A 300-Year Water Supply Requirement

One County's Approach

Alan L. Mayo

El Paso County, Colorado, has adopted and the courts have upheld a land use regulation that requires a 300-year water supply for new subdivisions. This stringent policy was developed in response to unprecedented growth pressures, limited or difficult-to-acquire surface and ground water supplies, the absence of a credible water authority for the provision of urban water, and state law that permits depletion of ground water within 100 years. The regulations are an attempt to equate the availabilities of nonrenewable and renewable water supplies, and to balance the competing needs for economic development with the desire to avoid an expensive water bailout by future generations.

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The process of gaining approval for land development takes place in the political arena. Here, a balance must be sought amongst factors that often are in competition: the demand for economic development, the desire of property owners to develop their land for maximum profit, the preservation of the individual's water rights, and the need to ensure an adequate water supply. While local land use authorities have the responsibility of approving land development projects, it is not within their province to allocate water rights. Yet, clearly the availability of services, including water, is a factor that must be considered. In regions such as the southwestern United States, where water is a scarce commodity, the property rights of land use and water use may come into conflict in the land development process.

In response to the demand for land development and concerns over the long term availability of water supplies, El Paso County, Colorado, has adopted what may be the nation's most stringent water supply requirements for land development (Ferris 1986; Hordon 1977; Mayo 1979; Thomas 1972; Wilson 1983). This article describes the technical, legal, and political issues that led to the adoption of the regulations, explains the county's means of resolving the key issues, gives an overview of the regulations, and describes the legal challenge.

Technical Issues

Urban Growth

El Paso County (Figure 1), like many urban regions in the arid west, has experienced unprecedented growth in recent years. Colorado Springs, the county's major city, has grown from less than 50,000 people after World War II to more than 263,000 people today. The current population of the unincorporated region of the county is about 86,000 (PPACG 1986). However, selection of the county as the site for the Consolidated Space Operations Center and the fact that it costs less to build in the county than in the city has led to proliferation of land speculations that at buildout would greatly increase the population of the unincorporated area.

Since 1983, more than 40 urban-density land development projects, which would house an additional 210,000 people, have been proposed for the unincorporated area (Figure 2). The projects would form a fringe of urban density developments in the unincorporated area surrounding Colorado Springs. At buildout these projects would swell the population of the unincorporated region to over 300,000 people.

Statewide Water Availability

Colorado, like many other western states, still has an abundance of fresh water. But the development of additional municipal water supplies for the rapidly growing urban communities will be difficult because of several factors (Anderson and Wengert 1977; Peak 1977; Petsch 1986). Historically, most fresh water has been drawn from surface water sources (Table 1). These supplies are predominantly controlled by agricultural interests (An-

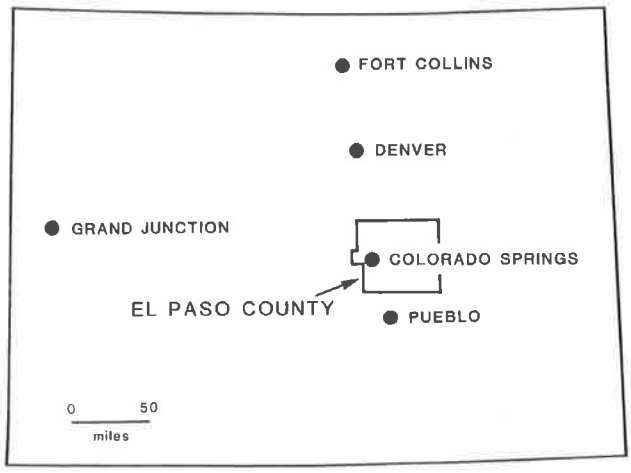

FIGURE 1: Location of El Paso County and the major cities in Colorado. All of the cities except Grand Junction lie along the base of the Rocky Mountains in what is known as the "urban corridor."

derson and Wengert 1977; Peak 1977; U.S. Army Corps. of Engineers 1986). Only 14 percent of Colorado's major surface flows are near the urban corridor (Figure 3) and, except in the Pueblo region, the potential for developing new gravity-fed municipal surface water supplies is limited (Petsch 1986).

Because the state contains part or all of the headwaters of several interstate and international river systems, about 58 percent of the state's surface run-off must be released for out-of-state uses (Petsch 1986). Significantly, the state of Colorado has not elected to be an active participant in the development and financing of major water projects. Instead, the acquisition of water and the construction of reservoirs and aqueducts have been largely left to competing irrigation, municipal, and water conservancy districts (Anderson and Wengert 1977; Ferris 1986; Peak 1977; Thomas 1972; Weatherford and Schupe 1986).

Local Water Providers

The city of Colorado Springs, the major water provider in El Paso County, has reserves and the economic means to meet the water demands of the entire region well into

