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 9 SF Equilibrium Center | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 8 SF County Club GC | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| UNIVERSAL SCORES FOR COSTS | | | | | | | | | |
| 13 BW Permit Camp | 4 | 2 | 1 | 3 | 2 | 4 | 3 | 2 | 1 |
| 15 Female Water Supply | 4 | 2 | 1 | 3 | 2 | 4 | 3 | 2 | 1 |
| 1 MRC | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 3 SWAN Park | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 10 On-Demand Sales | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 11 NM Game & Fish | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 12 Lardell | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 4 SW Migrant Palms | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 5 Downtown SF River | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 7 Mary Satcher U/C | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 2 SF Downs | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 4 Uptown SF River | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 14 USFS Live Oak Water | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 9 SF Equilibrium Center | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |
| 8 SF County Club GC | 5 | 3 | 2 | 1 | 4 | 5 | 4 | 3 | 2 |

WEIGHTED SCORING OF RECLAIMED WASTEWATER OPTIONS (continued)

| PROTECT THE ENVIRONMENT | | | | MANAGE COSTS | | | |
|-------------------------------|---|----------------------|---|-------------------------------|---|---|---|
| Minimize impact on ecosystems | | Maximize "greenness" | | Minimize overall project cost | | Minimize government cost (impact on water and wastewater rates) | |
| 7.5 | | 7.5 | | 7.5 | | -5 | |
| Max Score | | | | | | | |
| ALL SCORES INDIVIDUALLY BASE | | | | | | | |
| 13 BW Permit Compl. | 8 | 3 | 8 | 4 | 8 | 4 | 8 |
| 15 Future Water Supply | 5 | 7 | 6 | 4 | 3 | 6 | 7 |
| 1 MRC | 5 | 2 | 4 | 4 | 4 | 4 | 4 |
| 10 On-demand Sales | 5 | 2 | 5 | 5 | 6 | 3 | 5 |
| 3 SWAN Park | 5 | 2 | 5 | 5 | 6 | 3 | 5 |
| 11 NM Game & Fish | 7 | 2 | 4 | 4 | 4 | 4 | 4 |
| 12 Landfill | 4 | 2 | 4 | 4 | 4 | 4 | 4 |
| 4 SW Irrigated Parks | 2 | 2 | 2 | 3 | 4 | 4 | 4 |
| 5 Downstream SF River | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 7 Mary Sanchez GC | 6 | 0 | 6 | 4 | 3 | 6 | 4 |
| 2 SF Downs | 4 | 2 | 4 | 4 | 4 | 4 | 4 |
| 6 Upstream SF River | 5 | 3 | 4 | 4 | 4 | 4 | 4 |
| 14 USFS Livestock Water | 6 | 2 | 6 | 4 | 4 | 4 | 4 |
| 9 SF Equestrian Center | 5 | 1 | 4 | 4 | 4 | 4 | 4 |
| 8 SF County Club GC | 2 | 0 | 2 | 2 | 3 | 2 | 3 |
| UNIVERSAL SCORES FOR COSTS | | | | | | | |
| 13 BW Permit Compl. | 8 | 3 | 8 | 4 | 8 | 4 | 8 |
| 15 Future Water Supply | 5 | 7 | 6 | 4 | 3 | 6 | 7 |
| 1 MRC | 5 | 2 | 4 | 4 | 4 | 4 | 4 |
| 3 SWAN Park | 5 | 2 | 5 | 5 | 6 | 3 | 5 |
| 11 NM Game & Fish | 7 | 2 | 4 | 4 | 4 | 4 | 4 |
| 10 On-demand Sales | 5 | 2 | 5 | 5 | 6 | 3 | 5 |
| 12 Landfill | 4 | 2 | 4 | 4 | 4 | 4 | 4 |
| 4 SW Irrigated Parks | 2 | 2 | 2 | 3 | 4 | 4 | 4 |
| 7 Mary Sanchez GC | 6 | 0 | 6 | 4 | 3 | 6 | 4 |
| 5 Downstream SF River | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 2 SF Downs | 4 | 2 | 4 | 4 | 4 | 4 | 4 |
| 6 Upstream SF River | 5 | 3 | 4 | 4 | 4 | 4 | 4 |
| 14 USFS Livestock Water | 6 | 2 | 6 | 4 | 4 | 4 | 4 |
| 9 SF Equestrian Center | 5 | 1 | 4 | 4 | 4 | 4 | 4 |
| 8 SF County Club GC | 2 | 0 | 2 | 2 | 3 | 2 | 3 |



