

Integrating Land Use and Water Planning in New Mexico

April 8, 2011

Sheraton Uptown, Albuquerque

An all day seminar to discuss:

How to integrate local, state and regional water plans with local land use plans to support the sustainability of communities, protect the environment, and ensure our economic vitality.

Sponsored by:

The Utton Transboundary
Resources Center
Institute of Public Law
School of Law
University of New Mexico

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Integrating Land Use and Water Planning in New Mexico

Friday, April 8, 2011 -- 8:30 am – 4:00 pm
(Registration begins at 7:30 am)
Sheraton Uptown, Albuquerque
Louisiana & Menaul – NE Corner

Agenda

7:30-8:30 **Registration**

8:30-9:00 **Introduction** – Timothy Karpoff, moderator; Susan Kelly, Utton Center; and Consuelo Bokum, 1000 Friends of New Mexico

9:00-10:15 **Developing Land and Water Use Plans based on Accurate Science and Comprehensive Analyses**

Moderator: Peggy Johnson, Associate Director of Hydrogeologic Programs, NM Bureau of Geology and Mineral Resources

John Shomaker, PhD, John Shomaker and Associates:
Science in Decision-Making.

Rolf Schmidt-Petersen, Rio Grande Bureau Chief, NM Interstate Stream Commission:
Middle Rio Grande Water Rights Commitments.

Lora A. Lucero, AICP, Esq.:
Connecting the Dots between Water and Land Use Planning.

10:15-10:30 **Break**

10:30-11:45 **Integrating Land Use with Water Availability through Comprehensive Planning**

Moderator: Joseph L. Quintana, Regional Planning Manager, Mid-Region Council of Governments

Kathy Holian, Santa Fe County Commissioner:
Santa Fe County Growth Management Plan.

John Korkosz, Rio Rancho Planning Manager:
Implementing the Comprehensive Plan and Updating Antiquated Platting in Rio Rancho.

Roger Hedrick, AICP, Dona Ana County Senior Planner:
Regional Planning and Vision 2040.

12:00-1:00 **Lunch**

**Sarah Bates, Center for Natural Resources and Environmental
Policy, University of Montana**

*Integrating water into the land use planning process: “Show me the Water”
Laws in the West*

1:00-2:15 **Panel: Ensuring Reliable Water Supplies for a Robust Economy
while Respecting Agriculture, Environmental and Cultural
Values**

Moderator: Kyle Harwood, Attorney

Katherine Martinez, Director of Government Affairs, Home Builders Association
of Central New Mexico:
Home Builders Perspective on Linking Land Use and Water.

Patricio Garcia and Phillip Kilgour, Rio Arriba County Planning Department:
Rio Arriba County Protections for Agricultural Land.

Kathy McCoy, Retired Legislator:
Obstacles to Integrating Land and Water Planning.

2:15-2:30 **Break**

2:30-3:30 **Break-out Sessions to Discuss Achievable Priorities and
Approaches for Better Integration of Land and Water Planning**

3:30-4:00 **Wrap up and adjourn**

MATERIALS INCLUDED:

Agenda
Brief Bios of Speakers and Moderators
Sarah Bates, Show me the Water
Land & Water: Making the Connection
2008 Conference Report
Lora Lucero, Population Growth, New Development, and Water Supply

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Brief Biographies of Speakers and Moderators

Sarah Bates, Senior Fellow, Center for Natural Resources and Environmental Policy, University of Montana

Sarah Bates has written and spoken extensively about natural resources law and policy over the past two decades through university research appointments, conservation advocacy positions, and consulting work. She currently works with the Center for Natural Resources and Environmental Policy at the University of Montana, and maintains an active legal consulting practice. She is a graduate of the University of Colorado Law School (1988). She has served on the governing board of the Montana-based Clark Fork Coalition and the advisory board of University of Wyoming's Ruckelshaus Institute of Environment and Natural Resources, and currently serves on the advisory board of the University of Colorado's Natural Resources Law Center. Her most recent book (co-edited with Larry MacDonnell) is "The Evolution of Natural Resources Law and Policy," published by the American Bar Association in 2009.

Consuelo Bokum

Consuelo Bokum has been working on water policy issues since 1991 when she and two others co-authored *Living Within Our Means: A Water Management Policy for New Mexico in the 21st Century*. She subsequently researched and wrote "Implementing the Public Welfare Requirement in New Mexico's Water Code" which was included in the *Natural Resources Journal*, published by the University of New Mexico School of Law. Ms. Bokum is a member of the Jemez y Sangre Regional Water Planning Council, the Governor's Blue Ribbon Task Force, the Board of Directors of the New Mexico Water Dialogue, and on the Buckman Direct Diversion Project Board.

Patricio Garcia, Director, Rio Arriba County Planning and Zoning Department

Born in small rural Northern New Mexico village, along the banks of the mighty Rio Chama, Patricio Garcia learned early-on the value of being part of a strong agricultural heritage. The Rio Chama feeds the community acequia which was settled in the early 1700s. The acequia's agreed priority date is 1725. Garcia's farming and ranching operations span two locales; one in Rio Chama where he resides; the other in the high country at the northern tip of Rio Arriba County in Los Brazos. He raises livestock, produces hay and grows a vegetable garden. An Espanola High Graduate – home to the current 4A Basketball State Champs – Garcia served in the U.S. Navy four years, is a Vietnam Veteran and attended UNM & Northern. After his military service he joined VISTA and became a community organizer around the issues of land and water. The adjudication of the Chama was in its 10th year and lots of misunderstanding existed about the hydro-survey, priority dates and meter requirements. Rio Arriba County (RAC) was also being discovered and subdivisions were being laid out in areas where grazing was a common use. Garcia played a critical role in organizing the Acequias Del Norte which is now the New Mexico Acequia Association and a few years later organized the New Mexico Mutual Domestic Rural Water Users. Garcia's experience in construction, working on reservoirs such Cochiti, Nambe and Trinidad, made him a natural fit for RAC's Planning Department. For almost two decades, Garcia has led the Planning Department by developing and implementing some of the most pioneering land-use ordinances in the country. Today, Garcia continues to manage the department and lives on the farm in the home built by his great-grandfather in 1790, which he fully restored. He maintains a strong agricultural connection to the land, water and people. Garcia is also a Commissioner on the Interstate Stream Commission with the New Mexico Office of the State Engineer.

Kyle Harwood, Esq., Owner and President, Harwood Consulting, PC

Kyle S. Harwood is an attorney and water resources professional who has recently left the City of Santa Fe's Attorney's Office to open Harwood Consulting, PC. He has advised, drafted, and litigated land and water law, regulation and policy issues, and has lectured on land use and water law. He is the author of "Santa Fe Water: Evolving Wet Growth Regulations" in the February 2007 Issue of The Water Report. He earned his M.P.A. degree in water resources from the University of New Mexico, and his J.D. degree from the University of New Mexico School of Law, where he specialized in water and Indian law. Mr. Harwood is an appointed member of Governor Richardson's Blue Ribbon Water Taskforce and is a former board member and chair of the New Mexico State Bar Natural Resources, Environment and Energy Law (NREEL) Section.

Roger K. Hedrick, FAICP, Deputy Director, Community Development – Doña Ana County

Roger K. Hedrick, FAICP, has served as Planning Director, West Palm Beach, Florida; Executive Director, Lafayette Area-wide Planning Commission, Louisiana; Director of Planning, Galveston, Texas; and as a public planner and consultant in other southern communities. He is an AICP Fellow and former National President of AICP, National APA Board member, former National Planning Accreditation Board (PAB) member and was a two term Louisiana APA Chapter President. He currently serves as Deputy Director, Community Development, Doña Ana County, New Mexico. Education: M.P.A., Policy and Planning, University of Missouri – Kansas City; B.S.L.A., Landscape Architecture, Iowa State University; and Ph.D. (ABD), Urban and Regional Planning, University of New Orleans

Kathy Holian, Santa Fe County Commissioner

Kathy Holian was elected County Commissioner in Santa Fe, New Mexico in 2008. Prior to running for public office, she was a physicist at Los Alamos National Laboratory for 25 years. She has been a committed environmentalist since her college days at UC Berkeley. Kathy's vision for the future of Santa Fe County - population densities, environment, open spaces, quality of life - is that each community be fully engaged in the process of planning for water use, energy use, and future growth.

Peggy Johnson, Associate Director of Hydrogeologic Programs, NM Bureau of Geology and Mineral Resources

Peggy Johnson is a Senior Hydrogeologist and Associate Director of Hydrogeologic Programs with the New Mexico Bureau of Geology and Mineral Resources. She has over 25 years of consultant and research experience in arid basin hydrogeology focused on surface-water and groundwater resource assessments and water resource management and policy. During her 15-year tenure at the Bureau of Geology, Ms. Johnson has conducted regional hydrogeologic and groundwater studies throughout north-central New Mexico, including Placitas, the Española Basin near Santa Fe, and the Taos Valley. Ms. Johnson has served on numerous water planning and policy committees and commissions, including the Socorro-Sierra Regional Water Planning Committee, the Upstream/Downstream project, the Interstate Stream Commission's Ad Hoc Committee for Regional and State Water Planning, and the New Mexico Water Quality Control Commission. She received her B.S. in geology from Boise State University (1987) and her M.S. in hydrology from New Mexico Tech (1990).

Timothy Karpoff, Karpoff & Associates

Tim Karpoff helps community groups, businesses and government agencies plan effectively and explore complex issues, through well-designed processes and conversations that matter. Tim has 35 years experience in community and organizational development, meeting facilitation, strategic planning, and multi-party collaboration. He worked for 16 years as a regional director and vice president of the Institute of Cultural Affairs (ICA) in the United States and Southeast Asia and has had a consultant practice in Albuquerque, New Mexico since 1992. Mr. Karpoff helped organize the public outreach, and facilitation of a community advisory committee helping to develop a regional master plan for water and wastewater

infrastructure, engaging people from traditional and newer communities in making long-range decisions about water and wastewater services in Valencia County. Mr. Karpoff facilitates a regular forum of representatives of state agencies, tribal governments, municipalities, flood control authorities, and other agencies to discover ways to improve water quality in the middle Rio Grande (the Middle Rio Grande Water Quality Work Group).

Susan Kelly, J.D., AICP

Susan Kelly is the director of the Utton Transboundary Resources Center. She is a licensed attorney and also has experience in urban planning. She works on a variety of projects related to the Utton Center's mission of promoting sustainable management of natural resources that cross national, state, tribal or other jurisdictional boundaries. The Center produces *Water Matters!* each year, edited by Ms. Kelly. The edition is full of information on water topics, with helpful maps and other information. Susan is a frequent speaker and has worked with a group of experts exploring the nexus between land use and availability of water. She spoke on this topic at the 2009 Water Resources Research Institute Conference, at the annual conference of the New Mexico Chapter of the American Planning Association, at a 2009 Land Use CLE International event, and at the 2011 New Mexico Water Dialogue meeting.

Phillip P. Kilgour

BS degree, Landscape Architecture, California State Polytechnic College 1965 -- California Planning experience, 1963 Associate Planner City of Glendora, 1970 Building and Planning Director City of Carpinteria, 1972 Lampman and Associates, Planning Consultants to California government entities, 1974 Planning Director City of Baldwin Park, 1980 self-employed, Landscape Contractor, 1989 Senior Planner City of Riverside -- New Mexico experience 2001-2009 Vice President and founding Board Member, Greater Chimayo MDWCA, 2009 Member Rio Arriba County Planning and Zoning Committee, 2011 Rio Arriba County Assistant Planner.