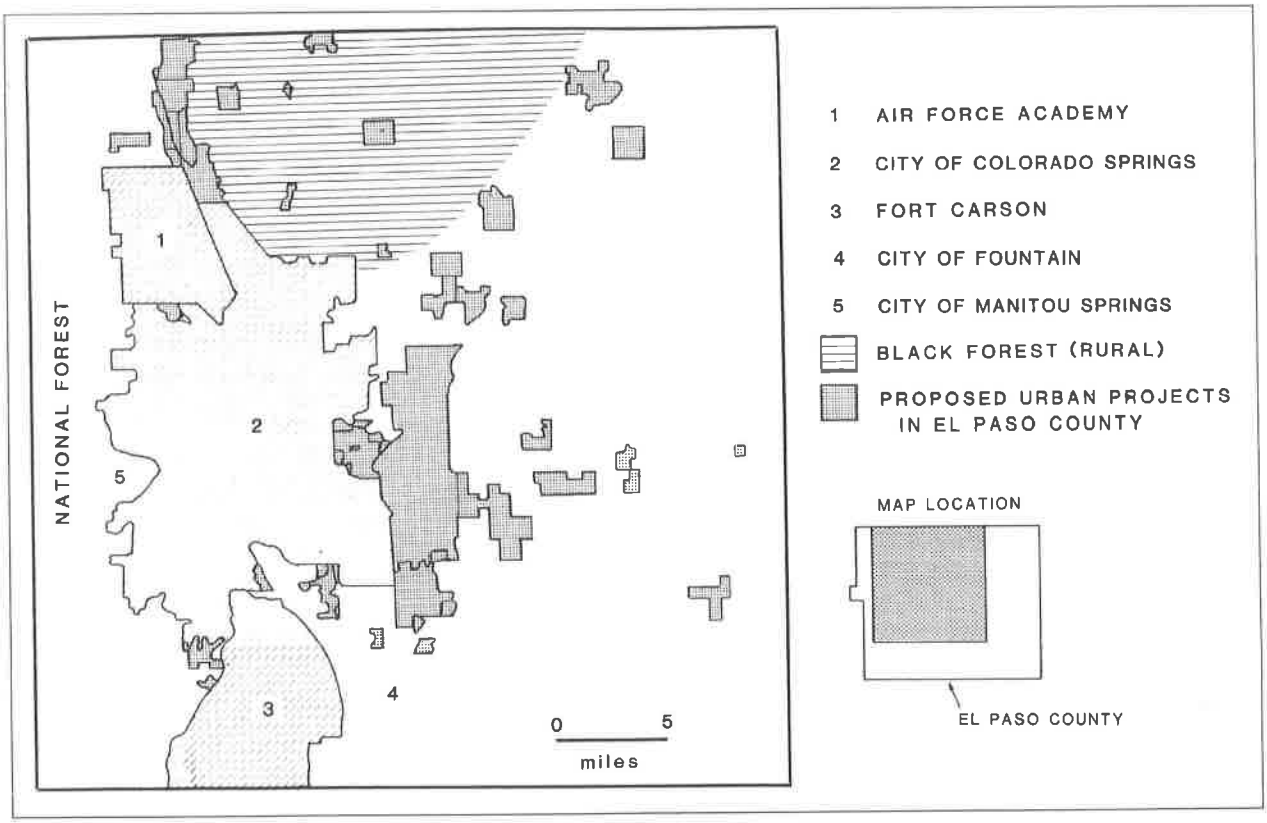

FIGURE 2: Proposed urban developments in the unincorporated portion of El Paso county form an urban fringe to the north and east of Colorado Springs. (Data from various El Paso County land use maps.)

TABLE 1: Summary of annual fresh water use in Colorado[a]

Source	Million acre feet
Total withdrawals (surface and ground water)	17.9
Surface water withdrawals	14.6
Ground water withdrawals	3.3
Use	**Percent**
Public water supply	4.3
Rural water supply	0.5
Livestock	0.7
Industrial	7.1
Irrigation	87.4

a. Modified after Petsch 1986.

the next century. In 1987 the city owned water rights to 90,000 acre feet annually, had the capability of delivering 65,000 acre feet, and delivered about 55,000 acre feet. However, the city has adopted a policy of not providing water outside its boundaries. This policy is designed, among other reasons, to protect and enhance the city's tax base by encouraging annexations.

Outside Colorado Springs, more than 30 independent municipal, quasi-municipal, and private water companies provide water service to the small satellite cities and to the unincorporated portion of the county (Figure 4). The burden of providing water service for the proposed urban growth in the unincorporated region, whose annual demand at buildout would be approximately 1 acre foot per dwelling unit, or 85,000 acre feet of additional water (Phillips 1986), would fall upon these existing and possibly new independent water providers.

Individually, none of the independent water providers has the economic means to acquire or deliver the needed 85,000 acre feet. For several reasons, efforts to create a regional water authority for the purpose of developing and distributing wholesale water have proven unsuccessful. Some water providers serve single land development projects and their interest is largely the sale of real estate, not long term water provision. Water districts serving multiple land development projects often have short term water surpluses, but are reluctant to commit a portion of their supplies to land speculators and less prudent water suppliers. Additionally, as discussed further on, without financial support from either the state or the city of Colorado Springs, the cost of purchasing local or distant water rights and developing the wholesale

