# Summary of Results

November 15, 2008 CCWWSOC Oversight Committee Meeting
Report Writing Chapters 1 & 2

Small Group Exercise:

- What are the key points in this chapter relative to the scope of work?
- Have we addressed the elements in the scope? If not, which elements are missing?

***Scope questions for Chapters 1 & 2 :*** *(1) what is the current state of water, wastewater and reclaimed water infrastructure systems? And (2) what capacity expansions are investments may be necessary today to accommodate the existing population distribution throughout the service areas?(3) What are our water resource supplies for the City/County service area?*

## KEY POINTS

The Table below provides a combined list of items surfaced in each of the small groups Additionally, the results of the dot ranking exercise (prioritization of key points) are provided.

**Chapter 1: Current State of Water, Wastewater, and Reclaimed Water Systems**

| NO. | ITEM | DOTS RECEIVED |
|---|---|---|
| 1 | The wastewater conveyance system has limited capacity for the regional system. In central Tucson – the system is at capacity. This raises the need to make a decision of new cross town interceptors or upstream facilities. Roger and Ina Road are not able to serve growth. This is a centralized system. Leads to the question of "is growth best served by centralized vs. disaggregated system? It is a question cost effectiveness (note this is cross listed under missing or future topics below). | 2 |
| 2 | Interrelationship between economy, population and law. Need to understand historical context and learn from mistakes (top of pg 4). Patterns emerge (bottom of pg 4) | 1 |
| 3 | Sustainable finance structure for maintenance. Need for bond to secure CAP improvements. | 1 |
| 4 | 1872 Mining law and 1980 Groundwater Management Act are key documents | |
| 5 | Implementation of Assured Water Supply Rules – the disconnect between where water is discharges and where it is used. | 3 |
| 6 | Elements of system – where water and wastewater come from, how | |

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| | resources are used and where they go. | |
| 7 | If rainwater harvesting is expanded at the same time we have a reduction in population growth and a slow economy, will this affect the need for planned system expansions? | 1 |
| 8 | Split of water and wastewater system lead to question of need for a more integrated approach – important part of historical background | 1 |
| 9 | pg 6 last time aquifer in balance was back in 1940. | |
| 10 | Reclaimed system expansion – user funded vs. G.O. bond expansion<br><br>Many areas not serve.<br><br>What cost of infrastructure for reclaimed?<br>Doe we want more users? Who pays/ Who uses? How much will be used? Cost trends. Barriers to increased use of reclaimed: costs; regulations (COT / OV) public health issue (cross listed with future issues) | |
| 11 | Mechanisms and implication of "growth paying for itself" – Identify issue in Phase 1 & do further analysis in Phase 2<br><br>Cost of infrastructure for reclaimed. Do we want more users for reclaimed? Who Pays? Who uses? How much will be used? Cost trends. Barriers to increased us e of reclaimed (costs, regulations, public health issues) | 1 |
| 12 | Uncertainties | 5 |
| 13 | Sources of water (3 types) used over time and change in users over time. | |
| 14 | We are part of a larger context (7 basin states, sun corridor, Arizona Tucson AMA) – limits on our degrees of freedom but can advocate for different local policies (other providers and other jurisdictions) | 4 |
| 15 | Wastewater issues – plans for decommissioning Roger Rd: Are proposed expansions realistic in terms of economic trends and growth trends? Cross listed with missing / future issues | |
| 16 | Lack of connection between planning for growth and extending water and wastewater service. Traditional utility paradigm has Breen to serve anyone who asks --- leads to need for new resources'<br><br>A lot of growth is not planned – their infrastructure projections provided were less than what occurred historically.<br><br>There has been incremental planning – should we move to long term planning? | 1 |
| 17 | The Tucson Water obligated service area is limited in scope. How | 6 |

| | | |
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| | will serve future areas outside the obligated area? There are two watersheds. 40% of Tucson Water customers are outside of the City of Tucson but within the obligated area. Defining the service area is key (i.e. where should water service be extended)? This has implications for many things. Need to explain obligated area issue | |
| 18 | Groundwater supplies were not heavily used until electricity became available. | |
| 19 | Electric interdependence impacts on rates (pg 15) | 1 |
| 20 | Cost of future supplies. Adequate supply is a key issue for Tucson Water | 4 |
| 21 | Systems are aging and interdependent. Like most urban cities, Tucson and Pima County have had to spend large amounts of money for rehabilitation of the infrastructure | 3 |

