

1 **Volume 2, Section 3: Committee Themes, Values & Concerns**
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4 **Scope Item A: Current State of Water, Wastewater and Reclaimed**
5 **Water Systems Assessment**
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7 • **Overall, our water and wastewater systems are reliable and well maintained**

8 Tucson Water and Pima County Regional Wastewater Reclamation Department are well-
9 run, highly professional utilities that manage and operate complex systems. Our water
10 and wastewater systems are relatively newer and in better condition than many older
11 cities.

12
13 • **Both utilities face increasing need for investment in maintenance, rehabilitation,**
14 **and replacement**

15 In the near future, investment in the maintenance and rehabilitation of our water and
16 wastewater systems will need to increase to address aging infrastructure and to meet
17 increasingly stringent water and wastewater quality standards. Both water and
18 wastewater rates have traditionally been maintained at relatively low levels and rates
19 must increase in the future to fund much needed investments. A sustainable finance
20 structure needs to be established in order to prioritize increased ongoing maintenance and
21 rehabilitation of our systems.
22

23 • **Tucson Water has focused recent investments on utilization and delivery of CAP**

24 Tucson Water has invested heavily during the past decade in developing infrastructure to
25 reduce dependence on groundwater pumping and increase use of renewable CAP water.
26 To meet critical aging points that will be coming up in the future, funding must increase
27 to maintain and replace aging mains, pipes and other delivery infrastructure. Currently,
28 lost water exceeds 10 percent of total water delivered by the utility – an indication of the
29 growing need to address issues of rehabilitation and system maintenance.
30

31 • **Pima County Wastewater will need to make significant investments in its**
32 **treatment facilities to meet new wastewater quality standards**

33 Pima County Wastewater is facing a huge investment in upgrading and replacing its
34 Roger Rd. and Ina Rd. regional treatment facilities through the ROMP (Regional
35 Optimization Master Plan). This is primarily the result of the need to meet new, more
36 stringent wastewater quality regulations, but is also a result of the age of the current
37 facilities and the need to expand capacity. Wastewater rates will need to increase
38 significantly to pay for ROMP. The wastewater system in central Tucson is at or near
39 capacity. There will be a need for new cross-town interceptors or upstream facilities to
40 address this. Determining the right balance of investing in centralized versus de-
41 centralized wastewater treatment facilities will be important as new areas develop.
42 Another concern that needs to be addressed is that as conservation efforts increase, there
43 could be less liquid in the wastewater system which could increase the need for system
44 flushing. This would be at cross-purposes with the conservation goals we are trying to
45 achieve.
46

1 • **While further expansion of the reclaimed water system is desirable, it will**
2 **require prioritization of uses and analysis of potential funding methods**

3 Tucson Water is a nationally renowned leader in reclaimed use and serves as a best
4 practices model for other utilities developing and constructing reclaimed systems. All
5 significant turf irrigation users that can be reached in a cost effective manner have been
6 joined to the reclaimed system. To expand the system further, study will be needed to
7 establish priorities for use of reclaimed and most appropriate funding methods. Specific
8 questions that need to be addressed include what are the most appropriate uses, who pays,
9 how much resource is available and should be allocated, cost trends, and barriers to
10 increased use. The cost-effectiveness of all options will need to be examined. This issue
11 will be further addressed in Phase II of the Study,
12

13 • **Growth should pay for itself**

14 Both water and wastewater have fees in place with the goal of growth paying for itself,
15 but further study is needed to ensure that these mechanisms are effective. This issue will
16 be explored further in Phase II of the study.
17

18 • **Energy is a significant cost of operating the water and wastewater systems**

19 Energy costs of transporting and treating water and wastewater are significant and as
20 energy costs increase, this will affect rates. Renewable energy sources should be pursued
21 to help offset cost and make the systems more sustainable.
22
23

24 **Scope Item B: Water Resource Assessment**

25
26 • **Tucson Water has a reliable and renewable water supply for the near term**

27 Tucson Water has a reliable and renewable water supply that will meet the needs of its
28 current service population as well as for a significant amount of growth. Over the past
29 decade, Tucson Water has made significant investments in infrastructure to recharge and
30 deliver Colorado River water, moving from dependence on groundwater to this
31 renewable supply.
32

33 • **We face uncertainty on a variety of fronts and need to be prudent with our**
34 **resources**