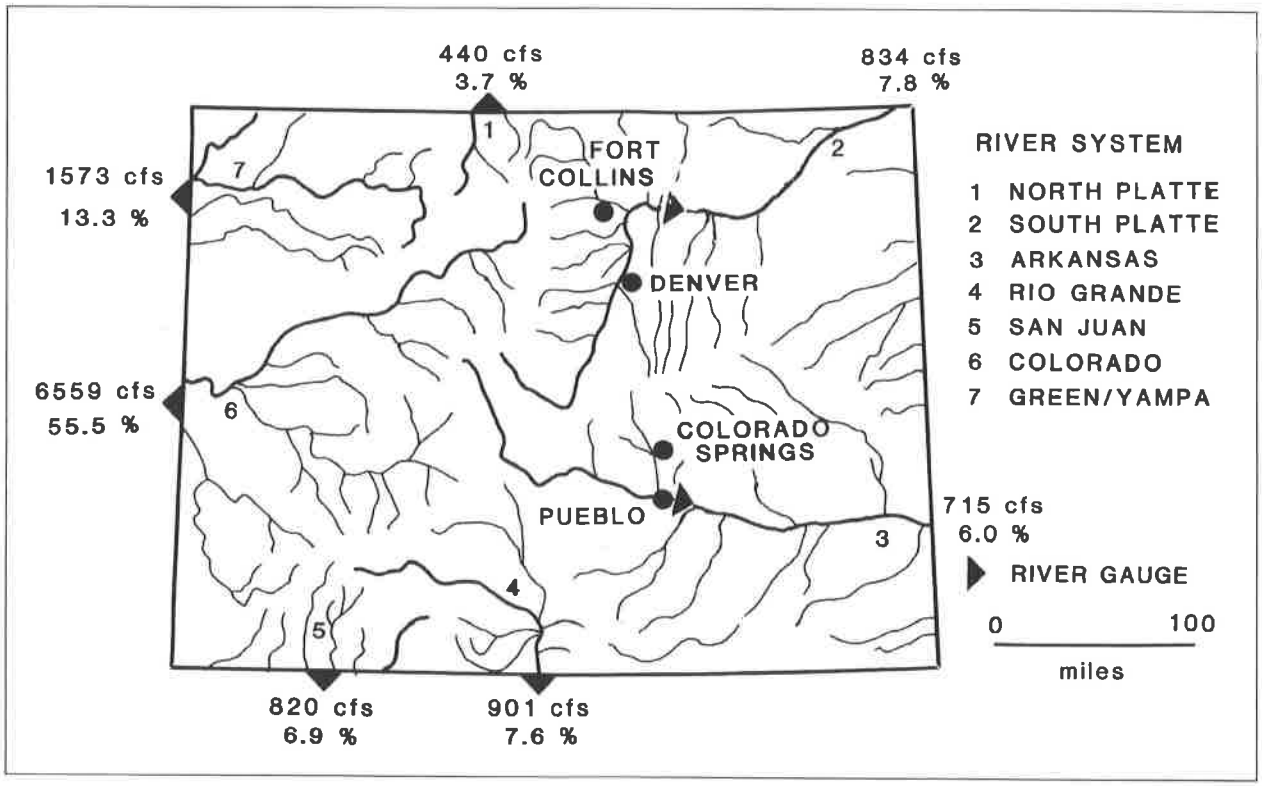

FIGURE 3: Mean annual discharge of Colorado's seven major systems. Flows in the east slope or urban corridor rivers, the South Platte and Arkansas, constitute only 7.8 and 6.0 percent, respectively, of the state's total surface water. (Modified after Petsch 1986.)

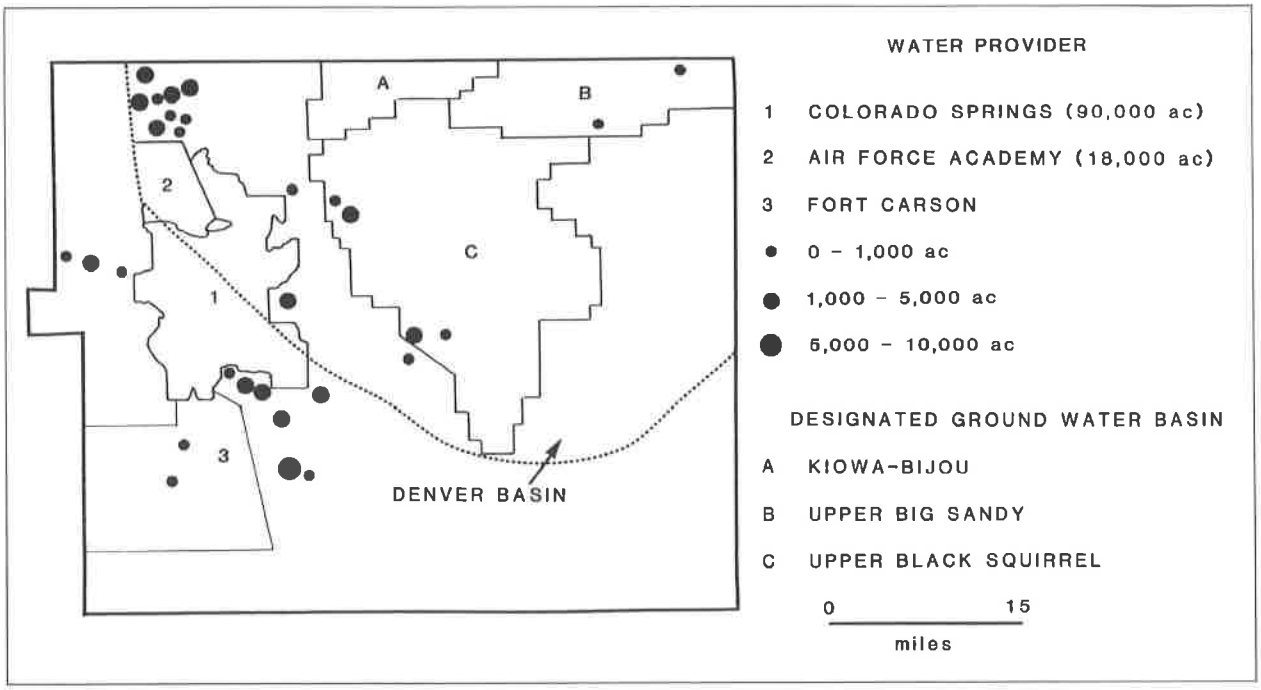

FIGURE 4: Location and size of service area of water providers and designated ground water basins in El Paso County, Colorado. Serving 90,000 acres, the city of Colorado Springs is the dominant player. Although large in size, the military bases of the Air Force Academy and Fort Carson have minimal urban areas. The dotted line represents the limit of the Denver hydrogeologic basin. Land located outside the Denver Basin has minimal ground water resources. (Data from various El Paso County land use and state engineer Denver Basin hydrogeologic maps.)

distribution infrastructure is presently beyond the means of a coalition of local water purveyors.

Potential Sources of Additional Water

Both availability of water and economic considerations are important factors affecting the ability of the independent water providers to meet their share of anticipated additional water demand. There are four potential water sources: local and distant surface water, renewable alluvial ground water, and nonrenewable bedrock ground water. Only bedrock ground water from the Denver Basin and distant surface water are available in sufficient quantities to serve the anticipated high-density growth in El Paso County, and under present conditions only bedrock ground water is economically feasible.

Local surface water rights are largely controlled by the city of Colorado Springs and downstream users not in El Paso County (Livingston et al. 1976). Development of a distant surface water project from the Arkansas River or the major rivers located across the Continental Divide would require the construction of at least 50 miles of pipeline and pumping and storage facilities. Such a major river water project is attractive because it would have greater dependability than the disjointed efforts of dozens of water providers and hundreds of wells in various states of repair, and it would tend to have lower overall operational and maintenance costs than pumping ground water. However, such a water project requires substantial initial capital outlay. Bamberger (1986) estimated the initial capital cost of an Arkansas River project to be between $111 and $200 million, depending on the project size (Table 2).

In the near term the likelihood of constructing an Arkansas River project is not great. Only one of the proposed land developments is of sufficient size and financial strength to pursue such a project, but this development has been courting annexation to the city of Colorado Springs. Other possibilities for financing a major pipeline project include bonding by a regional water authority or private investment. As already mentioned, local water providers and land developers have shown little interest in forming a water authority, and private capitalization does not appear to be on the horizon.