**Chapter 2: Water Resource Assessment**

| NO. | ITEM | DOTS RECEIVED |
|---|---|---|
| 1 | Flushing the wastewater system. Reclaimed issues: use of potable water negates greywater perception issue (need numbers from WW). Implication of less liquid in system from various causes. | |
| 2 | Conservation trends are Positive and More potential for increasing conservation exists<br>• 159 gpcd all sectors<br>• Below 100 residential<br>• How we compare to other cities<br>• Where you can trim usage most<br>• Major sources of change | 4 |
| 3 | We need to plan now for new water resources. But we do not have an immediate supply issue. Need to be a part of the ADD water process and be ready to take action when necessary, be we need to think locally also | 6 |
| 4 | Need to consider environmental implications of our use of current resources and any new sources (e.g. desal.) need to internalize environmental costs | 1 |
| 5 | Need to consider environmental justice issues associated with new water which will be more expensive. What are the numbers? How much will rates increase? Water resource fees can help balance this. | 2 |
| 6 | Uncertainty related to Colorado River flows. What strategies should we implement ourselves by recharging current supplies, need to act responsibly, build in a buffer. | 1 |
| 7 | Need to eliminate groundwater pumping in environmentally sensitive areas. How to deal with this outside our jurisdiction (exempt wells)? Idea: buying water rights using conservation savings – exempt well retirement program" | 2 |
| 8 | Need to look at conservation and new water together. Compare | 2 |

| | | |
|---|---|---|
| | investment decision for both; look at long term costs/ benefits of both; they are two sides of the same coin | |
| 9 | Need to maximize use of effluent to match up most appropriate uses. Consider technical changes in wastewater tax infrastructure | |
| 10 | CAP water – use of and increased use of the importance of maximizing use of CAP water. | 4 |
| 11 | Tucson AMA still confronted with problem of overdraft. Challenge of conservation vs. new supplies. Spatial component. | 6 |
| 12 | Tucson Water was doing regional planning a long time. Problem of going into areas where no obligation – can city afford this? | |
| 13 | Need to do cost/benefit analysis for potential new water – of importing and by products (economics Environmental costs) | 4 |
| 14 | That we have been promoting conservation (due to efforts of Tucson Water); That it is a source of future supply. | 1 |
| 15 | Wastewater system can provide us with new water – how is this regulated? How will we use these new resources? (cross listed with future issues) | |
| 16 | We do not own all the effluent | |
| 17 | Biosolids are a resource | |
| 18 | ADD water process – ongoing and statewide – big impact on our ability to acquire new resources. | |
| 19 | Water budget (volume of physically available water resources assessment in this chapter is just Tucson Water – it is not AMA wide. There is 188,000 acre feet per year of use outside the purvey of Tucson | |
| 20 | Rainwater Harvesting | 3 |
| 21 | Existing cost of CAP vs. cost of importing new supplies "order of magnitude" greater. Important to consider when evaluating storm water, rainwater and greywater. | 2 |
| 22 | Page 13 – City participates with SAWUA, GUAC – this has provided a foundation for regional cooperation | |
| 23 | ADD Water – ways to try to increase CAP | |
| 24 | Climate Change Science and how impacting watershed in our area. | |
| 25 | Stationarity is dead. There is a consensus that global warming is occurring – should acknowledge this in report | 1 |