35 We are in a time of uncertainty with global warming, climate change, and drought
36 potentially affecting local water demand, local rainfall, and future flows of the Colorado
37 River. As flows become more limited, there could be legal pressure to change the
38 Colorado River sharing agreements and our allocation could diminish. In this context,
39 we need to act conservatively and responsibly when it comes to managing our water
40 resources and build in a buffer. We should diversify our water resource portfolio so that
41 we are not overly dependent on imported water. We should increase conservation and
42 maximize our use and re-use of renewable locally-generated water sources such as
43 rainwater harvesting, stormwater capture and recharge, greywater systems, and
44 maximizing the use of effluent and reclaimed.
45
46

1 • **Expanding the Tucson Water service area must be done thoughtfully and**
2 **deliberately**

3 In the past, Tucson Water has operated in the context of a large planning area extending
4 service throughout the region based on demand. This approach has led to the ongoing
5 expansion of the service base and has increased the need to focus on the acquisition of
6 new water resources. In an effort to move away from this demand-driven approach, the
7 City of Tucson has implemented an interim policy to provide water service only to its
8 obligated service area, which includes city limits plus the built out areas of the water
9 system. Before it makes decisions to extend service beyond its obligated area, the City
10 needs to understand the economic, social, and environmental implications of extending
11 service. Specific questions that need to be addressed include how areas outside the
12 obligated area will get water and what financial implications there are for Tucson Water's
13 current ratepayers. Phase II of the Study will examine this issue further.

14
15 • **New water will be needed in the future and the time to plan for it is now**

16 While Tucson Water does not have an immediate supply issue, the Committee recognizes
17 that the Tucson region will need to secure new, renewable water resources at some time
18 in the future. The Committee also recognizes that securing new water resources is a
19 complex undertaking involving many difficult decisions. They also recognize that we are
20 part of a larger context involving the seven Colorado River Basin states, the Sun
21 Corridor, the Tucson AMA with limits on our degrees of freedom. While each water
22 entity in the region has different needs for new supply, securing new water resources is
23 likely be more successful when done using a collaborative, regional approach. The City
24 should continue to be actively involved in the statewide ADD water process, while at the
25 same time establishing our own local standards for new water resources.

26
27 New water resources will be much more expensive than current water resources. Equity
28 and affordability issues must be considered. A full cost-benefit analysis for new water
29 resources is needed before new resources are pursued. Full costs should consider such
30 things as non-local environmental effects, environmental justice issues, and comparing
31 new water costs to the opportunity costs of investing in the use and re-use of our locally
32 renewable water resources – effluent and rainwater. Acquiring new water should be
33 evaluated in comparison to investing in local resources such as stormwater recharge,
34 greywater systems, rainwater harvesting, expansions to the reclaimed system, and
35 constructed recharge of our effluent. Water conservation and new water resources should
36 be seen as two sides of the same coin. More conservation means less need for new water
37 and therefore conservation is a source of future supply.

38
39 Phase II will include further analysis of the issues involved in securing new water
40 resources. The Committee will not be in a position to identify what our new renewable
41 water resources will be. The Committee, rather, can suggest approaches that can be used
42 to engage in a regional and state-wide process as well as evaluation criteria that the
43 Mayor and Council and the Board of Supervisors can use in considering which new water
44 resources to pursue.

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1 **Scope Item C: Sustainable Water Population**

- 3 • **A sustainable water future must be discussed within the overall context of**
4 **sustainability**

5 The concept of sustainability is comprehensive and its definition must encompass
6 capacities to maintain and/or regenerate ecological, social and economic processes,
7 resources and functions and it must consider the needs of existing and future generations.
8 A comprehensive definition of sustainability that integrates these concepts of maintaining
9 desirable conditions and regenerating or renewing resources is an important framework
10 for the discussion of how best to plan for adequate, high quality, secure water supplies
11 under changing conditions and climate related resource uncertainties. Definitions of
12 sustainability should be flexible in recognition that sustainability is a principle that
13 evolves over time and that no generation should impose its definition on future
14 generations.

- 16 • **Water sustainability involves equitable consideration of and trade-offs among a**
17 **variety of inter-related issues**

18 Water sustainability in the Tucson region means balancing individual rights to safe, high
19 quality, affordable, water with the needs of unrepresented stakeholders such as future
20 residents and the environment. A definition of sustainable water management must
21 consider the regional impacts of water use at the watershed scale and the localized
22 impacts to aquifers and groundwater-dependent ecosystems. It must establish a link
23 between sustainable groundwater use and the provision of renewable water resources to
24 areas impacted by groundwater overdraft.

