Assessing the connection between Land Use Planning and Water Resource Planning

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Introduction

Water is essential to human settlements because water is needed for most of the basic systems and functions that support human settlements. Basic human needs include direct water consumption, hygiene, and cooking. Water is used for food production, transportation, and recreation as well more complex needs within fire suppression, manufacturing, and power production. Lastly, human settlements are dependent on their supporting environmental systems which also require water. Thus, an essential concept of water sustainability is over the long-term water supply cannot be lower than water demand needed to sustain human settlement and environmental needs. Over time, these systems and the external factors that influence them change and institutions must adapt to keep water supplies and water demands balanced. Land use planning and water planning separately can impact, positively or negatively, the volume of available water supplies and water demand, but neither land use planning nor water planning have complete control over either water supply or water demand. Thus, successful adaptation to changes in supplies or demand may require institutions to coordinate water planning and land use planning.

The development of policies that link land use and water use are based on the interaction between complex urban and environmental systems such as the economy and market forces, personal attitudes, neighborhood social dynamics, water and sewer infrastructure, natural and altered watershed hydraulics, natural climate and weather systems, and government regulations. These systems are not static, but each are complex adaptive systems that change over time and our ability to understand each of these systems and their relationships is limited. Thus, estimating the current state of these interactions is difficult and predicting their future state is close to impossible. Yet, every time a new public policy is enacted to achieve some goal or solve some problem, it is an attempt to predict the impact this policy will have on the future state of these systems. The reality is that when we enact policies and action to link land use and water use, there is no guarantee the result will be to increase water sustainability. Thus, evaluation is a critical aspect of planning for water sustainability. When we enact policy, we must also plan to assess the impact this policy had on water sustainability.

Assessing the impact of policies to integrate land use/water use planning on water sustainability

Water sustainability is not a static state for which one can measure the balance between supply and demand and declare that balance has been or has not been achieved. Human water needs are going to be defined in terms of quality of life and will be different for different people, different regions, at different points in time. Water supplies are not static, but change over time and for different places. Water sustainability will be dynamic over time in terms of its definition and state. What we need to assess sustainability is a set of metrics that can assess the state of water sustainability from multiple viewpoints over time.

When assessing the level and effectiveness of polices that integrate land use planning and water planning processes, the outcomes of change we are ultimately interested in are not changes in the relationship, rather changes in the state of water sustainability. Furthermore, we are interested in assessing to what degree the changes in water sustainability can be attributed to changes in the relationship. Thus, such assessment will have three components:

1. To what degree is there currently coordination between land use and water planning?
2. To what degree are efforts to increase coordination resulting in more coordination?
3. To what degree is increased coordination between land use and water planning changing water sustainability?

This project attempts to address a specific aspect of items 1 and 2 above.

There are a number of ways that coordination between water planning and land use planning can occur. For the purposes of this report, water planning is focused on institutions that are charged with delivering potable water to and in some cases collecting sewage from customers. Further the water planning activities are focused on the management of water supplies, infrastructure, and operations needed to meet and manage customer water demand. Though there are some opportunities for coordination of the design and construction of water infrastructure with land use planning, this report does not extend to these types of planning activities. Land use planning is focused on institutions that are charged with managing land use development within a community. Further the planning activities are focused on management of land use plan development and development regulation. Planning, whether it is land use or water resources, is accomplished by people who engage in institutionalized planning and implementation processes. At the most basic level, coordination of land use and water resource planning will occur between the people engaged in planning. This could range from simple informal exchange of information that is then used to influence planning to institutional mandates for coordinated planning processes. In either case, the results of this information exchange would be reflected in one product of the institutional planning process, the adopted plan. In the land use case, this could be a Comprehensive or General Plan, and in the water case, it could be a Water Resource Plan.

This project examined the content of several Comprehensive/General Plans and Water Resource Plans from various institutions to assess the level of overlap in of water/land use coordination content. We then examined these same plans from the same institution (or in some cases different institutions but same community) to determine if these documents were in alignment on their land use/water coordination topic.

Methodology

In order to assess the overlap in land use/water resource topics between different planning documents, a framework of land use/water use topics was established. A brief literature review of over 100 water and land use planning articles and documents that discuss these topics was conducted. This literature is listed in the Bibliography. From this literature review, a single comprehensive framework was not identified. A framework was created by listing the land use/water use topics found in 13 articles and reports which in some way attempted to either define or assess the coordination of land use and water resource planning. This foundational literature is listed in Table 1.

Table 1: Foundation Literature: Articles and Reports to use for Land Use and Water Resource Planning Coding Framework

- Land Use Leadership Alliance. Questions to Guide Water and Land Use Planning Integration. In Training Program. (Land Use Leadership Alliance 2017)
- Best, A. (2015). Colorado's rapid growth offers a golden opportunity to merge water and land use.(Best 2015)
- Boschet, Christophe, and Tina Rambonilaza. Integrating water resource management and land-use planning at the rural–urban interface: Insights from a political economy approach. (Boschet and Rambonilaza 2015)
- Campbell, Brian, Bill Cesanek, Vicki Elmer, Dave Gattis, Jennifer Graeff, Brad Klamer, and Susan Wood. APA Policy Guide on Water. American Planning Association. (Campbell et al. 2016)
- Carter, Nicole, Reid D. Kreutzwiser, and Rob C. de Loë. Closing the circle: linking land use planning and water management at the local level. (Carter, Kreutzwiser, and de Loë 2005)
- Castle, Anne, John Sherman, and Larry MacDonnell. Integrated Land and Water Planning in Colorado. (Castle, Sherman, and MacDonnell 2016)

- Gober, Patricia, Kelli. L. Larson, Ray Quay, Colin Polsky, Heejun Chang, and Vivek Shandas. Why land planners and water managers don't talk to one another and why they should! (Gober et al. 2013)
- Kathlene, Lyn, Jewlya Lynn, Adam Greenwade, Wendy Sullivan, and Quinn Lung. Colorado Review: Water Management and Land Use Planning Integration. (Kathlene et al. 2010)
- Klein, Bobbie, and Douglas S. Kenney. The Land Use Planning, Water Resources and Climate Change Adaptation Connection: Challenges and Opportunities. (Klein and Kenney 2009)
- Rebecca Fedak, Shelby Sommer, and Derek Hannon, and Amelia Nuding, Drew Beckwith, and Linda Stitzer. Integrating Land Use and Water Resources: Planning to Support Water Supply Diversification. (Fedak et al. 2018)
- Serrao-Neumann, S., M. Renouf, S. J. Kenway, and D. Low Choy. Connecting land-use and water planning: Prospects for an urban water metabolism approach. (Serrao-Neumann et al. 2017)

Based on a review of the foundation documents, 159 land use/water resource planning topics were identified from over 300 initial topics. These were grouped into 12 major topics. Table 2 lists these major topics and how many subtopics were identified under each. Appendix 1 lists all the major and sub codes with more detailed explanation of the topic for each. It should be noted that most of the foundation literature comes from disciplines that have more of a land use planning focus than a water resource planning focus. Thus, these topics represent a series of topics with a bias towards land use planning that is related to water resource planning.

Table 2: Document High Level Topic Codes

Major Topics	Sub Level 1 Count	Sub Level 2 Count	Total Sub Topics
1.0 Agency/Planner Collaboration	8	18	26
2.0 Conservation Practices	6	7	13
3.0 Financial	5	4	9
5.0 Land Use Form and Design	6	3	9
6.0 Land Use Water Education	3	8	11
7.0 Land Use/Development Regulation	9	12	21
9.0 Spatial Scale	3	0	3
11.0 Water Demand	8	5	13
12.0 Water Inequity	0	0	0
13.0 Water Quality	3	0	3
14.0 Water Supplies Non-Traditional	8	16	24
15.0 Water Supplies Traditional	7	7	14

Case Studies

The approach for content review of the land use/water resource planning documents was a case study approach. Several cities and counties were selected as cases studies. The geographic scope for selection was restricted to cities and counties that were within the Colorado River Basin or utilized water from the Colorado River Basin. Recent work by the Babbitt Center for Land and Water Policy that examined the comprehensive plans in the Colorado River Basin was used to create an initial list of cities that was then supplemented with other cities that the Decision Center for a Desert City at ASU have been interested in for its work. A search for water and planning documents was initiated resulting in a list of 170 cities and counties for which a planning and/or water document could be found, with most of the planning documents obtained from the Babbitt Center. From this list, a set of 23 cities/counties were selected based on the following criteria:

Criteria

1) Must have a Comprehensive Plan (or equivalent) document
2) Must have a Water Resource Plan (or equivalent) document

There are a number of different types of water plans. Given the topics we were looking for the following criteria was set for acceptable water plans. The plan must include all of the following:

- Estimation and analysis of current and future demand
- Listing, estimation, and analysis of current and future water supplies
- Analysis of balance between demand and supply
- Options for managing existing and new water supplies
- Options for water demand management

Generally, a typical Water Resource Plan will include all of these items. Often other types of plans focus on different items. Reviewing plans that focus on certain items from the list and comparing them to land use plans that may cover all items, or to other water plans that cover all items, may skew the results, i.e. bias the analysis. The goal is to try and find (or not find) connections between land use and water planning. Not finding a water resource plan does not mean that this type of planning is not occurring in a community, only that we did not find documentation that it is or is not occurring.

In the initial search for water plans for the 170 places, less than a dozen water resource plans were found. There are likely two reasons for this: 1) the community does not have a formal plan, or 2) they have chosen not to make their plan easily available. A second search was conducted looking at Water Master Plans, Water Conservation/Efficiency/Drought Plans, Water Supply Plans and special studies. From these, a total of 38 cities had plans that met the criteria. Given the limited resources and extensive amount of time needed to code plans, 23 cities were selected as case studies. Effort was made to try and select a set of cities that ranged in size, urban and rural, upper and lower Colorado River Basin, and across states.

Table 3 lists the places that are being considered as case studies. Appendix A lists all 171 places that were considered along with the status of their water plan review.

Table 3: Case Study Locations

Place	State
Avondale	Arizona
Camp Verde	Arizona
Flagstaff	Arizona
Mesa	Arizona
Peoria	Arizona
Phoenix	Arizona
Prescott	Arizona
Queen Creek	Arizona
Surprise	Arizona
Tempe	Arizona
Tucson	Arizona
Sonoma County	California
Aspen	Colorado
Basalt	Colorado
Castlerock	Colorado
Colorado Springs	Colorado
Denver	Colorado
Fort Collins	Colorado
Greeley	Colorado
New Castle	Colorado
Pueblo County	Colorado
Las Vegas	Nevada
Santa Fe	New Mexico

For each case study, the land use and water resource plans documents were coded by topic using MAXQDA. This is a software package that allows a document to be reviewed and the text to be tagged with codes that identify where the document content reflects a land use/water resource topic. The document content was coded, using the topic codes presented above. Each document is also coded for other factors of the case study including the place, type of plan, state, date of document, and current population of place (estimated). This added information represents the case study information.

Coding was conducted by the principle investigator, a graduate student, and an undergraduate student. Training was conducted to ensure understanding of the topic codes. Two test cities were used for training and several rounds of comparisons of coding on the same cities were done to try and create consistency in the coding process. The principle investigator reviewed the coding done by the students to maintain consistency in coding. The following were used as a protocol for coding:

- Coding was done primarily on a paragraph basis, unless there was a clear separation of topics within a paragraph. In this case, subparagraphs were coded.
- Dot point and enumerated items were each considered a paragraph.
- Executive summaries were not coded unless the document being coded was only the summary.

- Sections about technical aspects of water and wastewater treatment facilities (plants, distribution or collection lines) or technical aspects of operation of storage or water conveyance were not coded.
- Tables, charts, or figures were not coded (the exception was where the table listed content relevant to be coded, i.e. list of source or management options, and the content was not in the text).
- Historical sections were not coded unless they identified current water supply details.
- Appendices were not coded.
- While coding text the initial focus was coding at the second level (first subcode). If the text related to a subcode, it was coded thus. If the text related to the general first level topic but no subcodes topics seemed appropriate, it was coded at the first level. Sometimes the text was more detailed than the second level subcode and key aspects related to the third level topic. In these cases it was coded at the third level, but this level of coding was not frequent.

For some cities, the land use and water resource planning documents consisted of multiple documents. In these cases, the documents were merged into one document for review. Each city had one land use document and one water resource document that was coded.

Not all the topics of potential water and land use relationships can be considered to have the same focus within water and land use plans. This is in part is a function of the nature of water and land use planning. Given that urban water planning is done primarily to deliver water to serve urban activities and environmental services that support urban activities, all urban water planning is related to land use in some way. However, the range of "land use" planning issues found in a land use plan is very broad (development, economic, social, environmental, historic, etc.) with many having little if any relationship to water. Thus while all aspects of water planning may have some relationship to land use, land use topics that have a relationship to water is a small subset of the broader planning issues. Thus the amount of a water related topics in a General Plan is likely to be a small percentage of the whole plan when compared to the percentage of topics in a water plan. . For example, the coding topics of "Land Use Form and Design" and "Land Use/Development Regulation," are focused on discussions of form and regulation that are only related to water, such as a design concept to protect a water courses or a building regulation that restricts turf area. Topics of this narrow focus will represent only a small portion of a land use or water plan. On the other hand, the coding topics of "Water Supplies Traditional" and "Water Demand" are focused on a wide range of aspects of demand and supply and thus can represent a significant percentage of a water plan yet only be a small portion of the broad topics in a land use plan...

Case Study Results and Analysis

In deriving results from the coding, three key metrics were used.

1) Character count. Each section of text that was coded for a topic was measured by counting the number of characters in the section coded. The total characters for each topic coded were summed, as well as the total number of characters in a document.
2) Percent coded. For each topic code, the percent of coded characters compared to the total characters in the document was calculated.
3) Relative percent of total coded content. This is the percent each topic is represented within all coded content, rather than all content. This provides a metric which normalizes the metrics of land use and water plan coded content. The difference of this metric between land use and water resource plans would indicate if one plan is giving more relative coverage to the topic than another.

The detailed metrics for the case study coding are in Appendix C. Because of the size of these tables they are split into four parts, the first three covering different places and the fourth section providing an overall summary across all places including totals, averages and standard deviations.

One observation is that the size in text of the land use plans is on average twice the size of the water documents, however the amount of text coded is three times larger in the water plans compared to the land use plans. This is because the land use plans have a wider number of topics while the water plans are focused on water topics. Thus the water plans have more text related to the coding topics. This raises a complication in terms of evaluating content in the plans, and methods to normalize metrics (make them independent of the amount of text coded) were used.

A second observation is that some topics had very little, if any, text coded in either land use or water resource plans. For example, inequity and spatial scale had very little exposure in the plans. Because there are a large number of coding topics, in the interest of space and time for analysis, the following topics were dropped from further analysis:

- 1.190 Data collection and sharing
- 6.0 Land use water education
- 6.13 Planner education
- 6.182 Public education and stakeholder engagement
- 6.193 Joint events
- 7.71 Enforcement of Requirements
- 7.269 Stormwater performance standards
- 9.0 Spatial scale
- 12.0 Water inequity
- 14.82 Onsite wastewater treatment
- 14.205 Alternative water supply research
- 15.282 Development & groundwater impact statement

With the exception of the education categories, these were dropped to low amounts of text coded for these topics. Though these are not analyzed further, it is significant that these topics were not found in the plan. A frequent topic among academics about sustainability is justice. Yet, water inequity is not addressed in almost all of these land use and water plans. Two emerging concepts for water sustainability are onsite treatment of wastewater and performance standards for storm water management as part of green infrastructure efforts. Very few of the plans addressed this. As a note, the land use water education topic was dropped because it was discovered during coding review that there was confusion as to what it meant.

One of the questions that was sought to be answered by this analysis was: To what degree is there currently coordination between land use and water planning? One way to assess this is to understand to what degree content topics are included in the plan documents.

Table 4 provides a summary of results across all places. Results are reported at the Topic Level 1 and Subtopic level 2. In these cases, the results for the Topic Level 1 reflect all the text coded with the Level 1 code and all subcodes. The results for Topic Level 2 reflect text code with this topic and all its subtopics if there are any. Several Level 3 topics were also included due to the high number of counts they received and their relevance to the land use planning and water planning relationship. The bars in each column represent the emphasis placed on each topic in the plan, indicating land use in red and water in blue. The larger the bar, the greater the emphasis. In general, the scale in magnitude is the same for the water and land use graphs.

This chart shows that the volume of text code across almost all topics was greater for water plans than land use plans. This is due to the physical nature of these plans and less to do with some topics being emphasized more than others in the plans. To provide a better comparative metric, a normalized metric which reflects how much the coded text represents of the total text coded in the plan was calculated. Table 4 shows the summary results of this metric, % Topic Text of All Coded Text with a comparison between Land Use and Water plans. For some of the topics the percent of coded text is similar between the two types of plans, this includes Agency / Planner Coordination (1), Conservation Practices (2), Financial (3) and Non-Traditional Water Supplies (14). As would be expected land use plans have a higher percentage of Land Use Form (5) and Development Regulation (7) and water plans have a higher percentage of text devoted to Traditional Water Supplies (15).

