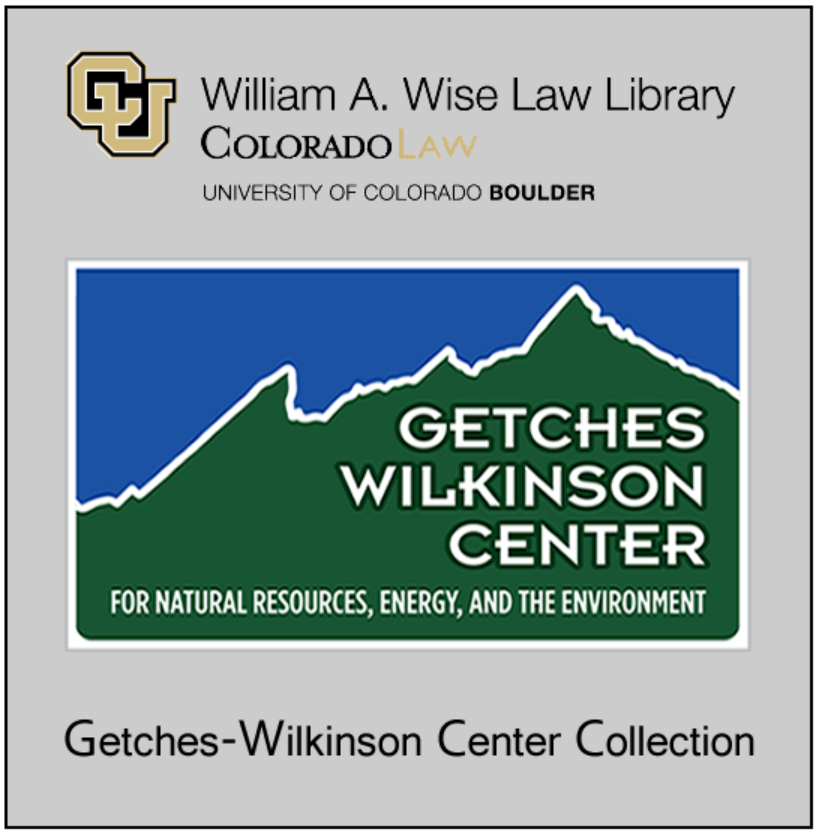
6-7-2000

Growth, Water, and Environmental Values

Bruce C. Driver

Bart Miller



Bruce C. Driver with assistance from Bart Miller, *Growth, Water, and Environmental Values*, *in* WATER AND GROWTH IN THE WEST (Natural Res. Law Ctr., Univ. of Colo. Sch. of Law 2000).

GROWTH, WATER, AND ENVIRONMENTAL VALUES

Bruce C. Driver
Executive Director
Land and Water Fund of the Rockies
2260 Baseline Road, Suite 200
Boulder, Colorado
80302
Phone: 303/444-1188 extension 214
Fax: 303/786-8054
Email: bcdriver@lawfund.org
www.lawfund.org

with assistance from Bart Miller
Staff Attorney
Land and Water Fund of the Rockies

WATER AND GROWTH IN THE WEST
NATURAL RESOURCES LAW CENTER
UNIVERSITY OF COLORADO SCHOOL OF LAW
BOULDER, COLORADO
JUNE 7, 2000

Collins/Denver/Colorado Springs, Salt Lake City, Albuquerque, Las Vegas, Phoenix, Tucson, Reno, Boise? Each one of these places has different issues and does things differently.

E. Notwithstanding the difficulties, it seems that someone ought to be looking at the big picture of western growth and sprawl and asking the question whether we're doing this right by the aquatic environment. Are we growing sustainably? Are we building a "society that matches the scenery" or are we destroying the reasons why many of us live here? If we are not living sustainably, what should we do about it?