Among renewable water sources there are 20,000 acre feet annually of alluvial ground water (unconfined, in surficial sands and gravels) in the county. This water is not a major source for new high density development in the urbanizing fringe around Colorado Springs because it is largely developed for existing urban projects (Table 3 and Figure 5). Another 3,500 acre feet of alluvial ground water in the northern county's Upper Black Squirrel Creek Basin could be developed; however, this

TABLE 2: Comparison of estimated initial capital cost of ground water and river water projects

	Annual delivery[a] (acre feet)	Water acquisition cost[b] ($/acre foot)	Total water acquisition cost ($ × 10^6)	Total construction cost ($ × 10^6)	Unit construction cost[b] ($/acre foot)	Total capital cost ($ × 10^6)	Unit capital cost[b] ($/acre foot)
Arkansas River							
42-inch pipeline[c]	18,000	2,000	36.0	75.0	41.67	111.0	61.67
54-inch pipeline[c]	20,500	2,000	41.0	99.9	48.73	140.9	68.73
66-inch pipeline[c]	31,625	2,000	63.2	131.6	41.61	200.8	63.35
Denver Basin ground water							
Single well[d]	75	2,500	0.19	0.22	29.3	0.41	54.33[d]
Well field[e]	28,300	2,500	74.3	88.0	31.1	162.3	57.35[e]

a. Minimum project size.
b. Assuming 100-year amortization, interest not included.
c. From Bamberger 1986.
d. Based on a single Denver Basin well. Actual 100-year capital cost will be higher because additional wells will be required.
e. Denver Basin well field. Construction costs are for the first 50 years only, and project includes 122 initial wells and 197 additional wells. Actual 100-year capital cost will be higher because additional wells will be required.
Sources: U.S. Army Corps of Engineers 1986 and Bamberger 1986.

water is not available for use in the urbanizing fringe because the Basin's Management District has adopted a "no export" policy. The southern portion of the county is underlain by up to 5,000 feet of low water-producing Pierre Shale (Bryant et al. 1981; Scott et al. 1981; Scott and Wobus 1973; Trimble and Machete 1979).

There is ample nonrenewable bedrock ground water (in deeper aquifers) for the development of the proposed high density urban projects. An estimated 64 million acre feet of nonrenewable Denver Basin ground water is stored in 4 bedrock aquifers in the northern half of El Paso County (Table 3 and Figure 6). However, extractable

TABLE 3: Summary of ground water resources in El Paso County, Colorado

	Renewable alluvial		Nonrenewable bedrock				
Typical aquifer parameters and well yields	Fountain and Jimmy Camp Creeks	Upper Black Squirrel designated basin	Dawson	Denver	Arapahoe	Laramie-Fox Hills	Total
Transmissivity (ft^2/d)	—	—	0–1,200	0–100	0–300	0–100	
Storativity (10^{-4})	—	—	2–8	2–6	2–4	2–4	
Specific yield (%)	25 est	25 est	15	17	17	20	
Well yield (gpm)	to 1,000	to 1,000	0–225	0–225	0–225	0–225	
Estimated storage (10^6 acre feet)							
Tributary	0.1	0.35	9.04	5.36	6.02	2.94	23.36
Nontributary	0	0	0	2.22	3.71	4.67	10.69
Designated basin	0	0.35	1.67	8.05	10.83	9.01	29.61
Total	0.1	0.35	10.71	15.63	20.56	16.71	63.61
Percent in designated basin	0	100	15.6	51.5	52.7	53.9	46.7
Annual recharge (acre feet)	9,000+	11,000					
Annual appropriation (acre feet)	9,000+	76,435					
Annual withdrawal (acre feet)	9,000+	7,500					

Sources: Livingston et al. 1976 and state engineer's Denver Basin maps.

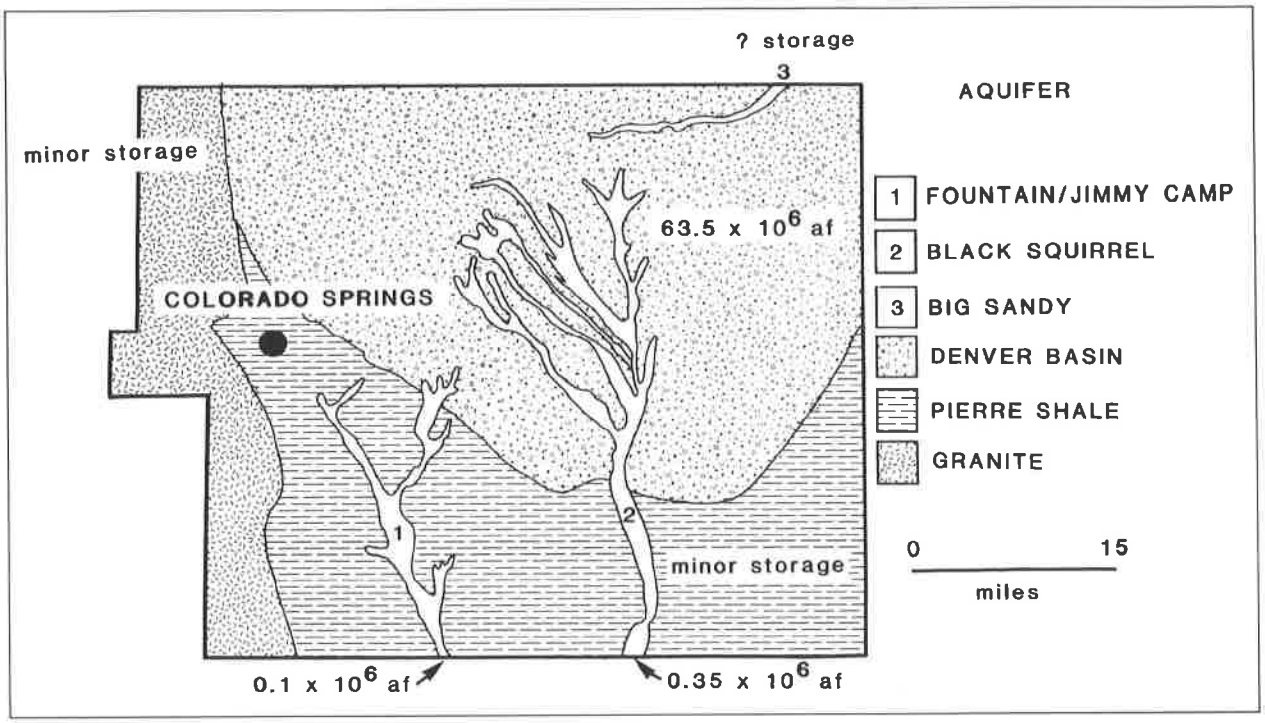

FIGURE 5: Simplified hydrogeologic map of El Paso County, Colorado. Only alluvial and Denver Basin aquifers contain sufficient quantities of ground water to support urban density development. Renewable aquifers include alluvium in Fountain, Upper Black Squirrel, and Big Sandy Creeks. Nonrenewable bedrock ground water is limited to the Denver Basin. Estimated quantities of ground water in storage are shown in acre feet. (Data from various state engineer Denver Basin hydrogeologic maps.)