Table 4: Summary Results

	Average Coded Text By Topic All Cities		Average % Coded Text of All Coded Text			Relative Error (StDev/Avg)	
	Land	Water	Land	Water	Compare	Land	Water
1.0 Agency/Planner Collaboration	2,094	3,832	0.09	0.07		78%	82%
1.172 Institutionalized Collaboration	1,009	2,411	0.04	0.04		119%	113%
2.0 Conservation Practices	2,388	5,926	0.10	0.11		84%	78%
2.59 Indoor Water Efficiency	245	897	0.01	0.02		175%	191%
2.60 Outdoor Water Efficiency	692	956	0.03	0.02		101%	159%
2.301 Water Restrictions	17	378	0.00	0.01		244%	232%
3.0 Financial	729	1,492	0.03	0.03		100%	115%
3.308 Impact Fees	325	394	0.01	0.01		140%	194%
3.309 Rates	58	577	0.00	0.01		235%	119%
5.0 Land Use Form and Design	1,783	528	0.08	0.01		131%	238%
5.268 Low-Impact Stormwater Management	833	37	0.04	0.00		182%	359%
5.124 Low Water Use Development Strategies	108	0	0.00	0.00		262%	0%
7.0 Land Use/Development Regulation	3,170	2,410	0.14	0.04		49%	135%
7.1 Demonstrate Adequate Water Supply Before Approving	587	484	0.03	0.01		138%	230%
7.53 Water In Development Decision	762	249	0.03	0.00		122%	285%
7.61 Water Efficient Landscape Codes	349	245	0.02	0.00		164%	162%
7.68 Water Efficient Development Incentives	78	97	0.00	0.00		219%	271%
7.114 Water Quality Regulation	505	310	0.02	0.01		143%	200%
11.0 Water Demand	1,027	8,247	0.04	0.15		153%	76%
11.306 Demand Based On Land Use	4	848	0.00	0.02		480%	134%
11.307 Water Demand Scenarios	220	3,109	0.01	0.06		237%	143%
11.307.118 Water Demand Scenarios Population	0	869	0.00	0.02		0%	236%
11.307.299 Water Demand Scenarios Land Use	83	1,097	0.00	0.02		480%	214%
13.0 Water Quality	2,393	1,264	0.10	0.02		118%	138%
14.0 Water Supplies Non-Traditional	2,742	5,696	0.12	0.10		72%	94%
14.113 Water Reuse	1,551	3,705	0.07	0.07		89%	91%
14.78 Onsite Water Harvesting	205	498	0.01	0.01		190%	341%
14.310 Stormwater Capture	429	107	0.02	0.00		136%	407%
14.162 Coastal Desalination	0	92	0.00	0.00		0%	233%
14.165 Groundwater Desalination	0	0	0.00	0.00		0%	0%
15.0 Water Supplies Traditional	6,146	25,829	0.27	0.46		66%	36%
15.35 Water Supply Availability	3,858	15,877	0.17	0.28		192%	132%
15.35.36 Water Supply Threats	606	2,067	0.03	0.04		232%	157%
15.35.94 Water Storage and Delivery Projects	286	2,133	0.01	0.04		177%	131%
15.35.123 Transferrable/Acquirable Water Rights	312	2,788	0.01	0.05		157%	138%
15.95 Groundwater Banking	185	1,742	0.01	0.03		157%	138%
15.120 Drought Planning	125	2,122	0.01	0.04		169%	94%
15.303 Water Resource Planning Scenarios	0	1,859	0.00	0.03		0%	157%
15.303.297 Water Resource Scenarios Land Use	0	391	0.00	0.01		0%	480%
15.303.298 Water Resource Scenarios General	0	437	0.00	0.01		0%	342%

In general both types of plans include to a greater or lesser extent most of the water- and land use focused planning topics in their respective plans (See Table 5 for focused categories of topics). In general, the land use planning topics are covered more in the land use plans, but still covered some in the water plans, and the water planning topics are covered more in the water plans, but still covered some in the land use plans. This overlap in topics between the plans might suggest that there may be some coordination in the development of these plans, at least at the information exchange level.

Table 5: Land Use and Water Focused Planning Topics

Water Planning Focus	Land Use Planning Focused
2.0 Conservation Practices	5.0 Land Use Form and Design
11.0 Water Demand	7.0 Land Use/Development Regulation
13.0 Water Quality	
14.0 Water Supplies Non-Traditional	
15.0 Water Supplies Traditional	

There are some exceptions to this. On the average the amount of content for water related Land Use Form (5) topics is much less in water plans than is found in land use plans. This would suggest a gap in content and perhaps coordination. Though less evident there is also a difference in Water Quality (13) where water quality is discussed relatively more in land use plans than water plans.. This is discussed more below.

These values in Table are averages, and thus represent a blending of results from all places. However, this does not mean that these patterns apply for all places. Table 4 also show the variance across the places for each of the topics. In general, the variance is large for both water and land use plans across almost all the topics, and there are similar patterns in variance across water and land use plans.

Table 6 presents these results for each city/place by a subset of topic codes. Again, the bars in each column represent the emphasis placed on each topic in the plan, indicating land use in red and water in blue. The larger the bar, the greater the emphasis.

Several patterns can be seen in Table 6 and are discussed here:

1) Almost all water plans and land use plans have a major emphasis on traditional water supplies (15). This suggests that there is a consistent alignment between water and land use plans on this topic.
2) About two thirds of the land use plans and a little more than half the water plans have at least a minor emphasize Non-Traditional Water Supplies (14). This suggests another alignment between water and land use plans.
3) The classic balance between water supply and demand is reflected with the above topics representing supply and with all water plans having at least a minor emphasis on Water Demand (11) topics. However, only a few land use plans emphasize this topic, which suggests a disconnect between water and land use planning on this topic. This is interesting given that the use of land use-based water demand scenarios was mostly found in water plans.
4) Though it was more of a minor topic, Conservation Practices (2) on average was equally represented between land use and water plans in Table 4. This suggests an alignment between water and land use plans. However Table 6 shows that there are a number of cities where Conservation Practices is more dominant in either the land use or the water planning documents. Aspen. Basalt, New Castle Prescott, Pueblo County, Tempe, and Tucson have water plans with a higher emphasis on water conservation than there land use plans. While Avondale, Greeley,

Mesa, Phoenix, Queen Creek, Santa Fe have land use plans with water conservation more dominant than their water plans. This suggest there is penetration of the water conservation message into a large number of land use plans, there are also a number where there has not been such a connection, Also it raises questions about why there is a disconnect around land use and water demand.

5) Almost all the land use plans have water-related Land Use/Development Regulations (7) topics, at least with a minor emphasis, while very few water plans emphasize this topic at all. This suggests another disconnect between water and land use planning.
6) An emerging topic in land use is the use of urban form to help manage water demand; however, only about a third of the land use plans have the Land Use Form and Design (5) topics as even a moderate emphasis and almost none of the water plans include this topic at all. This suggests a disconnect among planners and a disconnect between land use and water planning on this issue.
7) Interestingly Water Quality (13) ranged from a minor to major topic among most of the land use plans while very few water plans emphasized this topic. This may be a result of water managers viewing this as a technical issue, and thus such sections were not coded and land use planners view it as more as a sustainability issue and thus there discussions were coded.
8) Though more of a minor topic almost all water and land use plans had Institutional Collaboration (1.172) included at some level in their plans.

Table 6: Case Study Results: Plan Emphasis

	Aspen		Avondale		Basalt		CampVerde		Castlerock		Denver		Flagstaff		Fort Collins		Greeley		Las Vegas		Mesa		New Castle		Peoria		Phoenix		Prescott		Pueblo Cnty		Queen		Santa Fe		Sonoma		Springs		Surprise		Tempe		Tucson		All Cities	
	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
1.0 Agency/Planner Collaboration	3%	2%	3%	2%	5%	1%	6%	8%	16%	7%	0%	12%	7%	0%	2%	5%	8%	2%	17%	18%	4%	10%	5%	0%	7%	0%	6%	6%	4%	5%	23%	0%	12%	8%	0%	6%	16%	11%	3%	7%	11%	8%	18%	9%	19%	4%	9%	7%
1.172 Institutionalized Collaboration	3%	2%	1%	0%	0%	1%	0%	0%	13%	6%	0%	11%	3%	0%	0%	3%	1%	1%	10%	12%	3%	4%	4%	0%	4%	0%	4%	3%	3%	0%	23%	0%	4%	1%	0%	5%	0%	10%	3%	2%	8%	6%	10%	7%	14%	3%	4%	4%
2.0 Conservation Practices	0%	19%	25%	2%	2%	34%	12%	19%	6%	5%	19%	13%	7%	13%	6%	15%	30%	4%	8%	6%	16%	1%	4%	17%	7%	0%	23%	3%	6%	19%	0%	12%	29%	6%	29%	8%	2%	7%	4%	4%	11%	4%	6%	22%	10%	20%	10%	11%
2.59 Indoor Water Efficiency	0%	4%	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	5%	1%	0%	1%	0%	3%	0%	0%	0%	1%	0%	5%	0%	3%	1%	0%	0%	0%	0%	7%	1%	0%	0%	0%	0%	1%	0%	0%	6%	0%	3%	1%	2%
2.60 Outdoor Water Efficiency	0%	4%	3%	0%	1%	10%	0%	0%	2%	0%	12%	0%	0%	1%	2%	3%	7%	1%	5%	0%	4%	0%	4%	0%	1%	0%	11%	0%	3%	1%	0%	5%	3%	0%	4%	0%	1%	1%	3%	1%	5%	1%	2%	10%	1%	5%	3%	2%
2.301 Water Restrictions	0%	1%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	14%	0%	0%	1%	1%	0%	5%	0%	0%	1%	0%	1%	2%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%
3.0 Financial	7%	5%	0%	0%	1%	3%	1%	12%	8%	0%	0%	1%	3%	0%	0%	7%	1%	5%	3%	0%	4%	0%	10%	1%	3%	2%	3%	3%	0%	2%	0%	3%	0%	3%	10%	4%	7%	0%	2%	0%	2%	1%	10%	1%	6%	2%	3%	3%
3.308 Impact Fees	3%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	2%	0%	0%	6%	0%	3%	0%	0%	3%	0%	2%	1%	3%	2%	2%	1%	0%	1%	0%	0%	0%	0%	10%	1%	0%	0%	2%	0%	2%	0%	6%	0%	1%	0%	1%	1%
3.309 Rates	0%	4%	0%	0%	1%	3%	0%	0%	2%	0%	0%	1%	0%	0%	0%	1%	1%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	3%	0%	1%	0%	2%	0%	0%	0%	0%	0%	0%	3%	1%	0%	2%	0%	1%
5.0 Land Use Form and Design	43%	0%	0%	2%	1%	0%	17%	9%	2%	1%	34%	0%	11%	0%	28%	0%	8%	0%	4%	0%	6%	0%	0%	0%	7%	0%	3%	0%	0%	1%	5%	0%	0%	5%	0%	0%	1%	1%	12%	0%	14%	0%	3%	0%	9%	0%	8%	1%
5.268 Low-Impact Stormwater Management	42%	0%	0%	0%	1%	0%	0%	0%	0%	1%	2%	0%	8%	0%	20%	0%	8%	0%	3%	0%	4%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	12%	0%	9%	0%	1%	0%	5%	0%	4%	0%
5.124 Low Water Use Development Strategies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
7.0 Land Use/Development Regulation	23%	3%	11%	4%	13%	6%	9%	16%	16%	3%	17%	2%	16%	0%	15%	2%	22%	3%	8%	1%	15%	1%	13%	0%	8%	10%	5%	4%	15%	31%	36%	1%	19%	6%	7%	2%	33%	1%	15%	2%	21%	5%	23%	11%	9%	3%	14%	4%
7.1 Demonstrate Adequate Water Supply Before Approving	0%	0%	7%	4%	0%	0%	0%	0%	8%	0%	0%	0%	11%	0%	0%	0%	2%	0%	0%	0%	1%	1%	7%	0%	1%	5%	0%	1%	1%	16%	9%	0%	8%	0%	0%	0%	13%	0%	0%	0%	3%	2%	0%	4%	0%	2%	3%	1%
7.53 Water In Development Decision	9%	0%	1%	0%	1%	0%	0%	0%	8%	0%	0%	0%	2%	0%	11%	1%	16%	3%	0%	0%	5%	0%	0%	0%	1%	4%	3%	0%	1%	14%	4%	0%	3%	1%	0%	1%	17%	0%	3%	0%	0%	0%	4%	0%	4%	0%	3%	0%
7.61 Water Efficient Landscape Codes	0%	2%	2%	0%	3%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	1%	3%	0%	4%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%	4%	0%	0%	0%	0%	0%	3%	1%	5%	1%	2%	2%	0%	1%	2%	0%
7.68 Water Efficient Development Incentives	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	4%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	5%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
7.114 Water Quality Regulation	0%	0%	2%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	6%	0%	3%	0%	0%	0%	12%	0%	0%	0%	4%	4%	5%	0%	0%	1%	8%	1%	3%	2%	13%	2%	5%	0%	2%	1%
11.0 Water Demand	0%	43%	1%	11%	14%	37%	10%	3%	1%	11%	0%	16%	4%	31%	1%	12%	0%	12%	2%	10%	6%	4%	26%	19%	5%	2%	3%	13%	11%	15%	2%	34%	5%	22%	0%	15%	0%	6%	0%	7%	0%	11%	2%	4%	0%	6%	4%	15%
11.306 Demand Based On Land Use	0%	3%	0%	5%	0%	4%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	2%	0%	0%	0%	4%	0%	0%	0%	0%	0%	3%	0%	5%	0%	6%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
11.307 Water Demand Scenarios	0%	15%	0%	5%	13%	25%	0%	0%	0%	3%	0%	0%	3%	28%	0%	1%	0%	4%	0%	4%	0%	0%	8%	4%	1%	0%	0%	3%	0%	0%	0%	3%	5%	5%	0%	0%	0%	2%	0%	6%	0%	8%	0%	1%	0%	3%	1%	6%
11.307.118 Water Demand Scenarios Population	0%	2%	0%	0%	0%	9%	0%	0%	0%	2%	0%	0%	0%	14%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
11.307.299 Water Demand Scenarios Land Use	0%	7%	0%	5%	13%	16%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	2%
13.0 Water Quality	6%	0%	0%	7%	5%	0%	7%	0%	16%	2%	0%	2%	15%	0%	39%	2%	18%	0%	11%	1%	11%	2%	0%	0%	9%	0%	12%	9%	0%	1%	7%	0%	4%	1%	0%	6%	5%	1%	34%	4%	18%	1%	7%	3%	6%	0%	10%	2%
14.0 Water Supplies Non-Traditional	2%	3%	12%	7%	1%	0%	13%	15%	15%	7%	4%	5%	7%	18%	0%	2%	0%	11%	15%	5%	17%	12%	21%	1%	18%	43%	9%	16%	9%	3%	2%	5%	23%	2%	10%	5%	0%	10%	8%	13%	13%	20%	17%	7%	20%	24%	12%	10%
14.113 Water Reuse	2%	3%	11%	6%	1%	0%	0%	0%	8%	7%	4%	5%	3%	5%	0%	2%	0%	1%	14%	2%	8%	11%	4%	0%	14%	15%	4%	13%	8%	2%	2%	5%	7%	0%	2%	5%	0%	9%	4%	12%	1%	17%	10%	6%	8%	18%	7%	7%
14.78 Onsite Water Harvesting	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	1%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	2%	1%	2%	0%	7%	4%	1%	1%
14.310 Stormwwater Capture TOT	0%	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	4%	14%	1%	0%	0%	0%	0%	0%	4%	0%	8%	0%	0%	0%	4%	0%	8%	1%	3%	0%	3%	0%	2%	0%
14.82 Onsite Wastewater Treatment TOT	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
14.162 Coastal Desalination TOT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
14.165 Groundwater Desalination TOT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
14.205 Alternative Water Supply Research TOT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	5%	2%	0%	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	0%	0%	0%
15.0 Water Supplies Traditional TOT	5%	26%	38%	66%	50%	19%	25%	4%	19%	63%	16%	48%	31%	38%	9%	53%	12%	63%	28%	59%	14%	69%	21%	62%	33%	44%	31%	43%	53%	24%	21%	45%	9%	43%	44%	48%	36%	62%	2%	61%	7%	49%	11%	40%	18%	39%	27%	46%
15.35 Water Supply Availability TOT	0%	5%	0%	2%	5%	2%	0%	0%	0%	12%	16%	4%	3%	1%	0%	8%	0%	4%	9%	7%	0%	0%	1%	1%	0%	0%	2%	12%	4%	0%	0%	2%	0%	0%	0%	0%	4%	2%	0%	1%	0%	0%	0%	0%	2%	2%	3%	4%
15.35.36 Water Supply Threats	0%	5%	0%	2%	12%	0%	0%	0%	0%	19%	0%	9%	2%	2%	3%	8%	0%	8%	1%	7%	0%	0%	0%	23%	0%	0%	4%	0%	0%	0%	0%	0%	0%	7%	0%	2%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%
15.35.94 Water Storage and Delivery Projects	5%	5%	0%	5%	2%	0%	0%	0%	0%	2%	0%	6%	1%	21%	0%	7%	2%	10%	6%	17%	0%	0%	4%	3%	0%	0%	1%	2%	3%	3%	0%	0%	0%	1%	0%	14%	0%	2%	0%	0%	0%	1%	0%	0%	0%	3%	1%	5%
15.35.123 Transferrable/Acquirable Water Rights	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	0%	0%	0%	0%	0%	0%	1%	6%	2%	9%	0%	0%	3%	4%	2%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	11%	1%	6%	1%	9%	2%	2%	1%	3%
15.95 Groundwater Banking TOT	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	0%	0%	0%	0%	0%	0%	1%	6%	2%	9%	0%	0%	3%	4%	2%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	11%	1%	6%	1%	9%	2%	2%	1%	3%
15.120 Drought Planning TOT	0%	0%	0%	12%	0%	0%	0%	0%	3%	0%	0%	3%	0%	0%	1%	8%	0%	5%	0%	0%	2%	12%	0%	5%	1%	1%	2%	5%	0%	9%	0%	4%	0%	0%	2%	7%	0%	9%	0%	3%	0%	1%	4%	6%	1%	5%	1%	4%
15.303 Water Resource Planning Scenarios TOT	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	8%	0%	0%	0%	10%	0%	0%	0%	11%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	3%	0%	7%	0%	5%	0%	0%	0%	0%	0%	2%	0%	3%
15.303.297 Water Resource Scenarios Land Use	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
15.303.298 Water Resource Scenarios General	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	8%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%

Land Use Plan Emphasis Water Plan Emphasis

Table 7 presents this difference in content focus. There are several patterns of interest.

1) As expected, the traditional land use topics of Land Use Forma and Design (5) and Land Use/Development Regulation (7) are emphasized more by land use plan than water plans. But there are some exceptions to this. Prescott's water plan had a stronger emphasis on land use regulations than their land use plan.
2) As expected, water plans in general greatly emphasized Traditional Water Supplies (15) more than land use plans, though there are exception to this as well. The Town of Basalt, the town of Camp Verde, and the City of Prescott all emphasized traditional water supplies in their land use plans than their water plans did.
3) Though there are some topic categories where more focus is either in the land use or water plan, there are also topic areas where the emphasis is somewhat balanced. Institutional Collaboration (1), Water Finance (3), as well as Drought Planning (15.120) are well balanced across most of the cities.
4) There are also some topics that have high variation between cities. Non-Traditional Supply (14) topics and Conservation Practices (2) vary in emphasis between land use plan and water plans from one city to the next. About half of the places have similar emphasis, while about a quarter of the places it is the land use plan with the emphasis, and in another quarter it is the water plan. In both cases the cities seem well distributed between small and large cities.