F. General approach

1. Look only at "urban" growth & sprawl issues. No trophy home developments; no hog farms; no metastasizing resort areas. Why so limit? Because you have to draw the line somewhere.
2. Choose several, but less than all, urban areas in the region: Colorado Front Range, Albuquerque, Wasatch Front; Boise; and Las Vegas. Why? Because these are rapidly growing/sprawling metro areas, because they have aquatic environmental issues swirling around them as they expand and because the LAW Fund knows something about most of these expanding urban areas.
3. Admit that results of analysis will be anecdotal, if still hopefully compelling. Why? So as to avoid the stress of promising too much.
4. Review the evidence from the subset of expanding urban areas on (a) long-run water demand projections; (b) alternative sources of supply to meet the demand; (c) environmental issues raised by these alternatives; and (d) the means by which these issues are considered in making decisions about the alternative sources of supply. Why? These seem to be the key factors in determining whether we may be good environmental stewards.
5. Try to reach some general conclusions about the efficacy of these means to protect the aquatic environment in the years ahead.

6. Develop a reform agenda, if one is warranted.

G: Status of analysis

1. Have chosen target-areas for analysis.
2. Have begun to look at water demand and supply and environmental issues.
3. Have begun to flesh out parameters of "stewardship": (a) Can we be good environmental stewards without mitigating past damage? No. New development bears some responsibility, legal or otherwise, in cleaning up past messes, especially if it can clearly afford to do so; (b) Can we be good environmental stewards without putting a cap on growth? Creating a virtue from necessity, yes, because we cannot directly cap population growth, although we can and should make it pay its own way. (c) Can we be good environmental stewards without curtailing sprawl? Don't see how.
4. Basically, though, we are still well within the question-framing and -asking stage.

II. Colorado Front Range North of the Palmer Divide

A. Geographical scope

1. Area we're looking at is from Fort Collins to Denver Metro south. There is hydrological, if not legal/political, connectivity to this area. The area does not include Colorado Springs or Pueblo.

2. In this presentation, the focus is on the Denver Metro area, not including the Northern Front Range (Boulder north through Fort Collins). Suffice it to say for this presentation that in the Northern Front Range, sprawl and its impact on water usage and resultant environmental impact are significant issues.

3. We are using two principal bases for our initial review of water demands and related issues: (a) "Metropolitan Water Supply Investigation, Final Report," Report to the Colorado Water Conservation Board, January 1999, Hydrosphere Resource Consultants, Inc. et. al. ("MWSI") and (b) "Water for Tomorrow, the History, Results, and Projections of the Integrated Resource Plan," Denver Board of Water Commissioners, July 1997 ("IRP").

B. Demand for water

1. MWSI divides the Metro Denver area into five sub-regions, defined by their primary sources of supply: (a) Denver Central; (b) South Metro; (c) City of Aurora; (d) Northeast Metro; and (e) Northwest Metro. MWSI, p. vii.
2. Water providers in Metro Denver are planning to meet the needs of about 3.3 million people. Mostly based on population estimates at "build out." MWSI, pp. 34-35.
3. Sub-region water demands: (a) Denver Central: 265,000 AFA needed now/454,000 AFA needed in 2045; (b) South Metro Sub-region: ???? needed now/ 127,000 AFA needed at build-out; (c) City of Aurora: up to 75,000 AFA needed now/105,000 needed in 2030; (d) Northeast Metro: ???? needed now/125,000 AFA needed at build-out; (e) Northwest Metro: ???? needed now/100,000 AFA needed at build-out. MWSI, p. x.
4. Totals: (a) Projected water demands for Denver Metro area: 911,000 AFA (MWSI, p. x), or 246 gallons per person per day; (b) Total new water demand:???? ; (c) Total needs that cannot be met via existing water rights and facilities: 79,000 AFA-148,000 AFA. MWSI, p. x.

C. Where Does the Water Come From Now?

1. Denver Central: (a) South Platte; (b) transmountain diversions from the Blue, Fraser and Williams Fork river basins; (c) re-use; (d) water conservation. IRP, pp. 10-24; MWSI, pp. 28-31.
2. South Central: mostly groundwater from Denver Basin aquifer. MWSI, p. 31.
3. City of Aurora: mix of changed irrigation rights, transmountain diversions, groundwater, re-use and conservation. MWSI, pp. 31-32.
4. Northeast Metro: a mix of municipal and changed irrigation rights, groundwater and exchange rights. MWSI, p. 32.
5. Northwest metro: Clear Creek municipal rights, changed irrigation rights, and partial service by Denver Water. MWSI, pp. 32-33.