PROPERTY TAXES

Understanding how property tax rates are set
in Santa Fe County

NM State Statute

- The “Property Tax Code” is found in §§ 7-35 through 7-38, NMSA 1978. This Code is generally administered by the Department of Taxation and Revenue (TRD), however, the Department of Finance and Administration (DFA) has some partial but **very significant** administrative responsibility as well.
- §7-36, NMSA 1978 provides for valuation methods for property taxation purposes.
- §7-37, NMSA 1978 applies to and governs the imposition of the authorized property tax rates (DFA function).
- §7-37-7.1, NMSA 1978-Additional limitations on property taxes rates is commonly referred to as the “yield control statute” and limits the revenue yield that result when property values are increased due to reassessment. The yield control calculation is outlined in this statute.
- §7-38-34, NMSA 1978-Board of county commissioners to order imposition of the tax states “Within five days of receipt of the property tax rate-setting order from the department of finance and administration, each board of county commissioners **shall** issue its written order imposing the tax at the rates set on the net taxable value of property allocated to the appropriate governmental units. A copy of this order shall be delivered immediately to the county assessor.” (emphasis added)

Mill Rates in New Mexico

(Mill = \$1.00 for each \$1000 of net taxable value)

Operating Mills

(applies equally to Residential and Non-Residential properties)

- NM Constitution sets a maximum of 20 operating mills.
- §7-37 NMSA 1978 defines the maximum rates that may be imposed for general purposes (operations) by local governments without requiring voter approval.
 - Counties - 11.85 mills maximum.
 - Municipalities – 7.65 mills
 - School Districts 0.5 mills

Debt Service Mills

(applies equally to Residential and Non-Residential properties)

- Debt service mill rates are determined annually and are dependent upon the general obligation debt payment requirements of the governmental entity.
- Total amortization schedules/debt service payments for the following 18 months as well as GO bond debt service fund available cash balances are analyzed to determine needed revenue for debt service.
- Certified taxable valuation data is factored into the debt service revenue needs to determine the debt service mill rate each year.
- The general obligation bonding capacity requires that debt principal does not exceed 4% of the certified total net taxable value.
- Prior to issuance, general obligation debt is subject to voter approval.

Verification of Rates

Once established, but no later than September 1*, DFA will submit the property tax rates to the Chair of the Board of County Commissioners. The BCC has 5 days to verify the rates and issue its written order setting the rates for the tax year effective the following November 1. Prior to the issuance of a written order by the BCC, County rates are verified by the following processes.

County Assessor's Office

- Compares valuations on the tax certificate to valuations certified by the Assessor to the State.
- Verifies the math for rates by district.
- Research any large/unexplainable changes in rates.

County Finance Division

- Verifies the math for rates by district.
- Check each rate for “reasonableness” compared to prior years.
- Run information through “yield control worksheet” to verify SFC operational mill.

Santa Fe County Operational Mills

The last time Santa Fe County changed its **imposed** mill rate was in FY 2000 when a 0.5 mill increase was passed. This took the **imposed** mill rate to its statutory maximum of 11.85 mills.

However, yield control changes everything.

Yield control is applied to Residential and Non-Residential valuations separately. Note that the yield control formula may result in a rate that is lower for one category (e.g. residential) and higher for the other category (e.g. non-residential) than the imposed rate as was the case in 2010, 2011 and 2012.

Under the yield control statute, DFA will establish the property tax operational mill rate as the **lower** of the imposed rate or the yield control rate. Thus the actual rate for 2010 was 4.697 mills for residential and 11.85 mills for non-residential.