ground water may only be 32 to 54 million acre feet, because economical recoverable yields are only 50 to 70 percent; potential commercial production is also hindered by the discontinuous nature of the water-bearing horizons and the depth to many aquifers (Robson and Romero 1981a, 1981b; Robson et al. 1981a, 1981b). Also, well-production rates of Denver Basin wells are typically 200 gpm or less (low for commercial wells) because of hydraulic conductivities—0.5 to 2.0 feet/day (Robson 1983). Finally, existing low density housing covers much of the deeper portions of the basin, so those ground water rights would be difficult to acquire and consolidate. Therefore, acquisition and development of this source as a single water project to meet the anticipated annual need of 85,000 additional acre feet would be difficult.

Development of bedrock water supplies is within the financial means of smaller subdividers, however (see Table 2). The initial capital cost of a small bedrock water project that will serve a 150-home subdivision is about $410,000, or $2,733 per house. Such a project would require only a single 75-gpm well. The drawback is that not all proposed projects overlie sufficient quantities of Denver Basin water. Potentially extractable ground water is not evenly distributed throughout the basin (Figure 7). Also, the long term cost of supplying the total proposed urban-density development from such sources may be nearly as great as the cost of a major surface-water importation project because of the eventual need for satellite well fields and a costly well replacement program (see Table 2).

The Legal Framework

Over the past century the state of Colorado has developed a comprehensive but confusing body of water law. For the most part, water law is based on the concept of prior appropriation and is largely designed to protect surface water rights. From the perspective of long range planning in El Paso County, the most significant ground water regulation is the so-called 100-year depletion rule established by Senate Bill 213 (1973) and Senate Bill 5 (1985). These laws require a minimum useful life of 100 years for many Colorado aquifers; they permit mining (i.e., removal of ground water at a rate greater than natural recharge) of nonrenewable ground water at a rate of 1 percent per year.

This 100-year depletion rule is significant because a substantial portion of the proposed water supplies for most of the 40 proposed developments are based on it. Extraction of underlying bedrock ground water, at a rate

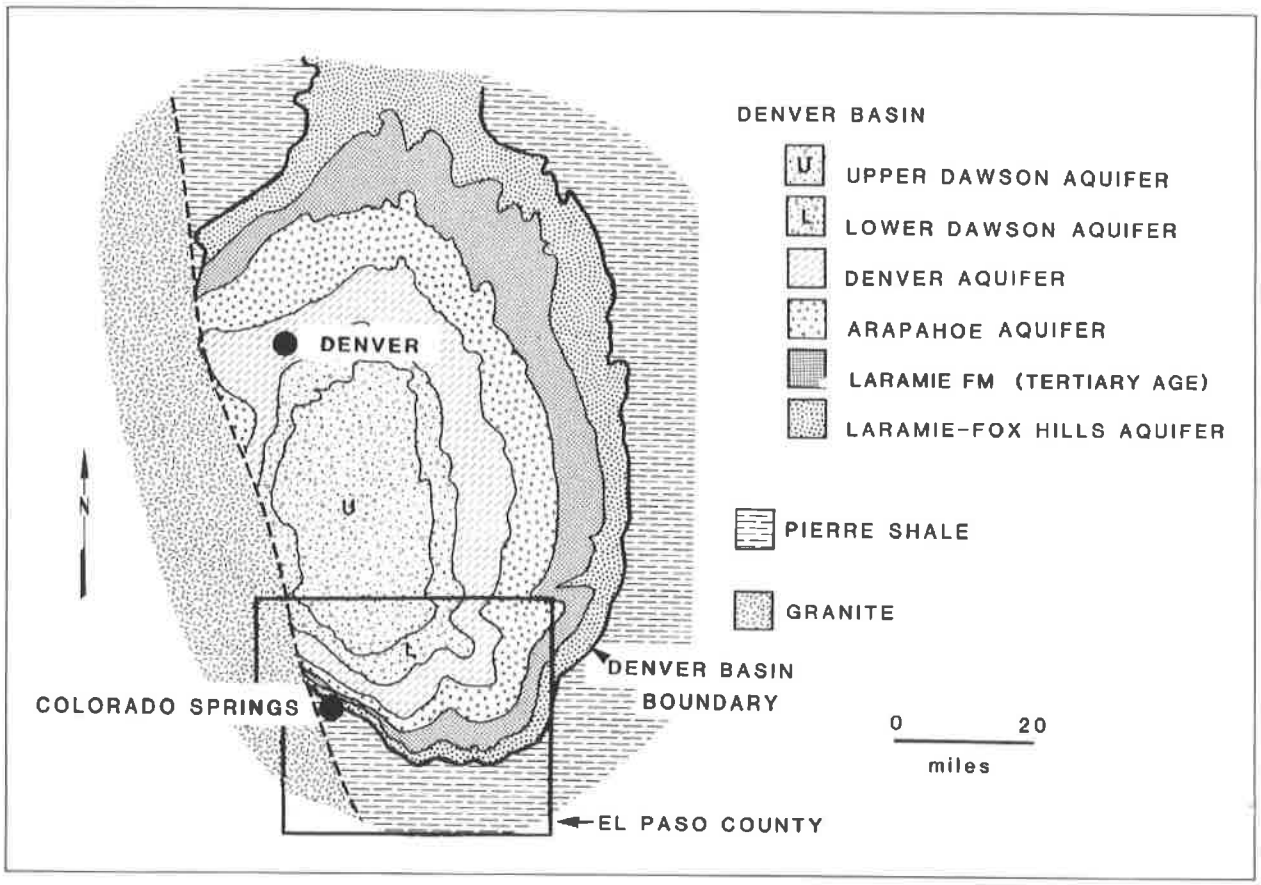

FIGURE 6: Simplified hydrogeologic map of the Denver Basin, Colorado. The Dawson, Denver, and Arapahoe aquifers are part of the Dawson Formation, dating from the Upper Cretaceous-Paleocene age. The Laramie-Fox Hills aquifer is the lower-most Laramie Formation and the upper-most Fox Hills Formation, both of which are from the Upper Cretaceous age. (Modified after various state engineer Denver Basin hydrogeologic maps.)