D. Where Might New Water, Both "Met" and "Unmet" Come From?

1. Denver Central: more of the same plus conjunctive use; additional re-use/effluent management; systems integration opportunities. IRP, pp. 32-41; MWSI, pp. 36-37.
2. South Central: more of same plus re-use/effluent management; conjunctive use; and new surface supplies, including transmountain diversions; systems integration opportunities. MWSI, p. 37.
3. City of Aurora: development of Arkansas river acquired rights; additional re-use/effluent management; rehab of wells; conjunctive use; systems integration opportunities. MWSI, p. 37.
4. Northeast Metro: re-use/effluent management; small new storage facilities. MWSI, pp. 37-38.
5. Northwest Metro: re-use; systems integration opportunities. MWSI, p. 38.
6. Chatfield Reservoir: a new water-supply resource (presently used mainly for flood control and recreation) potentially available to more than one sub-region. MWSI, pp. 121-127.

E. Environmental Impacts Potentially Caused by Meeting Denver Metro Area's Growing Water Demands From Alternative Sources:

1. Removal of water from western slope sources : (a) impact on fish, wildlife, recreation and water quality; (b) special case of impact on endangered species in the Colorado River Basin, including mainstem Colorado and Gunnison rivers.
2. New Front Range storage facilities: impact on fish, wildlife and recreation.
3. Groundwater pumping: aquifer mining.
4. In-basin agricultural water transfers: potential impacts on wetlands, air quality (from dust) and aquifers (if more groundwater is pumped).
5. Effluent re-use: impact on water quality, in-stream flows, fish, wildlife and recreation.
6. Conservation and systems integration opportunities: May be localized or indirect impacts depending on the action.
7. Chatfield Reservoir: impacts on wildlife and recreation.
8. Additional consumptive uses, all else being equal: could adversely affect endangered fish and bird species downstream in South Platte.

F. MWSI: Among Many Other Things, the MWSI Concludes:

1. "Future unmet needs in the major regions of the metropolitan Denver area can be met effectively through a variety of cooperative water supply management actions.. These actions do not require construction of significant new transbasin diversion systems, though some additional transbasin diversions using existing facilities and water rights may be necessary if growth in the metropolitan area, particularly in Douglas and Arapahoe Counties, is to be served without increased reliance upon non-renewable groundwater supplies." MWSI, p. 135.
2. "The use of Denver basin groundwater will remain at relatively low levels, even without conjunctive use. Future municipal water supply plans for Douglas County currently anticipate an aggregate use of about

84,000 acre-feet per year. Under conjunctive use discussions currently underway between Denver and Douglas County, this 84,000 acre-foot projection could be significantly reduced through a conjunctive use arrangement with Denver to store South Platte and Colorado River surface flows." MWSI, p. 136.

G. Assessment of Denver Metro Situation

1. The factual outline of how the Denver Metro area can be a good environmental steward as it grows and uses more water has been developed. Two Forks EIS; MWSI; IRP.
2. Will this information be translated into good stewardship? The Denver Water Department appears to be acting on the basis of the IRP in its acquisition of new water resources. Elsewhere, some local water providers take serious account of environmental impacts, even if they are not required to do so by state or federal law, for example, City of Boulder.
3. Does Colorado water policy, or the absence of it, encourage actions to meet growth and sprawl consistent with good environmental stewardship? It does not appear so. Colorado policy still appears to encourage reliance on large, new water developments before we know the environmental impacts. Two Forks is one example from an earlier era. Another is the proposed Union Park Reservoir: a "most-cost," environmentally damaging proposal, yet still alive (at least as of the date of preparation of this outline) after 12 years of litigation. In Colorado evidence of the environmental impacts of a water project is not relevant to the issuance of a water right. Matter of Board of County Commissioners, 891 P.2d 952 (Colo. 1995). There is no other systematic, state-based consideration of the environmental impacts of water development on the environment that compensates for the absence of the environment in water rights adjudications.