John Korkosz, AICP, Planning Manager City of Rio Rancho

Mr. Korkosz, AICP, has 15 years of experience in community planning. He holds a B.S. in Geography from the University of Oregon; a M.S. in Geography from Brigham Young University, and a M.P.A. in Public Administration from UNLV. Mr. Korkosz currently is the Planning Manager for the City of Rio Rancho and has worked for Clark County, Nevada and the City of Las Vegas. Some projects he has been the lead planner on include the Henderson Executive Airport Master Plan (Update), the second phase of the Venetian Hotel, Casino, Convention Center, and Shopping Plaza, the City of Las Vegas' Transportation, School Facilities, Public Facilities and Urban Design Elements and the City of Rio Rancho's Comprehensive Plan. His planning interests include land use, zoning, property taxation and the use of impact fees and development exactions.

Lora A. Lucero, AICP, Esq.

Lucero is a land use attorney and planner; an adjunct professor of law at UNM; and Natural Resources Director of the League of Women Voters of New Mexico. She has written and spoken extensively about water, growth and development issues for the past 15 years. She has drafted land use and development codes for a number of New Mexico municipalities and counties. She drafted and successfully lobbied for legislation to reform the New Mexico Subdivision Act and Development Fees Act. For nearly 10 years, she edited *Planning & Environmental Law*, a monthly journal of the American Planning Association. She recently contributed a chapter to a book to be released this Spring by the American Bar Association entitled *Whose Drop Is It Anyway? Legal Issues Surrounding Our Nation's Water Resources*.

Katherine Carroll Martinez, Director of Government Affairs, Home Builders Association of Central New Mexico

Katherine Carroll Martinez is the Director of Government Affairs for the *Home Builders Association of Central NM*, promotes Build Green New Mexico and also assists New Mexico State Representative

David Doyle at the NM Legislature. She holds a Bachelors of Arts degree in International Relations, *Summa Cum Laude*, from Richmond College, The American International University of London. Passionate about her childhood spent in Saudi Arabia, she has also completed a year towards her Ph.D. in Middle Eastern Politics at the University of South Carolina. Katherine has represented the home building industry for seven years and in this capacity has served on numerous city, county and state committees that deal with development issues. She has positioned Build Green New Mexico as a Code standard for residential sustainable building throughout the state and helped establish the residential portion of the NM Sustainable Building Tax Credit. Active in coalition building, Katherine has served on the NAIOP Board of Directors as the HBA of CNM Ex Officio Director. She also sits on the CREW and the Rio Rancho Economic Development Marketing Committees. Katherine is dedicated to community involvement and has served on the ARCA Foundation Board of Directors.

Kathy McCoy, Retired (in 2010) NM State Representative

Following three terms in the NM House of Representatives, I retired in 2010. During my entire tenure as a legislator, I served on the Water and Natural Resources Committee, Appropriations and Finance, and Voters and Elections. Other committee assignments over the years included Economic & Rural Development, Ethics, Science & Technology, Military & Veterans Affairs and Investments Oversight. I graduated from UNM in 1992 with a B.A. in Technical Writing and a minor in Anthropology. Honors include Phi Beta Kappa and summa cum laude. Prior to my election to the House, I co-founded and operated a non-profit organization that monitored and actively worked to protect land, wildlife and water use in the East Mountains.

Rolf Schmidt-Petersen, Rio Grande Bureau Chief, NM Interstate Stream Commission

Rolf Schmidt-Petersen is a hydrologist and is the manager of the Rio Grande Basin Bureau of the New Mexico Interstate Stream Commission. His responsibilities on the Rio Grande include investigation, development, conservation, and protection of the Rio Grande water resources and stream system, interstate stream compact administration and compliance, and resolution of interstate and federal water resource issues affecting Rio Grande water resources. He currently serves as the Engineer Adviser to the New Mexico Rio Grande Compact Commissioner (the New Mexico State Engineer). Prior to working for the ISC, Mr. Schmidt-Petersen worked as a hydrogeologist for Daniel B. Stephens & Associates, Inc. He has over twenty years of experience working in New Mexico on hydrology related issues. Mr. Schmidt-Petersen graduated from the New Mexico Institute of Mining & Technology with an M.S. in hydrology.

Joseph L. Quintana, AICP, Regional Planning Manager, Mid-Region Council of Governments

Joseph Quintana is the Regional Planning Manager for the Mid-Region Council of Governments of New Mexico and is a member of the American Institute of Certified Planners of the American Planning Association. Joe has a Master's Degree in Public Administration, with a Graduate Certificate in Natural Resources, from the University of New Mexico. He works directly with local governments and has written numerous Comprehensive Plans and regulatory ordinances for municipalities and counties. In addition to land use planning, Joe has developed plans and programs for transportation systems, watershed and water resource management, and economic development.

John Shomaker, PhD, John Shomaker and Associates, Founder and Principal Hydrogeologist

Principal Hydrogeologist, of Shomaker and Associates, John W. Shomaker, Ph.D. has over 40 years experience in hydrogeology, including 4 years with the U.S. Geological Survey Water Resources Division, in Albuquerque, 4 years with the New Mexico Bureau of Mines and Mineral Resources (part of which was devoted to coal-reserve studies), and over 36 years as a consultant in hydrogeology. Since formation of JSAI, he has administered the firm's projects. These have included large-scale drilling projects, such as the Cherokee & Pittsburg Coal and Mining Co. (Santa Fe Industries) 1975-1980 exploration program in the San Juan Basin, which resulted in eight test-and-production wells ranging from 2,221 to 5,747 feet deep. He has also administered ground-water modeling studies, water-planning

studies, and well-drilling projects. His education includes B.S. and M.S. degrees in geology from University of New Mexico (1963 and 1965), a M.A. degree in the liberal arts from St. John's College, Santa Fe (1984), and M.Sc. and Ph.D. degrees in hydrogeology from University of Birmingham, England (1985 and 1995). He completed the U.S. Geological Survey Training Program in Hydrology in 1966. He is a registered geologist in Arizona (No. 16,481), Arkansas (no. 482), and Wyoming (PG-182). Geologists are not registered in New Mexico. He is certified by the American Institute of Professional Geologists (CPG-2405), the American Institute of Hydrology (CPH No. 315), and the Association of Ground Water Scientists and Engineers (CGWP No. 414), and is a member of many other professional organizations.

**“Show me the Water” and Beyond:
Emerging Strategies to Assure Adequate Water Supply
for New Development, and Some Suggestions for the Future**

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The following is an excerpt from a working draft of a forthcoming report of the Center for Natural Resources and Environmental Policy. This is an updated and expanded version of Bridging the Governance Gap: Strategies to Integrate Water and Land Use Planning (2007), available at cnrep.org. The full revised report will be posted on the same website in the spring of 2011.

Before approving proposed development, many states and municipalities require assurance that water is available to meet projected demands. In many cases, this is a cursory “check-off” step, but sometimes this evaluation provides an important opportunity for local land use officials to take a hard look at development options and impacts.

A survey conducted by the Western Water Assessment concluded that nine of the eleven western states have some form of assured water supply statute; Utah and Idaho address this issue only through local initiatives.¹ Another study found that only two states outside the West—Vermont and Florida—have such statutes.²

The goals of assured water supply statutes include:

- Protecting homeowners by preventing “high and dry” subdivisions;
- Protecting taxpayers and other water customers by ensuring that developers pay for and obtain reliable water supplies to serve new users; and
- Directing growth to minimize environmental impacts.

The states’ approaches vary a great deal, as do their standards for what constitutes “adequate” water for new development. Although many have written on this subject, University of Utah Law Professor Lincoln Davies provided the most comprehensive

¹ Bobbie Klein and Douglas Kenney, *The Land Use Planning, Water Resources and Climate Change Adaptation Connection: Challenges and Opportunities: A Review* (Western Water Assessment, undated paper), available at

http://www.colorado.edu/water_management_and_drought/Land%20use%20water%20final.pdf

² Lincoln Davies, *East Going West? The Promise of Assured Water Supply Laws in Modern Real Estate Development*, 43 J. Marshall L. Rev. 319 (2010).

framework of the various approaches. He categorized the laws using the following design elements:³

- **Compulsory:** Whether there is a strict requirement for all development defined by the statute or an option for local governments to require such review;
- **Stringency:** Whether the law requires substantial proof of “wet water” rather than paper rights, and whether it defines the scope of hydrological review;
- **Universality:** Whether it applies statewide or just in particular designated areas;
- **Granularity:** Whether the law applies to all development or only those exceeding a threshold size or category;
- **Interconnected with other plans:** Whether the required analysis must explicitly link to existing water planning processes or documents.

No state in the country has enacted an assured water supply law that incorporates all these design elements. The examples here illustrate the widely varying approaches among the states that have enacted some form of legislation to ensure adequate water for new development.

Arizona, which enacted the first such law in 1980, provides the best example of a non-universal approach. There are vastly different requirements for development within or outside of the state’s five major urban areas, which are designated as “Active Management Areas” (AMAs) for groundwater conservation.⁴ Within an AMA, development must be conditioned on proof of an “assured water supply” for 100 years. In the many fast-growing communities outside the AMA, development may proceed in the face of a certification from the state engineer’s office that the water source is “not reliable” due to insufficient supplies.

California has pursued an aggressive—but highly decentralized—approach. Legislation enacted in 2001 requires:

- an “early warning” in the form of assessment of water supply reliability for large residential, commercial, and industrial development as part of the environmental impact reports at the initial stage of development approval, prepared under the California Environmental Quality Act (CEQA); and
- later in the process, at the subdivision map stage, written verification of the availability of water for any project meeting these criteria and subject to CEQA.⁵

³ Lincoln Davies, *Just a Big “Hot Fuss”? Assessing the Value of Connecting Suburban Sprawl, Land Use, and Water Rights Through Assured Supply Laws*, 34 *Ecology L.Q.* 1217 (2007).

⁴ See Ariz. Rev. Stat. Sec. 45-401 et seq. (1980 Groundwater Management Act) and the implementing regulations at Ariz. Dept. of Water Resources, R. 12-15-703(b)(Feb. 7, 1995).

⁵ S.B. 221, ch. 642, 2001 Cal. Stat. 88; S.B. 610, ch. 643, 2001 Cal. Stat. 94. For a more detailed description of how these laws are implemented, see Ellen Hanak, *Show Me the Water Plan: Urban Water Management Plans and California’s Water Supply Adequacy Laws*, 4 *Golden Gate U. Env’tl. L.J.* (2010), available at <http://digitalcommons.law.ggu.edu/gguelj/vol4/iss1/5>.

California does not prohibit developments from proceeding in the face of uncertain water supplies, but it does require rigorous assessment of water availability and impacts of necessary mitigation measures—essentially mandating a risk assessment as part of the development approval process.⁶ This is a good example of Davies’ “stringency” element, as the statute spells out fairly explicit criteria for assessing the actual availability of water required by the proposed subdivision “during normal, single-dry, and multiple-dry years within a twenty-year projection.”⁷

The main objection to the state’s approach is that too many projects escape scrutiny; the 500-unit threshold means that it does not incorporate the “granularity” element. The state law also does not apply to such big water users as industrial parks, hotels, or office buildings.

Some states with universal requirements, such as Nevada, require that a developer obtain certification of water availability from the State Engineer’s Office. This is a more centralized approach than in California, but does not necessarily result in more rigorous analysis of water reliability or necessary mitigation. Montana law simply requires that development approval be conditioned on a determination of adequate water supply, but provides no definition of “adequacy,” and allows an essentially self-reported analysis of water supplies.

Colorado’s subdivision regulation statute⁸ provided the authority for El Paso County to enact a stringent regulation requiring developers to secure a 300-year water supply for each proposed subdivision. Colorado municipalities lacked the authority to enact such requirements until 2008, when H.B. 1141 specifically granted municipal governments the same authority as counties to require that developers show an adequate water supply, calling for professional assessment under “various hydrologic conditions.”⁹ H.B. 1141 also only applies to subdivisions exceeding 50 units.