of 1 percent per year, would initially provide sufficient supplies for most proposed urban density developments. However, the underlying supplies would likely become exhausted in less than 100 years because of the low economical recoverable yield (50 to 70 percent). Timely replenishment of withdrawn supplies from nondeveloped or sparsely developed regions of the Denver Basin is unlikely because of the low aquifer transmissivities and the pumping interference effects of adjacent well fields. Eisel (1987), using the computer code MODFLOW, demonstrated that there would be no subsurface inflow to a hypothetical property surrounded by a fully developed well field.

Although Colorado water law is well defined and often detailed, planning law, particularly regarding public services, is of a more general nature. Colorado statute CRS 30-28-133 requires each county to adopt subdivision regulations. The subdivision regulations must include provisions requiring subdividers to submit "adequate evidence that a water supply that is adequate in terms of quality, quantity, and dependability will be available for the proposed subdivision." However, Colorado statute and implementing regulations do not define "adequate" and do not establish guidelines for counties to define "adequate." Prior to the El Paso County case the relationship between water rights and planning law requiring adequate water services had not been clarified by the courts.

Development of the Water Policy

The Board of County Commissioners recognized that a dependable water supply is critical for the long term viability and economic health of the new urban area. They also recognized that, in the absence of state intervention, the problem of ensuring water supply for land development had to be solved at the local level. Accordingly the board spent three years evaluating alternative water supply programs and policies.

Between 1984 and 1986 the county considered three

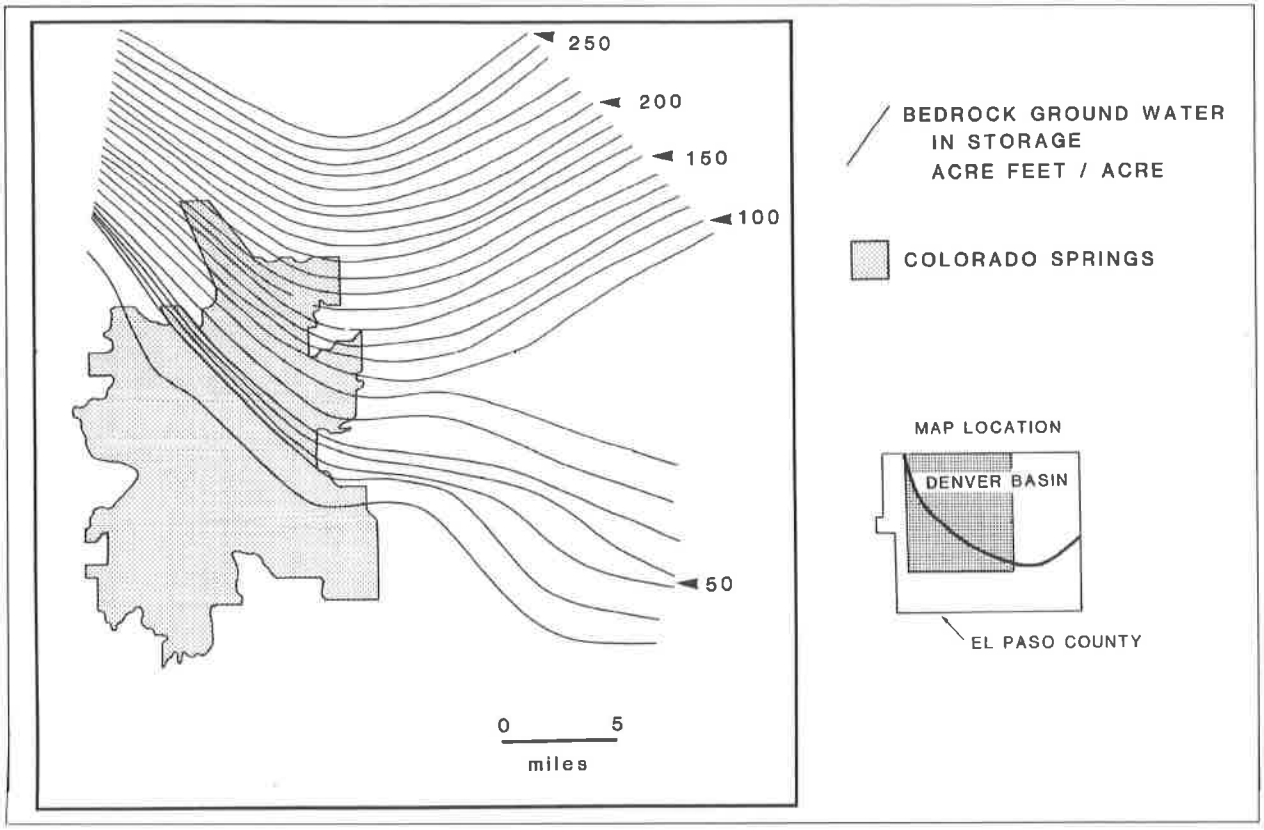

FIGURE 7: Distribution of stored ground water in Denver Basin aquifers in the proposed urban fringe of Colorado Springs. Proposed projects north of the city tend to have ample ground water, whereas those to the south often have less than 50 years' supply.

major water supply options. The first alternative, the County Water and Wastewater Systems (COWWS), was quite visionary (El Paso County 1985). Under the COWWS the county and private industry would develop a loop water and waste water system. Water would be pumped from the Arkansas River and then delivered to the county along 50 miles of pipeline. Waste water would then be treated and discharged back into the Arkansas River. Escalating cost estimates, the absence of private funding, the uncertainty of retail sales, and the lack of technical expertise among the staff caused the project to be dropped.