4. As elsewhere in the West, in Colorado we depend too much on federal agencies and federal laws, like the National Environmental Policy Act, Clean Water Act and the Endangered Species Act, to save us from ourselves.
5. The underlying economics of environmentally damaging proposals together with federal environmental laws may well force us to meet the demand for water in the Denver Metro area in an environmentally sensitive way, but we may waste years, even decades getting there.

III. Albuquerque/Middle Rio Grande

A. Demand For Water In And Around Albuquerque:

1. Basis: (a) May 1997 City of Albuquerque Water Resources Management Strategy; (b) Appendix A—Water Demand Projections (1995); (c) City of Albuquerque Council, Bill No. R-176, Enactment No. 40-1997, entitled "Resolution Adopting the Albuquerque Water Resources Management Strategy as the City's Water Supply Policy etc.; (d) "Water Budget," pamphlet from Action Committee of the Middle Rio Grande Water Assembly (Oct. 1999).
2. Albuquerque is the primary municipal water user in the "middle" Rio Grande (MRG), that stretch of the river from the Otowi gage, north of Santa Fe, to Elephant Butte Reservoir.
3. The City supplies a "Water Management Area" roughly equating to the population of the City of Albuquerque and surrounding areas of Bernalillo County not in the city.
4. Albuquerque's water service population in 2000 is nearly 500,000.
5. City uses two population growth rates as the basis of its future water demand: (a) "lower" rate, 1% annually for the next decade, slowing by .1% each decade thereafter and (b) "higher" rate, 1.7% annually during the first decade; thereafter rate slows by roughly .2% each decade. These rates produce projections of 850,000 to 1,041,000 people by 2060.

6. In 1990 average daily water demand was 107 million gallons per day (mgd) or about 120,000 AFA. This equaled a rate of consumption of about 225 gallons per person per day, making municipal consumption higher in Albuquerque than in most arid western cities. The long-term trend in per capita use is upward, growing from 74 gpd in 1930 to 150 gpd in 1955 to 250 gpd from 1987-93. See Gary Daves, "History of Water Development in the Middle Valley," in The Water Future of Albuquerque and Middle Rio Grande Basin, WRRI Report No. 290 (1994) at 10 and 1997 Management Strategy at 20. Recent conservation and climatic conditions (summer monsoon) have led to decreasing use. In 1999, per capita use dropped to 204 gpd but may rise again in 2000.
7. Albuquerque has estimated growth in future water demand under three scenarios containing three sets of assumptions regarding population and water conservation: (a) "higher" rate without conservation; (b) "higher" rate with conservation; and (c) "lower" rate with conservation. "Conservation" is defined to be a 30% reduction in per capita water use.
8. Relative to 1990 levels of water use, under scenario "(a)" water use increases by almost 150% by 2060, reaching 257 mgd or 288,000 AFA, an additional 168,000 AFA. Under "(b)" water use increases by roughly 75% by 2060, reaching 180 mgd or 200,000 AFA diverted by 2060, an additional 80,000 AFA. Under "(c)" water use increases by about 20% by 2060, reaching 127 mgd or 142,000 AFA, an additional 22,000 AFA.

B. Where Does and Will the Water Come From?

1. Traditionally, Albuquerque has relied on groundwater to meet municipal uses. The assumptions were that the aquifer underlying Albuquerque would supply the City; the river would re-supply the aquifer and San Juan-Chama (SJC) water (imported from the Colorado river basin) would re-supply the river. 1997 Water Strategy at 6.
2. Studies conducted in the mid-1990s showed that these assumptions were not accurate. The river was not replenishing the aquifer, leading to

groundwater mining, damage to the aquifer, loss of water supply and substantial damage attributable to subsidence. See City of Albuquerque Council, Bill No. R-176, Enactment No. 40-1997, entitled "Resolution Adopting the Albuquerque Water Resources Management Strategy as the City's Water Supply Policy etc."