Florida incorporates water needs into local planning by requiring each municipality to adopt a ten-year Water Supply Facilities Work Plan, which must project the local government’s needs for the coming decade, identify and prioritize the water supply facilities and source(s) of water that will be needed to meet those needs, and include

⁶ The California Supreme Court articulated guidelines for water adequacy analysis in *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova*, 40 Cal. 4th 412 (2007). For a detailed analysis of this and related decisions, see James G. Moose, *The Relationship Between Water Supply and Land Use Planning: Leading Cases Under the California Environmental Quality Act*, 4 Golden Gate U. Env’tl. L.J. (2010), available at <http://digitalcommons.law.ggu.edu/gguelj/vol4/iss1/4>.

⁷ Calif. Gov’t. Code Sec. 66473.7(a)(2).

⁸ Colo. Rev. Stat. 30-28-133.

⁹ Colo. Rev. Stat. 29-20-303.

capital improvements identified as needed for the first five years.¹⁰ This “concurrency” review requirement effectively integrates land use and water supply planning, although it does not impose as strict an evaluation or balancing requirement as the California model.

Evaluating the effectiveness of assured-supply laws is tricky, given all the variations in their design, but Davies¹¹ concluded that these statutes have succeeded in:

- Protecting consumers;
- Improving local planning by requiring consideration of water supplies;
- Encouraging coordination among water and land use planners;
- Providing valuable early warning of legal and other uncertainties that might make water supplies vulnerable in the future; and
- Promoting water conservation, as developers have an incentive to reduce projected demands by incorporating water-saving measures into the new homes.

He strongly cautioned, however, that such laws have little impact on sprawl and do not ensure meaningful consideration of environmental, equity, or economic considerations. If poorly designed, he concluded, these laws could do more harm than good, by encouraging over-estimation of water needs (and thus depletion of natural sources) and by misleading the public into believing that their community’s water use is sustainable.

Importantly, assured-supply laws are not the only approach to assessing water reliability and balancing impacts of obtaining water for projected growth. States could encourage this analysis earlier in the process by strengthening the requirements for a water resources element in comprehensive plans. For example, they might require that such plans:

- Identify the known supplies of water for future development;
- Quantify the demand that would result from projected population growth; and
- Analyze how demand will be met by available supplies (or what additional water will have to be obtained).

This level of analysis at the broader planning stage may prove more useful than asking for assurances that water is immediately available once a particular development is under consideration. It would be particularly useful if land use planners worked in close cooperation with water planners in this exercise in long-term thinking, and if the public were involved in a broad dialogue about the choices inherent in such planning.

¹⁰ For a more detailed analysis of the Florida approach, see James R. Cohen, *Water Supply as a Factor in Local Growth Management Planning in the U.S.: A Review of Current Practice, and Implications for Maryland* (Univ. Maryland, Urban Studies & Planning Program, 2004).

¹¹ Lincoln L. Davies, *Assured Water Supply Laws in the Sustainability Context*, 4 Golden Gate U. Env’tl L.J. 167 (2010), available at <http://digitalcommons.law.ggu.edu/gguelj/vol4/iss1/9>

Western States Assured Water Supply Laws

Arizona	1980 Groundwater Management Code established Active Management Areas (AMAs) where groundwater use is strictly regulated. In an AMA, the Assured Water Supply program applies. Anyone who offers land for sale or lease generally must demonstrate that “water of sufficient quantity and quality is available to sustain the proposed development for 100 years” before marketing the land. In 1995, the Arizona Department of Water Resources adopted rules that require new developments to be sustained predominantly by renewable supplies such as surface water. Outside of the AMAs the Adequate Water Supply program applies. Developers must obtain a determination from the state concerning the quantity and quality of available water but may still sell lots even if the water is found to be inadequate as long as the inadequacy finding is provided to prospective buyers. In 2007 local governments were granted authority to require a 100-year water adequacy determination before developers could sell lots in new subdivisions. ¹³
California	2001 SB 610 amended Cal. Water Code sec. 10910-12, to require that a water supply assessment be included in environmental reviews for projects of over 500 units. 2001 SB 221 amended Cal. Govt. Code sec. 66473 to provide that cities and counties cannot approve a subdivision map of more than 500 units unless a water purveyor provides written verification of a sufficient and reliable water supply. ¹⁴ Section 66473.7(a)(2) defines "sufficient water supply" as “the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses.”
Colorado	The 1972 Subdivision Act (SB 35) provides that counties must adopt subdivision regulations requiring developers to provide “adequate evidence that a water supply that is sufficient in terms of quality, quantity, and dependability will be available to ensure an adequate supply of water for the type of subdivision proposed.” CRS sec. 30-28-133(3)(d). No subdivision may be approved unless the subdivider provides evidence of a sufficient water supply. CRS sec. 30-28-133(6a). HB 1141, enacted May 2008, created CRS sec. 29-20-301-306 which requires local governments to determine whether an applicant for a development permit for more than 50 units or single-family equivalents has satisfactorily shown an adequate water supply exists.
Idaho	No statutory provisions. Many local governments reportedly require that developers show adequate water rights or an adequate water supply. ¹⁵
Montana	MCA sec. 76-3-601 and 76-3-622 require that applications for new subdivisions include evidence of adequate water availability for new water supply systems, unless cisterns are proposed.
Nevada	Prior to approval, any division of land into five or more lots must show evidence of “the availability of water which. . .is sufficient in quantity for the reasonably foreseeable needs of the subdivision” as certified by the Nevada State Engineer. NRS sec. 278.349(3), sec. 278.377(1)(b). For division of land into four lots or less, the local body “may” require proof of water supply prior to approval. NRS 278.462. ¹⁶
New Mexico	The New Mexico Subdivision Act, NM Stat. Ann. sec. 47-6-9, requires that counties adopt regulations specifying requirements for “quantifying the maximum annual water requirements of subdivisions, including water for indoor and outdoor domestic uses;” “assessing water availability to meet the maximum annual water requirements of subdivisions;” and “water conservation measures.” ¹⁷

¹³ Arizona Dept. Water Resources (undated).

¹⁴ Western Water Law and Policy Reporter (ed.)(2005b).

¹⁵ Western Water Law and Policy Reporter (ed.)(2005d).

¹⁶ Western Water Law and Policy Reporter (ed.)(2005e).

¹⁷ Western Water Law and Policy Reporter (ed.)(2005f).

Oregon	OR. REV. STAT. §§ 197.015(6) and 197.175(2)(a) (2005) require local governments to adopt comprehensive general plans governing local land use decisions and require that the water-land use connection be addressed including specifically taking into account the availability of water systems. State law leaves the details largely to localities. As a result, most localities have adopted ordinances incorporating water availability into their development regulations and ordinances, but there is a wide range of variability in how strictly the laws are applied. ¹⁸
Utah	No statutory provisions. Developers generally show local authorities that the State Engineer has approved the use of water, or provide a “will serve” letter from a water distributor agreeing to provide service. ¹⁹
Washington	RCW 19.27.097 provides that “Each applicant for a building permit of a building necessitating potable water shall provide evidence of an adequate water supply for the intended use of the building.” RCW 58.17.110 requires that adequate provisions be made for potable water supplies before a subdivision can be approved. ²⁰
Wyoming	Wyoming Statutes sec. 18-5-306 requires that each application for a subdivision permit produce “a study evaluating the water supply system proposed for the subdivision and the adequacy ... of the system.”

Reprinted by permission from: Bobbie Klein and Douglas Kenney, *The Land Use Planning, Water Resources and Climate Change Adaptation Connection: Challenges and Opportunities: A Review* (Western Water Assessment, undated paper).

Additional references on assured water supply and related issues:

Craig Anthony Arnold, *Wet Growth: Should Water Law Control Land Use?* (Env’tl L. Inst. 2005)

Ellen Hanak & Margaret K. Browne, *Linking Housing Growth to Water Supply: New Planning Frontiers in the American West*, 27(2) J. Amer. Planning Ass’n 154 (Spring 2006).

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LAND & WATER: MAKING THE CONNECTION

March 28, 2011

Introduction

New Mexico is challenged to assure that demand for water does not exceed limited supplies and that the inherent integrity of our land is preserved for generations to come.

New Mexico's high desert climate alternates between wet periods and droughts. The most recent wet period ended in the mid-1990s with the onset of a severe drought. Scientists believe that periodic droughts may be exacerbated by the impact of climate change on western states, due to rising temperatures and increased evapotranspiration.¹

During the last 40 years New Mexico's population has more than doubled, recently surpassing two million people, and the population is expected to double again in the next 40 to 60 years.² This growing population is increasing the demand for water, and expanding the edges of our cities and towns into rural landscapes.

Until recently, New Mexico's cities and towns have relied mostly on groundwater aquifers for drinking water, but now, more and more aquifers are being significantly drawn down. To offset water lost from rivers due to increased groundwater pumping, New Mexico's municipalities have been purchasing and retiring agricultural water rights. Some cities are also making significant public investment in new infrastructure to use surface water imported from the Colorado Basin via the San Juan-Chama Project in an effort to limit further depletion of aquifers so that they may be available as a drought reserve in the future.

Public opinion surveys reveal that New Mexicans highly value the availability of water for maintaining agricultural lands and preserving riparian ecosystems and wetlands.³ Yet, finding new sources of water without sacrificing these important agricultural lands and riverine ecosystems presents a difficult challenge.

Land use changes are influenced by a multitude of factors, including the location of jobs and services, infrastructure costs, the potential economic return on investment, zoning restrictions, and tax credits or incentives. What is often not considered in proposed land use changes is whether there is sufficient water to sustain the new development without affecting existing uses.

¹ Agency Technical Work Group http://www.nmeny.state.nm.us/aqb/ccPotential_Effects_climate_Change_NM.pdf
See also "The Impacts of Climate Change on New Mexico's Water Supply and Ability to Manage Water Resources, NM OSE/ISC, July 2006 at <http://www.nmdrought.state.nm.us/ClimateChangeImpact/completeReportfinal.pdf>

² BBER, A Report on Historical and Future Population Dynamics in New Mexico, August 2008

³ University of New Mexico Institute for Public Policy; Vol. 12/No. 2, Summer 2000.

To protect New Mexico's communities, we urge that the long-term availability of water resources be a required element of any land use decision. Stronger linkages could help to ensure the reliability of the water supply and reduce the need for costly water supply projects, while protecting the natural environment and encouraging the creation of more compact and efficient cities and towns.

Closer coordination is needed between water and land use planning at the state, regional, and local levels. In addition, planning efforts must be supported by strong implementation measures. The goal of integrated water and land use planning is to ensure that New Mexico's resources are conjunctively managed to assure that our urban and rural communities are sustainable, the natural environment is protected, cultural heritage and agricultural lands are preserved, and economic viability is enhanced for generations to come.⁴

In this paper we explain the problem, offer some guiding principles, and recommend a range of strategies to address the problem.

The Land and Water Connection Problem

1. Water in New Mexico is a limited and variable resource for which there is increasing demand.

- ❖ New Mexico is a semiarid state that receives on average only about 14 inches of precipitation a year,⁵ 96% of which evaporates.⁶
- ❖ Almost all surface water from lakes and streams in New Mexico has been allocated for specific uses.
- ❖ Most of New Mexico's residential water use depends on groundwater supplies that are being rapidly consumed in many areas.
- ❖ Groundwater supplies in some rural and urban areas are also limited due to water quality concerns, either because the aquifers are naturally of a low quality or they have been impacted by contamination.
- ❖ Most of New Mexico's sixteen Regional Water Plans anticipate future water deficits in relation to projected increases in demand.

⁴ The State Water Plan (2003) recommends strengthening the coordination between land use and water planning, including taking steps to obtain accurate water supply and land use data, including accurate water accounting and reliable water use projections.

⁵ U.S. Geologic Survey, National Atlas of the United States, 2000. Precipitation data from 1961-1990. http://www.nationalatlas.gov/printable/images/pdf/precip/pageprecip_nm3.pdf.