Next, the board appointed the El Paso County Resource Management Board (RMB). The RMB was composed of citizens, land developers, water suppliers, and county staff and was charged with evaluating water supply alternatives. In 1985, the RMB recommended that the county resolve the water supply issue by adopting subdivision regulations requiring urban density projects to provide either a 200-year supply of bedrock ground water or renewable water.

The county then hired a consultant to review the RMB report and to prepare draft subdivision regulations. These were reviewed by the board, water providers, developers, other government agencies, and the public. The adoption process was lengthy and was designed to solicit public comment. Policy proposals were discussed and refined at a series of public work sessions with the Board of County Commissioners. Formal adoption followed review and comment by the county's Regulatory Review Committee and the Planning Commission.

In November 1986 the board adopted a very controversial set of water supply regulations. The final policy draft was a compromise between voices calling for a 100-year policy and voices calling for a 400-year or longer policy, and was an attempt to strike a balance between the long term reliability of renewable supplies and the much greater availability of nonrenewable supplies.

Objections to the Proposed Policy

The proposed regulations polarized the community. Traditionally influential lobbies, including land developers, the Home Builders Association, water suppliers, and many members of the business community, strongly objected to the proposed policy because of fears that the policy would impede economic development and for general philosophical reasons. Specific objections were based on the following issues:

1. The requested density of many proposed land development projects was based on the supply of underlying nonrenewable ground water and on the 100-year depletion rule. The proposed policy would require, in some instances, the acquisition of additional water supplies, thus increasing the up-front cost and reducing the economic advantage over projects in the city of Colorado Springs. In some cases land had been purchased on a speculative basis and often at inflated prices. Securing additional water supplies could make some projects economically infeasible.
2. Many local water providers are chartered by the state as quasi-governmental agencies and have taxing authority. Some of these agencies objected to what they perceived as county interference in their legally chartered activities.
3. It was also argued that the 100-year ground water depletion rule entitled a land owner to a land use density commensurate with the annual withdrawal rate during the 100 years. In other words, opponents argued that maximum ground water extraction rates established by water law also established land use density. These opponents contended that lesser densities reduced their annual extraction rate and were thus illegal.
4. Growth-based economic interests, such as the Home Builders Association, the Chamber of Commerce, and owners of land in the path of urban growth, generally felt that the extra expense of acquiring additional water supplies would slow growth. Their general view was that development should proceed on available water supplies and that the long term water needs of the region would be most effectively resolved after the tax base had expanded through regional growth.
5. El Paso County, like many regions, is in a transition period, changing from a rural community into a large urban region. Such transitions may be politically difficult when long-held views of perceived individual rights begin to give way to more communal needs.

The City of Colorado Springs, other local municipalities within El Paso County, and the vocal public strongly supported the regulations. The expressed concern of the city was that it not be called upon at a later date to provide a "water bailout" outside the corporate boundaries. The state engineer, who issues well permits, held the position that the regulations did not violate state water law and that the county should determine for itself what constitutes "adequate" in terms of quality, quantity, and dependability.

In adopting the water supply requirements the county had to resolve four issues that are common to many planning agencies:

1. What constitutes an adequate water supply?
2. How should renewable and nonrenewable water sources be equated in terms of long term adequacy?
3. Does a ground water extraction right or other water right issued by the state constitute a land development right?
4. How should short term gain from economic development be balanced against the potential need for a publicly financed bailout if water supplies become inadequate at some future date?

The county commissioners were faced with quite a dilemma. The county acknowledged the validity of the conventional wisdom that an adequate water supply for major western urban areas should be based on renewable sources. However, such supplies were not readily available, and the prospect of either the public or private sector developing sufficient quantities of renewable water was doubtful. The effect of the county requiring renewable supplies for urban density developments would be to force all development into the city of Colorado Springs because the development community could not afford to build an Arkansas River project. Although forcing development into the city might ease the burden of extending public services, in terms of equity and from a purely political perspective, this alternative was unacceptable. Requiring renewable water was viewed as a no-growth policy and was not acceptable to the general public or any of the commissioners.

The commissioners also recognized that the region's vast quantity of nonrenewable bedrock ground water is a valuable resource that could play an important role in urban and economic development. The board was reluctant, however, to allow major urban development on the basis of a water supply that would be depleted within, at best, 100 years. Within 70 years or less, use of such a supply could require, as elsewhere, a very expensive major intervention. In Arizona, for example, where construction of the Central Arizona Project was necessary to bring Arizona's remaining entitlement of Colorado River water to central Arizona, new state ground water management legislation was required to alleviate the current rate of ground water overdraft (Ferris 1986).

A Resolution

The El Paso County commissioners recognized that development of a water supply policy would require a careful balancing of water and planning law. Because of state ground water law, the county could not adopt a policy that restricted the rate at which ground water could be withdrawn or that would require the owner of a ground water right to take more than 100 years to completely de-water an underlying aquifer.

The board resolved the issues of adequacy and the use of renewable-versus-nonrenewable supplies in one stroke. An adequate supply for an urban density project was established as sufficient water to meet project needs for a period of 300 years, regardless of the source of that water. Renewable surface and renewable ground water both meet the 300-year criterion on face value. Sources for a project could be mixed. For example, a project could be started on a 100-year supply of nonrenewable ground

water, provided an alternative source of nonrenewable or renewable water would be available at the end of the 100-year period.

It was the county's position, with concurrence from the state engineer, that under water law the issuance of well permits and water rights entitled the owner of the permit or right to remove and use a specified quantity of water. However, water law does not confer land development rights or establish what is an adequate supply of water for land development. Rather, the county, under planning law, has the obligation to determine independently land use densities and to decide what constitutes an adequate water supply for nonagricultural land use. In a stand of political courage the county commissioners decided that problems associated with today's growth should be solved today rather than pushed off onto future generations.

The regulations include the following elements:

1. Prior to project approval, the board of county commissioners must make a finding that a proposed water supply plan is adequate with respect to quality, quantity, and dependability. The applicant is required to submit a water resources report conforming to specified criteria. The county attorney, county hydrogeologist and county health department must analyze the report and make recommendations as to the adequacy of the proposed water supply.
2. The applicant has the sole responsibility for providing and documenting that an adequate water supply will be developed. When water districts are involved, the district will usually supply the needed information.
3. The board's findings are to be guided by criteria that define adequacy of a proposed water supply with respect to quality, quantity, and dependability.