Table 7: Relative Difference of Topic Coverage Between Land Use Plan and Water Plan by Topic and City

	Aspen	Avondale	Basalt	CampVerde	Castlerock	Denver	Flagstaff	Fort Collins	Greeley	Las Vegas	Mesa	New Castle	Peoria	Phoenix	Prescott	Pueblo Cnty	Queen	Santa Fe	Sonoma	Springs	Surprise	Tempe	Tucson	All Cities
1.0 Agency/Planner Collaboration TOT	-1.6%	-1.3%	-3.9%	2.6%	-9.0%	12.0%	-6.9%	2.7%	-6.8%	0.5%	6.7%	-5.2%	-6.6%	0.3%	0.4%	-22.5%	-3.6%	6.3%	-4.6%	3.7%	-3.7%	-9.0%	-14.7%	-2.3%
1.172 Institutionalized collaboration TOT	-1.6%	-1.5%	0.6%	0.0%	-6.7%	10.8%	-3.1%	3.3%	-0.3%	1.8%	1.7%	-3.7%	-3.8%	-0.4%	-3.0%	-22.5%	-3.5%	5.5%	10.2%	-0.7%	-2.1%	-3.3%	-11.6%	-0.1%
2.0 Conservation Practices TOT	18.7%	-23.0%	31.6%	6.9%	-0.7%	-6.0%	5.8%	9.2%	-26.3%	-2.2%	-15.3%	13.1%	-7.4%	-19.4%	12.7%	12.4%	-22.6%	-20.8%	4.6%	-0.5%	-7.4%	16.1%	10.4%	0.1%
2.59 Indoor Water Efficiency TOT	4.3%	-1.8%	-0.7%	0.0%	0.2%	0.0%	10.6%	5.1%	-1.0%	-0.6%	-2.7%	0.0%	-1.0%	-5.1%	-1.8%	0.3%	0.0%	-6.4%	0.2%	0.4%	-1.0%	6.2%	3.0%	0.5%
2.60 Outdoor Water Efficiency TOT	3.9%	-3.4%	9.5%	0.0%	-1.5%	-11.8%	1.4%	0.1%	-6.1%	-4.9%	-4.3%	-3.7%	-1.4%	-10.8%	-1.4%	4.9%	-2.7%	-3.6%	-0.2%	-1.8%	-3.7%	7.7%	4.2%	-1.3%
2.301 Water Restrictions TOT	1.1%	-0.3%	2.6%	0.0%	0.0%	0.0%	0.0%	1.0%	0.9%	0.1%	0.0%	13.8%	0.0%	-0.1%	0.0%	0.2%	-1.1%	1.0%	1.0%	0.7%	0.0%	0.0%	0.5%	0.6%
3.0 Financial TOT	-2.3%	-0.2%	2.7%	10.9%	-8.0%	0.7%	-2.6%	6.8%	4.2%	-2.9%	-4.0%	-9.1%	-1.0%	-0.5%	1.1%	2.6%	3.3%	-6.1%	-6.4%	-1.5%	-0.7%	-9.0%	-4.0%	-0.5%
3.308 Impact Fees TOT	-3.0%	0.0%	0.0%	0.0%	-6.5%	0.0%	-2.0%	5.5%	3.4%	0.0%	-2.8%	-0.8%	-1.0%	-0.4%	0.0%	0.0%	0.0%	-8.2%	0.0%	-1.9%	-1.6%	-6.1%	-1.3%	-0.7%
3.309 Rates TOT	4.0%	-0.2%	2.7%	0.0%	-1.5%	0.7%	0.0%	1.2%	0.6%	-0.2%	0.0%	0.0%	0.0%	1.8%	-0.1%	2.6%	1.4%	2.1%	0.1%	0.4%	0.0%	-2.2%	1.8%	0.8%
5.0 Land Use Form and Design TOT	-48.2%	1.7%	-0.9%	-8.6%	-0.7%	-33.7%	-10.9%	-27.8%	-8.5%	-4.0%	-5.9%	0.0%	-7.3%	-2.9%	0.7%	-5.5%	5.2%	0.0%	-0.5%	-11.8%	-14.3%	-3.2%	-8.5%	-6.8%
5.268 Low-Impact Stormwater Management TOT	-41.9%	0.0%	-0.9%	0.0%	1.5%	-2.3%	-8.0%	-20.4%	-8.5%	-3.5%	-4.4%	0.0%	-2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	-11.9%	-9.2%	-1.5%	-5.3%	-3.6%
5.124 Low Water Use Development Strategies TOT	-48.2%	1.7%	-0.9%	-8.6%	-0.7%	-33.7%	-10.9%	-27.8%	-8.5%	-4.0%	-5.9%	0.0%	-7.3%	-2.9%	0.7%	-5.5%	5.2%	0.0%	-0.5%	-11.8%	-14.3%	-3.2%	-8.5%	-6.8%
7.0 Land Use/Development Regulation TOT	-20.4%	-6.9%	-6.6%	6.1%	-13.5%	-14.9%	-15.7%	-12.9%	-19.0%	-6.5%	-13.6%	-12.7%	1.1%	-1.2%	16.5%	-35.5%	-12.7%	-5.1%	-31.8%	-12.7%	-15.9%	-11.6%	-6.1%	-9.5%
7.1 Demonstrate adequate water supply before approving a deveop TOT	0.0%	-2.7%	0.0%	0.0%	-7.8%	0.0%	-10.8%	0.0%	-1.9%	0.0%	0.4%	-6.7%	4.5%	0.2%	15.1%	-9.4%	-8.0%	0.0%	-13.2%	0.0%	-0.5%	3.5%	2.1%	-1.7%
7.53 Water in Development Decision TOT	-9.1%	-0.6%	-1.0%	0.0%	-8.3%	0.0%	-2.3%	-10.9%	-13.0%	-0.2%	-5.0%	0.0%	3.0%	-3.4%	12.7%	-3.8%	-1.7%	0.8%	-17.5%	-2.2%	-0.2%	-3.9%	-4.0%	-2.9%
7.61 Water Efficient Landscape Codes TOT	1.7%	-1.6%	-3.1%	0.0%	0.0%	-12.2%	-0.5%	1.2%	-3.1%	-3.2%	-1.4%	0.0%	-0.6%	0.3%	0.0%	0.6%	-3.6%	0.0%	0.0%	-2.1%	-4.5%	0.5%	0.7%	-1.1%
7.68 Water Efficient Development Incentives TOT	0.0%	0.0%	0.0%	0.0%	2.0%	-3.9%	-1.0%	0.0%	-1.1%	0.2%	-0.1%	0.0%	0.0%	-0.5%	0.0%	-5.5%	0.8%	0.0%	0.0%	0.0%	-2.2%	0.0%	0.0%	-0.2%
7.114 Water Quality Regulation TOT	0.0%	-1.7%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-2.7%	-6.0%	-2.7%	0.0%	-12.4%	0.0%	-0.3%	-4.6%	1.2%	-6.6%	-0.4%	-11.3%	-5.0%	-1.6%
11.0 Water Demand TOT	42.9%	10.1%	22.7%	-6.6%	9.3%	15.6%	27.1%	11.0%	11.9%	8.5%	-1.6%	-6.6%	-3.7%	9.4%	4.2%	32.4%	16.8%	14.9%	6.4%	7.4%	11.3%	2.3%	6.1%	10.2%
11.306 Demand Based on Land Use TOT	3.1%	4.6%	4.1%	0.0%	0.0%	1.5%	0.0%	0.0%	1.8%	0.0%	4.0%	0.0%	0.0%	2.3%	0.0%	6.4%	7.8%	0.0%	0.0%	0.0%	0.1%	0.4%	0.0%	1.5%
11.307 Water Demand Scenarios TOT	15.0%	4.6%	12.8%	0.0%	3.2%	0.5%	24.5%	0.9%	4.5%	4.1%	-0.4%	-3.8%	-1.2%	2.8%	0.0%	2.8%	0.1%	0.0%	2.2%	5.6%	8.5%	1.2%	3.2%	4.6%
11.307.118 Water Demand Scenarios Population	2.5%	0.0%	8.6%	0.0%	2.4%	0.0%	14.0%	0.0%	0.0%	3.5%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%
11.307.299 Water Demand Scenarios Land Use	6.8%	4.6%	3.2%	0.0%	0.0%	0.0%	11.4%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.7%	0.0%	1.6%
13.0 Water Quality TOT	-6.1%	6.9%	-4.6%	-6.8%	-13.6%	2.4%	-14.7%	-37.7%	-18.1%	-10.6%	-9.5%	0.0%	-8.7%	-3.3%	0.0%	-6.7%	-2.9%	6.4%	-4.7%	-49.4%	-17.3%	-3.7%	-5.6%	-8.1%
14.0 Water Supplies Non-Traditional TOT	1.4%	-4.8%	-0.8%	1.6%	-7.9%	1.4%	10.9%	1.8%	11.5%	-10.5%	-4.5%	-20.4%	24.4%	6.5%	-6.1%	2.9%	-21.1%	-4.3%	9.7%	4.4%	8.0%	-10.0%	4.1%	-1.8%
14.113 Water Reuse TOT	0.9%	-4.9%	-0.8%	0.0%	-1.2%	1.3%	2.3%	1.7%	0.6%	-11.9%	3.0%	-4.4%	1.2%	9.5%	-6.1%	2.9%	-7.3%	2.9%	8.8%	7.7%	15.6%	-4.1%	10.7%	-0.2%
14.310 Stormwwater Capture TOT	1.4%	-4.8%	-0.8%	1.6%	-7.9%	1.4%	10.9%	1.8%	11.5%	-10.5%	-4.5%	-20.4%	24.4%	6.5%	-6.1%	2.9%	-21.1%	-4.3%	9.7%	4.4%	8.0%	-10.0%	4.1%	-1.8%
14.162 Coastal Desalination TOT	1.4%	-4.8%	-0.8%	1.6%	-7.9%	1.4%	10.9%	1.8%	11.5%	-10.5%	-4.5%	-20.4%	24.4%	6.5%	-6.1%	2.9%	-21.1%	-4.3%	9.7%	4.4%	8.0%	-10.0%	4.1%	-1.8%
14.165 Groundwater Desalination TOT	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
15.0 Water Supplies Traditional TOT	21.0%	27.7%	-40.1%	-20.3%	44.0%	32.3%	7.0%	44.3%	51.1%	31.2%	55.6%	41.0%	11.3%	11.3%	-30.4%	24.1%	34.2%	4.1%	25.7%	59.4%	41.9%	28.8%	21.1%	19.1%
15.35.36 Water Supply Threats	4.7%	2.1%	-3.3%	0.0%	12.4%	-11.6%	-1.9%	8.1%	4.1%	-2.6%	0.0%	0.0%	0.0%	9.7%	-3.8%	1.5%	0.0%	0.0%	-2.0%	0.9%	0.0%	0.0%	0.1%	1.0%
15.35.94 Water Storage and Delivery Projects	4.8%	2.0%	-12.0%	0.0%	19.4%	9.5%	-0.3%	4.6%	8.0%	5.4%	0.0%	23.2%	0.0%	-3.8%	0.0%	0.1%	7.1%	1.5%	-3.5%	0.0%	0.0%	0.0%	0.0%	2.5%
15.35.123 Transferrable/Acquirable Water Rights	-0.3%	5.2%	-1.1%	0.0%	2.2%	5.6%	19.9%	6.9%	7.7%	11.0%	0.0%	-0.3%	0.0%	1.7%	0.9%	0.2%	0.6%	13.9%	1.6%	0.0%	0.7%	0.0%	3.0%	3.6%
15.35 Water Supply Availability TOT	17.7%	14.6%	-17.2%	0.0%	43.0%	18.8%	15.8%	29.9%	35.5%	14.9%	28.7%	25.7%	13.7%	4.5%	-29.9%	15.5%	13.4%	-5.6%	-5.4%	38.5%	20.2%	12.5%	4.8%	11.4%
15.95 Groundwater Banking TOT	0.0%	0.3%	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	5.2%	7.5%	0.0%	1.1%	6.2%	0.0%	0.0%	0.0%	0.0%	3.5%	10.8%	4.9%	7.9%	-0.2%	2.3%
15.120 Drought Planning TOT	0.0%	11.8%	0.0%	0.0%	-3.1%	2.7%	0.0%	7.2%	5.1%	0.5%	10.5%	4.8%	-0.3%	2.7%	0.0%	4.4%	0.0%	4.4%	9.2%	3.4%	1.2%	2.6%	4.8%	3.2%
15.303 Water Resource Planning Scenarios TOT	0.0%	19.6%	0.0%	0.0%	0.0%	6.6%	0.0%	7.7%	0.0%	10.0%	0.0%	10.5%	0.0%	0.8%	0.0%	0.0%	1.4%	2.9%	6.7%	5.3%	0.0%	0.0%	1.9%	3.3%
15.303.297 Water Resource Scenarios Land Use	0.0%	19.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
15.303.298 Water Resource Scenarios General	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	7.7%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%

Greater emphasis in Land Use Plan Greater emphasis in Water Plan

Size of bar indicates the relative difference in amount of attention given to a topic for each city. Large red bars indicated that the land use plan gave more relative attention to a topic than the water resource plan. Large blue bars indicate that the water resource plan gave more relative attention to a topic than the land use plan. Small bars indicate the plans relative attention to a topic were close to each other.

Conclusions

The goal of this project was to contribute to the effort to answer two questions:

1. To what degree is there currently coordination between land use and water planning?
2. To what degree are efforts to increase coordination resulting in more coordination?

This methodology seems effective at assessing the water related planning content in both water and land use plans as a metric for answering the first question. Results of this analysis found several alignments and disconnects in the water and land use plans for the places in this sample. These included:

1) An alignment between water and land use plans around Traditional Water Supplies (15) topics and Non-Traditional Water Supplies (14).
2) An alignment between land use and water plans around Conservation Practices (2) topics though both give this minor attention suggesting an opportunity for discussion.
3) An alignment in the balance of percent coverage between water and land use plans around Institutional Collaboration (1.172) topics.
4) Institutional Collaboration (1), Water Finance (3), as well as drought planning (15.120) percent coverage is well balanced across most of the cities.
5) A disconnect between land use and water plans around Water Demand (11) topics with water plans giving this more attention.
6) A disconnect between water and land use plans around Land Use/Development Regulations (7) topics, with land use plans giving this more attention.
7) A gap between water planners and land use planners around an emerging planning issue of using urban form to help manage water demand, Land Use Form and Design (5), with bout a third of the land use plans addressing this topic and few water plans using it.
8) .

For most topics there are exceptions to these trends with cities standing out on particular issues, such as

- Prescott's water plan had a stronger emphasis on land use regulations than their land use plan while their land use plan has a stronger emphasis on traditional water supply than their water plan.
- Aspen, Denver and Fort Collins have a strong emphasis in their land use plan on water related urban form and design.
- Flagstaff's water plan has a strong emphasis on land use based water demand scenarios.
- Las Vegas, New Castle, and Queen Creek have land plans that emphasize non-traditional water supplies more than their water plans.
- Basalt and Camp Verde emphasize traditional water sources more in their land use plan than in their water plans.

These results suggest that there is evidence of a basic level of coordination between land use planning and water planning across a wide range of places, and that in some places the level of coordination is quite high. This seems particularly strong in the areas of water conservation and non-traditional water supplies. These results also suggest that there are areas of disconnect, which seem evident in areas of water demand and urban form.

Given these results, this project has essentially provided a proof of concept for assessing levels for coordination, which could be expanded for the Colorado River Basin as a diagnostic tool as well as being

applied to other geographies. However, this project has not yet provided a metrics for assessing the second question, “To what degree are efforts to increase coordination resulting in more coordination?”,

There was some thought that an evidence chain could be made to show that content developed in an early plan could be found in the content of a later. This could be used to test the notion that including water related content in a Comprehensive Plan would lead to such being included in water planning. This approach may still be viable but will require a larger sample and coding multiple water and planning documents for each place.

Recommendations

1) This proof of concept showed how this “tool” can be used to assess levels of coordination between land use and water use planning in the Colorado River Basin. However, the small sample used is not enough to make such assessment for the entire Basin, nor to make such an assessment at different scales of place size and locations (upper and lower basin). This could be accomplished by expanding the sample size to at least 50 to 60 places. Much of this effort was in developing the methodology which could be implemented by others. Training could include review of current coded documents.
2) This method was developed as a tool to assess the current level of coordination between land use planning and water planning, however, it also has value as a diagnostic tool as well. This method could be used by a community to assess how well water related land use concepts being addressed in land use plans are being incorporated in water plans, and how well land use related water concepts addressed in water plans are being incorporated into land use plans. This type of use could be further explored.
3) Action to address a disconnect related to water demand where there seems to be some interest among water managers and land use planners, though not connected. This review suggests that discussion of urban form as a water management tool is primarily among planners and has not extend to a great degree to water managers. This review also suggests that, in general, discussion of water demand is primarily among water managers and less among land use planners, and that the use of demand scenarios based on land use is more a discussion among water managers than land use planners. These last two observations suggest a quandary and opportunity in that discussions of water demand based on land use among water managers is disconnected from discussions of urban form and water demand among land use planners. This could be a topic for a special workshop.