⁶ Bureau of Reclamation, NM Water Resource: Assessment for Planning Purposes, 1976, pp. 10-12.

- ❖ With projected population growth and the probability of greater variability in annual precipitation due to climate change, the supply-demand deficit is likely to become more problematic in the future. It is not yet clear which parts of New Mexico will experience the greatest negative impacts.⁷
- ❖ Treaties, Interstate Compacts, and the Endangered Species Act require New Mexico to manage surface water to ensure mandated downstream deliveries and to protect threatened and endangered species.⁸

2. Land use planning and water management are not well connected.

- ❖ New Mexico statutes assign responsibility for water administration to state agencies⁹ and delegate land use decisions to cities and counties.¹⁰
- ❖ There is little structure for coordinating land and water management between the two levels of government.
- ❖ Since 1995, the Office of the State Engineer (OSE) has been required by the New Mexico Subdivision Act to advise whether or not in their opinion an adequate supply exists for new larger subdivisions that are outside of municipal jurisdictions. A finding that the supply is not adequate, however, does not prevent county government approval of the subdivision.
- ❖ There are an unknown number of platted lots in New Mexico's counties (antiquated subdivisions) that were never required to show water supply or provide utilities, roads and waste water infrastructure because they were created prior to the institution of zoning/subdivision legislation in unincorporated county areas. These lots can be built upon even if there is no identified water supply; this issue is particularly problematic in counties along the Rio Grande.
- ❖ Land use approval in New Mexico allows for development with junior water rights. In dry years the junior users may not be entitled to any water, but it is politically and economically difficult to curtail municipal and industrial uses.

⁷ Agency Technical Work Group http://www.nmeny.state.nm.us/aqb/ccPotential_Effects_climate_Change_NM.pdf
See also "The Impacts of Climate Change on New Mexico's Water Supply and Ability to Manage Water Resources, NM OSE/ISC, July 2006 at http://www.nmdrought.state.nm.us/Climate_ChangeImpact/completeReportfinal.pdf

⁸ Middle Rio Grande Water Supply Study, S S Papadopoulos and Asso., Inc., New Mexico Interstate Stream Commission and USACoE; and Middle Rio Grande Regional Water Plan, New Mexico Interstate Stream Commission, 2004

⁹ NMSA 72-1-1, et. seq.

¹⁰ NMSA 3-21-1, et. seq. and NMSA 47-6-1 et. seq.

- ❖ To address this issue, some areas require purchase of more senior agricultural water rights to offset pumping effects on the river, which in turn leads to the loss of agricultural land.

Prior Appropriation

New Mexico water rights are administered using a system of prior appropriation. Under this system, the first water users are considered senior users and the newer users are considered junior users. Each water right has a priority date. The water users with the earlier priority dates (senior users) are intended to receive their allocation, if there is enough

3. The lack of a strong linkage between land use planning and long-term water availability affects the ability of New Mexico communities to make clear and informed choices in allocating valuable resources.

- ❖ Often the state and local governments lack the detailed and reliable data necessary for making informed decisions regarding water supply and demand.
- ❖ Although an evaluation of the adequacy of the water supply is required for major new developments that are proposed on unincorporated county land, data and staff resources are not always available in smaller incorporated communities to fully take into account the long-term water requirements or the cumulative impact of land-use decisions on regional or local water supplies.
- ❖ The accumulation of impacts from many separate development decisions often leads to loss of farmland, which impairs traditional communities, and in turn may affect environmental flows, riparian areas and wildlife habitat. Where development patterns expand into rural areas, the cost of infrastructure necessary for water delivery, wastewater treatment, and drainage, among many other essential services, also increases.
- ❖ Social, cultural, and ecological values associated with land and water may not be accounted for in land and water plans. There are few links between state and local governments to assure that those values will be considered.

- ❖ Local and regional planning tends to make broad assumptions about water availability, population growth, and water infrastructure needs, without accounting for the effects of the new water demands on existing users.¹¹

4. Land use, economic development plans, and statewide and regional water plans are not linked and may conflict with one another.

- ❖ There are few opportunities to coordinate water, land use, or economic development between the different levels of government, or among governments at the same level.
- ❖ Land use planning is conducted mainly by New Mexico's larger municipalities and counties. Most small municipalities and rural counties do not have the staff resources to expedite comprehensive planning and regulation.¹²
- ❖ Both water and land use plans, including those developed with extensive public participation, are often not implemented by appropriate regulations, development decisions, and actions to ensure conformity with carefully considered plans.
- ❖ Local and regional governments are not required to take regional water plans into account. In many cases, local governments are not aware of statewide or regional water plans as a resource for decision-making.
- ❖ Land use and water plans and codes are often outdated after a period of years due in part to incremental decision making and changing conditions.
- ❖ New Mexico's domestic well statute allows anyone to drill a domestic well regardless of the impact on existing users. When the statute was passed in the 1950's, these wells were considered to have a "de minimus" impact. With growth, domestic wells are now widespread and in many cases are concentrated in subdivisions in more densely populated areas. Given the limited supply, these wells often have significant, unanticipated impacts. The domestic well statute has been contentious and there is ongoing litigation regarding its constitutionality.

¹¹ For example, issues such as amount and location of agricultural land that will be retired to accommodate projected urban growth are generally not addressed. Projects that could increase supply are often included in regional water plans, but the impact of these projects is often not integrated into land use planning.

¹² Some assistance may be provided by Councils of Governments or through grants from the Department of Finance Administration (DFA) Local Government Division

Principles

To support the sustainability of urban and rural communities, protect the natural environment, maintain agricultural land, preserve our cultural heritage, and ensure economic viability, we suggest implementation of the following principles, recognizing that there is no easy solution and that multiple tools are needed to integrate land use with water availability:

- ❖ Comprehensive, long-term planning must be instituted to better integrate land use with water availability.
- ❖ Land and water management decisions must be based on accurate accounting, sound science, and reliable projections.
- ❖ Conservation of water and preservation of the integrity of our land are priorities for New Mexico.
- ❖ Transparency and public involvement in decision-making at all levels of government are necessary for making good decisions about the future.
- ❖ A reliable water supply is essential for a robust economy.

Strategies ✓

In order to implement the principles listed above, some key actions to be undertaken include:

- ✓ ***Revise state and local laws and/or current procedures to establish strong, coordinated water availability requirements for all new development, in order to ensure no new development without an adequate long-term sustainable water supply.***

The State Water Plan recommends strengthening the OSE water availability review process, for instance, by standardizing the methodology for determining if water is

available to meet the annual water requirement as defined in the subdivision statute. Consistent technical methods, standards and criteria are needed to assure that there will be no cumulative long term impacts from proposed new development. These methods should be included in revisions to the Subdivision Act and Municipal Code.

The current process under the Subdivision Act allowing counties to approve subdivisions even when the OSE has issued a negative opinion regarding water availability should be examined. At a minimum, a policy should be established requiring counties to report to the OSE regarding whether they adhered to OSE recommendations regarding water supply availability. If OSE recommendations were not followed (i.e. a development was approved when OSE said there was insufficient water) an explanation would be required.

Other actions to consider as part of updating county and municipal subdivisions statutes include:

- ❖ extend provisions requiring that developers demonstrate water supply availability to areas that are not currently covered by existing statutes (i.e. extend the requirement to municipalities, water authorities, and extra territorial zones as well as counties;
- ❖ encourage better communication among multiple jurisdictions, including Pueblos, through notification;
- ❖ survey counties to see how the Subdivision Act could be improved to help them regulate development in a more sustainable way;
- ❖ review existing local ordinances and state-level guidance and criteria; then develop specific written criteria for determining if there is an adequate water supply considering existing and planned water uses and the potential for drought;
- ❖ use new tools such as GIS mapping and overlay of community and water planning models.

✓ ***Coordinate municipal, county, regional, and statewide planning functions.***

New Mexico needs to take steps to coordinate land and water planning functions that now occur at many different levels of government. To achieve better results, the state should:

- ❖ develop standard guidelines for the use of population projections, data collection and reporting to improve consistency between plans;

- ❖ revise state planning, zoning and subdivision statutes to assure linkage of comprehensive plans with local ordinances;
- ❖ provide technical assistance to local government to assure that they can evaluate sustainable water supplies for land development;
- ❖ create a state planning function that would promote coordination and consistency of statutes, regulations and plans;
- ❖ strengthen the state's regional water planning program by supporting an active and continued membership of the regional planning steering committees, requiring specific updates and implementation recommendations, discouraging reliance on water from other regions, and integrating watershed management into the program;
- ❖ institute an interagency collaboration at the cabinet level to coordinate and implement policies that strengthen the connection between land use and water availability.

✓ ***Support Initiatives to improve quantitative understanding of the water supply, water use and land use in New Mexico.***

Better decision-making occurs when there is a clear understanding of the interrelationship of water supplies, existing and projected water demands, and impacts to changing land use.¹³ New Mexico needs accurate water supply and land use data, including accurate water accounting and reliable water use projections.

The OSE conducts an inventory of water use in the State every five years. However, in much of the State, water used for agriculture is not metered, and the amount must be estimated. In some areas of the state, the groundwater resources have been well characterized with field tests and numerical models that can evaluate cumulative impacts of development. But in other areas, there is a poor understanding of water supply availability. There is a need for continued scientific study and consistent guidelines for the reporting of information. Some key needs for research and/or communication of existing research include:

- ❖ investigations of changes in temperature, precipitation and evaporation patterns and their potential impacts;

¹³ For example, agricultural land taken out of production results in a loss of open space and also affects river flows to downstream users, etc.

- ❖ guidance for consistent accounting and terminology for all regional plans and other state and local plans;
- ❖ water budgets and periodic reviews of the balance between supply and demand at state, local and regional levels, with an increased emphasis on real-time data;
- ❖ additional studies to analyze and quantify groundwater resources;
- ❖ studies that lead to understanding how water conservation can be maximized, accompanied by quantitative assessments of water saved;
- ❖ identification of stream reaches most susceptible to degradation and efforts to protect stream flow and riparian habitat using scientific data and appropriate management.

Such studies could be done by the OSE and the Interstate Stream Commission (ISC). At a minimum OSE/ISC should provide standardized methodologies. The OSE/ISC and the state's universities have the knowledge and capacity to perform these functions.

Increases in water supply¹⁴ and decreases in water consumption are potential tools for balancing supply and demand; however not all options are equally appropriate for all locations. In many instances decision-makers may not have enough information on anticipated results. In rapid growth areas, supply-demand deficits may be very expensive to resolve.

✓ ***Promote Conservation of Land.***

The sustainability of our communities and rural landscapes depends on many factors including adoption of development regulations that promote more compact development, and respect important cultural, economic, and environmental factors such as farm land, wildlife corridors and other valued open space. Development on our agricultural lands, floodplains, watersheds, wildlife corridors, and culturally sensitive areas can erode the integrity of New Mexico's natural and cultural heritage.

- ❖ Land use and water planning should consider the economic, cultural, and environmental implications of any proposed development.
- ❖ Planning for more compact and mixed use development minimizes the costs of extending infrastructure (roads, water and sewer lines) into rural areas. This approach is often called "smart growth". Community plans should include policies

¹⁴ Projects that potentially increase water supply include weather modification, water importation, aquifer storage and recovery (ASR), water re-use (sewage and produced water), desalinization, roof top capture, and diversion of certain flood waters.

on extension of infrastructure, annexation, infill, and mixed use development to ensure that more compact and sustainable development is achieved.