| SANTA FE COUNTY HISTORY OF MILL RATES | | | | | |
|--|-------------|---------------|-----------------|---------------|--|
| TAX YEAR | RESIDENTIAL | | NON-RESIDENTIAL | | |
| | Imposed | Yield Control | Imposed | Yield Control | |
| 2012 | 11.85 | 5.022 | 11.85 | 13.430 | |
| 2011 | 11.85 | 4.891 | 11.85 | 13.434 | |
| 2010 | 11.85 | 4.697 | 11.85 | 12.079 | |
| 2009 | 11.85 | 4.620 | 11.85 | 11.850 | |
| 2008 | 11.85 | 4.507 | 11.85 | 10.520 | |
| 2007 | 11.85 | 4.560 | 11.85 | 9.990 | |
| 2006 | 11.85 | 4.450 | 11.85 | 10.238 | |
| 2005 | 11.85 | 4.452 | 11.85 | 11.820 | |
| 2004 | 11.85 | 4.617 | 11.85 | 10.880 | |
| 2003 | 11.85 | 4.690 | 11.85 | 9.381 | |
| 2002 | 11.85 | 4.788 | 11.85 | 8.820 | |
| 2001 | 11.85 | 4.823 | 11.85 | 8.718 | |
| 2000 | 11.35 | 4.933 | 11.35 | 7.179 | |
| 1999 | 11.35 | 4.422 | 11.35 | 7.191 | |
| 1998 | 11.35 | 4.467 | 11.35 | 6.673 | |
| 1997 | 11.35 | 4.400 | 11.35 | 6.525 | |
| 1996 | 10.35 | 3.519 | 10.35 | 5.479 | |
| 1995 | 10.35 | 3.421 | 10.35 | 5.290 | |

Understanding Yield Control

DFA uses a complex series of calculations to determine its calculated property tax rate for both R and NR properties. Although it is the same calculation for each the results are very different.

$$\begin{aligned} \text{Yield Control (Calculated Tax Rate)} &= \\ &\frac{\text{Prior Year Tax Effort}}{\text{X Growth Factor}} \\ &= \frac{\text{Current Year Tax Effort}}{\text{Sum of Current Year Unprotected}} \\ &\quad \text{Valuation and State Assessed Property.} \\ &\quad \text{X 1,000} \end{aligned}$$

This calculated rate is compared to the imposed rate and the LOWER rate becomes the operational property tax rate for the new tax year.

Residential Rate Calculation
Non-Residential Rate Calculation

Definitions:

- $\frac{\text{Prior Year (PY) Tax Effort} - \text{PY Tax Rate}}{\text{Base Value}} \times 1000 \times \text{PY Base Value}$
- $\frac{\text{Growth Factor} - \text{PY Base} + \text{Net New}}{\text{PY Base}} = \text{Growth from New Construction} + \text{Inflation Factor (established by DFA)}$
- $\frac{\text{Net New} - \text{Additions to the Base} - \text{Deletions from the Base}}{\text{Base}}$
- $\frac{\text{Current Year Tax Effort} - \text{PY Tax Effort}}{\text{Tax Effort} \times \text{Growth Factor}}$

Calculation of the Prior Year Effort

PRIOR YEAR TAX
EFFORT

Prior Year Tax Rate /
1000

X Prior Year Base
Value

= Prior Year Tax Effort

Calculation of Prior Year Property Tax

Effort:

| | |
|-----------------------------------|-----------------|
| 2011 Operational Mill Rate = | 4.891 |
| Prior Year Rate Divided by 1000 | 0.004891 |
| X Total Prior Year Base Valuation | \$5,217,713,499 |
| = Prior Year Property Tax Effort | \$25,519,837 |

Calculation of the Growth Factor

GROWTH FACTOR

Previous Year Base
 + Net New Valuation
 (Additions less Deletions)
 / Previous Year Base
 = Growth from New
 Construction
 + Inflation Factor =
 Growth Factor

Calculation of Growth Factor :

| | |
|--|-----------------|
| Total Previous Year Base | \$5,217,713,499 |
| + Total Current Year Net New Valuation | \$40,469,550 |
| = Base + New | \$5,258,183,049 |
| / Total Previous Year Base | \$5,217,713,499 |
| = Growth Attributed to New Construction | 1.007756 |
| + Current Inflation Factor | 0.0330 |
| = Construction Growth + Inflation Factor | 1.040756 |
| = Growth Factor* | 1.040756 |

*Growth factor will at least be equal to inflation factor.