## PRIORITIZATION OF KEY POINTS

A total of 46 key points from Chapters 1 & 2 were identified by the two sub-groups of the Committee. A dot exercise was used to prioritize this list whereby each Committee member was given five dots and asked to place a dot next to the item they considered among the top five most critical points on the list (all five dots have equal weight). ***Caveat: This exercise was not intended to eliminate any of the items listed (as all are deemed a critical point to one or more Committee members). The purpose was to get a sense of what was most important to the Committee as a whole which will help in writing the Executive Summary.***

| Chapter / Item NO. | ITEM | DOTS RECEIVED |
|---|---|---|
| Chapter 2: Item No. 3 | We need to plan now for new water resources. But we do not have an immediate supply issue. Need to be a part of the ADD water process and be ready to take action when necessary. We need to think locally also | 6 |
| Chapter 1 / Item No. 17 | The Tucson Water obligated service area is limited in scope. How will serve future areas outside the obligated area? There are two watersheds. 40% of Tucson Water customers are outside of the City of Tucson but within the obligated area. Defining the service area is key (i.e. where should water service be extended)? This has implications for many things. Need to explain obligated area issue. | 6 |
| Chapter 2 / Item No. 11 | Tucson AMA still confronted with problem of overdraft. Challenge of conservation vs. new supplies. Spatial component. | 6 |
| 12 | Uncertainties | 5 |
| Chapter 2 / Item No. 2 | Conservation trends are Positive and more potential for increasing conservation exists<br>• 159 gpcd all sectors<br>• Below 100 residential<br>• How we compare to other cities<br>• Where you can trim usage most<br>• Major sources of change | 4 |
| Chapter 1 / Item No. 14 | We are part of a larger context (7 basin states, sun corridor, Arizona Tucson AMA) – limits on our degrees of freedom but can advocate for different local policies (other providers and other jurisdictions) | 4 |
| 20 | Cost of future supplies. Adequate supply is a key issue for Tucson Water | 4 |
| Chapter 2 / Item No. 10 | CAP water – use of and increased use of … the importance of maximizing use of CAP water. | 4 |
| Chapter 2 / Items No. 13 | Need to do cost/benefit analysis for potential new water – of importing and by products (economics & environmental costs) | 4 |

| Chapter / Item NO. | ITEM | DOTS RECEIVED |
|---|---|---|
| Chapter 1 / Item No. 5 | Implementation of Assured Water Supply Rules – the disconnect between where water is discharges and where it is used. | 3 |
| 16 | • Lack of connection between planning for growth and extending water and wastewater service. Traditional utility paradigm has Breen to serve anyone who asks --- leads to need for new resources'<br>• A lot of growth is not planned – their infrastructure projections provided were less than what occurred historically.<br>• There has been incremental planning – should we move to long term planning? | 3 |
| Chapter 2 / Item No. 20 | Rainwater Harvesting | 3 |
| 21 | Systems are aging and interdependent. Like most urban cities, Tucson and Pima County have had to spend large amounts of money for rehabilitation of the infrastructure | 3 |
| 1 | The wastewater conveyance system has limited capacity for the regional system. In central Tucson – the system is at capacity. This raises the need to make a decision of new cross town interceptors or upstream facilities. Roger and Ina Road are not able to serve growth. This is a centralized system. Leads to the question of "is growth best served by centralized vs. disaggregated system? It is a question cost effectiveness (note this is cross listed under missing or future topics below). | 2 |
| Chapter 2 / Item No. 5 | Need to consider environmental justice issues associated with new water which will be more expensive. What are the numbers? How much will rates increase? Water resource fees can help balance this. | 2 |
| Chapter 2 / Item No. 7 | Need to eliminate groundwater pumping in environmentally sensitive areas. How to deal with this outside our jurisdiction (exempt wells)? Idea: buying water rights using conservation savings – exempt well retirement program" | 2 |
| Chapter 2 / Item No. 8 | Need to look at conservation and new water together. Compare two sides of same coin. | 2 |
| Chapter 2 / Item No. 21 | Existing cost of CAP vs. cost of importing new supplies "order of magnitude" greater. Important to consider when evaluating storm water, rainwater and greywater. | 2 |