- ❖ Preserving agricultural lands can be achieved by designating agricultural districts and adopting specific subdivision and zoning criteria. ¹⁵
- ❖ Voluntary land conservation easements are one useful tool in helping preserve the state's rural landscapes. Significant conservation values that may qualify for State and Federal tax credits/deductions include agriculture, scenery, history, ecology (wildlife habitat) or recreation. With a conservation easement the landowner agrees to restrictions to preserve and protect the unique value of the land. The land owner retains ownership of the property and can sell, mortgage or bequeath it, but the easement remains with the property in perpetuity. The tax benefits of conservation easements on irrigated farm lands provide an alternative to selling water rights for farmers who need to realize the value in some of their assets.

✓ ***Promote Conservation of Water.***

Water conservation is one of the most efficient mechanisms for balancing gaps between supplies and demand.

- ❖ Important conservation measures include: retrofits with water and energy-efficient appliances, gray water use, rooftop harvesting, limits on landscaping, incentives for waste-water reuse, green building codes, incentives for more water efficient irrigation methods and changes in crops. ¹⁶
- ❖ Municipal and industrial water conservation is fairly well understood. Agricultural water conservation, however, is more complicated. Recent studies¹⁷ indicate that, contrary to initial expectations, agricultural water conservation measures such as drip systems may improve crop yields, but do not reduce the amount of water used by the crop. It is possible to reduce losses and incidental depletions related to agricultural delivery systems, but since the water saved is not available as a water right that can sold or leased for other purposes by the farmer, the farmer has no incentive to make a financial investment to prevent those losses or depletions. If New Mexico is to take advantage of agricultural water conservation, it will be necessary to devise a process to resolve the legal and practical obstacles.

¹⁵ *Rio Arriba County Design and Development Ordinance, 2000-01,2011-02, Section 4.1, Rural County Agricultural District (CRUD) and Section 5.4, Irrigated Agricultural Overlay Zoning District (IAOZD), pp.33-36; Rio Arriba County Land Subdivision Regulations, 1996-01, Appendix Q, Agricultural Protection and Enhancement Ordinance. www.rio-arriba.org*

¹⁶ In Santa Fe, for example, a toilet retrofit program is credited as the main reason water demand remained flat for some years despite growth

¹⁷ Dr. Zohrab Samani, NMSU and John Longworth, PE, Office of the State Engineer, Conservation of Water and Agricultural Water Use, Third Meeting of the Water and Natural Resources Committee, August 30-31

- ❖ Watershed restoration programs may improve both local water supplies and quality. Local watershed groups have formed in many parts of the state.¹⁸ There is a need for ongoing support and expansion of watershed initiatives.

- ✓ ***Conduct education and public participation programs to inform decision-makers and the public regarding land and water-use planning issues and the value of long-range planning.***

Although many New Mexico citizens are better informed about water issues now than in the past, there is a continuing need to support public education programs, meaningful public participation, and open debate regarding development decisions and regulation. When citizens are better informed about New Mexico land use and water issues and the cost of uninformed decisions, they are more likely to understand the need for increased water rates or revised water rate structure, water budget allocations, and policies that support comprehensive water and land use management.

Open, participatory decision processes can foster meaningful deliberation about the long-term tradeoffs and choices inherent in water management (and related land-use) decisions.

- ✓ ***Land use and water planning must be a budget priority to sustain the economic welfare of our communities.***

Land use planning and water planning must be a budget priority to sustain the economic welfare of our communities. It is in New Mexico's strategic interest to assure our communities have planned for adequate infrastructure and a secure water supply. Although the New Mexico State Water Plan urges the recognition of the relationship between water availability and land use decisions, New Mexico spends considerably less on water planning than other Southwestern states, such as Colorado, Wyoming and Texas. Planning programs can result in long-term fiscal savings because they lead to more efficient expenditures. Options for New Mexico could be studied with an executive order or a legislative memorial creating a task force to bring New Mexico up to a level commensurate with neighboring states that face similar water shortages.

Conclusion

¹⁸ <http://www.rivernetwork.org/>; http://www.nmenv.state.nm.us/swqb/wow_grp.html.

Coordination of land and water use decision-making will optimize and protect our economic welfare and limited resources. This will require the cooperation of many governmental entities, legislative changes and financial support. Given what we know about New Mexico's future water supply and its variability, and the need to maintain the integrity of our landscapes, we have a responsibility to direct our activities towards the most feasible, cost effective and sustainable strategies.

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Land & Water Conference

October 17, 2008

Summary of Presentations

Susan Kelly Associate Director of the Utton Center welcomed the participants and introduced the focus of the day: bringing together professionals who work in different areas – land use planning and water planning – to think about better communication, understanding and coordination of processes. She described the three regional water plans within the Basin (the Middle Rio Grande Compact accounting region, basically Otowi gage above Cochiti Reservoir to Elephant Butte): Jemez y Sangre, Middle Rio Grande, and Socorro/Sierra. The three plans aren't consistent. There is a basin-wide water deficit projected in 2040 if current trends continue. If there is full implementation of all of the three plans (a highly ambitious scenario), models show that future water demand could probably be met and that New Mexico could make Compact deliveries in most years. But, this doesn't factor in projected reduced water supplies due to climate change.

Land use is only one component of the implementation strategies identified in the three plans, but it is the focus of today's meeting. Land use decisions are locally-driven, but there may be opportunities for better basin-wide coordination. Decisions made in one part of the basin affect the others: we're all part of the same water supply. At the end of the day, participants will have a chance to share their thoughts and ideas on how to improve processes.

Big Picture of Water Supply and Demand in the Middle Valley **Norm Gaume, former Interstate Stream Engineer**

Norm provided the water context of the Middle Rio Grande Basin. The Rio Grande is a long desert river connecting Colorado and Northern New Mexico, Southern New Mexico, Texas, and Mexico. The most important management structure from a water perspective is the Rio Grande Compact. The Rio Grande resource is shared – the Compact divided it up based on water use at the time (1929).

Under the Compact, there is a finite water income on which we have to live. The Interstate Stream Commission's perspective is that re-negotiating the Compact is not a good idea. In our Compact accounting region, basically Los Alamos to Elephant Butte, we are already exceeding our water budget. In other words, the water that people want to use in the Middle Rio Grande is already depended upon by the State Engineer to meet Compact requirements. There are a few options for importing more water from other places, but it wouldn't be much water.

Here is a timeline of how we got here. [Click here to link to graphic.] Initially there were no controls or permits required for groundwater pumping. Historically, Albuquerque got all of its water from groundwater, which was thought to be infinite. In 1956, the State Engineer

declared the Albuquerque Basin – which means you have to have a permit to pump and you have to offset effects on the river. When your pumping is impacting the surface water you have to purchase enough surface rights to offset the effects. Later, the State Engineer implemented “future dedication policy,” where water rights were committed to be retired in the future, but there was arguably no transfer proposed and the dedications were not advertised. In 1994, the Attorney General said that the dedication process was illegal. For several years in the 1980’s and 90’s there was actually too much water in the system, and there weren’t enough reservoirs to store it. In 1996, the Rio Grande silvery minnow was listed as an endangered species. Since 2001, there are new limits on pumping and you have to have water rights up front before diverting (pumping) the water.

Now with the modeling of climate change in the southwest, we’re finding out there is even less water here – a big problem, considering we’re already over-appropriated. Right now the Middle Rio Grande is using 40,000 acres more water per year than there is supply. There’s a hole under Albuquerque and we’re in a deficit (due to the future effects of groundwater pumping that has already occurred but the effects have not yet hit the river.)

Observations: Conservation works! Santa Fe’s conservation program has worked really well (although their population isn’t growing as fast as Albuquerque’s). Conservation has to be applied to all water use sectors in order to work. In addition to extending the water supply, conservation means that tens of millions of dollars of infrastructure costs can be avoided because we won’t need to drill and equip more and better wells.

Michelle Henrie, of Counsel with Atkinson & Thal introduced Dale Dekker and mentioned her own experiences in water planning and representation of clients in the subdivision approval process and other areas of water and land use.

Land Use, Water Conservation (and other things to think about)

Dale Dekker, AIA, AICP, Dekker/Perich/Sabatini

(Return to main page to view a pdf of his PowerPoint.)

The West was developed with cheap abundant land, cheap abundant gasoline and the belief that we had an infinite supply of water. The U.S. has now passed the 300 million population mark and NM population is projected to increase to 3.0+ million by 2035. What does that mean for land use? The new reality is: Global warming and green house gas emissions are creating serious problems for our global community. And water, unless properly managed and conserved, will limit growth. In the West where everything is dependant upon coal production, this is even more of a challenge. Dale described the Brookings Institute study which identified the Central and Northern New Mexico region as a future mega population center (available at http://www.brookings.edu/reports/2008/0720_mountainmegas_sarzynski.aspx). 1.6 million people are projected to be in the Albuquerque area in 2060. Development and land use patterns will change – there will be new land use codes – and the result will be *¡sprawl no más!*

The Albuquerque Story: it’s always been about employment centers – and the automobile allowed the creation of suburban subdivisions. All of the jobs used to be on the east side, and the cheap housing was on the west side of the river. Because of the huge issues about

bridges, we have changed to a north-south growth community. There will be much more infill development in the future. Building codes and zoning codes which used to discourage mixed-use development, are beginning to change.

We need to think about the “form” of the city and how much people have to pay for transportation. We have transit-rich neighborhoods – we average 11.9 million vehicle miles traveled (VMT) per day in the Albuquerque Metropolitan area, or nearly 4.8 billion VMT per year. In today’s world our current land use and our dependency on the “single occupancy vehicle” are not sustainable. Should we go *Back to the Future*? There used to be a trolley that connected the Barelás neighborhood to downtown and the Sawmill area. We need high density housing – you can’t have mass transit without density. Look at where the rail runner stops are located – that’s where there will be development. We need a regional transit authority to achieve this.

Dale’s firm has done a variety of projects ranging from public to private, Old ABQ High to Mesa Del Sol. LEED – Leadership Energy Environment Design: Addresses energy, water conservation and other green building design techniques; including drainage, erosion and sediment control, and stormwater design and quality control. Strategies for achieving water conservation points include xeriscaping; wastewater technologies (reclaimed water); and water use reduction (faucets, controls, and low-flow toilets). At *7601 Jefferson* our goal was to save 45% on energy and we installed underfloor air distribution systems; energy efficient glazing and day lighting; and energy efficient lighting. This saves both carbon emissions and water (because of the amount of water it takes to produce electricity). The price is a 5% premium on the building costs, but there is an estimated payback in 5-6 years. The building is at the top 1% of energy efficiency. In water conservation, they tried to preserve existing landscaping and have run-off directed to landscaping. Inside, the water use is 30% less than comparable buildings.

We need to re-engineer our cities to capture storm water run-off, re-use it and recharge the aquifer. We should talk about recharging the aquifer instead of scooting the water down as fast as we can. This is just engineering; what we have built is a city with a lot of impervious surfaces. We have an excellent conveyance system. A point that is glossed-over: look where the new San Juan-Chama diversion is located – just downstream from the North Diversion channel outfall. We need to be thinking more carefully about what we are doing on our streets because the storm water runoff goes into the river.

The challenge: New Mexico is unlike any other place in the world. Here we juxtapose the old and the new, diverse cultures and our magnificent landscape. We must provide a sustainable balance between growth and jobs and protecting what is special about New Mexico.

We are going to continue to grow and growth is a good thing in many ways; there will be a lot of in-fill. The cost of gas is part of it; the “drive to qualify” days are gone; when gas is \$4 a gallon, you will see people moving to where jobs are. There has been a residential renaissance downtown – and it’s working. Housing will develop along transportation corridors, in existing employment centers like Downtown, and Uptown and the rail runner will be the savior of Santa Fe. Northern Rio Rancho exists because Santa Fe can’t deal with their affordable housing

problem. In Albuquerque, at the Journal Center for example, we are going to see housing back-filling in where zoning has been concentrated on jobs.