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Appendix A: Places Considered for Case Study Review

Coding Status Status Explanation

1 Documents coded and used in case study.

2 Water plan meets criteria for use, but was not coded

4 Water plan does not meet basic criteria

State	Place ID	Place	Document Type	Coding Status	Document Name
Arizona					
	1	Apache County	Land Use		Apache County Comp Plan 2004.pdf
	2	Apache Junction	Land Use		City of Apache Junction General Plan 2010.pdf
	3	Avondale	Land Use	1	City of Avondale General Plan 2012.pdf
			Water		Avondale Drought Plan.pdf
			Water		Water Master Plan Update 2013.pdf
			Water	1	Water Resource Master Plan 2010.pdf
	4	Benson	Land Use		City of Benson General Plan 2015.pdf
	5	Bisbee	Land Use		City of Bisbee General Plan 2015.pdf
	6	Buckeye	Land Use	2	Town of Buckeye General Plan 2007.pdf
			Water	2	Buckeye Water Resource Plan 2011.pdf
	7	Bullhead City	Land Use		Bullhead City General Plan 2016.pdf
			Water	4	Drought & Water Shortage Contingency Plan 2016.pdf
			Water		Water Conservation Plan.pdf
	8	Camp Verde	Land Use	1	Town of Camp Verde Comp Plan 2016.pdf
			Water		Storm Water Management Plan 2007.pdf
			Water	1	Water Demand and Conservation 2014 .pdf
	9	Carefree	Land Use		Town of Carefree General Plan 2012.pdf
	10	Casa Grande	Land Use		City of Casa Grande General Plan 2009.pdf
	11	Cave Creek	Land Use	2	Town of Cave Creek General Plan 2005.pdf
			Water	2	CaveCreekWMP_rev_fina 2008l.pdf
			Water		Wastewater Master Plan 2013 .pdf
	12	Central Arizona Project	Water		Strategic Plan-2016.pdf
	13	Chandler	Water	4	Drought Management Plan 2015.pdf
			Water	4	Water Master Plan 2008.pdf
	14	Chandlier	Land Use		City of Chandler General Plan 2016.pdf
	15	Chino Valley	Land Use		Town of Chino Valley General Plan 2014.pdf
	16	Clarkdale	Land Use	2	Town of Clarkdale General Plan 2012.pdf
			Water	4	Drought and Water Shortage Plan 2006 .pdf
	16	Cochise County	Land Use		Cochise County Comprehensive Plan 2015.pdf
	17	Coconino	Land Use		Coconino Comp Plan 2015.pdf

State	Place ID	Place	Document Type	Coding Status	Document Name
	18	Colorado City	Land Use		Colorado City General Plan 2016.pdf
			Water	4	2016 Water Source Master Planning & Hydrogeologic Study.pdf
	19	Coolidge	Land Use		Coolidge General Plan 2014.pdf
	20	Cottonwood	Land Use		Cottonwood General Plan 2014.pdf
			Water	4	Drought and Water Shortage Plan 2006 .pdf
			Water		Storm Water Management Plan 2014 .pdf
	21	Dewey-Humboldt	Land Use		Town of Dewey-Humboldt General Plan 2009.pdf
			Water	4	Water Plan (Link from Excel).pdf
	22	Eager	Land Use		Town of Eager General Plan 2014.pdf
	23	El Mirage	Land Use		El Mirage General Plan 2009.pdf
			Water		Storm Water Management Program 2016.pdf
	24	Eloy	Land Use		City of Eloy 2010 General Plan Documents
			Water	4	Water System Master Plan 2007 .pdf
	25	Flagstaff	Land Use	1	Flagstaff Comp Plan 2014.pdf
			Water	1	Water Services Master Plan
	26	Florence	Land Use		Florence General Plan 2014.pdf
	27	Fountain Hills	Land Use		Fountain Hills General Plan 2010.pdf
			Water		Emergency Operations Plan.pdf
	28	Gila Bend	Land Use		Gila Bend General Plan 2017.pdf
	29	Gila County	Land Use		Gila County Comp Plan.pdf
			Water	4	Northern GC Water Plan Alliance .pdf
	30	Gilbert	Land Use		Gilbert General Plan 2012.pdf
			Water	4	Water Supply Reduction Management Plan 2015.pdf
	31	Glendale	Land Use		Glendale General Plan 2016.pdf
			Water	4	Drought Management Plan 2016.pdf
	32	Globe	Land Use		Globe General Plan 2014.pdf
	33	Goodyear	Land Use		Goodyear General Plan 2014.pdf
			Water		Goodyear Water Resources Element of General Plan 2003.pdf
			Water	4	Integrated Water Master Plan 2016.pdf
	34	Graham County	Land Use		Graham County Comp Plan 2014.pdf
	35	Greenlee County	Land Use		Greenlee County Comp Plan 2003.pdf
			Water	4	Morenci Basin (Greenlee area).pdf
	36	Guadalupe	Water	4	Stormwater Management Plan.pdf
	37	Huachuca City	Land Use		Huachuca City General Plan 2017.pdf
	38	Jerome	Land Use		Town of Jerome General Plan 2017.pdf
	39	Kearney	Land Use		Town of Kearney General Plan 2017.pdf
	40	Kearny	Water	4	Water Conservation Plan 2004.pdf
	41	Kingman	Land Use		Kingman General Plan 2014.pdf
	42	La Paz County	Land Use		La Paz County Comp Plan 2005.pdf
	43	Lake Havasu	Land Use	2	Lake Havasu General Plan 2016.pdf

State	Place ID	Place	Document Type	Coding Status	Document Name
			Water		Water Conservation Plan 2010.pdf
			Water	2	Water Conservation Plan 2015 .pdf
	44	Litchfield Park	Land Use		Litchfield Park General Plan 2011.pdf
	45	Marana	Land Use		Marana General Plan 2010.pdf
	46	Maricopa	Land Use		City of Maricopa General Plan 2016.docx
	47	Maricopa County	Land Use		Maricopa County Comp Plans 2016.pdf
	48	Mesa	Land Use		Mesa General Plan 2014.pdf
			Water		Final Drought Plan 2009.pdf
			Water	1	Water Resources Master Plan 2004.pdf
			Water	1	Water Resources Master Plan 2011.pdf
	49	Mohave County	Land Use		Mohave County General Plan 2015.pdf
			Water	4	Mohave County Water Authority Demand and Supply Assessment 2015.pdf
	50	Navajo County	Land Use		Navajo County Comp Plan 2016.pdf
	51	Nogales	Land Use		City of Nogales General Plan 2011.pdf
	52	Oro Valley	Land Use		Oro Valley General Plan 2016.pdf
			Water	4	Drought Preparedness Plan 2006.pdf
	53	Paradise Valley	Land Use		Paradise Valley General Plan 2012.pdf
	54	Parker	Land Use		Town of Parker General Plan 2016.pdf
			Water	4	Parker Basin.pdf
	55	Patagonia	Land Use		Patagonia General Plan 2009.pdf
			Water	4	Drought Preparedness Plan 2016 .pdf
	56	Payson	Land Use		Payson General Plan 2014.pdf
	57	Peoria	Land Use	1	Peoria General Plan 2010.pdf
			Water		Peiria 2007 Water Principles.pdf
			Water		Peoria Wastewater maser plan 2008.pdf
			Water		Peoria Water Resource CHP 11 General PLan 2010.pdf
			Water	1	PeoriaWaterResoucesMasterPlan Exec SummarytJan2006.pdf
	58	Phoenix	Land Use	1	Phoenix General Plan 2015.pdf
			Water		
			Water		Phoenix 21012 Storm Water Annual Report.pdf
			Water	1	Phoenix Water Resource Plan 2011.pdf
	59	Pima	Land Use		Town of Pima General Plan 2016.pdf
	60	Pima County	Land Use	2	Pima County Comp Plan 2015.pdf
			Water	2	Action Plan for Water Sustainability 2011.pdf
	61	Pinal County	Land Use		Pinal County Comp Plan 2009.pdf
			Water	4	Storm Water Management Plan 2006.pdf
	62	Pinetop-Lakeside	Land Use		Pinetop-Lakeside General Plan 2001.pdf
			Land Use		Water Resources Element 2001 .pdf
	63	Prescott	Land Use	1	City of Prescott General Plan 2015.pdf
			Water	1	Fourth Management Plan 2010.pdf

State	Place ID	Place	Document Type	Coding Status	Document Name
	64	Prescott Valley	Land Use		Prescott Valley General Plan.pdf
	65	Quartzsize	Land Use		Town of Quartzsize General Plan 2014.pdf
	66	Queen Creek	Land Use	1	Queen Creek General Plan 2008.pdf
			Water	1	Water System Master Plan 2017 .pdf
	67	Safford	Land Use		City of Safford General Plan 2016.pdf
	68	Sahuarita	Land Use		Sahuarita General Plan 2015.pdf
	69	Salt River Project (SRP)	Water	4	Improvement and Power District Rules and Regulations .pdf
	70	San Luis	Land Use		City of San Luis General Plan 2011.pdf
	71	Santa Cruz County	Land Use		Santa Cruz County Comp Plan 2016.pdf
	72	Scottsdale	Land Use	2	Scottsdale General Plan 2001.pdf
			Water	2	Scottsdale 2008 Water Master Plan.pdf
	73	Sedona	Land Use		City of Sedona Community Plan 2013.pdf
			Water	4	Storm Water Master Plan 2005.pdf
	74	Show Low	Land Use		Show Low General Plan 2007.pdf
	75	Sierra Vista	Land Use		Sierra Vista General Plan 2014.pdf
			Water	4	Stormwater Action Plan 2015 .pdf
	76	Snowflake	Land Use		Town of Snowflake General Plan 2008.pdf
	77	Somerton	Land Use		City of Somerton General Plan 2010.pdf
	78	Springerville	Land Use		Town of Springerville General Plan 2015.pdf
	79	Surprise	Land Use	1	Suprise General Plan 2015.pdf
			Water		Surprise 2008 Water Resources Master Plan.pdf
			Water		Surprise Water Resources PLan 2004.pdf
			Water	1	Surprise Integrated Water Master Plan 2015.pdf
	80	Taylor	Land Use		Town of Taylor General Plan 2014.pdf
	81	Tempe	Land Use	1	Tempe General Plan 2013.pdf
			Water	1	Tempe 2012 Water Resource Plan.pdf
			Water		Tempe Water Resource Plan 2006.pdf
	82	Thatcher	Land Use		Thatcher General Plan 2008.pdf
	83	Tolleson	Land Use		Tolleson General Plan 2014.pdf
			Water	4	Storm Water Management Plan.pdf
	84	Tucson	Land Use	1	City of Tucson General Plan 2013.pdf
			Water		tucson 2004 waterplan.pdf
			Water	1	Tucson 2012_Update_Water_Plan_2000-2050.pdf
			Water		Tucson wp08-update.pdf
	85	Tusayan	Land Use		Tusayan Comp Plan 2014.pdf
	86	Verde River	Water	4	Watershed Conservation Plan 2009 .pdf
	87	Wellton	Land Use		Town of Wellton General Plan 2013.pdf
	88	Wickenburg	Land Use		Wickenburg General Plan 2013.pdf
			Water	4	Upper Hassayampa Basin (Runs their water).pdf
	89	Williams	Land Use		City of Williams General Plan 2013.pdf

State	Place ID	Place	Document Type	Coding Status	Document Name
	90	Winslow	Land Use		Winslow General Plan 2002.pdf
	91	Yavapai County	Land Use		Yavapai County Comp Plan 2012.pdf
			Water	4	Flood Risk Management Plan 2015 .pdf
	92	Youngtown	Land Use		Youngtown General Plan 2014.pdf
	93	Yuma	Land Use	2	City of Yuma General Plan 2012.pdf
			Water	2	Water Conservation Plan 2015 .pdf
	94	Yuma County	Land Use		Yuma County Comp Plan 2010.pdf
			Water	4	Water Qualty Management Plan 2010 .pdf
	95	0	Land Use		
California			0		
	95	Los Angeles	Land Use	2	City of Los Angeles General Plan 2015
			Water	2	Urban Water Management Plan 2015 .pdf
	96	Los Angeles County	Land Use		Los Angeles County General Plan 2015.pdf
			Land Use		Metropolitan Water District of Southern California General Plan 2015.pdf
			Water		Water Plan Draft 2017.pdf
			Water		Water Resilience Plan 2017.pdf
			Water		Long-Term Conservation Plan 2011.pdf
			Water		Urban Water Management Plan 2015 .pdf
			Water		Water Surplus and Drought Management Plan 1999.pdf
	97	Riverside	Land Use		City of Riverside General Plan 2007.pdf
	98	San Diego	Land Use	2	City of San Diego General Plan 2008.pdf
			Water	2	Urban Water Management Plan 2016 .pdf
	99	San Diego County	Land Use		County of San Diego General Plan 2011
			Land Use		San Diego County Water Authority General Plan 2015.pdf
			Water		Stormwater Management 2014 .pdf
			Water		Urban Water Management Plan 2015 .pdf
			Water		Water Shortage Contingency Plan 2017.pdf
	100	San Jose	Land Use		San Jose General Plan 2011.pdf
	101	Santa Cruz	Water		Santa Cruz 2000 Water conservation plan.pdf
			Water		Santa Cruz Water Conservation Report 2012.pdf
	102	Sonoma County	Land Use	1	County of Sonoma General Plan 2008
			Water		Sonoma CWA 2015 UWMP_FINAL.pdf
			Water	1	Urban Water Management Plan 2015 .pdf
			Water		Water Resources Element 2008 .pdf
Colorado	103	0	0		
	103	Arapahoe County	Land Use		Arapahoe County Comp Plan 2001.pdf
	104	Archuelta County	Land Use		Archuelta County Community Plan 2017.pdf
	105	Aspen	Land Use	1	City of Aspen Community Plan 2012.pdf
			Water	1	Municipal Water Efficiency Plan 2015 .pdf

State	Place ID	Place	Document Type	Coding Status	Document Name
	106	Aurora	Water	2	Water Management Plan 2017.pdf
			Water	2	Water Management Plan 2017.pdf
	107	Basalt	Land Use	1	Town of Basalt Master Plan 2007
			Water	1	Municipal Water Efficiency Plan 2015 .pdf
	108	Berthoud	Land Use		Town of Berthoud Comp Plan 2014.pdf
			Water	4	Drinking Water Quality Report for Calender Year 2015 .pdf
	109	Boulder	Water		Drought Plan V1 2010.pdf
			Water	4	Drought Plan V2 2010.pdf
			Water		Source Water Master Plan V1 2009.pdf
			Water		Source Water Master Plan V2 2009.pdf
			Land use	4	Boulder Valley Comp Plan 2015.pdf
			Land Use		Boulder County Comp Plan 2017.pdf
			Water		Parks and Open Space Water Policy 2012.pdf
			Water		Source Water Master Plan V2 2009.pdf
			Land Use		Boulder Valley Comp Plan 2015.pdf
	110	Broomfield	Land Use		City and County of Broomfield 2016.pdf
	111	Brush	Land Use		City of Brush Comp Plan 2007.pdf
	112	Carbondale	Land Use		Town of Carbondale Comp Plan 2013
			Water		Municipal Water Efficiency Plan 2014 .pdf
			Water		Source Water Protection Plan .pdf
	113	Castlerock	Land Use	1	Town of Castlerock Comp Plan 2017.pdf
			Water	1	2016-Water-Resources-Strategic-Master-Plan.pdf
			Water		Drought Management Plan 2018.pdf
			Water		Water Master Plan 2017 .pdf
			Water		Water Use Management Plan 2018 .pdf
	114	Colorado River Basin	Water		Annual Operating Plan 2018 .pdf
			Water		Recovery Plan .pdf
			Water		Water Quality Control Plan 2017 .pdf
	115	Colorado Springs	Land Use	1	City of Colorado Springs Comp Plan 2001
			Water	1	Integrated Water Resources Plan 2017 .pdf
	116	Cortez	Land Use		City of Cortez Comp Plan 2000.pdf
	117	Denver	Land Use	1	City of Denver 2040 Comp plan and Blueprint
			Land Use		City and County of Denver Comp Plan 2000.pdf
			Water		Denver IRP 2002.pdf
			Water	1	Denver Water various water documents 2002 to 2016.pdf
			Water		Denver water-efficiency-plan-draft.pdf
			Water		Drought Response Plan 2016.pdf
			Water		IRPUpdateJune2012.pdf
			Water		Lake Management and Protection Plan 2004.pdf
	118	Douglas County	Land Use		Douglas County Comp Plan 2014.pdf

State	Place ID	Place	Document Type	Coding Status	Document Name
	119	Durango	Land Use		City of Durango Comp Plan 2017.pdf
	120	Eagle County	Land Use		Eagle County Comp Plan 2005.pdf
			Water		Eagle River Water Quality Management Plan 2012 .pdf
			Water	4	Eagle River Watershed Plan 2013 .pdf
	121	El Paso County	Land Use		El Paso County Master Plan
	122	Englewood	Land Use		Englewood Comp Plan 2016.pdf
	123	Evans	Land Use		City of Evans Comp Plan 2010
			Water		Water Conservation Plan 2009.pdf
	124	Firestone	Land Use		Firestone Master Plan 2013.pdf
			Water	4	Drought Management Plan 2012 .pdf
	125	Fort Collins	Land Use	1	City of Fort Collins City Plan 2011.pdf
			Water		Stormwater Management 2008 .pdf
			Water		Water Efficiency Plan 2015 .pdf
			Water		Water Quality Report 2016 .pdf
			Water		Water Shortage Response Plan 2014 .pdf
			Water	1	Final_Fort_Collins_Policy_Report_April_2014_w_Appendices.pdf
	126	Fountain	Land Use	2	City of Fountain Comp Plan 2005.pdf
			Water	2	Water Efficiency Plan 2018 .pdf
			Water	2	Water Master Plan 2006 .pdf
	127	Garfield County	Land Use		Garfield County Comp Plan 2010.pdf
	128	Glenwood Springs	Land Use		Glenwood Springs Comp Plan 2011.pdf
			Water		Municipal Water Efficiency Plan 2015 .pdf
			Water		Water Conservation Plan 2009 .pdf
	129	Grand Junction	Land Use		Grand Junction Comp Plan 2009.pdf
			Water	4	Water Conservation Plan 2012 .pdf
	130	Greeley	Land Use	1	City of Greeley Comp Plan 2017.pdf
			Water	1	Water Master Plan 2003 .pdf
	131	Gypsum	Land Use		Town of Gypsum Master Plan 2017.docx
	132	Jackson County	Land Use		Jackson County Comp Plan 1998.pdf
	133	La Junta	Land Use		City of La Junta Comp Plan 2017.pdf
			Water		Water Conservation Plan 2015 .pdf
	134	Lamar	Land Use		City of Lamar Comp Plan 2004.pdf
			Water		Water Conservation Plan 2010 .pdf
	135	Larimer County	Land Use		Larimer County Mountain Resilience Plan 2017.docx
	135	Larmier County	Land Use		Larmier County Master Plan 1997.pdf
			Water		Water Conservation Plan 2008 .pdf
	137	Louisville	Land Use		City of Louisville Comp Plan 2013.pdf
			Water		Drought Management Plan 2013.pdf
	138	Mesa County	Land Use		Mesa County Master Plan 1996