Residential Operational Mill Rate

| | |
|--|-----------------|
| Calculation of Tax Year 2011 Property Tax Effort: | |
| 2011 Residential Operational Mill Rate | 4.891 |
| Tax Year 2011 Rate Divided by 1000 | 0.004891 |
| X Total Tax Year 2011 Base Valuation | \$5,217,713,499 |
| = Tax Year 2011 Property Tax Effort | \$25,519,837 |
| Calculation of Growth Factor: | |
| Total Tax Year 2011 Base | \$5,217,713,499 |
| + Total Tax Year 2012 Net New Valuation | \$40,469,550 |
| = Base + New | \$5,258,183,049 |
| / Total Tax Year 2011 Base | \$5,217,713,499 |
| = Growth Attributed to New Construction | 1.007756 |
| + Current Inflation Factor | 0.0330 |
| = Construction Growth + Inflation Factor | 1.040756 |
| = Growth Factor* | 1.040756 |
| *Growth Factor will at least be equal to inflation factor. | |
| Calculation of Yield Control Rate: | |
| Tax Year 2011 Property Tax Effort | \$25,519,837 |
| X Growth Factor | 1.040756 |
| = Tax Year 2012 Property Tax Effort | \$26,559,928 |
| / Total Tax Year 2012 Unprotected Valuation | \$5,288,665,467 |
| = Yield Control (YC) Computed Rate | .005022 |
| Determination of Tax Year 2012 Residential Operational Mill Rate: | |
| Rate Imposed by prior BCC Action | 11.850 |
| Versus Yield Control Computed Rate X 1,000 | 5.022 |
| = Current Year Rate (lower rate) | 5.022 |

Non-Residential Operational Mill Rate

Calculation of Tax Year 2011 Property Tax Effort:

| | |
|--|-----------------|
| 2011 Non-Residential Operating Mill Rate | 11.85 |
| Tax Year 2011 Rate Divided by 1000 | 0.011850 |
| X Total Tax Year 2011 Base Valuation | \$1,699,097,006 |
| = Tax Year Property Tax Effort | \$20,134,300 |

Calculation of Growth Factor:

| | |
|--|-----------------|
| Total Tax Year 2011 Base | \$1,699,097,006 |
| + Total Tax Year 2012 Net New Valuation | \$46,147,418 |
| = Base + New | \$1,745,244,424 |
| / Total Tax Year 2011 Base | \$1,699,097,006 |
| = Growth Attributed to New Construction | 1.027160 |
| + Current Inflation Factor | 0.0330 |
| = Construction Growth + Inflation Factor | 1.060160 |
| = Growth Factor* | 1.060160 |

*Growth Factor will at least be equal to inflation factor.

Calculation of Yield Control Rate:

| | |
|-------------------------------------|-----------------|
| Tax Year Property Tax Effort | \$20,134,300 |
| X Growth Factor | 1.060160 |
| = Tax Year 2012 Property Tax Effort | \$21,345,579 |
| / Total Tax Year 2012 Valuation | \$1,589,436,330 |
| = Yield Control (YC) Computed Rate | 0.013430 |

Determination of Tax Year 2011 Non-Residential Operational Mill Rate:

| | |
|--|--------|
| Current Imposed Operational Mill Rate | 11.850 |
| Versus Yield Control Computed Rate X 1,000 | 13.430 |
| = Current Year Rate (lower rate) | 11.850 |

Impact to Tax Payers of Reducing the Mill Rate

| Property valuation data: | |
|--|----------------------------------|
| RESIDENTIAL | Prior Year Valuation Data |
| Previous Year Base | TOTAL |
| Current Year Net New Valuation | \$5,217,713,499 |
| Current Year Valuation Maintenance | \$40,469,550 |
| Total Current Year Valuation | \$30,482,418 |
| | \$5,288,665,467 |
| NON-RESIDENTIAL (includes state assessed) | Prior Year Valuation Data |
| Previous Year Base | TOTAL |
| Current Year Net New Valuation | \$1,699,097,006 |
| Current Year Valuation Maintenance | \$46,147,418 |
| Total Current Year Valuation | (\$155,808,094) |
| | \$1,589,436,330 |

Prior Year Operational Rates:

| | |
|-----------------|--------|
| Residential | 4.891 |
| Non-Residential | 11.850 |

Current Imposed Operational Rate:

Applies to Residential & Non-Residential: 11.850

Enter Imposed Operational Rate Being Proposed for Current Tax Year:

(If no change, enter rate from 2 above): 11.850

Change to Current Imposed Rate:

3A minus 2: 0.000

Defaults to prior year's inflation factor; however, can enter current year's:

Prior Year's Inflation Factor: 0.0330

Defaults to prior year's property tax collection rate; however, can enter current year's:

Property Tax Collection Rate: 96.84%

The "estimated" property tax operational revenue, based on the data entered in STEPS through Vitis:

"Estimated" Property Tax Operational Revenue:

| | | | |
|-------------------------------------|--------------|---|---------------|
| RESIDENTIAL | \$25,720,634 | NON-RESIDENTIAL | \$18,239,640 |
| RESIDENTIAL Operational Rate | 5.022 | NON-RESIDENTIAL Operational Rate | 11.850 |