| Chapter / Item NO. | ITEM | DOTS RECEIVED |
|---|---|---|
| Chapter 2 / Item No. 4 | Need to consider environmental implications of our use of current resources and any new sources (e.g. desal.) need to internalize environmental costs | 1 |
| Chapter 2 / Item No. 6 | Uncertainty related to Colorado River flows. What strategies should we implement ourselves by recharging current supplies, need to act responsibly, build in a buffer. | 1 |
| Chapter 2 / Item No. 14 | That we have been promoting conservation (due to efforts of Tucson Water); That it is a source of future supply. | 1 |
| Chapter 2 / Item No. 25 | Stationarity is dead. There is a consensus that global warming is occurring – should acknowledge this in report | 1 |
| Chapter 1 / Item No. 2 | Interrelationship between economy, population and law. Need to understand historical context and learn from mistakes (top of pg 4). Patterns emerge (bottom of pg 4) | 1 |
| Chapter 1 / Item No. 3 | Sustainable finance structure for maintenance. Need for bond to secure CAP improvements. | 1 |
| Chapter 1 / Item No. 7 | If rainwater harvesting is expanded at the same time we have a reduction in population growth and a slow economy, will this affect the need for planned system expansions? | 1 |
| Chapter 1 / Item No. 8 | Split of water and wastewater system lead to question of need for a more integrated approach – important part of historical background | 1 |
| Chapter 1 / Item No. 11 | Mechanisms and implication of "growth paying for itself" – Identify issue in Phase 1 & do further analysis in Phase 2<br><br>Cost of infrastructure for reclaimed. Do we want more users for reclaimed? Who Pays? Who uses? How much will be used? Cost trends. Barriers to increased us e of reclaimed (costs, regulations, public health issues) | 1 |
| Chapter 1 / Item No. 19 | Electric interdependence impacts on rates (pg 15) | 1 |

**SUMMARY OF THEMES WITH THREE OR MORE DOTS**

<u>Chapter 1</u>
Obligated area (14,17, 13)
Planning Disconnect (16)

Uncertainties (12)
Rehabilitation of Aging Systems (21)
Pumping / Recharge - location disconnect (5)

Chapter 2
- Plan now for new water
- Overdraft still a problem
- Maximize use of CAP
- Cost/benefit analysis for new water (Environmental Justice)
- Increase conservation
- Rainwater Harvesting

**MARCELINO'S SUMMARY OF KEY THEMES**

Chapter 1
- History Lessons (2, 4, 9, 18, 21)
- Cost Analysis (1, 3, 10, 11, 15, 19, 20)
- Uses of water and by whom (13, 14, 17)
- Planning (16)

Chapter 2
- ADD Water / Maximize Use of CAP ( 10, 21, 22, 23, 15, 16)
- Conservation (2, 23)
- Environmental Recognition (4, 5, 24)

## MISSING ELEMENTS

In addition to identifying the key points for Chapters 1 & 2, the sub-groups of the committee also identified a range of missing information, including things that could be included / updated in the Phase I Final Report and recommendations for questions or issues to be addressed in Phase 2 and beyond. The following list breaks down this missing information into those categories.

Chapter 1
- Put information in a regional context (jurisdictions/ water provider info)
- Information about the on-going debate of definition of service area
- Population growth chart for basin
- Include a section at the end of each chapter that summarizes on-going issues.
- Need an 'at-a' glance' timeline of key legal decisions, population growth, impacts to environment and economy

*Section A. Water*
- Need more info. on infrastructure
- Specifics on TW projects

- More info on condition assessments, state of infrastructure, costs of projects from water presentations
- More info on 79 IGA- wheeling of water needs to be defined.
- Chart of energy costs, rate schedule, capital charges, commodity rates
- Show table of water use within the home
- Missing info on cost of recharge (unit costs), CAP, Groundwater
- Pg. 21 – all costs in pie charts are not clear enough in terms of capital and O&M serving existing growth. Not much break-down on growth.
- What is connection between lifting of water and impacts to rates/ does the lift of CAP cost as much as GW? Do our rates reflect the cost of lifting?
- Pg. 11 – would be helpful to have a pie chart that brings in customer classes
- No analysis of way developing CIP is keeping up with replacement schedule to keep existing system in tact.
- What is connection between lifting of water and impacts to rates/ does the lift of CAP cost as much as GW? Do our rates reflect the cost of lifting?