State	Place ID	Place	Document Type	Coding Status	Document Name
	138	New Castle	Land Use	1	Town of New Castle Comp Plan 2009.pdf
			Water		Colorado Water Plan (Town of NC) 2014.pdf
			Water	1	Water Plan 2014 .pdf
	140	Northern Colorado Water Conservancy District	Water		Water Conservation and Management Plan 2011.pdf
	140	Pagosa Springs	Land Use		Pagosa Springs Comp Plan 2017.pdf
			Water		Drought Management Plan 2008.pdf
			Water		Source Water Protection Plan 2008.pdf
			Water		Water Conservation Plan 2008.pdf
	142	Park County	Land Use		Park County Comp Plan 2016.pdf
	142	Pueblo West	Water	1	Water Conservation Plan 2012 .pdf
	143	Pueblo County	Land Use	1	Pueblo County Comp Plan 2014
			Land Use		Pueblo County Comp Plan 2014.docx
			Water	4	Water Master Plan 2017 .pdf
			Water	4	West Waste Water Master Plan 2017.pdf
			Water	4	West Water Conservation Plan 2012 .pdf
	145	Rio Grande County	Land Use		Rio Grande County Master Plan 2004.pdf
			Water		Basin Water Plan 2014 .pdf
	146	Roaring Fork Watershed	Water		Water Efficiency Plan 2015 .pdf
	146	Routt County	Land Use		Routt County Master Plan 2003.pdf
	147	Security Water District	Water		Water Conservation 2008.pdf
	148	Silt	Land Use		Town of Silt Comp Plan 2011.pdf
	149	Silverthorne	Land Use		Town of Silverthorne Comp Plan 2014.pdf
	150	St. Charles Mesa	Water	4	Water Conservation Plan 2010 .pdf
	151	State of Colorado	Water		Colorado Water Plan 2016 .pdf
	152	Superior	Land Use		Town of Superior Comp Plan 2012.pdf
			Water		Colorado Big Thompson Project (Major Water Resource) Map.pdf
	154	Thornton	Water		Drought Management Plan 2002.pdf
			Water	2	Water Efficency Plan 2018.pdf
	155	Thorton	Land Use	2	City of Thornton Comp Plan 2012
	155	Trinidad	Land Use	2	City of Trinidad Comp Plan 2017.pdf
			Water	2	Water Conservation Plan 2012.pdf
	157	Weld County	Land Use		Weld County Comp Plan 2008.pdf
			Water		North Weld County Water District Water Conservation Plan 2009 .pdf
	158	Westminster	Land Use		City of Westminster Comp Plan 2013.pdf
			Water		Water Quality Report 2017.pdf
	159	Widefield Water and Sanitation District	Water		Water Conservation Plan 2009 .pdf

State	Place ID	Place	Document Type	Coding Status	Document Name
	159	Woodland Park	Land Use		Woodland Park Comp Plan 2010.pdf
Nevada	159	0	0		
	160	Clark County	Land Use		Clark County Comp Plan 2000
			Water		Water Quality Plan 2009 .pdf
			Water		Water Quality Program Business Plan 2013.pdf
	161	Las Vegas	Land Use	1	Las Vegas Master Plan and Elements 2000
			Land Use		Southern Nevada Water Authority Resource Plan 2015.pdf
			Water	1	Southern Nevada Water Resource Plan 2017 .pdf
			Water		Water Resource Plan 2017 .pdf
	163	Reno	Land Use		City of Reno Master Plan 2017.pdf
New Mexico	163	0	0		
	163	Albuquerque	Land Use	2	Albuquerque and Bernalillo County Comp plan 2017.pd
			Water		Asset Management Plan 2011.pdf
			Water		Water Conservation plan 2013 .pdf
			Water	2	Water_2120_Volume_I 2017.pdf
	165	Farmington	Land Use		Farmington Comp Plan 2002.pdf
	165	Santa Fe	Land Use	1	Santa Fe General Plan
			Water		Santa-Fe-County_Water-Conservation-Ordinance.pdf
			Water		Santa-Fe-County_WaterPlanfinal102010.pdf
			Water		Water Conservation and Drought Plan 2015 .pdf
			Water	1	City_of_Santa_Long_Range_Water_Supply_Plan_2008.pdf
Utah	167	0	0		
	167	Moab	Land Use	2	City of Moab General Plan 2017.pdf
			Water	2	Water Consevation Plan 2016 .pdf
	167	Salt Lake	Land Use		Salt Lake City General Plan 2015.pdf
			Water	4	Water Conservation Plan 2014 .pdf
	168	San Juan County	Land Use		San Juan County Master Plan 2008.pdf
	168	Utah Division of Water Resources	Water		Water Plan 2001.pdf
Wyoming	169	0	0		
	169	Casper	Land Use		Casper Area Comprehensive Plan 2000.pdf
	170	Cheyenne	Land Use		City of Cheyenne Master Plan 2014.pdf
			Water		Potable Water Treatment 2013 .pdf
			Water	4	Source Water Supply 2013 .pdf
	172	Green River	Land Use		City of Green River Comp Plan 2012.pdf
			Water	4	River Basin Water Plan 2010 .pdf

Appendix B: Topic Code System and Description

1.0 Agency/Planner Collaboration	Strategies or policies that encourage or mandate collaboration between land use and water management agencies.
1.19 State Law for Consistency	Discussion about State or federal laws that require connection between land and water use and require integrated planning for water and land use.
1.42 Collaboration Land Use and Water Planners	Does the plan include discussion or policies about collaboration between Land Use planners and Water planners?
1.97 Land Use and Water in Plan	The water plan has a land use element/section and/or Comprehensive plan has a water element/section.
1.100 Intergovernmental Agreements	Water or land use plan has strategies for intergovernmental agreements with land use and water agencies.
1.105 Institutional Structure of Land-use Planning	Does the plan reference the fact that water or land use planning is done by a different institution?
1.172 Institutionalized Collaboration	Policies, processes or discussion of official inter-agency collaboration that defines clear roles and responsibilities for planning and implementation. Do not use this code for collaboration around data-see data code, 5.190.
1.172.173 Coordination Leaders or Facilitators	Appointing internal coordination leaders or facilitators.
1.172.174 Neutral Coordination Facilitators	Retaining external, neutral coordination facilitators.
1.172.175 Permanent Cross-paradigm Coordinating	Permanent cross-paradigm coordinating groups, councils, or commissions.
1.172.178 Institutional Consolidation	Consolidation or merger of the departments or agencies.
1.172.179 Memorandum of Understanding	Developing an official memo of understanding or cooperation between organizations.
1.172.180 Joint Strategic Planning	Joint organizational strategic planning.
1.172.187 Policy and Regulatory Changes	Policy or regulatory changes creating mandates and/or incentives for increased collaboration between agencies or institutions.
1.172.188 Collaboration on Development Code	Collaboration to update or reform building and development codes.
1.172.189 Coordination of Development Evaluation	Coordination between land use and water agencies during the land development project evaluation. Process.
1.172.194 Coordinating Planning Processes	Coordinating land use and water agency planning projects.
1.172.195 Joint Futures Planning	Joint land use and water agency future scenarios planning, visioning, or goal setting.
1.172.198 Capacity Audits	Collaborative land use and water agency capacity audits to identify impediments to collaboration or missed opportunities.
1.172.201 Joint Demonstration Projects	Develop joint land use and water management demonstration projects.
1.172.202 Joint Research or White Papers	Conduct joint land use and water management research projects.

1.172.203 Multi-disciplinary Teams	Organizing teams involving land use and water agencies, stakeholder groups such as real estate representatives, builders and developers, landscape architects, health agencies, regional organizations, and consultants.
1.172.204 Third Party Neutral Facilitators	Use of third party agencies/organizations to help facilitate multi-disciplinary teams.
1.190 Data Collection and Sharing	Official joint data collection and sharing of data specifically between land use and water use agencies.
1.190.191 Joint Indicators	Agreeing on appropriate indicators for land use and water use performance metrics.
1.190.192 Joint Data Sets	Improving or creating common or consistent land use and water use data sets.
1.305 Separate Land Use and Water Management Institutions	Discussion about land use and water planning being done by different institutions.
2.0 Conservation Practices	Specific actions to reduce water demand related to water infrastructure or behavior, not land-use patterns or development approval process.
2.32 Conservation Goals in Plan	The plan has water conservation goals.
2.59 Indoor Water Efficiency	Strategies to require or encourage indoor water efficiency for customers, such as efficient fixtures and appliances.
2.59.90 LEED Water Certification	Water or land use plan has strategies that encourage or require water related LEED certification standards.
2.59.93 Fixture Rebates	Water or land use plan has strategies that to develop rebates for replacement of inefficient water fixtures or appliances.
2.59.286 Water Efficient Fixtures	High-efficiency faucets, showerheads and toilets will be installed.
2.60 Outdoor Water Efficiency	Strategies to require or encourage outdoor water efficiency for customers, such as efficient fixtures and appliances.
2.60.91 Xeriscape	Water or land use plan has strategies that encourage or require xeriscape landscaping.
2.60.92 Turf Rebates	Water or land use plan has strategies to develop turf replacement rebate programs.
2.111 System Water Efficiency	Efficiency on the meter side of the overall water infrastructure system, e.g. lost and unaccounted for water- leaks in major water lines.
2.259 Net Zero Water Development	Development that is designed, constructed, or renovated and operated to return the equivalent amount of water as was withdrawn from all sources.
2.301 Water Restrictions	Restrictions on how, when, or where water can be used set typically by the local government that are intended to reduce the amount of water consumed by city residents. These are normally temporary in nature and in response to some event, e.g. drought or water line break.
2.301.295 Mandatory Water Restrictions	Restrictions on how, when, or where water can be used set typically by the local government that are mandatory and are intended to reduce the amount of water consumed by city residents.
2.301.296 Voluntary Water Restrictions	Restrictions on how, when, or where water can be used set typically by the local government that are voluntary and are intended to reduce the amount of water

	consumed by city residents.
3.0 Financial	Strategies or policies related to costs and revenues of water management.
3.47 Cost for Water Delivery Estimated	Cost to deliver water was estimated in plan.
3.57 Water Efficient Tap Fees	The cost of a tap fee is based on the efficiency of the development's water use.
3.308 Impact Fees	Strategies for assessing new development impact fees.
3.308.83 Infrastructure Impact Fees	Water or land use plan has strategies for assessing new development a water infrastructure impact fee. For example, piping to development.
3.308.84 Water Resource Impact Fee	Water or land use plan has strategies for assessing new development a water resource impact fee for the acquisition of new water rights.
3.309 Rates	Strategies for water rates.
3.309.85 Water Block Rate	Water or land use plan has strategies for using a block rate structure for water rates.
3.309.86 Water Budget Rate	Water or land use plan has strategies for using a water budget structure for water rates.
3.171 Cost Benefit Tools	Plan discusses the costs and benefits of land use and water use collaboration.
5.0 Land Use Form and Design	Land use form and design to increase efficiency of water use or enhance water availability/supply.
5.268 Low-Impact Stormwater Management	Land use planning and urban design that considers the potential impact from on-site stormwater flow along with point source and stormwater discharges. For example, to increase groundwater recharge, reduce storm water flows, or to provide irrigation for natural areas.
5.268.65 Impervious Cover Restrictions	Water or land use plan has strategies to reduce impervious surfaces within public and private development. This is specific to stormwater.
5.268.267 Natural Stormwater Design	The plan has strategies for stormwater to reach streams and rivers in ways that mimics natural runoff patterns.
5.74 Spatial Aspects of Water Supply	If water supplies are available in certain places, considering this for land-use planning is important.
5.88 Growth Boundaries	Water or land use plan has strategies to identify a growth boundary based in whole or part on available water supplies.
5.124 Low Water Use Development Strategies	The plan has strategies to encourage more efficient water use through development policies such as denser development, cluster development, mixed-use development, mixed housing types, compact mixed use, growth area management, or infill development.
5.124.99 Cluster Development	Water or land use plan has strategies for clustering development to protecting areas of natural landscapes for purposes of conserving water supply and/or water quality.
5.250 One Water	The plan specifically discusses the concept of "One Water".
5.304 Green Infrastructure	Infrastructure that aims to be low impact and is environmentally sound.
6.0 Land Use Water Education	Strategies or programs to facilitate or encourage efforts to educate professionals and the public about land use

	and water relationships.
6.13 Planner Education	Plan includes educational strategies for integrated water and land-use resource management. For example, a guidebook.
6.13.196 Knowledge Networks	Knowledge networks (or learning alliances) that help participants see the connections between their land use or water agency roles and the benefits of working with others water or land use to peers.
6.13.199 Joint Professional Development	Joint land use and water professional development, training or certification in areas of common concern.
6.13.260 Water Reward Rating System	Rating systems for water management that rewards sustainable water management practices.
6.182 Public Education and Stakeholder Engagement	Early communication, education and branding, and consistent messaging with the public and stakeholders.
6.182.183 State or Regional Assistance with Outreach	Discussion about assistance from state or regional agencies with local public and stakeholder outreach.
6.182.184 University Assistance with Outreach	Discussion about university or extension service assistance with guidance or facilitation.
6.182.185 Joint Water and Land Use Agency Outreach	Water and planning units working together on shared citizen involvement activities.
6.182.186 Joint Water and Land Use Agency Education Programs	Conducting joint education programs for citizens and/or elected officials.
6.193 Joint Events	Joint land use and water agency tours, training events, field trips, or workshops.
6.193.197 Joint Professional Events	Professional expert forums where scientific, technical, or economic information on water and planning is discussed.
7.0 Land Use/Development Regulation	Strategies or policies that regulate land development in a manner to enhance water efficiency.
7.1 Demonstrate Adequate Water Supply before Approving	Demonstrate that there is enough water for build out of a development project based on good quality, quantity, dependability, and availability of water supply before approving the development project.
7.1.22 Water Adequacy Determination Subdivision	Does the plan require water adequacy determination for preliminary subdivision plan?
7.1.292 Water Adequacy Allotment	Amount of water allowed for development based a determination of water adequacy, such as limiting the total volume removed from a water source such as a lake or river.
7.1.302 Water Adequacy Notification.	Notification of a water adequacy determination.
7.1.312 Water Adequacy Determination Zoning	Does the plan require water adequacy determination for zoning approval?
7.1.313 Water Adequacy Determination Site Plan	Does the plan require water adequacy determination for site plan approval?
7.10 Environmental Zoning	Zoning regulations to protect water supplies, such as aquifers and watersheds, by restricting development activity that can result in adverse impacts to water supplies, such as reducing natural recharge or contaminant discharge.

7.12 Water Efficiency Allocation Policy	Under conditions of limited water supplies, development regulations limit development to uses identified being highly desired by the community and or creating high economic benefit to the community.
7.53 Water in Development Decision	Water supply and or demand is considered part of the development approval process.
7.53.54 Water in Infrastructure Decision	Water or land use plan is a consideration as part of the community infrastructure approval process.
7.53.55 Impact on Supply in Development Decision	Impacts on water supply is a consideration as part of the development approval process.
7.53.56 Development Water Use Limitations	Development approval contingent on an agreed upon limitation of water use. Such as, a maximum GPCD of water use.
7.53.58 Water Efficient Zoning	Water efficiency requirements are part of zoning code.
7.61 Water Efficient Landscape Codes	Water efficient landscapes requirements or incentives once development rights are approved through development review and codes.
7.61.62 Native Landscape	Water or land use plan has implementation actions to include native requirements or incentives in development codes.
7.61.63 Recharge Landscapes	Water or land use plan has implementation actions to included water recharge requirements or incentives in development codes.
7.61.64 Public Landscape Requirements	Water or land use plan has implementation actions to require public projects to follow water efficiency requirements or incentives in private development codes.
7.68 Water Efficient Development Incentives	Water or land use plan has strategies to provide development incentives in exchange for water efficient provisions greater than code requirements.
7.71 Enforcement of Requirements	Water or land use plan has strategies to require post-occupancy enforcement of water related development requirements.
7.114 Water Quality Regulation	Does the plan reference existing water quality regulations and/or have strategies for new regulations?
7.269 Stormwater Performance Standards	Strategies or policies to include in the development code such as stormwater management performance standards that encourage sustainable concepts, i.e. on-site or neighborhood retention to encourage groundwater recharge.
9.0 Spatial Scale	Consideration of different spatial scales.
9.17 Plan Reviewer	Does the plan include state review of planning documents?
9.20 Consideration of Regional Issues	Does the plan consider regional issues associated with water and land-use planning?
9.263 Required Comprehensive Water plan	Legislation and funding to establish state comprehensive water planning.
11.0 Water Demand	Strategies to manage water demand.
11.44 Water Demand Indoor Water Use	Demand was estimated for indoor water use.
11.45 Water Demand Outdoor Water Use	Demand was estimated for outdoor water use.
11.46 Water Loss Estimated	Water loss was estimated in plan.
11.306 Demand Based on Land Use	Estimation of demand based on land use and its

	characteristics.
11.306.50 Compact/Infill Development	The water or land use plan accounts for impact of past or future trends of increased infill and compact development on water demand. This is the development of vacant lots, mixed use development, and higher residential density development.
11.306.51 Small Lot Land Use	The water or land use plan accounts for small lot development for demand. The water or land use plan accounts for impact of past or future trends of small lot development on water demand. This is single family residential development in the 6 to 8 units per acre range.
11.306.52 Limited Landscape Land Use	The water or land use plan accounts for impact of past or future trends of increased limited landscape development on water demand. This is the development of residential or non-residential land uses that limit the amount of landscaping that is done or restrict landscaping to native non-irrigated landscapes.
11.107 Water Use Per Capita	Does the plan include a calculation of gallons per person per day?
11.108 Water Use by Sector	Does the plan include water use broken down by sector?
11.116 Population Growth	The plan includes population growth projections?
11.307 Water Demand Scenarios	Scenarios of water demand based on different growth or urban form projections.
11.307.118 Water Demand Scenarios Population	The water or land use plan includes water demand scenarios based on growth scenarios of population projections.
11.307.299 Water Demand Scenarios Land Use	The water or land use plan includes water demand scenarios based on growth scenarios of different spatial and/or land use patterns of community growth.
12.0 Water Inequity	Discussion about the potential for inequity in access to water supply, such as water pricing, substandard infrastructure, and poor water quality.
13.0 Water Quality	Strategies to maintain or enhance source water quality.
13.125 Preservation of Natural Watersheds	Preservation of Natural Watersheds, maintaining river banks or washes, protecting wellheads for groundwater, or similar measures to maintain or enhance watershed quality, maintain stormwater drainage, and otherwise preserve environmental quality.
13.257 Water Contamination Legislation	Legislation that would require land use and health regulations for source water protection in order to protect the yield and water quality of aquifers and surface water resources, including requirements to jointly manage connected surface and groundwater resources.
13.264 Hydraulic Fracturing Regulations	Implementation of local regulations that recognize the potential incompatibilities of some land uses with hydraulic fracturing, and the potential for groundwater and surface water contamination from hydraulic fracturing.
13.125 Preservation of Natural Watersheds	Preservation of natural watersheds, maintaining river banks or washes, protecting wellheads for groundwater, or similar measures to maintain or