Albuquerque can't grow any further north, west, or south because of the Pueblo boundaries. We also have Kirtland Air Force Base, the US Forest. We are very low density as a community – we are very spread-out. Even though it costs more to re-develop portions of the city and build along the transit corridor and build several stories up, that will happen. Regional transportation planning must be done efficiently, and clearly, regional water planning must be addressed as well.

State and Regional Water Planning

Angela Schackel-Bordegaray, Interstate Stream Commission (ISC)

The ISC's Regional Water Planning program began in 1987. As of this year, we have completed all 16 plans, and they have been "accepted" by the Interstate Stream Commission. We also have a State Water Plan that was mandated by the State Water Plan Act of 2003 (§72-14-3.1). [Click here for the State Water Plan.] The law requires integration of the regional water plans (Section C.12, p. 50). Relative to today's conference topic, one section (C.7, p. 34) links water availability to land-use decisions. The OSE/ISC is required to keep the state water plan current by updating or reviewing it every five years. We have spent the last year reviewing it; and the review document is available. [Click here to look at "Office of the State Engineer/Interstate Stream Commission's Review and Proposed Update of the New Mexico State Water Plan".] This coming year we will be updating the State Water Plan, which will involve the public extensively again.

The big challenge is that we have two different water planning frameworks. A court case between Texas and New Mexico (*El Paso v. Reynolds*) gave rise to New Mexico's 16 regional water plans. To demonstrate that water is needed for each region, the regional planning process allows the regions themselves to define their current and future water needs. A key feature is that the plans are locally driven, with state funding, whereas, the State Water Plan followed the state law, and is, thus, more a statement of policies and functions as a strategic management tool for water management by the OSE/ISC.

I subscribe to Dale Dekker's way of thinking about planning: in order to better bridge the gap between policy and planning, we need to grasp technical concepts and be able to convey those to a lay audience. I get a lot of practical experience by serving on the City of Santa Fe's Planning Commission. Santa Fe recently completed a citywide transit-oriented development study in response to the new commuter rail service to Santa Fe. Many residents have expressed concerns about different types of development patterns that new rail stations will bring (mixed uses closer to predominantly residential areas, denser and taller buildings, traffic, etc.), which has helped me understand that *how* we describe potential changes is just as important as the substantive issues discussed. Planners need to communicate proposals for change effectively to best work toward a common language that can be understood by policy-makers and citizens. It is a challenge in dealing with water matters because of their complexity.

Part of our current work at the ISC is addressing the reconciliation of the three regional water plans in the Middle Rio Grande Basin – the Jemez y Sangre, Middle Rio Grande, and Socorro/Sierra regions. It has not been an easy or linear path; it is difficult to reconcile, let alone implement conflicting plans. This is a huge task to look at from the state level. But it is a critical effort – the success of our state and regional water planning program depends on better coordination among the regions and with the State Water Plan if we are to handle future water demands with current supplies. The reconciliation work in the Middle Rio Grande Basin is a start in that direction.

Role of the State

John Longworth, Chief of Water Use and Conservation Bureau, Office of the State Engineer (Return to main page to view a pdf of his PowerPoint.)

John manages water conservation programs, develops the water use and conservation report, and manages 40 year plans. Today, he's going to talk about the subdivision review part of his job – the Subdivision Law and how it is followed by the Office of the State Engineer. The Subdivision Act generally is utilized for residential development. On occasion there are commercial uses identified or a subdivision is for a commercial-only property. The Act affects various types of subdivisions – large land areas divided into a small number of large lots, large areas divided into a large number of small lots, small areas divided into a few lots, or small areas divided into many lots.

The counties have decision-making authority for subdivisions, not the State. The counties have to adopt regulations, quantifying the water for indoor and outdoor uses, and they have to assess demand and availability. They also have to incorporate water conservation. These measures have to be done before the State Engineer can give an opinion. Counties must request an opinion by the State Engineer which must say the plan can fulfill the maximum water requirements for that subdivision. The counties must provide the state engineer's office with all the information provided by the applicant. It's important to track everything – there are deadlines required by statute – so his office communicates by certified mail. The State Engineer's opinion must be done in 30 calendar days.

When a negative opinion is issued, the subdivider has the burden of showing that the State Engineer's office has made a mistake of law or fact. But the ultimate decision rests with the county. They don't have to come back to the OSE.

Disclosure statements: These statements are trying to give the purchaser an idea of what they're buying in terms of water supply. They have to show availability, a summary of opinions given, etc. As part of the review, the disclosure statement is analyzed to ensure it is consistent with the technical information provided by the applicant and that the information statutorily necessary (and by regulation) is included.

Procedures State Engineer's Office uses to evaluate subdivision proposals: They have to look at the applicable county code. But the OSE always ensures its opinion is consistent with the NM statutory requirements. So basically, the OSE looks to see if the proposal meets the requirements of the statute or code. They have to have complete information, and if the proposal

is incomplete, the OSE will issue a negative opinion. Once a complete proposal is submitted, the OSE conducts a water demand analysis which incorporates water conservation, and then looks at availability.

The water demand analysis process is the first step where proposed land use and water use are connected. There is a proposed rate of water use for the occupants of the subdivisions. It's not a lot of water *per person* but it makes a difference overall. They look at gallons/capita/day – a development can either prepare a water budget or specify exactly how much water will be used per person. In his opinion, the counties in the Middle Rio Grande Valley do a good job at this. Next, the OSE examines whether the budget is consistent with the disclosure statement to the people who are buying the lots. The OSE then compares the subdivision's numbers with the actual covenants of the subdivision – the decision is not based on this, but they do look at the covenants.

The second connection between land and water use is the water availability part of the submittal. To determine water availability, the OSE looks at two components: (1) for a public supplier, they examine water rights and hydrology; (2) if domestic wells are proposed – they just look at hydrology (since no water right is required). For public water suppliers: they must be ready, willing and able. The OSE looks behind the promise for water, to the hydrology and the water rights. For hydrology, the OSE wants to see at least 40 years time frame. Some counties require a longer period.

Regarding the water rights component for public suppliers – the OSE looks at what quantity of water rights the supplier currently has and what future commitments are outstanding that are as yet unserved. If the subdivision relies on a pending water right transfer, it'll get a negative opinion because it can't be demonstrated at the time of the review that water demand can be met, i.e., the water rights must be in hand.

Some counties want the OSE to look at whether there's impairment when issuing domestic well permits, but there's no statutory authority for that: it isn't done because there is no standard for impairment. In water right cases, this is often determined by the state engineer or the courts.

Next is the geo-hydrology part – does the report allow the potential purchaser to make an informed decision, and is the information in the report consistent with professional standards? Everything is examined to see if it was conducted properly, and there has to be an adequate demonstration of actual water availability.

Closing thoughts: This process concerns the unincorporated areas of the state. The incorporated areas have a totally different process. There have been subdivisions approved that will probably never be built, and there is water allocated – or which will need to be allocated – to those subdivisions. What do you do with those? A challenge will be how you go about “un-committing” resources.

Last, conservation is incredibly important. Santa Fe is at 50 gpcd. Take 75 gpcd x population growth and that is future demand.

40 Year Plans

Martha Franks, Attorney for the Office of the State Engineer

New Mexico needs to begin to try to create some over-arching understanding that will help us consider all levels of planning. A variety of different types of water planning exist in New Mexico, each of which was developed along a different track for a different purpose.

For example, regional water planning arose out of the 1983 El Paso case (*City of El Paso v. Reynolds*). In response to a United States Supreme court case handed down in the midst of the El Paso controversy, New Mexico passed a statute that said if New Mexico can show that it needs the water, it can show a preference for its citizens over uses proposed in other states. At the same time, on a separate track, another statute allowed municipalities to show a need to “hold” water for 40 years without using it so that they can plan for growth. Ultimately, El Paso’s water rights applications were denied because the city could not make the required showing. Since then, the 40 year statute has occupied a unique place in water planning: municipalities seeking to hold water rights for an extended period must file a *water development plan* to hold water for 40 years. Legislation requiring a State Water Plan was enacted in 2003. In addition, certain funding requirements seem to contemplate other water planning, while subdivision approvals also require water planning in many instances.

It has not been clear what relationship the regional water plans and the water development plans have or should have to the State Water Plan or to any other plans. Because these plans have developed along separate tracks, it is difficult for people to parse out what each is supposed to do.

Several water interests made efforts in the 2007 legislature to change the so-called “forty year statute.” In response, the legislature directed the State Engineer by House Memorial 42 to create a stakeholder group to consider whether and if so, what, changes should be made to the statute. The group began by asking for comments on what amendments they wanted to see and to develop a common language about potential changes. One topic that came up repeatedly was what role the forty year statute played in the landscape of water planning in New Mexico. Should water development plans be required to be consistent with regional water plans? While the stakeholder group tentatively decided that answering such questions was outside of its mandate, more such discussion is needed toward creating a clear direction for how water planning is done and how it will be used.

The stakeholder group focused its work on the specific question of water development plans submitted to the State Engineer in the context of an application for water rights. As a beginning point the group talked clearly and straightforwardly about the policies they could agree on. The group agreed, for example, that it *was* a good idea for people to be allowed to hold water unused for future use in order to meet planning goals, but that there was a countervailing policy interest that people not be allowed to take advantage of the ability to hold water unused in order to speculate or hoard water.

The group is now discussing developing some kinds of standards that would enable entities seeking to hold water unused to know what was required for a water development plan,

and would enable the State Engineer to make a decision about whether any given application represents *responsible planning* on the one hand or *hoarding or speculation* on the other.

The group is also considering how to define the entities that can make applications to hold water unused for an extended period of time. The present statute has a list of eligible entities, and some of the legislative changes proposed for the statute are entities hoping to be added to the list. Other entities are concerned that the list, if there is one, should reflect clear policy choices about who should enjoy the right to make such applications.

Alternatively, the statute could be changed to remove the list, and the analysis of whether an entity could make such an application could be based on whether the particular application reflects a good policy basis for allowing water to be held unused for planning purposes – a case-by-case basis of approval. Some method of evaluating particular circumstances for making this determination would need to be developed.

This is just a taste of the types of issues that are before the House Memorial 42 stakeholder group, that have resulted in fruitful discussions about water planning, at least in connection with one of the several water planning statutes on the books. A fuller conversation is needed to look at all of the existing water planning statutes and consider how they can be made to work together.

How the Bernalillo County Planning Process Works
Sanford Fish, Director, Bernalillo County Zoning, Building, Planning and Environmental Health Department (Return to main page to view a pdf of his PowerPoint.)

Bernalillo County is one of the smallest counties in land area in New Mexico, similar to Valencia and Los Alamos. Yet, we have 111,000 residents in the unincorporated area – the second largest jurisdiction in the state. The general vision and policy statement for various subareas is reflected in the Albuquerque/Bernalillo County Comprehensive Plan, adopted in 1988 (amended 2002). There are also Rank II Area Plans (North Valley, Southwest Area, West Side strategic plan, and East Mountains) which contain more specific guidance. There are yet *more detailed* plans called sector/neighborhood development plans which have specific development criteria (based on the historic use of property). Some examples include the Paseo Corridor and Isleta Boulevard. On the horizon are transit-oriented plans centered around the Rail Runner. These will potentially result in new, higher-density zoning that will complement the presence of the train.

The Planned Communities Criteria apply in the *Reserve* area of the City – e.g. Mesa del Sol. They will help preserve open space and provide a cohesive community instead of individual developments. We are moving towards more centralized, more compact development. [Return to main page to see Sandy Fish’s PowerPoint with maps of Bernalillo County.]

Development Standards:

Zoning – Zoning sets overall densities. In order to change zoning, the applicant must show an error, changed conditions, or that a different use category is more advantageous to the

community as articulated in the Comprehensive Plan. Water availability is not used as a standard for zoning approvals. The Comprehensive Plan designation affects what type of development can be zoned and how developed.