*Section B. Wastewater*

- More info on PAG 208/ DMA status
- Better description of Sweetwater facility
- wastewater issue: re plans for decommissioning Roger Rd. -- are proposed expansions realistic in terms of economic trends and growth trends?
- Pg. 54 – no population provided.

Section C. Reclaimed Water

- Cost trends. Barriers to increased use of reclaimed: costs; regulations (COT / OV) public health issue (cross listed with future issues)
- Current state

Chapter 2

- Quantification of AVRA Valley
- Quantification of SAWRSA
- More on AWS
- Water quality
- Average depth of basin – need a range. Average masks highs and lows and where distribution is
- How much water is pumped by non-exempt wells?
- Discussion of issue of gray water uses and line flushing
    - How much does wastewater flush the line
    - How much water used for flushing
    - Is gray water/ low flow actually conserving water

## PHASE 2 ISSUES

- Reclaimed system expansion – user funded vs. G.O. bond expansion
    - Many areas not serve.
    - What cost of infrastructure for reclaimed?

    - Doe we want more users? Who pays/ Who uses? How much will be used? Cost trends. Barriers to increased use of reclaimed: costs; regulations (COT / OV) public health issue (cross listed with future issues)
    - Challenge for Phase 2 is how to use effluent
- Mechanisms and implication of "growth paying for itself" – Identify issue in Phase 1 & do further analysis in Phase 2
    - Cost of infrastructure for reclaimed. Do we want more users for reclaimed? Who Pays? Who uses? How much will be used? Cost trends. Barriers to increased us e of reclaimed (costs, regulations, public health issues)
- Water conservation standards
- New water sources: economic/ environmental issues
- Analysis of impacts of climate change needed. Are expansions needed? How will extended drought affect our supplies for urban (people) and environment?. Look at carbon footrpint – how will (climate change) impact the cost of electricity?
- Where is it cost effective to do rainwater harvesting at different scales (Urban vs. rural / indiv. vs. housing and commercial developments)?
    - Rainwater harvesting – who owns it? How can it be used as a regional source?
    - Need more on what is being done in rainwater harvesting in other cities.
- Where is it cost effective to expand CAP delivery system?
- Do case studies e.g. Civano / Verano
- What are the core values that ADD water has identified. Bring forward into Phase 2.
- Who are we conserving for? Why conserve if it is to make it available for new growth and if water bills go up?
- Are we making the most use of  biosolids as a resource?
- Water budget discussion does not address environmental needs for water – need to factor that in to the water budget.
- Link the contingency planning that has taken place within the context of drought management plans to the evaluation of rainwater harvesting as an alternative supply.
- How address issue of representation for Tucson Water when 40% of customers live outside city?
- In absence of a regional water authority – how abide by integrated resource practices within the AMA?
- How get to a consensus on growth rates? The economy is a challenge
- How does slower population growth affect planning scenarios, economic portfolios. This is a real issue for future planning. The Debt service portion of our revenue stream also is affected by this. Tucson Water and Pima County Regional Wastewater Reclamation Departments have been successful in terms of being solvent. But since that past was based on new hook ups – how with that change in the future?
- The wastewater conveyance system has limited capacity for the regional system. In central Tucson – the system is at capacity. This raises the need to make a

decision of new cross town interceptors or upstream facilities. Roger and Ina Road are not able to serve growth. This is a centralized system. Leads to the question of "is growth best served by centralized vs. disaggregated system? It is a question cost effectiveness

- Wastewater system can provide us with new water – how is this regulated? How will we use these new resources? (cross listed with future issues)