3. City's new management plan: (a) substantially reduce reliance on groundwater; (b) divert 97,000 AFA directly from the Rio Grande, consumptively using 54,000 AFA; (c) reclamation and reuse projects; (d) additional conservation measures; (e) use of non-potable water where feasible. 1997 Water Strategy at 2, 13.

C. The Rio Grande: Context

1. Prior to human influence, the Rio Grande in New Mexico was a perennially flowing river with a braided channel, supporting a mosaic of cottonwood and willow forest or "bosque" of varying ages and sizes, interspersed with grass meadows, ponds, lakes and marshes.
2. The bosque provided a habitat for a wealth of native and migrating bird and wildlife species. The river itself was home to an abundance of fish species, including the longnose gar, shovelnose sturgeon, speckled chub, Rio Grande silvery minnow, phantom shiner, and blue catfish. Seven such species have gone extinct or have been extirpated from the Rio Grande.
3. Human use has radically altered the natural riverine environment. The river is now controlled by a series of dams; dewatered by irrigation diversions and confined within narrow boundaries set by levees running along both sides. Both the river and bosque, as well as associated fish and wildlife are in steep decline.
4. Mainstem flows on the Rio Grande average about 1.1 MAFA at the Otowi gage. For the last three decades, these flows have been augmented by about 97,000 AFA of water imported from the Colorado River basin via the SJC Project.

5. The major use of Rio Grande water is by the Middle Rio Grande Water Conservancy District (MRGCD). In 1998, MRGCD diverted 680,000 AF to irrigate 51,000 acres of mostly alfalfa. Over the past decade, MRGCD has been diverting significantly more water even while acres under irrigation have declined.
6. But the greatest single depletive "use" of water is evaporation from Elephant Butte Reservoir, not MRGCD's consumptive use.

D. The Silvery Minnow: Canary in the Coal Mine

1. The silvery minnow is a small fish with a life span of 1-2 years. Historically, it occurred from Española to the Gulf of Mexico, but is now nearly completely isolated in the short stretch of river immediately above Elephant Butte, less than 5% of its historic range. This stretch of river has, in recent years, been allowed to go dry in the summer months for days at a time.
2. On July 20, 1994 the U.S. Fish and Wildlife Service listed the minnow as endangered under section 4 of the Endangered Species Act (ESA). In 2000, the minnow is in grave peril of extinction: "The [minnow] faces imminent threats of mortality and population declines due to adverse habitat modifications during the coming year, most notably from stream depletions and desiccation of the middle Rio Grande stream bed. Additional mortality of silvery minnows will occur if the river dries this year, particularly in the crucial reach below the San Acacia Diversion Dam. Moreover, the current vulnerability of the [minnow] is so great that additional river drying and associated mortality this year may jeopardize the continued existence of the species. Particularly if river drying on the scale of 1996 is seen again, the species could become extinct...[F]rom a biological perspective the [minnow] is presently in a perilous state. It is vital that adequate river flows be sustained to prevent a further period of river drying, and to facilitate successful spawning..." Declaration of Dean A. Hendrickson, PhD., filed April 11, 2000 in Rio

Grande Silvery Minnow, et al., v. Martinez, et al, Civ. No. 99-1320 JP/KBM-ACE (U.S. District Court, District of New Mexico.)

3. Albuquerque plans additional MRG diversions of up to 97,000 AFA, of which roughly half will be consumed, to meet existing and growing demand for water. This will aggravate river conditions for the minnow, as will loss of return flow from aquifer pumping.
4. The minnow is merely an indicator species, a canary in the coal mine, telling us that humans have been and are systematically destroying the natural MRG.