	enhance watershed quality, maintain stormwater drainage, and otherwise preserve environmental quality.
14.0 Water Supplies Non-Traditional	Strategies to augment traditional water supplies.
14.79 Stormwater Capture Non Potable	
14.79.66 Stormwater and Curbs	Water or land use plan has strategies to require or encourage curbless streets or curb cuts for stormwater.
4.113 Water Reuse	Water reuse refers to a community's use of any reclaimed water, greywater, effluent, treated wastewater, etc. Water reuse often involves additional infrastructure, such as wastewater treatment plants, purple pipes, and more. Treated wastewater, greywater, reclaimed water, effluent, etc.
14.113.75 Water Reuse Non-Potable Domestic	Water or land use plan has strategies to reuse effluent for non-potable domestic water use.
14.113.76 Water Reuse Non-Potable Non-Domestic	Water or land use plan has strategies to reuse effluent for non-potable non- domestic water use.
14.113.77 Water Reuse Potable Domestic	Water or land use plan has strategies to reuse effluent for potable domestic water use.
14.113.81 Greywater Reuse	Water or land use plan has strategies for onsite reuse of greywater for non-potable water use.
14.113.150 Direct Potable Reuse	Potable reuse treats wastewater for direct reuse by sending the treated wastewater directly into the water distribution system.
14.113.151 Indirect Potable Reuse	Potable reuse treats wastewater for indirect use such as sending it to natural groundwater or surface water sources and then put it through a second drinking water treatment process before adding it to the distribution system.
14.113.153 Non-Potable Reuse	The use of the treated wastewater for applications other than drinking, such as industrial uses, agriculture, or landscape irrigation.
14.78 On-Site Water Harvesting	Water or land use plan has strategies to capture rain water or snow melt for use on site.
14.310 Stormwater Capture	Water or land use plan has strategies for large scale capture of storm water for delivery of water off site.
14.310.79 Stormwater Capture Non-Potable	Water or land use plan has strategies for large scale capture of storm water for delivery of non-potable water off site. Interrupts flow of stormwater from going downstream.
14.310.80 Stormwater Capture for Potable	Water or land use plan has strategies for large scale capture and treatment of storm water for delivery of potable water off site.
14.82 Onsite Wastewater Treatment	Water or land use plan has strategies for onsite treatment of onsite wastewater for non-potable water use.
14.162 Coastal Desalination	Treats seawater to remove salts and other constituents for potable or non-potable use.
14.162.163 Coastal Desalination Non-Potable	Treats seawater to remove salts and other constituents for non-potable use.
14.162.164 Coastal Desalination Potable	Treats seawater to remove salts and other constituents for potable use.
14.165 Groundwater Desalination	Treats either brackish groundwater to remove salts and

	other constituents for potable or non-potable use.
14.165.166 Groundwater Desalination	Treats brackish groundwater to remove salts and other constituents for non-potable use.
14.165.167 Groundwater Desalination	Treats brackish groundwater to remove salts and other constituents for potable use.
14.205 Alternative Water Supply Research	Identify the alternative water supply types in use or available in your community and establish a baseline of information about them.
14.205.200 New Technology and Innovation	New technology and innovation to increase the performance of alternative water supply technologies.
15.0 Water Supplies Traditional	Strategies for the general management of water supplies.
15.35 Water Supply Availability	Identification and quantification of water supply and sources.
15.35.36 Water Supply Threats	Identification of threats to water supply.
15.35.94 Water Storage and Delivery Projects	Water or land use plan has strategies for the development and construction of water supply storage and delivery projects. This can include storage tanks or reservoirs and/or pipelines or canals to deliver water.
15.35.123 Transferrable/Acquirable Water Rights	Planning to acquire water rights that will need to be transferred from another owner. Transferrable water rights may include descriptions of the contracts the jurisdiction holds with other water suppliers, any agricultural land the jurisdiction may hold in anticipation of using that land for its water rights at some future date, or any other entities it may want to acquire water rights from.
15.41 Analysis of Demand and Supply Balance	The plan includes and analysis of the balance between available supplies and current/future demand.
15.315 Ground Water Recharge	Various actions to recharge ground water WITHOUT discussion of groundwater withdrawal. This can be done in a variety of ways, such as stormwater basins for environmental reasons or to protect river flows. However, if there is discussion of using the groundwater by withdrawing or pumping it at a future date, then use the groundwater banking code.
15.95 Groundwater Banking	Water or land use plan has strategies for the development and construction of groundwater banking projects.
15.95.159 Aquifer Storage and Recovery Infiltration	Uses groundwater aquifers as underground storage reservoirs with the intent of future recovery and reuse using surface infiltration.
15.95.160 Aquifer Storage and Recovery Direct Inject	Uses groundwater aquifers as underground storage reservoirs with the intent of future recovery and reuse using direct injection and recovery wells.
15.120 Drought Planning	The jurisdiction's planned a course of action in the event of drought or declared shortage which reduced their surface water supplies such as Colorado River supplies (if they are a CO River rights holder), or shortages from other water supply sources.
15.282 Development & Groundwater Impact Statement	Document stating long-term impacts on groundwater resources based on development and land use.
15.303 Water Resource Planning Scenarios	The plan has water resource planning scenarios based on demand and/or supply.

15.303.297 Water Resource Scenarios Land Use	The water or land use plan has scenarios of resources projections based on growth scenarios. This could include reclaimed water estimates or surface water based on water rights of new growth.
15.303.298 Water Resource Scenarios General	The water or land use plan has scenarios of resources projections based on any anticipated variations in future water supplies.

Appendix C: Case Study Results by Topic and City/Place

Case Study Results: Word Count by City and Topic of Coded Document Sections (PART 1)

	City	Aspen		Avondale		Basalt		Camp Verde		Castlerock		Denver		Flagstaff		Fort Collins	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
1.0 Agency/Planner Collaboration	Txt Count	210	1,218	389	881	686	217	3,406	6,776	1,580	2,205	0	15,398	2,365	0	193	3,861
	% of Doc	0.08%	0.78%	0.09%	0.10%	0.17%	0.21%	1.32%	4.24%	0.74%	1.05%	0.00%	3.24%	0.27%	0.00%	0.04%	0.91%
1.172 Institutionalized Collaboration	Txt Count	210	1,218	181	0	0	217	0	0	1,248	1,892	0	13,915	1,066	0	0	2,521
	% of Doc	0.08%	0.78%	0.04%	0.00%	0.00%	0.21%	0.00%	0.00%	0.59%	0.90%	0.00%	2.93%	0.12%	0.00%	0.00%	0.59%
2.0 Conservation Practices	Txt Count	0	14,361	2,985	712	377	11,646	6,960	15,170	612	1,744	1,138	16,191	2,526	8,676	511	11,747
	% of Doc	0.00%	9.18%	0.68%	0.08%	0.09%	11.17%	2.69%	9.50%	0.29%	0.83%	0.22%	3.41%	0.29%	3.32%	0.09%	2.76%
2.59 Indoor Water Efficiency	Txt Count	0	3,267	222	0	113	0	0	0	0	68	0	0	0	7,030	0	3,905
	% of Doc	0.00%	2.09%	0.05%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	2.69%	0.00%	0.92%
2.60 Outdoor Water Efficiency	Txt Count	0	3,007	411	0	132	3,548	0	0	178	107	734	249	0	935	205	2,008
	% of Doc	0.00%	1.92%	0.09%	0.00%	0.03%	3.40%	0.00%	0.00%	0.08%	0.05%	0.15%	0.05%	0.00%	0.36%	0.04%	0.47%
2.301 Water Restrictions	Txt Count	0	811	39	0	0	877	0	0	0	0	0	0	0	0	0	782
	% of Doc	0.00%	0.52%	0.01%	0.00%	0.00%	0.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.18%
3.0 Financial	Txt Count	451	3,505	20	0	77	1,103	436	9,517	803	37	0	873	887	0	0	5,172
	% of Doc	0.17%	2.24%	0.00%	0.00%	0.02%	1.06%	0.17%	5.96%	0.38%	0.02%	0.00%	0.18%	0.10%	0.00%	0.00%	1.21%
3.308 Impact Fees	Txt Count	201	0	0	0	0	0	0	0	645	0	0	0	676	0	0	4,232
	% of Doc	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.30%	0.00%	0.00%	0.00%	0.08%	0.00%	0.00%	0.99%
3.309 Rates	Txt Count	0	3,091	20	0	77	1,103	0	0	158	37	0	873	0	0	0	940
	% of Doc	0.00%	1.98%	0.00%	0.00%	0.02%	1.06%	0.00%	0.00%	0.07%	0.02%	0.00%	0.18%	0.00%	0.00%	0.00%	0.22%
5.0 Land Use Form and Design	Txt Count	3,184	0	0	761	141	0	10,352	7,128	219	481	2,089	623	3,774	0	2,296	0
	% of Doc	1.17%	0.00%	0.00%	0.09%	0.03%	0.00%	4.01%	4.46%	0.10%	0.23%	0.41%	0.13%	0.44%	0.00%	0.43%	0.00%
5.268 Low-Impact Stormwater Management	Txt Count	2,769	0	0	0	141	0	0	0	0	481	141	0	2,760	0	1,682	0
	% of Doc	1.01%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.23%	0.03%	0.00%	0.32%	0.00%	0.31%	0.00%
5.124 Low Water Use Development Strategies	Txt Count	0	0	0	0	0	0	0	0	0	0	578	0	341	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.11%	0.00%	0.04%	0.00%	0.00%	0.00%
7.0 Land Use/Development Regulation	Txt Count	1,553	2,339	1,321	1,845	1,959	2,175	5,643	12,736	1,594	824	1,010	2,089	5,409	0	1,242	1,669
	% of Doc	0.57%	1.50%	0.30%	0.21%	0.47%	2.09%	2.18%	7.97%	0.75%	0.39%	0.20%	0.44%	0.63%	0.00%	0.23%	0.39%

	City	Aspen		Avondale		Basalt		Camp Verde		Castlerock		Denver		Flagstaff		Fort Collins	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
7.1 Demonstrate Adequate Water Supply Before Approving	Txt Count	0	0	812	1,845	0	0	0	0	772	0	0	0	3,716	0	0	0
	% of Doc	0.00%	0.00%	0.18%	0.21%	0.00%	0.00%	0.00%	0.00%	0.36%	0.00%	0.00%	0.00%	0.43%	0.00%	0.00%	0.00%
7.53 Water In Development Decision	Txt Count	602	0	75	0	147	0	0	0	822	0	0	0	778	0	944	387
	% of Doc	0.22%	0.00%	0.02%	0.00%	0.04%	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%	0.00%	0.09%	0.00%	0.18%	0.09%
7.61 Water Efficient Landscape Codes	Txt Count	0	1,279	200	0	469	0	0	0	0	0	760	249	162	0	0	909
	% of Doc	0.00%	0.82%	0.05%	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.05%	0.02%	0.00%	0.00%	0.21%
7.68 Water Efficient Development Incentives	Txt Count	0	0	0	0	0	0	0	0	0	655	250	266	328	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.31%	0.05%	0.06%	0.04%	0.00%	0.00%	0.00%
7.114 Water Quality Regulation	Txt Count	0	0	208	0	0	0	0	541	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.05%	0.00%	0.00%	0.00%	0.00%	0.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
11.0 Water Demand	Txt Count	0	32,921	87	4,949	2,102	12,495	5,807	2,595	144	3,465	0	20,114	1,413	20,680	42	8,788
	% of Doc	0.00%	21.05%	0.02%	0.56%	0.51%	11.98%	2.25%	1.62%	0.07%	1.64%	0.00%	4.23%	0.16%	7.92%	0.01%	2.06%
11.306 Demand Based On Land Use	Txt Count	0	2,345	0	2,109	0	1,387	0	0	0	0	0	1,966	0	0	0	0
	% of Doc	0.00%	1.50%	0.00%	0.24%	0.00%	1.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.41%	0.00%	0.00%	0.00%	0.00%
11.307 Water Demand Scenarios	Txt Count	0	11,522	0	2,120	1,919	8,696	0	0	0	1,018	0	640	1,196	18,493	0	683
	% of Doc	0.00%	7.37%	0.00%	0.24%	0.47%	8.34%	0.00%	0.00%	0.00%	0.48%	0.00%	0.13%	0.14%	7.08%	0.00%	0.16%
11.307.118 Water Demand Scenarios Population	Txt Count	0	1,885	0	0	0	2,934	0	0	0	770	0	0	0	9,241	0	0
	% of Doc	0.00%	1.21%	0.00%	0.00%	0.00%	2.81%	0.00%	0.00%	0.00%	0.37%	0.00%	0.00%	0.00%	3.54%	0.00%	0.00%
11.307.299 Water Demand Scenarios Land Use	Txt Count	0	5,196	0	2,120	1,919	5,436	0	0	0	0	0	0	0	7,563	0	0
	% of Doc	0.00%	3.32%	0.00%	0.24%	0.47%	5.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.90%	0.00%	0.00%
13.0 Water Quality	Txt Count	403	0	0	3,162	702	0	4,070	0	1,581	746	0	3,104	5,090	0	3,246	1,215
	% of Doc	0.15%	0.00%	0.00%	0.36%	0.17%	0.00%	1.58%	0.00%	0.74%	0.35%	0.00%	0.65%	0.59%	0.00%	0.60%	0.29%
14.0 Water Supplies Non-Traditional	Txt Count	122	2,502	1,435	3,223	124	0	8,010	12,300	1,491	2,291	250	7,068	2,351	11,724	0	1,385
	% of Doc	0.04%	1.60%	0.33%	0.36%	0.03%	0.00%	3.10%	7.70%	0.70%	1.09%	0.05%	1.49%	0.27%	4.49%	0.00%	0.33%
14.113 Water Reuse	Txt Count	122	2,115	1,278	2,598	124	0	0	0	814	2,257	250	6,924	891	3,252	0	1,268
	% of Doc	0.04%	1.35%	0.29%	0.29%	0.03%	0.00%	0.00%	0.00%	0.38%	1.07%	0.05%	1.46%	0.10%	1.25%	0.00%	0.30%
14.78 Onsite Water Harvesting	Txt Count	0	0	0	0	0	0	0	0	0	0	0	0	1,460	8,198	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%	3.14%	0.00%	0.00%
14.310 Stormwater Capture	Txt Count	0	0	89	0	0	0	0	0	196	0	0	144	0	274	0	0
	% of Doc	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%	0.00%	0.00%	0.03%	0.00%	0.10%	0.00%	0.00%

	City	Aspen		Avondale		Basalt		Camp Verde		Castlerock		Denver		Flagstaff		Fort Collins	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
14.162 Coastal Desalination	Txt Count	0	0	0	59	0	0	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
14.165 Groundwater Desalination	Txt Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.0 Water Supplies Traditional	Txt Count	326	19,915	4,669	30,346	8,941	6,528	14,599	3,426	1,928	20,442	970	62,002	10,700	25,160	729	40,578
	% of Doc	0.12%	12.73%	1.06%	3.41%	2.17%	6.26%	5.65%	2.14%	0.90%	9.69%	0.19%	13.04%	1.24%	9.64%	0.14%	9.53%
15.35 Water Supply Availability	Txt Count	326	17,353	1,258	11,459	4,927	5,281	0	0	1,358	18,271	970	44,548	5,436	20,870	523	27,648
	% of Doc	0.12%	11.10%	0.29%	1.29%	1.19%	5.06%	0.00%	0.00%	0.64%	8.67%	0.19%	9.37%	0.63%	8.00%	0.10%	6.49%
15.35.36 Water Supply Threats	Txt Count	0	3,609	0	954	801	676	0	0	0	3,989	970	5,502	908	465	0	6,207
	% of Doc	0.00%	2.31%	0.00%	0.11%	0.19%	0.65%	0.00%	0.00%	0.00%	1.89%	0.19%	1.16%	0.11%	0.18%	0.00%	1.46%
15.35.94 Water Storage and Delivery Projects	Txt Count	0	3,672	0	903	1,813	0	0	0	0	6,242	0	12,195	856	1,459	246	5,796
	% of Doc	0.00%	2.35%	0.00%	0.10%	0.44%	0.00%	0.00%	0.00%	0.00%	2.96%	0.00%	2.57%	0.10%	0.56%	0.05%	1.36%
15.35.123 Transferrable/Acquirable Water Rights	Txt Count	326	3,557	0	2,389	233	147	0	0	0	697	0	7,183	362	13,906	0	5,303
	% of Doc	0.12%	2.27%	0.00%	0.27%	0.06%	0.14%	0.00%	0.00%	0.00%	0.33%	0.00%	1.51%	0.04%	5.33%	0.00%	1.25%
15.95 Groundwater Banking	Txt Count	0	0	0	151	0	0	0	0	115	926	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.05%	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.120 Drought Planning	Txt Count	0	0	0	5,404	0	0	0	0	309	0	0	3,417	0	0	70	6,151
	% of Doc	0.00%	0.00%	0.00%	0.61%	0.00%	0.00%	0.00%	0.00%	0.14%	0.00%	0.00%	0.72%	0.00%	0.00%	0.01%	1.44%
15.303 Water Resource Planning Scenarios	Txt Count	0	0	0	8,992	0	0	0	0	0	0	0	8,452	0	0	0	5,865
	% of Doc	0.00%	0.00%	0.00%	1.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.78%	0.00%	0.00%	0.00%	1.38%
15.303.297 Water Resource Scenarios Land Use	Txt Count	0	0	0	8,992	0	0	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	1.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.303.298 Water Resource Scenarios General	Txt Count	0	0	0	0	0	0	0	0	0	0	0	3,536	0	0	0	5,865
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.74%	0.00%	0.00%	0.00%	1.38%
Whole Doc	Txt Count	273,301	156,396	439,362	888,777	412,644	104,296	258,343	159,740	213,268	210,857	506,174	475,366	864,720	261,029	538,669	425,817
	% of Doc	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Coded Text Sections	Txt Count	5,585	60,038	9,823	44,929	14,290	33,890	18,772	22,852	7,296	30,521	5,506	112,984	32,814	65,059	8,027	73,269
	% of Doc	2.04%	38.39%	2.24%	5.06%	3.46%	32.49%	7.27%	14.31%	3.42%	14.47%	1.09%	23.77%	3.79%	24.92%	1.49%	17.21%