   Quality:

   a. Water quality screening is required for all water sources that will be utilized during the first five years of project life. Screening must adhere to state standards for inorganic and organic contaminant levels.

   b. A presumption is made that individual wells serving projects of 4 parcels or less meet the water quality standards.

   c. Under foreseeable future conditions the proposed water supply may not exceed water quality standards.

   Quantity:

   a. The land developer must secure a 300-year supply of water for each subdivision. The commissioners recognized that a calculated 300-year supply of nonrenewable bedrock ground water might be available for only 210 years or less because of the problem of economic recovery.

   b. Water may be from a single source or any combination of renewable and nonrenewable sources. Renewable sources meet the 300-year criteria on face value. Quantities of available water supplies are established by the state engineer, the Colorado Ground Water Commission, and the courts. The quantity of available nonrenewable ground water is usually based on a 100-year depletion.

   c. Estimates of annual water demand must be based on the presumptive use values. The values are based on an average indoor use of 80 gallons per occupant per day; an occupant density of 2.91 and 2.32 persons per dwelling unit for single- and multiple-family units, respectively; an outside use of 0.0566 acre feet per 1,000 square feet of irrigation (2.46 acre feet) and 1 acre foot per acre of commercial or industrial land plus irrigation requirements. The applicant may demonstrate other values that are more appropriate.

   Dependability:

   a. Well permits, court decrees, and state-approved augmentation plans and other legal documentation are necessary to demonstrate that the proposed water supplies are available for project use.

   b. The applicant must demonstrate through financial and capital improvement plans that the proposed water supply plan can be constructed.

   c. Water supplies must be irrevocably committed to the proposed subdivision.

   d. The proposed physical facilities must be capable of meeting peak daily, peak annual, and extraordinary water demands.

   e. Aquifers and wells must be capable of delivering projected supplies; production-well testing is required for commercial wells.

   f. For a project based on nonrenewable ground water, where the aquifer may be exhausted within 100 years the water provider must have acquired the rights to and must have shown the economic feasibility of developing a substitute supply when needed.

4. After project approval the county may withhold building permits if water is not available as planned.

Legal Challenge to the New Policy

The newly adopted subdivision regulations were immediately challenged in water court and in district court by a coalition of land developers and water districts. The plaintiffs sued for $100 million in damages and requested that the regulations be set aside. The plaintiffs charged that:

1. The regulations would interfere with established water rights by limiting the withdrawal rate of nontributary ground water to 1/3 of 1 percent per year. They claimed that the regulations created a 300-year depletion rule.
2. The regulations constituted an arbitrary and unreasonable exercise of authority.
3. The county's action constituted an unconstitutional taking of property without compensation.
4. The county's action was ultra vires (i.e., beyond the authority of the county).

Early in the legal proceedings, the water court determined that it did not have jurisdiction because the suit was not a water matter. The district court dismissed the damage claim and ruled in favor of the county on all issues. The court found that state water and planning laws have equal standing, and that ground water law that grants the right to extract ground water at 1 percent per year does not constitute the right to develop urban density land uses based on this water extraction rate.

Noting that adoption of the regulations was a legislative action carrying a presumption of validity, the court found that evidence presented by the state engineer, elected officials, and county consultants established a rational basis for the county's action. The court was therefore hesitant to substitute judicial judgment for political judgment.

The court found that the challenge was a facial one and that no evidence demonstrating that property had been taken was presented. To establish taking, all reasonable uses of property, not just the most profitable ones, have to be prohibited. The court further ruled that the county's action was not ultra vires and that the issue of establishing criteria for determining sufficiency of a water supply is correctly resolved through the political legislative process.

The case was appealed to the Colorado Supreme Court, which refused to hear it. In January 1989, the Colorado Appellate Court ruled in favor of the county.

Implications for Land Use Planning

The El Paso County commissioners have demonstrated that local government can take the lead and break new ground in water supply requirements for land use. The commissioners understood and balanced ground water issues that were complex technically, scientifically, and legally, with politically sensitive land use and economic growth issues. In adopting the 300-year water supply criteria the commissioners filled the planning void created by state government.

El Paso County took a conservative approach when adopting water supply requirements for urban development. An attempt was made to equate the availabilities of nonrenewable bedrock ground water and renewable surface water, and to balance the competing needs for economic development with the desire to avoid an expensive water bailout by future generations. Adoption of the regulations required a careful avoidance of water rights injury. This approach is consistent with the general western water supply standard of developing long term supplies for high density uses.

The court's affirmation of the county's right to establish independent criteria for determining the adequacy of water supplies greatly strengthened the ability of other local Colorado jurisdictions to set public service criteria. The consequences of the court action are already felt in Colorado. For example, Douglas County, located adjacent to El Paso County, has recently adopted a new and stringent water supply requirement for proposed urban density land development projects.

Perhaps more important, the court case established in Colorado, and possibly strengthened elsewhere, the principle that planning law has equal standing with other bodies of law, such as water law, and that local land use planning agencies may establish criteria for what constitutes adequate levels of public services and facilities. This equal standing exists even when planning law is somewhat ambiguous and other laws are explicit and detailed. The court decision also reinforces the idea that local planning agencies can set criteria for the adequacy of public services for land development even though they have no specified authority over service-providing agencies.

The ideas that equal standing exists between water law and planning law and that local planning agencies may establish adequacy criteria for public service levels are useful concepts in planning, regardless of the state ground water laws. The important fact is that all ground water laws merely impart the right to extract and use ground water; they do not impart a specified land use density, even in cases where the water right is based on a specified beneficial use. From the perspective of land use planning it makes little difference if the ground water right is based on English rule (the right of absolute ownership of water under the land), the American rule (the right to use only reasonable amounts of underlying ground water), appropriative rights (the right to appropriate water for beneficial use regardless of land ownership), or correlative rights (land owners can use reasonable amounts of water and the excess is appropriable). Planners must bear in mind that decisions regarding land use types and densities rest with local authorities and that the availability of public services, including water, is one of the factors that must be carefully considered.

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