E. What Are We Humans Doing About This?

1. To date: Mainly endless talk and no long-term solutions. Beginning in 1998 there have been periodic discussions between government officials and environmental groups, called Green/White meetings. Partly as a result of these meetings, from time to time, the U.S. has used SJC water stored in Heron Reservoir to augment water for MRG habitat.
2. Litigation: (a) April 1997: Enviro organizations file suit to compel the USFWS to designate critical habitat; in June 1999 USFWS designates 163 miles of the MRG as critical habitat; (b) August 1999: MRGCD and state of New Mexico file separate suits to set aside designation of critical habitat; enviros file suit soon thereafter asserting the inadequacy of the designation; (c) September 1999: City of Albuquerque files suit seeking a declaratory judgment that the U.S. has no discretion to allocate SJC project water for purposes beyond those set forth in the SJC Act and the Colorado River Compact; (d) November 1999: Enviros file suit to compel consultation under section 7 of the ESA, and for other remedies, on federal operations of MRG facilities.
3. Albuquerque's 1997 Water Resources Management Strategy states: "As the City moves to implement its use of existing resources, it will take steps to protect valued environmental resources of the region, including both the shallow and deep aquifer; the bosque and valley; the Rio

Grande stream system; and recreational, historical, and cultural values. In every implementation phase, the City will consider impacts on environmental resources and take appropriate steps to mitigate unavoidable damage." Management Strategy at 23. Will these good intentions be followed by leadership?

F. How will the problem of how to live sustainably in the valley be solved?

1. New Mexico state law can help: (a) NM State Engineer Office must permit Albuquerque's new surface water diversions and, in so doing, must consider the "public welfare"; and (b) There is authority under NM law to afford protection to instream flows for recreational, fish or wildlife, or ecological purposes. See Opinion No. 98-01 of Tom Udall, Attorney General.
2. However, litigation under federal environmental laws appears essential: Without it, where's the pressure to reform?
3. The need to find the slack in the system: Is there enough water to go around, even in dry years, if only the river were better managed? Could it be better managed, given existing water rights? What will it take to achieve better management? Some suggestions: lower, more reasonable diversions by MRGCD; stronger conservation measures by Albuquerque; potential non-native phreatophyte control.
4. Albuquerque's critical leadership role: water conservation and re-use; putting pressure on MRGCD and the feds to find solutions. Need to reverse the historical trend of rising per capita use.
5. Federal agencies must acknowledge and exercise the extent of their authorities to protect endangered species and, if need be, alter timing and quantity of delivery of water.
6. All stakeholders need to participate in finding the way out of this mess. How? Will it happen in time to save the minnow, the bosque, and the Rio Grande?

IV. Wasatch Front, with emphasis on Salt Lake City

A. Demand for water in and around Salt Lake City

1. The Salt Lake City vicinity witnessed some of the first widespread non-Indian irrigation in the West. Today, the region is a sprawling urban center with municipal and industrial (M&I) uses on the rise and irrigation uses leveling off and dropping in places.
2. Utah is the second most arid state in the nation (behind Nevada) and has the highest rate of water consumption per capita. Due in part to the huge, federally-subsidized Central Utah Project (CUP), Utah has the fourth lowest rates for water in the country. "Water for Pork," in Private Eye Weekly (May 30, 1996) at 12.
3. M&I water demand for the Salt Lake City is projected to skyrocket in the near future. Estimated demands are derived from the 1993 Wasatch Front Water Demand/Supply Model, prepared by Utah State University, Utah Division of Water Resources, and BOR. The model generated forecasts of water demand in Salt Lake, Davis, Weber, and Utah counties through 2025. See Gardiner, 1996 Evaluation of Bonneville Unit Water Supply at 24. Demand estimates for Juab, Utah, and Salt Lake Counties are covered in detail by the 1995 "Draft Feasibility Study of Direct Delivery of Colorado River Basin Water to the Provo River Basin." Juab County's demands are negligible for the foreseeable future. See Table 4-1, Draft Feasibility Study of the Direct Delivery of Colorado River Basin Water to the Provo River Basin, at 4-5.
4. Salt Lake County, which includes Salt Lake City, had a 1990 M&I water demand of 222,000 acre-feet annually (AFA) and is projected to need 250,000 AFA in 2000. M&I demand is expected to double in the next 35 years, reaching 418,000 AFA by 2025 and 506,000 AFA by 2035. Id.
5. In Utah County, including the towns of Orem and Provo, M&I water demand in 1990 was 97,000 AFA and will be 112,000 AFA in 2000. M&I demand also is expected to double over the next 35 years, reaching 158,000 AFA in 2025 and 216,000 AFA in 2035. Id.