Case Study Results: Word Count by City and Topic of Coded Document Sections (PART 2)

	City	Greeley		Las Vegas		Mesa		New Castle		Peoria		Phoenix		Prescott	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
1.0 Agency/Planner Collaboration	Txt Count	981	1,207	14,894	13,983	1,719	3,484	366	0	3,938	0	1,460	7,879	1,215	644
	% of Doc	0.28%	0.33%	0.54%	9.17%	0.34%	3.00%	0.16%	0.00%	0.86%	0.00%	0.40%	3.65%	0.35%	1.50%
1.172 Institutionalized Collaboration	Txt Count	100	375	8,506	9,135	1,204	1,429	257	0	2,263	0	939	4,339	867	0
	% of Doc	0.03%	0.10%	0.31%	5.99%	0.24%	1.23%	0.11%	0.00%	0.50%	0.00%	0.26%	2.01%	0.25%	0.00%
2.0 Conservation Practices	Txt Count	3,473	2,621	6,650	4,319	7,701	397	260	2,702	4,361	0	5,777	4,448	1,773	2,643
	% of Doc	0.99%	0.72%	0.24%	2.83%	1.54%	0.34%	0.11%	1.54%	0.95%	0.00%	1.57%	2.06%	0.51%	6.15%
2.59 Indoor Water Efficiency	Txt Count	119	39	501	0	1,262	0	0	0	602	0	1,301	83	831	139
	% of Doc	0.03%	0.01%	0.02%	0.00%	0.25%	0.00%	0.00%	0.00%	0.13%	0.00%	0.35%	0.04%	0.24%	0.32%
2.60 Outdoor Water Efficiency	Txt Count	773	424	4,225	0	2,018	0	260	0	819	0	2,816	405	831	201
	% of Doc	0.22%	0.12%	0.15%	0.00%	0.40%	0.00%	0.11%	0.00%	0.18%	0.00%	0.77%	0.19%	0.24%	0.47%
2.301 Water Restrictions	Txt Count	0	638	0	95	0	0	0	2,213	0	0	184	877	0	661
	% of Doc	0.00%	0.18%	0.00%	0.06%	0.00%	0.00%	0.00%	1.26%	0.00%	0.00%	0.05%	0.41%	0.00%	1.54%
3.0 Financial	Txt Count	144	3,875	2,750	242	2,072	150	724	200	2,038	152	880	3,834	132	222
	% of Doc	0.04%	1.06%	0.10%	0.16%	0.41%	0.13%	0.32%	0.11%	0.45%	1.36%	0.24%	1.78%	0.04%	0.52%
3.308 Impact Fees	Txt Count	0	2,430	0	0	1,308	0	144	200	2,038	152	384	1,451	0	204
	% of Doc	0.00%	0.67%	0.00%	0.00%	0.26%	0.00%	0.06%	0.11%	0.45%	1.36%	0.10%	0.67%	0.00%	0.47%
3.309 Rates	Txt Count	144	1,300	437	242	0	0	0	0	0	0	0	2,383	57	18
	% of Doc	0.04%	0.36%	0.02%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.10%	0.02%	0.04%
5.0 Land Use Form and Design	Txt Count	981	0	3,393	0	2,751	0	0	0	4,326	0	743	0	97	144
	% of Doc	0.28%	0.00%	0.12%	0.00%	0.55%	0.00%	0.00%	0.00%	0.95%	0.00%	0.20%	0.00%	0.03%	0.34%
5.268 Low-Impact Stormwater Management	Txt Count	981	0	2,967	0	2,077	0	0	0	1,387	0	0	0	0	0
	% of Doc	0.28%	0.00%	0.11%	0.00%	0.41%	0.00%	0.00%	0.00%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%
5.124 Low Water Use Development Strategies	Txt Count	0	0	0	0	394	0	0	0	390	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.08%	0.00%	0.00%	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%
7.0 Land Use/Development Regulation	Txt Count	2,533	2,059	6,526	842	6,857	348	890	0	5,009	598	1,234	4,832	4,263	4,378
	% of Doc	0.72%	0.56%	0.24%	0.55%	1.37%	0.30%	0.39%	0.00%	1.10%	5.37%	0.34%	2.24%	1.22%	10.19%
7.1 Demonstrate Adequate Water Supply Before Approving	Txt Count	232	99	0	0	283	348	470	0	413	326	98	799	305	2,274
	% of Doc	0.07%	0.03%	0.00%	0.00%	0.06%	0.30%	0.21%	0.00%	0.09%	2.93%	0.03%	0.37%	0.09%	5.29%

	City	Greeley		Las Vegas		Mesa		New Castle		Peoria		Phoenix		Prescott	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
1.0 Agency/Planner Collaboration	Txt Count	981	1,207	14,894	13,983	1,719	3,484	366	0	3,938	0	1,460	7,879	1,215	644
	% of Doc	0.28%	0.33%	0.54%	9.17%	0.34%	3.00%	0.16%	0.00%	0.86%	0.00%	0.40%	3.65%	0.35%	1.50%
7.53 Water In Development Decision	Txt Count	1,809	1,882	141	0	2,323	0	0	0	795	272	862	37	326	1,945
	% of Doc	0.51%	0.52%	0.01%	0.00%	0.46%	0.00%	0.00%	0.00%	0.17%	2.44%	0.23%	0.02%	0.09%	4.53%
7.61 Water Efficient Landscape Codes	Txt Count	370	47	3,068	265	632	0	0	0	368	0	0	390	0	0
	% of Doc	0.11%	0.01%	0.11%	0.17%	0.13%	0.00%	0.00%	0.00%	0.08%	0.00%	0.00%	0.18%	0.00%	0.00%
7.68 Water Efficient Development Incentives	Txt Count	122	0	0	177	67	0	0	0	0	0	274	791	0	0
	% of Doc	0.03%	0.00%	0.00%	0.12%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.07%	0.37%	0.00%	0.00%
7.114 Water Quality Regulation	Txt Count	0	0	0	0	1,269	0	420	0	1,594	0	0	0	3,632	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.18%	0.00%	0.35%	0.00%	0.00%	0.00%	1.04%	0.00%
11.0 Water Demand	Txt Count	0	8,500	1,609	8,097	2,608	1,352	1,802	3,071	3,164	106	868	16,674	3,155	2,108
	% of Doc	0.00%	2.33%	0.06%	5.31%	0.52%	1.16%	0.79%	1.75%	0.69%	0.95%	0.24%	7.72%	0.90%	4.91%
11.306 Demand Based On Land Use	Txt Count	0	1,258	0	0	0	1,352	0	0	0	0	103	3,536	0	660
	% of Doc	0.00%	0.35%	0.00%	0.00%	0.00%	1.16%	0.00%	0.00%	0.00%	0.00%	0.03%	1.64%	0.00%	1.54%
11.307 Water Demand Scenarios	Txt Count	0	3,204	0	3,201	198	0	569	691	708	0	0	3,576	0	0
	% of Doc	0.00%	0.88%	0.00%	2.10%	0.04%	0.00%	0.25%	0.39%	0.15%	0.00%	0.00%	1.66%	0.00%	0.00%
11.307.118 Water Demand Scenarios Population	Txt Count	0	0	0	2,759	0	0	0	0	0	0	0	2,390	0	0
	% of Doc	0.00%	0.00%	0.00%	1.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.11%	0.00%	0.00%
11.307.299 Water Demand Scenarios Land Use	Txt Count	0	3,204	0	0	0	0	0	0	0	0	0	806	0	0
	% of Doc	0.00%	0.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%	0.00%	0.00%
13.0 Water Quality	Txt Count	2,129	220	9,666	569	5,215	564	0	0	5,146	0	3,105	11,666	0	127
	% of Doc	0.61%	0.06%	0.35%	0.37%	1.04%	0.49%	0.00%	0.00%	1.13%	0.00%	0.85%	5.40%	0.00%	0.30%
14.0 Water Supplies Non-Traditional	Txt Count	0	8,187	13,177	3,791	7,871	4,141	1,479	120	10,754	2,672	2,381	20,667	2,643	409
	% of Doc	0.00%	2.25%	0.48%	2.49%	1.57%	3.57%	0.65%	0.07%	2.35%	23.99%	0.65%	9.57%	0.75%	0.95%
14.113 Water Reuse	Txt Count	0	456	12,319	1,941	3,965	3,868	308	0	8,369	964	978	17,277	2,420	300
	% of Doc	0.00%	0.13%	0.45%	1.27%	0.79%	3.33%	0.14%	0.00%	1.83%	8.65%	0.27%	8.00%	0.69%	0.70%
14.78 Onsite Water Harvesting	Txt Count	0	0	0	0	217	0	0	0	0	0	1,132	847	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.31%	0.39%	0.00%	0.00%
14.310 Stormwater Capture	Txt Count	0	0	0	0	2,844	0	0	0	2,385	854	271	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.57%	0.00%	0.00%	0.00%	0.52%	7.67%	0.07%	0.00%	0.00%	0.00%

	City	Greeley		Las Vegas		Mesa		New Castle		Peoria		Phoenix		Prescott	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
1.0 Agency/Planner Collaboration	Txt Count	981	1,207	14,894	13,983	1,719	3,484	366	0	3,938	0	1,460	7,879	1,215	644
	% of Doc	0.28%	0.33%	0.54%	9.17%	0.34%	3.00%	0.16%	0.00%	0.86%	0.00%	0.40%	3.65%	0.35%	1.50%
14.162 Coastal Desalination	Txt Count	0	0	0	654	0	0	0	0	0	0	0	871	0	0
	% of Doc	0.00%	0.00%	0.00%	0.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.40%	0.00%	0.00%
14.165 Groundwater Desalination	Txt Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.0 Water Supplies Traditional	Txt Count	1,340	44,827	23,994	46,218	6,323	23,302	1,467	9,950	19,299	2,756	7,920	55,186	16,066	3,434
	% of Doc	0.38%	12.30%	0.87%	30.30%	1.26%	20.08%	0.64%	5.68%	4.22%	24.74%	2.16%	25.56%	4.59%	7.99%
15.35 Water Supply Availability	Txt Count	1,008	31,589	19,598	29,457	3,745	12,388	1,467	7,486	11,627	2,093	5,132	32,182	13,078	2,067
	% of Doc	0.29%	8.67%	0.71%	19.31%	0.75%	10.67%	0.64%	4.27%	2.54%	18.79%	1.40%	14.91%	3.73%	4.81%
15.35.36 Water Supply Threats	Txt Count	0	2,955	8,003	5,227	0	0	75	179	0	0	499	15,107	1,104	0
	% of Doc	0.00%	0.81%	0.29%	3.43%	0.00%	0.00%	0.03%	0.10%	0.00%	0.00%	0.14%	7.00%	0.32%	0.00%
15.35.94 Water Storage and Delivery Projects	Txt Count	0	5,695	1,142	5,243	0	0	0	3,724	0	0	973	0	0	0
	% of Doc	0.00%	1.56%	0.04%	3.44%	0.00%	0.00%	0.00%	2.12%	0.00%	0.00%	0.26%	0.00%	0.00%	0.00%
15.35.123 Transferrable/Acquirable Water Rights	Txt Count	228	6,933	4,856	12,992	0	0	262	549	0	0	145	2,943	765	493
	% of Doc	0.06%	1.90%	0.18%	8.52%	0.00%	0.00%	0.11%	0.31%	0.00%	0.00%	0.04%	1.36%	0.22%	1.15%
15.95 Groundwater Banking	Txt Count	0	0	511	4,491	757	3,078	0	0	1,711	250	519	10,717	0	0
	% of Doc	0.00%	0.00%	0.02%	2.94%	0.15%	2.65%	0.00%	0.00%	0.37%	2.24%	0.14%	4.96%	0.00%	0.00%
15.120 Drought Planning	Txt Count	0	3,653	0	370	703	4,060	0	777	516	38	614	6,690	0	1,212
	% of Doc	0.00%	1.00%	0.00%	0.24%	0.14%	3.50%	0.00%	0.44%	0.11%	0.34%	0.17%	3.10%	0.00%	2.82%
15.303 Water Resource Planning Scenarios	Txt Count	0	0	0	7,798	0	0	0	1,687	0	0	0	980	0	0
	% of Doc	0.00%	0.00%	0.00%	5.11%	0.00%	0.00%	0.00%	0.96%	0.00%	0.00%	0.00%	0.45%	0.00%	0.00%
15.303.297 Water Resource Scenarios Land Use	Txt Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.303.298 Water Resource Scenarios General	Txt Count	0	0	0	656	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Whole Doc	Txt Count	351,531	364,492	2,743,684	152,552	501,066	116,074	228,068	175,289	457,084	11,139	367,455	215,907	350,359	42,959
	% of Doc	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Coded Text Sections	Txt Count	10,926	66,825	72,110	60,813	31,887	32,020	6,369	15,661	43,251	4,250	18,961	105,821	24,916	12,055

	City	Greeley		Las Vegas		Mesa		New Castle		Peoria		Phoenix		Prescott	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
1.0 Agency/Planner Collaboration	Txt Count	981	1,207	14,894	13,983	1,719	3,484	366	0	3,938	0	1,460	7,879	1,215	644
	% of Doc	0.28%	0.33%	0.54%	9.17%	0.34%	3.00%	0.16%	0.00%	0.86%	0.00%	0.40%	3.65%	0.35%	1.50%
	% of Doc	3.11%	18.33%	2.63%	39.86%	6.36%	27.59%	2.79%	8.93%	9.46%	38.15%	5.16%	49.01%	7.11%	28.06%

Case Study Results: Word Count by City and Topic of Coded Document Sections (PART 3)

	City	Pueblo County		Queen Creek		Santa Fe		Sonoma		Springs		Surprise		Tempe		Tucson	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
1.0 Agency/Planner Collaboration	Txt Count	1,048	0	1,056	3,542	0	1,730	5,475	6,613	377	3,591	2,500	7,578	2,400	5,651	1,913	1,682
	% of Doc	0.51%	0.00%	0.65%	1.37%	0.00%	2.25%	0.52%	1.56%	0.18%	1.65%	0.41%	1.99%	0.49%	5.40%	0.34%	0.70%
1.172 Institutionalized Collaboration	Txt Count	1,048	0	397	374	0	1,520	0	6,081	377	1,269	1,738	5,773	1,344	4,293	1,451	1,094
	% of Doc	0.51%	0.00%	0.24%	0.14%	0.00%	1.97%	0.00%	1.43%	0.18%	0.58%	0.29%	1.51%	0.27%	4.10%	0.26%	0.46%
2.0 Conservation Practices	Txt Count	0	2,000	2,636	2,719	1,640	2,288	747	4,031	527	1,975	2,506	3,843	768	13,902	1,004	8,161
	% of Doc	0.00%	0.54%	1.63%	1.05%	0.98%	2.97%	0.07%	0.95%	0.25%	0.91%	0.42%	1.01%	0.16%	13.28%	0.18%	3.40%
2.59 Indoor Water Efficiency	Txt Count	0	53	0	0	404	223	0	137	0	233	281	287	0	3,962	0	1,203
	% of Doc	0.00%	0.01%	0.00%	0.00%	0.24%	0.29%	0.00%	0.03%	0.00%	0.11%	0.05%	0.08%	0.00%	3.78%	0.00%	0.50%
2.60 Outdoor Water Efficiency	Txt Count	0	787	251	0	202	0	254	309	325	449	1,138	1,380	278	6,215	64	1,953
	% of Doc	0.00%	0.21%	0.15%	0.00%	0.12%	0.00%	0.02%	0.07%	0.15%	0.21%	0.19%	0.36%	0.06%	5.94%	0.01%	0.81%
2.301 Water Restrictions	Txt Count	0	30	103	0	63	580	0	580	0	360	0	0	0	0	0	197
	% of Doc	0.00%	0.01%	0.06%	0.00%	0.04%	0.75%	0.00%	0.14%	0.00%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%
3.0 Financial	Txt Count	0	415	0	1,461	545	972	2,276	60	228	187	361	937	1,356	676	587	723
	% of Doc	0.00%	0.11%	0.00%	0.56%	0.33%	1.26%	0.22%	0.01%	0.11%	0.09%	0.06%	0.25%	0.27%	0.65%	0.11%	0.30%
3.308 Impact Fees	Txt Count	0	0	0	0	545	397	0	0	228	0	361	0	814	0	136	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.33%	0.52%	0.00%	0.00%	0.11%	0.00%	0.06%	0.00%	0.16%	0.00%	0.02%	0.00%
3.309 Rates	Txt Count	0	415	0	646	0	575	0	60	0	187	0	0	438	676	0	723
	% of Doc	0.00%	0.11%	0.00%	0.25%	0.00%	0.75%	0.00%	0.01%	0.00%	0.09%	0.00%	0.00%	0.09%	0.65%	0.00%	0.30%
5.0 Land Use Form and Design	Txt Count	255	0	0	2,324	0	0	390	381	1,469	42	3,209	80	434	0	908	191
	% of Doc	0.12%	0.00%	0.00%	0.90%	0.00%	0.00%	0.04%	0.09%	0.70%	0.02%	0.53%	0.02%	0.09%	0.00%	0.16%	0.08%
5.268 Low-Impact Stormwater Management	Txt Count	0	0	0	0	0	0	0	381	1,469	0	2,056	0	198	0	538	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%	0.70%	0.00%	0.34%	0.00%	0.04%	0.00%	0.10%	0.00%
5.124 Low Water Use Development Strategies	Txt Count	255	0	0	0	0	0	248	0	0	0	273	0	0	0	0	0
	% of Doc	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%
7.0 Land Use/Development Regulation	Txt Count	1,679	93	1,706	2,617	414	623	11,546	688	1,838	1,171	4,732	5,324	3,029	6,947	929	1,237
	% of Doc	0.82%	0.03%	1.05%	1.01%	0.25%	0.81%	1.10%	0.16%	0.87%	0.54%	0.79%	1.40%	0.61%	6.63%	0.17%	0.51%
7.1 Demonstrate Adequate Water Supply Before Approving	Txt Count	438	0	751	77	0	0	4,612	0	0	0	560	2,011	46	2,483	0	861
	% of Doc	0.21%	0.00%	0.46%	0.03%	0.00%	0.00%	0.44%	0.00%	0.00%	0.00%	0.09%	0.53%	0.01%	2.37%	0.00%	0.36%
7.53 Water In Development Decision	Txt Count	179	0	249	439	0	224	6,117	0	319	182	82	186	557	171	400	0