Prior Year Operational Rates:

| | |
|-----------------|--------|
| Residential | 4.891 |
| Non-Residential | 11.850 |

Current Imposed Operational Rate:

Applies to Residential & Non-Residential: 11.850

Enter Imposed Operational Rate Being Proposed for Current Tax Year:

(If no change, enter rate from 2 above): 10.850

Change to Current Imposed Rate:

3A minus 2: (1.000)

Defaults to prior year's inflation factor; however, can enter current year's:

Prior Year's Inflation Factor: 0.0330

Defaults to prior year's property tax collection rate; however, can enter current year's:

Property Tax Collection Rate: 96.84%

The "estimated" property tax operational revenue, based on the data entered in STEPS through Vitis:

"Estimated" Property Tax Operational Revenue:

| | | | |
|-------------------------------------|--------------|---|---------------|
| RESIDENTIAL | \$25,720,634 | NON-RESIDENTIAL | \$16,700,430 |
| RESIDENTIAL Operational Rate | 5.022 | NON-RESIDENTIAL Operational Rate | 10.850 |

Impact to Santa Fe County Government of Reducing Mill Rate

| | | | |
|---|--------------|---|--------------|
| The "estimated" property tax operational revenues based on the data entered in STEPS through V15: | | The "estimated" property tax operational revenues based on the data entered in STEPS through V15: | |
| "Estimated" Property Tax Operational Revenue: | | "Estimated" Property Tax Operational Revenue: | |
| RESIDENTIAL | \$25,720,634 | RESIDENTIAL | \$25,720,634 |
| NON-RESIDENTIAL | \$10,239,840 | NON-RESIDENTIAL | \$16,700,430 |
| RESIDENTIAL Operational Rate | 5.022 | RESIDENTIAL Operational Rate | 5.022 |
| NON-RESIDENTIAL Operational Rate | 11.850 | NON-RESIDENTIAL Operational Rate | 10.850 |

Residential

- Yield control holds operational mill rates well below the imposed rate.
- A reduction in the imposed rate will have zero impact on residential mill rates and the revenue derived therefrom.

Non-Residential

- Yield control yields a higher operational mill rate than what is imposed thus the imposed rate is implemented.
- A reduction in the imposed rate will reduce taxes on non-residential tax payers and will have a negative impact on the revenue derived therefrom.

For every operational mill the County rolls back, revenue from non-residential property taxes will be reduced by approximately \$1.5 million. To create a tax savings for residential property owners, the operational mill would need to be reduced by about 7.1 mills, which would result in a \$10.6m loss in revenue from non-residential and a \$1.0m loss in revenue from residential property taxes.

In Practical Terms

DRAFT

A home with a market
value of \$300k

| | | |
|---|---------------------------------|-----------------------|
| Taxable Value: | \$100,000 | |
| Current Total Mill Rate: | 20.091 mills (Santa Fe City In) | |
| Current SFC Imposed: | 11.85 mills | |
| Current SFC Yield Control: | 5.022 mills | |
| Total Tax Bill: | \$2,009.10 | SFC portion: \$666.20 |
| Total Mill Rate w/Roll back: | 19.819 mills (Santa Fe City In) | |
| SFC Imposed w/Roll back: | 4.75 mills | |
| Current SFC Yield Control: | 5.022 mills | |
| Total Tax Bill w/Roll back: | \$1,981.90 | SFC portion: \$639.00 |
| Reduction in the tax bill would be \$27.20 per year | | |

A commercial property
with a \$1.0m market
value

| | | |
|--|---------------------------------|-------------------------|
| Taxable Value: | \$333,333 | |
| Current Total Mill Rate: | 20.581 mills (Santa Fe City In) | |
| Current SFC Imposed: | 11.85 mills | |
| Current SFC Yield Control: | 13.430 mills | |
| Total Tax Bill: | \$9,860.33 | SFC portion: \$4,496.67 |
| Total Mill Rate w/Roll back: | 22.481 mills (Santa Fe City In) | |
| SFC Imposed w/Roll back: | 4.75 mills | |
| Current SFC Yield Control: | 13.43 mills | |
| Total Tax Bill w/Roll back: | \$7,493.66 | SFC portion: \$2,130 |
| Reduction in the tax bill would be \$2,366.67 per year | | |

*In the above roll back scenario the County would lose
approximately \$11.6 million in its general fund.*



NO PACKET MATERIAL
FOR THIS ITEM