6. The total for these two counties will jump from current use estimates of 362,000 AFA to 722,000 AFA in 2035.
7. Even if conservation efforts are implemented successfully, demand for the two counties is estimated to exceed 630,000 AFA by 2035. Id.

B. Salt Lake City Water Supply: Where Does and Will the Water Come From?

1. Most water for Salt Lake City and nearby communities comes from a mix of local surface water diversions and groundwater.
2. There are several options for meeting new water needs just for Salt Lake City and Utah counties:
    a. Central Utah Project: The Central Utah Project (CUP) impounds a portion of Utah's Colorado River Compact allocation. To our knowledge, little or now CUP water is presently in use to meet M&I demand for water in Salt Lake City. However, CUP water ocld be delivered to the are for M&I use with the construction of one or more pipelines.
    b. Reverse Osmosis: The Salt Lake County Water Conservancy District currently estimates the cost of treating water from Utah Lake by reverse osmosis would be $462 per AF. Under this estimate, it would cost $333 million each year to supply the needs of Utah and Salt Lake counties in the year 2035 (approximately 722,000 AF).
    c. Bear River Project: Some have proposed a water development project on the Bear River, including the creation of Honeyville and Barrens reservoirs. The Bear River Project is expected to cost somewhere between $350 and $500 million to make available roughly 220,000 AFA. The Project would deliver only 50,000 AFA to Salt Lake City, satisfying the needs of that area's growing population only for an additional 10 years, after which new facilities would be needed.
    d. Water Conservation: Because Utah residents use more water per capita that any other population in the country, there should be room to reduce consumption. Water conservation plans for irrigation districts, using gray water for irrigation and other turf applications, and limiting

additional turf acreage could do much to slow the growth of water consumption. Savings could approach 50,000 AFA and costs would be small. See "3 Alternatives for Bear River Development for Salt Lake," in Water Lines (publication of the Utah Rivers Council, Winter 2000) at 6.

e. Ag to Urban Transfers: Surplus irrigation water may be available for purchase from irrigators in sufficient quantity to supply urban M&I needs for many years to come. Because much of the Salt Lake valley was originally irrigated farmland and has been recently converted into urban development, "surplus" water often is available if the urban uses are less consumptive. See "3 Alternatives," supra, at 6. Ditch companies have written letters claiming vast amounts of water may be available near urban development though transactional expenses may slow the pace of transfer. See, e.g., letter from Max G. Reese to Senator Steve Poulton (Oct. 27, 1997).

C. Environmental Effects of Salt Lake City's Increasing Water Demands

1. The obvious environmental effects of new water project developments are decreased streamflows in the contributing streams, and consequential impacts to fish, other aquatic life, and the riparian ecosystem. The Bear River Project, in particular, would inundate existing human habitation, flood land overlying Native American graves and other sacred sites, threaten to destroy an intricate system of canals delivering water to 65,000 acres of farmland, and cause the permanent loss of miles of a beautiful riparian corridor. "Dam It To Hell," in Salt Lake City Weekly (Nov. 11, 1999) at 17, 19.
2. The Bear River Project also would imperil the Bear River National Wildlife Refuge, depriving it of 200,000 AFA. The refuge, created by Congress in 1928, is a 73,000-acre stopover for thousands of migratory birds each year. The construction of the Honeyville Reservoir, just one-half of the proposed Bear River Project, would divert an estimated 20 percent of the refuge's water supply.

V. Wrap-up:

1. It's too early to tell if the western metro areas will act as good environmental stewards as they grow.
2. However, there are some discouraging signs: (a) gridlock in coming to terms with sustainability; (b) state law that either discourages good stewardship or fails to actively promote it; (c) the need to rely on federal environmental laws to encourage good stewardship.
3. Leadership among elected officials at all levels, appears essential. Will we get it?