Subdivision – subdivision must be in accordance with zoning. The developer must identify water supply at this point. Bernalillo County requires the developer to show a 70-year supply for major subdivisions. The County process intersects with the OSE process at this point. The County has an environmental health staff and a geohydrologist. We also work with staff from the Water Utility Authority. The OSE can give a positive or adverse opinion; an adverse opinion may be revised after reviewing additional data. The county may proceed to a public hearing regardless of the OSE opinion.

Bernalillo County has the ability to give approval of annexations. There used to be 95 percent approval. After impact fees, developers stopped annexing in Bernalillo County, most likely because they don't want to pay city impact fees. There are new fees for Bernalillo County in January '09. The ABCWUA went into effect in 2005. Before that Water Utility customers in unincorporated areas had no say in utility policies.

Bernalillo County is now involved in review of subdivisions in the unincorporated area. There are different procedures for municipal and county land. There is a simplified Bernalillo County approval process. Once the planning commission has concluded its review, the proposed development goes back to the administrative review. It cuts 6 months off the time. There is a desperate need to update the zoning code. It was drafted in 1973 based on a 1959 model.

We need master plan criteria – to establish consistent standards for large projects and clarify at which point proof of water is required. The steps could be concurrent. We need to be clear on what steps the developers need to take and what must they do.

Water Utility Conservation Initiatives **Kathryn Yuhas, ABCWUA**

Kathryn manages water conservation for ABCWUA. She discussed the conditions for water service that the water authority is considering for new development. New development must meet a requirement of 180 gallons per dwelling unit per day. If a developer doesn't meet that requirement for new construction, they will not be able to get water service from the Authority. This includes commercial service too.

History: In January of 2008, the city council proposed specific guidelines to the Authority, including low flow toilets, allowing no turf on big inclines, and that 80% of the roof area was to have rainwater collection for landscape irrigation. This ordinance was passed and then immediately rescinded. Once it was rescinded, the Water Authority decided to try a different approach to address conservation measures in new construction. They produced two documents: 1) Water Usage Allocation in Two Typical Households [click here to link to this document]; and 2) the proposed point system [click here to link to this document]. As the "Two typical households" sample shows, even conservation minded households can't meet the 180 gallons per person per day without taking more extensive conservation measures.

Kathryn described the point system: How to build a subdivision. To build, a developer has to have 40 conservation points for each dwelling. The Authority feels this is an innovative technique and welcomes feedback. The ABCWUA did this because one of the objections to the original ordinance was that it was too specific and ordered certain conservation measures be incorporated without giving the developer a choice in how to achieve the savings. The point system will be built into the city building permit process so there will be inspections.

They're also looking into how to continue to monitor after new houses are occupied. There will be water supply charges for any excess water use. Also, most large developments are built in phases and a developer won't be able to get from one phase to another without proving in every stage that the goal is being met.

Santa Fe County General Plan (1980 – 2008)

Mary Helen Follingstad, Santa Fe City/County Regional Planning Authority

In 1974 Santa Fe County appointed a County General Plan Advisory Committee to study an observed transition from a rural to an urban economy that had begun in the early 1950's. By 1970 the county's population had more than doubled, mostly due to an increase in employment opportunities in the non-farm sector of the economy. During the 1970's, the growing population began to locate in previously rural areas such as Tesuque, Pojoaque, and Edgewood due to a lack of housing in Los Alamos, the cost of housing in Santa Fe, and the overspill of metropolitan Albuquerque.

Land subdivision activity raised fears of environmental desecration, depletion of scarce water resources, and the County's ability to provide community services and road maintenance.

In response to a project proposed southeast of Santa Fe, subdivision of a large ranch (Eldorado at Santa Fe), the County adopted the 1971 *County Subdivision Regulations*. At the time there was no state enabling legislation allowing the County to adopt such regulations. In 1973, New Mexico adopted its first Land Subdivision Act. Subsequently, the County revised its subdivision regulations to fit with State Law.

During this same period, the County General Plan Advisory Committee appointed to develop a County General Plan contracted with the City of Santa Fe Planning Department (using HUD 701 Planning Grant funding). Experts in geology, hydrogeology, engineering, land use law, and environmental quality were hired to conduct technical studies of water resources, soils, water quality, slope, flood plains, air quality, population, development patterns, the status of existing roads, water systems and other utilities and many more topics. Reports and accompanying maps informed land management policies in support of establishing subdivision and zoning regulations to better manage growth in the County.

The resulting 1980 *Santa Fe County General Plan* concluded that new growth is best located where there is easy accessibility to employment opportunities, developed water supplies, existing community facilities and infrastructure, and away from areas that are constrained by limited water resources, steep slopes, unsuitable soils, and poor water quality.

The implementing *Santa Fe County Land Development Code* also adopted in 1980, included requirements for analysis of the relative severity of environmental constraints, the capacity of existing infrastructure to accommodate growth, and on the limitation of water resources.

Based on the technical studies relating to the availability of water resources for future development, the County was divided into four “hydrologic zones” where a minimum lot size was determined relative to the quantity of known ground water resources. The basic idea was to allow development but to limit ground water use while promoting water conservation. Lot sizes in the zones were calculated to assure that water beneath the lot would be available for 100 years. Water use was based on one (1) acre foot per household and the basic minimum lot size – 2.5 acres. The minimum lot size in the Homestead Zone (Galisteo Basin) is 160 acres, the Mountain Zone, 80 acres, the Basin Fringe Zone, 40 acres and the Basin Zone (Santa Fe), 10 acres. These lot sizes could be lowered in size if a geo-hydrologic study was done, or if an agreement was made to limit water use to less than the one acre foot allowed.

Lot sizes were further tiered in urban and urbanizing areas, and in the numerous Traditional Community areas of the County where it was presumed that water and sewer systems either were in place or could be developed if water rights could be secured.

An update of the 1980 *Santa Fe County General Plan* was initiated 1992. A new County General Plan Update Advisory Committee was appointed to oversee the work. New studies were commissioned: a Water Resources Study, a population study, an analysis of open spaces and trails, an analysis of treasured places, economic development and other topics. The new plan, adopted in 1999, entitled the *Santa Fe County Growth Management Plan* – added elements relating to more detailed planning for Traditional Communities and New Communities (master planned and subdivided areas such as the Community College District and Las Campanas); economic development, capital improvements, transportation, utilities, open space and trails, housing, and water resources management.

The original *Santa Fe County Land Development Code* has been amended many times since 1980. However, the original hydrologic zone lot size scheme is still in place. Over time, the lot size scheme has encouraged a form of “rural sprawl” where exurban development on 2.5 acre lots on domestic wells and septic tanks has spread over a very wide area of Santa Fe County. Much of this development rings the 5 mile area around the City of Santa Fe, but some is located well outside of designated growth and existing services areas such as Route 14 and the Galisteo Basin.

Currently, there are 16,142 vacant lots in the unincorporated areas of Santa Fe County. The average size of these lots is 2.5 acres. In recent years, 500 to 700 building permits have been issued yearly. At this rate of absorption, the existing inventory of lots will last about 30 years.

The County is now completing an update to the 1999 *Santa Fe County Growth Management Plan*. Road and utility deficiencies are wide spread and there are significant

emergency access problems. This time, the growth policy based on a “suitability analysis” will try again to direct growth to those areas where water, sewer, utilities and community services can be more economically delivered and tied to a Capital Improvements Plan. Lot size will no longer be tied to hydrology, but to a tiered approach based on environmental and development suitability factors. In addition, the new zoning will create separation between communities.

The *Galisteo Basin Area Plan* is the model for the new approach. In addition, a new *Oil and Gas Element of the Santa Fe County Growth Management Plan* has been adopted. The implementing ordinance for this plan element is also based on a “suitability analysis and phasing of required capital improvements.

In conclusion, after nearly thirty years of tying land development to hydrologic zones to promote water conservation and protect openness, Santa Fe County has sustained the unintended consequences of large lot zoning. Santa Fe County now intends to move toward a more basic and traditional approach to zoning to protect sensitive land, preserve remaining openness and manage growth via capital improvements planning and infrastructure availability.

City of Santa Fe Water Conservation Strategies

Dale Lyons, Water Planner, City of Santa Fe

(Return to main page to view a pdf of his PowerPoint.)

A story of conservation – how Santa Fe responded to a crisis:

Santa Fe was settled on the Santa Fe River which has a highly variable supply. Whether the river is wet or dry depends on snow pack. The challenge to our water supply is the variability in surface supply. The sustainability of the aquifer is of great importance and we are moving towards the Buckman Direct Diversion Project for use of our SJC water. In wet years, we can use the full allotment of surface water and not tap the aquifer.

Based on long term projections, we need 18,100 acre feet per year to serve the City. That means a supply gap of 2,700 acre feet per year by 2045. Access to fresh water is limited to surface water and well supply. In 2002, demand exceeded supply.

To address this crisis, the City instituted demand management programs: a new rate structure increase, a rebate program, and a water demand offset program (where new development is required to offset demand). New residential development requiring under 10 acre feet/yr and new commercial development requiring under 5 acre-feet/yr can offset their demand through conservation, while new developments requiring over these amounts are required to bring water rights to offset their new demand. As a result, since 2005, demand has decreased by 60 gallons per person per day

The current toilet retrofit program: The purpose is to offset new development demand. A developer can buy credits from a retrofitter, or do it themselves. A new toilet saves 8,000 gallons per year. To offset water use of a new home requires the retrofit of ten homes. They are running out of toilets to retrofit. Developers don't like working with toilet retrofit credit brokers,

as they have charged exorbitant prices, as much as \$1,300 per credit. Developers prefer to just pay a fee to the City for banked water to offset their new development demand.

The proposed replacement for Retrofit Program includes:

- Institute a new rebate program and add more appliances to it. Basically, the home owner purchases new water use efficient appliances, retrofits older ones, and the City will verify. The City will pay the property owner a rebate fee. They plan to raise rebate fees to promote customer interest. Conserved water is deposited in the City's water bank for sale to developers to offset their new demand.
- Create a new water conservation program, where a water user enters into an agreement to use less water and the City monitors the usage and pays the customer for the reduction in use. Conserved water is deposited in the City's water bank for sale to developers to offset their new demand.
- A "free stuff" program: low-flow faucet and shower heads, for example. The City will estimate the amount of conservation yielded by installation of the fixtures. Conserved water is deposited in the City's water bank for sale to developers to offset their new demand.

More On-The-Ground Local Perspectives: Farming
Cecilia McCord, Rio Grande Agricultural Land Trust
(Return to main page to view a pdf of her PowerPoint.)

She provided the local agriculture perspective on land and water. Some characteristics of agriculture in the Middle Rio Grande Valley: a majority of farms are less than 50 acres – Socorro County has the majority of large farms (over 50 acres). Mostly hay, alfalfa, grain and grass is grown – not a lot of chile and vegetables. This is because of the market and because these crops require less labor (the labor isn't there).

Agricultural to urban water transfers are increasing dramatically and huge transfers have already occurred. What happens to agricultural land once water is transferred to urban areas? Typically three things: 1) Often nothing – farmers who sell their water rights will just lease from the MRGCD water bank; 2) Occasionally lands are fallowed and sometimes high water use invasive species come in; 3) There can also be subdivisions which may use even more water than agricultural lands, since often people put in a domestic well, or land is subdivided into small 1/4 - 1/6 acre lots, each household using 1/2 acre foot of water per year. Most of these are mobile home developments in Socorro County and since Socorro has no zoning often illegal subdivisions occur. People who live in the subdivisions have no vested interest in agriculture which also impacts the ability for agriculture to continue.

Farmers' attitudes regarding land and water: the bottom line is that water belongs to the land. Based on farmer interviews [[click here to view the Atalaya farmers' interviews](#)], there's some angst about selling water rights, even some shame. Not many people who do it will talk about it, but they wouldn't say anything negative about neighbors who sell their water rights.