- 26 • **Planning for and managing growth is critical to creating a sustainable water**
27 **future**

28 In the past, our land use planning efforts have been incremental and site specific, rather
29 than comprehensive and regional. We have not directed growth, but have responded to
30 demand for it. Water and wastewater infrastructure have followed suit, extending service
31 based on demand.

32
33 We can't develop answers about how and where we should grow based simply on our
34 water supply because, while we do have limited water supplies, more water can certainly
35 be acquired at a cost if growth is desired. Water is part of the equation, but not the driver
36 or limiting factor in growth. We must plan for and direct growth considering the wide
37 array of factors involved (environment, transportation, public services, infrastructure,
38 etc.), of which water is one, albeit critical, factor. Such planning could then guide our
39 water and wastewater service extension decisions.

40
41 One line of thought maintains that our local economy is overly dependent on growth and
42 development and that this is not healthy or sustainable. While our population is likely
43 still going to grow at some rate, past growth patterns are not necessarily a predictor of the
44 future – Tucson, our state, and our nation are in a time of flux and uncertainty. There is
45 no guarantee that in the future we will grow as much as we have in the past. Declining
46 growth doesn't have to be a bad thing. Diversifying our economy can help to make our

1 community more resilient to changing growth trends. Paris, France, for example has a
2 shrinking population but is not considered a stagnant or undesirable place. We should
3 plan ahead for growth, but this should not mean facilitating as much growth as possible
4 without consideration of the impacts of growth on other elements of our quality of life.

5
6 Growth projections and land use planning have important implications for utility
7 planning. The methods we've used in the past to project growth have not been
8 consistently accurate. We need to improve our population projection methods, be more
9 deliberate in directing where growth should occur, and link our utility extensions and
10 investments with agreed upon plans and projections. It is essential that we get more
11 aggressive about calculating the cost of growth and ensure that growth is paying its share.

12
13 • **We should increase water conservation measures and maximize our use and re-**
14 **use of locally renewable water resources**

15 Aggressive water conservation and maximizing the use and re-use of locally renewable
16 water sources should be seen as key elements of a sustainable water future. Water usage
17 trends, measured in terms of GPCD (gallons per capita per day) have been decreasing,
18 likely in part due to the education, assistance, and regulatory efforts of the City and
19 County to encourage water conservation. The implementation of the City's Water
20 Conservation Task Force recommendations, the recently adopted greywater ordinance for
21 new residential development, and the water harvesting ordinance for new commercial
22 development are examples.

23
24 The potential to increase water conservation exists, but in encouraging further
25 conservation, we must ensure people have real incentives to conserve. Concerns
26 expressed during the study process by audience and committee members include: 1)
27 using less water will require that rates be increased to compensate for lower revenue, 2)
28 conservation will just provide the water for more growth, and 3) the more our population
29 conserves, the more water will be needed to flush wastewater mains. Another aspect of
30 conservation is maximizing the use and re-use of locally-generated water sources such as
31 rainwater harvesting, greywater use, stormwater capture and recharge, and increased
32 utilization of effluent. These issues will be explored further in Phase II of the Study.

33
34 • **We need to balance human, environmental, and economic needs for water**

35 No one would dispute the fact that access to clean, safe water is a basic human need and
36 right. The environment needs water as do people. In the past we haven't been the best
37 stewards of water for the environment. Going forward, we need to 1) recognize the
38 environment as a water user, 2) allocate water to environmental needs, and 3) eliminate
39 groundwater pumping in environmentally sensitive areas. A pumping/re-charge
40 disconnect is created by the State's Assured Water Supply rules and the CAGR (Central
41 Arizona Groundwater Replenishment District) under which water can be pumped in one
42 location while it is recharged in another location – negatively impacting environmentally
43 sensitive locations where the water is pumped. In the Arizona groundwater code, "safe-
44 yield" is defined as a long-term balance between groundwater withdrawals and natural
45 and artificial recharge in an Active Management Area (AMA). In other words, the water
46 pumped out of the regional aquifer in an AMA must be balanced, at a minimum, by water

1 that enters the regional aquifer. However, this does not take into account the water needs
2 of groundwater dependent riparian systems. Exempt wells have grandfathered rights to
3 pump water, and when located in environmentally sensitive areas, are also an issue.