	City	Pueblo County		Queen Creek		Santa Fe		Sonoma		Springs		Surprise		Tempe		Tucson	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
	% of Doc	0.09%	0.00%	0.15%	0.17%	0.00%	0.29%	0.58%	0.00%	0.15%	0.08%	0.01%	0.05%	0.11%	0.16%	0.07%	0.00%
7.61 Water Efficient Landscape Codes	Txt Count	0	93	328	0	0	0	0	0	325	275	1,121	545	214	1,326	0	267
	% of Doc	0.00%	0.03%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.13%	0.19%	0.14%	0.04%	1.27%	0.00%	0.11%
7.68 Water Efficient Development Incentives	Txt Count	255	0	0	352	0	0	0	0	0	0	502	0	0	0	0	0
	% of Doc	0.12%	0.00%	0.00%	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%
7.114 Water Quality Regulation	Txt Count	0	0	378	1,686	259	0	0	688	976	714	627	2,422	1,729	972	529	109
	% of Doc	0.00%	0.00%	0.23%	0.65%	0.16%	0.00%	0.00%	0.16%	0.46%	0.33%	0.10%	0.64%	0.35%	0.93%	0.09%	0.05%
11.0 Water Demand	Txt Count	91	5,528	474	9,815	0	4,131	0	3,794	0	3,930	0	11,460	252	2,645	0	2,460
	% of Doc	0.04%	1.50%	0.29%	3.79%	0.00%	5.37%	0.00%	0.89%	0.00%	1.81%	0.00%	3.01%	0.05%	2.53%	0.00%	1.02%
11.306 Demand Based On Land Use	Txt Count	0	1,036	0	3,458	0	0	0	0	0	0	0	118	0	275	0	0
	% of Doc	0.00%	0.28%	0.00%	1.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.26%	0.00%	0.00%
11.307 Water Demand Scenarios	Txt Count	0	453	474	2,345	0	0	0	1,326	0	2,932	0	8,573	0	738	0	1,288
	% of Doc	0.00%	0.12%	0.29%	0.90%	0.00%	0.00%	0.00%	0.31%	0.00%	1.35%	0.00%	2.25%	0.00%	0.70%	0.00%	0.54%
11.307.118 Water Demand Scenarios Population	Txt Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
11.307.299 Water Demand Scenarios Land Use	Txt Count	0	0	0	0	0	0	0	0	0	0	0	459	0	456	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%	0.00%	0.44%	0.00%	0.00%
13.0 Water Quality	Txt Count	311	0	337	340	0	1,781	1,845	357	6,640	2,349	4,043	822	917	1,968	584	87
	% of Doc	0.15%	0.00%	0.21%	0.13%	0.00%	2.31%	0.18%	0.08%	3.14%	1.08%	0.67%	0.22%	0.19%	1.88%	0.10%	0.04%
14.0 Water Supplies Non-Traditional	Txt Count	89	770	2,136	981	548	1,487	128	6,004	1,008	6,658	2,800	20,694	2,263	4,346	2,001	9,581
	% of Doc	0.04%	0.21%	1.32%	0.38%	0.33%	1.93%	0.01%	1.41%	0.48%	3.06%	0.46%	5.43%	0.46%	4.15%	0.36%	3.99%
14.113 Water Reuse	Txt Count	89	770	673	0	113	1,351	0	5,243	505	6,214	297	17,089	1,381	3,960	780	7,378
	% of Doc	0.04%	0.21%	0.42%	0.00%	0.07%	1.76%	0.00%	1.23%	0.24%	2.86%	0.05%	4.48%	0.28%	3.78%	0.14%	3.07%
14.78 Onsite Water Harvesting	Txt Count	0	0	452	0	0	0	0	0	0	147	434	635	262	0	751	1,638
	% of Doc	0.00%	0.00%	0.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.07%	0.07%	0.17%	0.05%	0.00%	0.13%	0.68%
14.310 Stormwater Capture	Txt Count	0	0	395	0	435	136	128	0	503	251	1,877	680	400	122	347	0
	% of Doc	0.00%	0.00%	0.24%	0.00%	0.26%	0.18%	0.01%	0.00%	0.24%	0.12%	0.31%	0.18%	0.08%	0.12%	0.06%	0.00%
14.162 Coastal Desalination	Txt Count	0	0	0	0	0	0	0	0	0	0	0	192	0	0	0	343
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.00%	0.00%	0.00%	0.14%
14.165 Groundwater Desalination	Txt Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	City	Pueblo County		Queen Creek		Santa Fe		Sonoma		Springs		Surprise		Tempe		Tucson	
Code	Plan Type	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water	Land	Water
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.0 Water Supplies Traditional	Txt Count	983	7,280	832	19,291	2,496	13,376	12,579	36,745	233	32,378	1,583	49,495	1,530	25,636	1,843	15,804
	% of Doc	0.48%	1.98%	0.51%	7.44%	1.50%	17.38%	1.20%	8.65%	0.11%	14.88%	0.26%	12.98%	0.31%	24.48%	0.33%	6.58%
15.35 Water Supply Availability	Txt Count	680	4,850	514	8,494	1,848	7,503	12,085	17,382	0	20,324	1,085	25,317	675	11,159	1,384	7,443
	% of Doc	0.33%	1.32%	0.32%	3.28%	1.11%	9.75%	1.15%	4.09%	0.00%	9.34%	0.18%	6.64%	0.14%	10.66%	0.25%	3.10%
15.35.36 Water Supply Threats	Txt Count	0	244	0	0	0	0	1,374	1,158	0	453	0	0	0	0	202	824
	% of Doc	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.13%	0.27%	0.00%	0.21%	0.00%	0.00%	0.00%	0.00%	0.04%	0.34%
15.35.94 Water Storage and Delivery Projects	Txt Count	0	18	0	3,157	0	427	1,547	526	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	1.22%	0.00%	0.55%	0.15%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.35.123 Transferrable/Acquirable Water Rights	Txt Count	0	26	0	262	0	3,856	0	977	0	0	0	700	0	0	0	1,204
	% of Doc	0.00%	0.01%	0.00%	0.10%	0.00%	5.01%	0.00%	0.23%	0.00%	0.00%	0.00%	0.18%	0.00%	0.00%	0.00%	0.50%
15.95 Groundwater Banking	Txt Count	0	0	0	0	0	0	0	2,071	0	5,693	304	6,280	163	5,808	172	606
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.49%	0.00%	2.62%	0.05%	1.65%	0.03%	5.55%	0.03%	0.25%
15.120 Drought Planning	Txt Count	0	713	0	0	127	1,830	0	5,460	0	1,807	0	1,182	472	3,871	57	2,170
	% of Doc	0.00%	0.19%	0.00%	0.00%	0.08%	2.38%	0.00%	1.29%	0.00%	0.83%	0.00%	0.31%	0.10%	3.70%	0.01%	0.90%
15.303 Water Resource Planning Scenarios	Txt Count	0	0	0	615	0	791	0	3,996	0	2,818	0	0	0	0	0	753
	% of Doc	0.00%	0.00%	0.00%	0.24%	0.00%	1.03%	0.00%	0.94%	0.00%	1.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.31%
15.303.297 Water Resource Scenarios Land Use	Txt Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15.303.298 Water Resource Scenarios General	Txt Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% of Doc	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Whole Doc	Txt Count	205,318	367,505	162,063	259,125	166,692	76,980	1,049,155	424,826	211,344	217,547	602,433	381,182	493,491	104,711	557,589	240,323
	% of Doc	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Coded Text Sections	Txt Count	3,995	16,086	3,990	32,537	4,650	23,829	24,801	50,650	10,825	41,627	15,429	64,367	10,502	47,473	7,979	34,709
	% of Doc	1.95%	4.38%	2.46%	12.56%	2.79%	30.95%	2.36%	11.92%	5.12%	19.13%	2.56%	16.89%	2.13%	45.34%	1.43%	14.44%

Case Study Results: Word Count by City and Topic of Coded Document Sections (PART 4)

	City	All Places Total		All Places Average			Standard Deviations	
Code	Plan Type	Land	Water	Land	Water		Land	Water
1.0 Agency/Planner Collaboration	Txt Count	48,171	88,140	2,094	3,832	StDev	3,107.94	4,281.51
	% of Doc	0.40%	1.51%	0.40%	1.51%	Relative Error	148.39%	111.73%
1.172 Institutionalized Collaboration	Txt Count	23,196	55,445	1,009	2,411	StDev	1,762.48	3,502.50
	% of Doc	0.19%	0.95%	0.19%	0.95%	Relative Error	174.76%	145.29%
2.0 Conservation Practices	Txt Count	54,932	136,296	2,388	5,926	StDev	2,375.57	5,284.82
	% of Doc	0.46%	2.34%	0.46%	2.34%	Relative Error	99.46%	89.18%
2.59 Indoor Water Efficiency	Txt Count	5,636	20,629	245	897	StDev	400.37	1,836.82
	% of Doc	0.05%	0.35%	0.05%	0.35%	Relative Error	163.39%	204.79%
2.60 Outdoor Water Efficiency	Txt Count	15,914	21,977	692	956	StDev	1,029.50	1,526.38
	% of Doc	0.13%	0.38%	0.13%	0.38%	Relative Error	148.79%	159.74%
2.301 Water Restrictions	Txt Count	389	8,701	17	378	StDev	44.40	526.93
	% of Doc	0.00%	0.15%	0.00%	0.15%	Relative Error	262.54%	139.29%
3.0 Financial	Txt Count	16,767	34,313	729	1,492	StDev	820.11	2,290.83
	% of Doc	0.14%	0.59%	0.14%	0.59%	Relative Error	112.50%	153.55%
3.308 Impact Fees	Txt Count	7,480	9,066	325	394	StDev	507.83	1,013.74
	% of Doc	0.06%	0.16%	0.06%	0.16%	Relative Error	156.15%	257.18%
3.309 Rates	Txt Count	1,331	13,269	58	577	StDev	128.11	801.39
	% of Doc	0.01%	0.23%	0.01%	0.23%	Relative Error	221.38%	138.91%
5.0 Land Use Form and Design	Txt Count	41,011	12,155	1,783	528	StDev	2,346.43	1,525.46

	City	All Places Total		All Places Average			Standard Deviations	
Code	Plan Type	Land	Water	Land	Water		Land	Water
	% of Doc	0.34%	0.21%	0.34%	0.21%	Relative Error	131.59%	288.65%
5.268 Low-Impact Stormwater Management	Txt Count	19,166	862	833	37	StDev	1,063.86	125.08
	% of Doc	0.16%	0.01%	0.16%	0.01%	Relative Error	127.67%	333.75%
5.124 Low Water Use Development Strategies	Txt Count	2,479	0	108	0	StDev	177.30	0.00
	% of Doc	0.02%	0.00%	0.02%	0.00%	Relative Error	164.50%	0.00%
7.0 Land Use/Development Regulation	Txt Count	72,916	55,434	3,170	2,410	StDev	2,693.90	2,901.43
	% of Doc	0.61%	0.95%	0.61%	0.95%	Relative Error	84.97%	120.38%
7.1 Demonstrate Adequate Water Supply Before Approving	Txt Count	13,508	11,123	587	484	StDev	1,169.71	826.50
	% of Doc	0.11%	0.19%	0.11%	0.19%	Relative Error	199.17%	170.90%
7.53 Water In Development Decision	Txt Count	17,527	5,725	762	249	StDev	1,304.99	542.09
	% of Doc	0.15%	0.10%	0.15%	0.10%	Relative Error	171.25%	217.78%
7.61 Water Efficient Landscape Codes	Txt Count	8,017	5,645	349	245	StDev	662.96	403.06
	% of Doc	0.07%	0.10%	0.07%	0.10%	Relative Error	190.20%	164.22%
7.68 Water Efficient Development Incentives	Txt Count	1,798	2,241	78	97	StDev	141.58	219.75
	% of Doc	0.02%	0.04%	0.02%	0.04%	Relative Error	181.11%	225.53%
7.114 Water Quality Regulation	Txt Count	11,621	7,132	505	310	StDev	866.43	629.92
	% of Doc	0.10%	0.12%	0.10%	0.12%	Relative Error	171.48%	203.14%
11.0 Water Demand	Txt Count	23,618	189,678	1,027	8,247	StDev	1,501.00	7,914.57
	% of Doc	0.20%	3.25%	0.20%	3.25%	Relative Error	146.17%	95.97%
11.306 Demand Based On Land Use	Txt Count	103	19,500	4	848	StDev	21.48	1,141.63
	% of Doc	0.00%	0.33%	0.00%	0.33%	Relative Error	479.58%	134.65%
11.307 Water Demand Scenarios	Txt Count	5,064	71,499	220	3,109	StDev	480.86	4,572.87
	% of Doc	0.04%	1.23%	0.04%	1.23%	Relative Error	218.40%	147.10%
	Txt Count	0	19,979	0	869	StDev	0.00	2,068.38

	City	All Places Total		All Places Average			Standard Deviations	
Code	Plan Type	Land	Water	Land	Water		Land	Water
11.307.118 Water Demand Scenarios Population	% of Doc	0.00%	0.34%	0.00%	0.34%	Relative Error	0.00%	238.11%
11.307.299 Water Demand Scenarios Land Use	Txt Count	1,919	25,240	83	1,097	StDev	400.14	2,151.93
	% of Doc	0.02%	0.43%	0.02%	0.43%	Relative Error	479.58%	196.09%
13.0 Water Quality	Txt Count	55,030	29,077	2,393	1,264	StDev	2,619.97	2,478.98
	% of Doc	0.46%	0.50%	0.46%	0.50%	Relative Error	109.50%	196.09%
14.0 Water Supplies Non-Traditional	Txt Count	63,061	131,001	2,742	5,696	StDev	3,631.35	5,925.42
	% of Doc	0.53%	2.25%	0.53%	2.25%	Relative Error	132.44%	104.03%
14.113 Water Reuse	Txt Count	35,676	85,225	1,551	3,705	StDev	2,981.79	4,813.66
	% of Doc	0.30%	1.46%	0.30%	1.46%	Relative Error	192.23%	129.91%
14.78 Onsite Water Harvesting	Txt Count	4,708	11,465	205	498	StDev	400.10	1,723.07
	% of Doc	0.04%	0.20%	0.04%	0.20%	Relative Error	195.46%	345.67%
14.310 Stormwater Capture	Txt Count	9,870	2,461	429	107	StDev	799.97	225.69
	% of Doc	0.08%	0.04%	0.08%	0.04%	Relative Error	186.42%	210.92%
14.162 Coastal Desalination	Txt Count	0	2,119	0	92	StDev	0.00	228.55
	% of Doc	0.00%	0.04%	0.00%	0.04%	Relative Error	0.00%	248.07%
14.165 Groundwater Desalination	Txt Count	0	0	0	0	StDev	0.00	0.00
	% of Doc	0.00%	0.00%	0.00%	0.00%	Relative Error	0.00%	0.00%
15.0 Water Supplies Traditional	Txt Count	141,350	594,075	6,146	25,829	StDev	6,919.41	17,556.06
	% of Doc	1.18%	10.18%	1.18%	10.18%	Relative Error	112.59%	67.97%
15.35 Water Supply Availability	Txt Count	88,724	365,164	3,858	15,877	StDev	5,239.21	11,655.09
	% of Doc	0.74%	6.26%	0.74%	6.26%	Relative Error	135.82%	73.41%
15.35.36 Water Supply Threats	Txt Count	13,936	47,549	606	2,067	StDev	1,670.78	3,487.71
	% of Doc	0.12%	0.82%	0.12%	0.82%	Relative Error	275.75%	168.70%

	City	All Places Total		All Places Average			Standard Deviations	
Code	Plan Type	Land	Water	Land	Water		Land	Water
15.35.94 Water Storage and Delivery Projects	Txt Count	6,577	49,057	286	2,133	StDev	557.74	3,142.70
	% of Doc	0.06%	0.84%	0.06%	0.84%	Relative Error	195.04%	147.34%
15.35.123 Transferrable/Acquirable Water Rights	Txt Count	7,177	64,117	312	2,788	StDev	1,008.14	4,028.98
	% of Doc	0.06%	1.10%	0.06%	1.10%	Relative Error	323.08%	144.53%
15.95 Groundwater Banking	Txt Count	4,252	40,071	185	1,742	StDev	393.51	2,906.62
	% of Doc	0.04%	0.69%	0.04%	0.69%	Relative Error	212.86%	166.83%
15.120 Drought Planning	Txt Count	2,868	48,805	125	2,122	StDev	225.87	2,235.78
	% of Doc	0.02%	0.84%	0.02%	0.84%	Relative Error	181.14%	105.36%
15.303 Water Resource Planning Scenarios	Txt Count	0	42,747	0	1,859	StDev	0.00	2,994.98
	% of Doc	0.00%	0.73%	0.00%	0.73%	Relative Error	0.00%	161.14%
15.303.297 Water Resource Scenarios Land Use	Txt Count	0	8,992	0	391	StDev	0.00	1,874.96
	% of Doc	0.00%	0.15%	0.00%	0.15%	Relative Error	0.00%	479.58%
15.303.298 Water Resource Scenarios General	Txt Count	0	10,057	0	437	StDev	0.00	1,396.98
	% of Doc	0.00%	0.17%	0.00%	0.17%	Relative Error	0.00%	319.48%
Whole Doc	Txt Count	######	5,832,889	519,731	253,604	StDev	######	######
	% of Doc	100.00%	100.00%	100.00%	100.00%	Relative Error	48.80%	100.00%
Coded Text Sections	Txt Count	392,704	1,052,265	17,074	45,751	StDev	45,750.65	45,750.65
	% of Doc	3.29%	18.04%	3.29%	18.04%	Relative Error	267.95%	100.00%