Other impacts of agriculture-to-urban water include: losing wildlife corridors, open space issues, the cultural integrity of the rural middle Rio Grande valley, and groundwater recharge along the Rio Grande corridor. Basically, agricultural land is multi-functional.

Farmland loss is serious: over 1.2 million acres of agricultural land is lost every year in the country, and New Mexico is one of the fastest growing states. Because of our limited water resource our agricultural lands are hugely impacted by this growth, either by conversion of agricultural land to development or the transfer of water out of agriculture and to municipal and industrial use.

Options for agricultural preservation include zoning, although that can change; right to farm ordinances; conservation easements; etc. The Rio Grande Agricultural Land Trust is a nonprofit that holds land in trust for preservation. RGALT works with landowners to preserve their agricultural lands, wildlife habitat, open space, and traditional communities through the use of voluntary conservation easements to be held in trust for perpetuity. These are typically donated conservation easements, although RGALT has been successful in working with some landowners in securing both federal and state funding for purchased conservation easements. There are some purchases of conservation easements through the federal government, but those require a 50% non-federal match of which no more than 25% can come from the landowner.

New Mexico doesn't have a specific agricultural land conservation program, but there are some state initiatives, such as the Land Wildlife and Clean Energy initiative, which has been funded by the legislature on an annual basis for conservation projects. This funding is quite limited and serves a wide number of diverse interest groups, and most importantly is not a recurring fund. There's a tax credit exchange program called the Land Conservation Incentives Act. Most farmers don't have a level of income that would benefit from a tax credit. What makes this program innovative is that the tax credits can be transferred for payment to those who need the credits.

More On-The-Ground Local Perspectives: Non-Urban County
Jim Lane, Valencia County Planning and Zoning Commissioner

The Valencia County Planning and Zoning Commission is an advisory board to the Valencia County Commissioners. We approve or deny zone changes, land splits, and other land usages. If a land split for a new subdivision comes before us, one of the requirements for the project is *available water*: water sufficient in quantity to fulfill the maximum annual water requirements of the subdivision, including water for indoor and outdoor domestic uses. The water supply plan must include conservation, water quality, and fire protection.

The developer obtains a letter from the water company, which commits to the developer the water he will need or asks for. The letter, along with an application, is then sent to the State Engineer's Office for review. What ends up happening in more cases than not, is that we, as the Commission, approve the Plat or land splits even if the State Engineer's Office has issued a negative opinion on the ability of the subdivider to obtain water sufficient in quantity to fulfill the maximum annual requirements of the subdivision.

I have been told that this is due to a discrepancy in the amount of water that the State Engineer's Office believes is available versus the amount that the water company says is available. The water company, which in Valencia County is the NM Water Service Company (NMWSC), has available many more acre feet than recorded as available in the State Engineer's Office. How might this discrepancy occur?

From my understanding, in the past, water was dedicated for a project or subdivision with a commitment letter from the NMWSC. It was sent to the State Engineer's Office and recorded. But many projects or subdivisions that went through this plat approval process in Valencia County were not built, for reasons unknown, therefore, the water that was committed to them is really still available. But, because the water had already been dedicated and approved in the State Engineer's Office, it was deducted from the total quantity of water rights that the Water Company owns or has available.

In an attempt to correct this, the Water Company now includes in its intent letter to provide the needed water, a statement that stipulates that the dedicated water or approval is available to the project or subdivision for the period that runs concurrent with subdivision process. If not used, the allotment reverts back to the water company.

This stipulation and approval technique by the Water Company is, in my opinion, an attempt to eliminate long unused water agreements, but could bring up other legal issues that we will not be going into. It has yet to be decided how to correct the discrepancies in available water balance quantities between the State Engineer's Office and the Water Company. But the issue trickles down to the subdivision and final approval process of the plat by us.

In my opinion, this problem should be resolved. We could all sit down and have a meeting and decide what is correct. We need to get water which has been allotted to speculators (who have the potential to hoard it) redistributed to developers who want to put the water to beneficial use. Twenty years ago, Valencia County was mostly agricultural. But currently, with the changing times, we are moving towards more growth and development away from past agricultural uses. Valencia County's development is limited only by lack of access to water that is on the books as not available, when in reality it is available. The State Engineer must use Valencia County's regulations in its review, and no one knows which water availability numbers are accurate. Let's get it moving and have planning meetings with all involved entities, and bring our actual paper and wet acre feet inventories and usages up to date. The State Engineer's responsibilities are to insure that future water quantities are refurbished, accurate and balanced. There is no way of properly completing this task if there are major discrepancies with the present out-dated records. A current day audit must be initiated.

Are We Making the Land/Water Connection?

Anita Miller, Attorney

She is thrilled to see water planning and land use together at the same conference. She hasn't ever seen it integrated in quite this way. In the review process, the State Engineer comes up with an analysis of future water use of a proposed subdivision. She doesn't believe we can change the statute to make the State Engineer's approval *mandatory*. Socorro County can still

approve the subdivision, for example. The subdivision laws cannot be changed without changing the State Constitution. Local and state prerogatives often conflict. The 1995 amendments to the subdivision act changed the language to *may* rather than *shall*. The water supply has not increased, but growth has. But she sees the potential for positive steps. Under the present law, many tools exist for local government to control land use in the context of water availability.

Regulating Land Use

Joe Quintana, Mid Region Council of Governments

(Return to main page to view a pdf of his PowerPoint.)

There are connections between land use planning and water management that are not being taken advantage of. Land use planners view water management as a separate issue. Land use must include *all* aspects of development. Too often, water issues are overlooked. Land use planners look more to job creation and economic impact than the consequences to water supply. Water providers, on the other hand, are focused on the supply and demand for water.

Here is a brief overview of the tool box that land use planners have available: zoning ordinances, subdivision regulations, building codes, water conservation ordinances and environmental regulations. Now, even in towns of less than 10,000 people, there is a new ordinance of necessity: a water shortage emergency plan.

Water management through zoning: Zoning is a means to control the use of land and eliminate incompatibility between uses. It includes development standards for site planning which can be used to protect groundwater and other sensitive areas, deal with onsite storm water retention and water harvesting, and include water use limitations.

New Mexico's zoning statutes are based on models dating from the 1920's and have not changed much. Several years ago, we added new statutory language about providing an assured water supply, but it was not put in the zoning section of the statutes. It is found at NMSA 3-53-2.1 dealing with water. [Return to main page to see Joe's powerpoint, slide #6, to see the statute.] In order to get this passed, the agricultural interests demanded to be exempt, because it opened the door for local authorities to control their water management.

Water use and planning in subdivisions: Subdivisions may not build out for decades. When built, they may not be in compliance with current regulatory standards. In order to ensure water resource considerations, there should be formal disclosures made by all subdivision developers that commit to availability and protection of water in the future.

Building standards can increase the conservation of water, using such techniques as roof catchment and water harvesting, low flow plumbing fixtures, and grey water systems. Hopefully, stronger standards can be implemented. This is harder for smaller communities.

Water conservation strategies: There are many varied strategies and, in the case of smaller water systems, these can be undertaken by community water associations or small

committees. The statute authorizing funding for water projects through the Water Trust Board mandates specific conservation techniques as a requirement for funding.

The MRCOG has developed a model water conservation program with an emergency water shortage ordinance. Water shortages don't just occur due to drought. In the Town of Estancia recently, two of the three town wells broke down at the same time. They had to survive an extreme water shortage for several days until the wells were fixed. Typically, in an emergency water shortage ordinance, cumulative water restrictions occur in stages relative to the severity of the shortage, following a formal declaration by the Mayor to limit water use.

Management/preservation plans are needed to protect regional water resources: watershed management; floodplain management; wellhead management; groundwater protection; and water quality preservation.

Conclusion:

- Making the water/land use connection is necessary: What makes it work is political will, resources and knowledge.
- Water-driven projections must be used to develop plans.
- You must evaluate how infrastructure will handle projected demand and require concurrency.
- Have a management plan *before* the advancement of development.

Are We Making the Land/Water Connection?

Lora Lucero, AICP (Return to main page to view a pdf of her PowerPoint.)

There are many disconnects. She believes some are intentional, and some are not. There are good intentions: the 1995 Subdivision Act was based on good intentions and taught us a lot. It was intended to close the 4-lot loophole: Prior to the 1995 Act, a developer could divide four lots, and then divide by four again later; and nothing was reviewed, because there was an exemption for 4 lots or less. But the Subdivision Act didn't fix the problem – there are now more exemptions after the law than there were before.

There are lots and lots of plans – state water plans, regional water plans, water development plans, local water plans, comprehensive plans, transportation plans, and more. But there's still a disconnect, because they aren't implemented.

The disconnects include those between: adopted goals and results; plans and regulations; local control and regional impacts; federal-state-local regulation; transportation and land use; old laws and current challenges; and private property rights and public rights.

In our metro area, there are disconnects between the state government, city government, and the county commissioners; and especially between ABQ and Bernalillo County. This became clear with ABQ's planned growth policy. ABQ is the only city in the state without any extraterritorial jurisdiction.

The future: where can we go from here? The disconnects can be broken down: connect federal, state and local government policy. Connect plans, regulations, development decisions, and actions – as well as financial resources. Think outside the box – focus on who and how decisions are made, not what the decisions are.

We need a smarter process, a consistency doctrine, statutory reform, inclusive processes, and informed decision-making that is consistent with the plans. There should also be a feedback loop and mitigation monitoring. New Mexico needs a mini-NEPA.

Land and Water Planning: Another State's Perspective

Kathy Chavez, Water Policy Manager, Pima County, Arizona

(Return to main page to view a pdf of her PowerPoint.)

Pima County is an *urban* county; often behaving more like a municipality. The County has land use planning authority, derived from state statute which applies only to the unincorporated area of Pima County. Pima County also created the Sonoran Desert Conservation Plan, and has responsibility for Regional Flood Control and Regional Wastewater. It is not a water provider.

Pima County has figured out the importance of linking water and land use, because increasing residential density means increasing water demand. Some basics: Urban development is long-term. Water supply is linked with water demand and the link is infrastructure. Infrastructure is needed to get water to where demand is. Demand exists where people are located, which is a function of planning.

There is no surface water in Pima County, and they were entirely dependent on groundwater until recently. The Central Arizona Water Project brings water down from the Colorado River into Phoenix and into Tucson. The Colorado River is shared with 7 other basin states – where will they get water if growth continues? They undertook a planning effort to bring more certainty into this equation and to consider the impacts of water resource development.

The Comprehensive Plan (adopted 2001) includes a water resources element and conservation lands system. The Water Resources Element of the Comprehensive Plan was recently amended to accomplish the following goals:

- Provide more information about the impacts and sustainability of water resource development to land use decision-makers;
- Promote reliance on renewable and potable water supplies and infrastructure;
- Minimize adverse impacts of water supply development; and
- Protect groundwater ecosystems.

The Comprehensive Plan amendment was adopted in 2007 and it is currently in the implementation phase. Essentially, the change means that a Water Supply Impact Review (WSIR) is undertaken at the time a comprehensive plan amendment is requested (change in land

use intensity) or when zone change is requested (higher density development). The WSIR includes an analysis of:

- Supply options;
- Groundwater data;
- Proximity to groundwater dependent ecosystems;
- Subsidence; and
- Whether the land is in an isolated hydrogeologic basin (i.e., not a lot of subsurface water coming in and less recovery from depletion.)

The Water Supply Impact Review plus a staff report is submitted to the planning and zoning commission. There are concerns: Will it have enough teeth? Kathy believes that Section C of the zoning policies does. Basically it requires that the impacts of water supply issues be addressed at the time of a zone change request, rather than waiting until the subdivision stage of the development process. More importantly, it provides the land use decision makers additional information about the impacts and sustainability of water resources development *before* land use changes are made.