4
5 While this regulatory structure is the purview of the State, there are steps we can take
6 locally to address the problems created. This is an issue for the Tucson Active
7 Management Area, not the Tucson Water Service area and must be addressed regionally.
8 Strategies to address pumping of water in environmentally sensitive areas include retiring
9 exempt wells, buying water rights, and wheeling renewable water supplies using existing
10 infrastructure.

11
12 Water is critical to the health of our economy and a strong economy is a critical element
13 of a sustainable future. All commercial and industrial businesses use water to one degree
14 or another and rely on an adequate and affordable supply. Tucson Water estimates that in
15 2007, the 136,000 acre-feet of water that Tucson Water delivered to municipal uses
16 supported a local economy with a \$22 billion gross domestic product. That works out to
17 \$160,000 in economic value per acre foot of water delivered. The state average is about
18 \$110,000 in economic value per acre foot. Tucson is more efficient compared with the
19 state when it comes to economic value gained from use of its water.

20
21 • **We should strengthen City-County and regional cooperation around water and**
22 **planning issues**

23 The separation of water and wastewater systems and operators has created challenges in
24 the past since the two systems are interdependent and need to be managed in a
25 coordinated way. The initiation of the City/County Water and Wastewater Study signals a
26 new era of cooperation between Tucson Water and Pima County Regional Wastewater
27 Reclamation. This effort needs to continue and expand to a regional level following the
28 completion of Phase II of the Study. While City/County collaboration is an important
29 step to addressing many issues, some of the critical issues associated with a sustainable
30 water future are particularly germane to a regional dialogue. These include pursuing new
31 water resources, addressing environmental issues created by groundwater pumping,
32 wheeling water by sharing existing infrastructure to help all providers employ renewable
33 supplies, and planning for and directing growth in a sustainable manner.

34
35 • **We need to employ flexible, long-range, participatory, and rigorous planning**
36 **processes**

37 The Committee supports having better, more rigorous analytic planning and decision
38 making processes and use of best practices in managing our water resources. Some
39 Committee members see the foundation for sustainable principles and practices as
40 including triple bottom line accounting whereas others do not feel that triple bottom line
41 accounting is adequate in terms of addressing negative consequences (i.e. unsustainable
42 resource consumption) of population growth.

43
44 Many Committee members referred to the concept of “adaptive management or
45 integrated management” as an example of best practices and a more comprehensive,
46 approach to water resource planning and management. Committee members cited a

1 variety of characteristics of this approach including diversity, importance of relationships,
2 integration of parts, science and value-based assessments, and stakeholder processes.
3 Such an approach would also include consideration of legal rights and protections for
4 people and ecosystems and commitment to sustainability. Other analytic tools suggested
5 included optimization, visioning, quantification of costs and benefits and scenario
6 exercises.

7
8 Committee members cited several key elements that should be included in a sustainable
9 water resource management plan:

- 10 ▪ Evaluation criteria that include measuring the greatest economic, social, and
11 environmental net benefit for the region expressed in monetized or quantifiable
12 terms
- 13 ▪ A budget and implementation strategy (fiscal and physical)
- 14 ▪ Prioritized needs
- 15 ▪ Allocation of the infrastructure costs of new growth to new populations
- 16 ▪ Accounting for both water and energy costs in the production and delivery of
17 water and conveyance of wastewater
- 18 ▪ Ensuring a sustainable balance of all infrastructure needs by determining
19 acceptable costs and choosing affordable solutions
- 20 ▪ Monitoring, correcting and redirecting to ensure efficient, effective and equitable
21 use of resources
- 22 ▪ Responsiveness to all users of water in our region including ecosystem needs
- 23 ▪ Involvement of peer-review processes to ensure that the plan benefits from proven
24 best practices
- 25 ▪ Use of a flexible, values-based process

26
27 • **Water pricing and financing approaches should further policy objectives**

28 Price signals are an important tool for achieving efficient allocation of water resources.
29 Current retail water rates do not match claims of scarcity and conflict with messages
30 urging conservation. Water subsidies should be granted for valued outcomes such as low-
31 income user access, community food gardens, and restoring eco-systems, but water
32 should be priced higher to encourage conservative use and to sustain ongoing needed
33 investment in our systems.