

CHAPTER SIX

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6.01 Water

The City of Española faces major issues with regard to water, including system capacity, contamination of ground water and water rights. Yet, such issues are not isolated to the City, rather water related issues present concerns to the region as a whole. And as such, regional approaches and collaborative city, county, and pueblo efforts are an important means to addressing water related issues in and around Española.

The City of Española is completely reliant on ground water for its municipal water supply. Over the past 40 years, several City wells have been abandoned, due either to infrastructure failure, or ground water contamination. (Molzen Corbin 2000) This trend emphasizes the ever present threat of ground water contamination (both natural and introduced) to the City. In addition to this threat, the City is challenged with the increasing federal water quality regulations as well as a growing demand on the current municipal system. Certainly, a key concern facing Española is a safe and reliable water supply for future generations.

A. Water Quality. The hydrology of the Española area can be described as a river valley containing a thin lens of highly-permeable alluvial fill material above a thick sequence of low-permeable siltstone and sandstone. In the immediate Española area, the river valley is divided into 3 hydrogeologic zones: the western foothills zone; the inner valley zone; and, the eastern foothill zone. (Molzen-Corbin 2000) Overall, natural ground water quality in the Española Valley is generally good, but exhibits some variability with respect to location and depth. For instance, the aquifer characteristics of the western and eastern foothills are similar, with adequate well yields and water quality. In the inner valley zone, however, much of the alluvium / shallow aquifer is contaminated with nitrate and organic compounds. In

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the deep aquifer, naturally occurring fluoride is present at levels at or above the drinking water standard. The exploration and location of future wells and related infrastructure should recognize the hydrogeologic conditions and natural water quality of these valley zones. (Molzen-Corbin 2000)

There are 19 leaking storage tanks in Española, as well as ground water contamination from an old City land fill in the Santa Cruz area. (Molzen-Corbin 2000) In addition, pollution (tetrachloroethylene or PCE) from a dry cleaning laundry has migrated underground to form a shallow plume of contaminated water (approximately 58 acres) near North Railroad Avenue and Hunter Street in Española. The plume was responsible for the contamination of two City wells in 1989 and is slowly migrating south towards the Rio Grande. A federal Superfund cleanup is expected to begin in 2003 and will take 10 years to complete. (Collins 2002)

B. Water System Master Plan. The City of Española has hired Molzen-Corbin to prepare a Water System Master Plan for the city and immediate area. The overall objectives of the Master Plan are to analyze the existing water system, and identify current and future needs. Phase I of the Master Plan focuses on current population and immediate needs and was completed in January 2000. Phase II focuses on future growth and expansion of the water system area, and at the time of this report, was still under development.

Phase I of the Master Plan includes the following:

1. analysis of current population connected to existing water system
2. analysis of existing water use
3. analysis water supply and water quality
4. evaluation water rights
5. analysis existing water system
6. recommendations for improvements
7. cost estimates for improvements
8. discussion of water conservation measures

Phase I of the Master Plan estimates the City's 1999 water service population to be approximately 8,633 persons (rounded to 8,700 for the purpose of the report) which includes 8,468 people within City limits and 165 people outside current City limits. Overall, inside the City's limits, an estimated 78 percent of the population is served by a total of 7 wells of the municipal water system. (Molzen-Corbin 2000)

The City of Española's annual water use of 150 gallons per capita per day (gpcd) is consistent with other surrounding communities (i.e. Los Lunas – 162 gpcd and Santa Fe – 145 gpcd). Residential use accounts for the majority of water use (63.6 percent) in the City, followed by commercial (31.1 percent) and City use (5.3 percent).

Phase I of the study reports that the existing well production capacity of 1,250 gallons per month (gpm) is insufficient to supply the estimated demand of 2,200 gpm during summer months. The Master Plan indicates that the distribution network which is used to supply water throughout the water service area is adequate for day and peak day demands. However, due to small diameter piping and many long dead-end lines, the existing distribution system cannot accommodate the minimum fire flow protection to most of the City during day and peak day demands. (Molzen Corbin 2000)

Overall, the 2000 Master Plan outlines ten improvement projects, including the replacement and rehabilitation of existing wells, the replacement of old transmission lines; and, the installation of new water transmission lines at various locations within the current service area. Since the completion of the report, City staff and consultants have been working to prioritize the improvement projects, and ultimately: 1) improve the reliability of the current water system; 2) improve fire protection to critical areas; and, 3) extend the life of existing facilities.

In light of the limitations of production capacity outlined in the Water System Master Plan 2000, the City Council declared a situation of emergency and on November 13, 2001, approved a 90-day moratorium on new development approvals and water hook-ups within the City. The moratorium included a delay in development on new subdivisions and mobile home parks; delay in the issuance of new construction building permits, zoning permits for new structures and utility permits for new city connections. The moratorium (originally set to be in effect for 90 days) was lifted by the City Council in September 2002. (City Manager's Office 2001; Trapp 2002)

C. Jemez y Sangre Regional Water Plan. The Jemez Y Sangre Water Planning Council was formed in 1998 to address water availability and distribution for Santa Fe and lower Rio Arriba counties. The Council is developing the Jemez Y Sangre Water Plan. The regional water plan will answer the following

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questions: (1) What is the supply available to the region? (2) What is the region's current and projected demand for water? (3) What are the region's alternatives for using available supplies to meet projected future water demands, including reduction of demand? (4) What are the relative advantages and disadvantages of each proposal with respect to local values and criteria? (5) What are the best water supply alternatives and how will they be implemented?

D. Hernandez Agua Sana Project.

Information about this project here

E. Cuatro Villas Mutual Domestic Water Users Association

The Cuatro Villas Mutual Domestic Water Users Association (MDWUA) is a nonprofit community organization established under the laws of the New Mexico Sanitary Projects Act to provide domestic water to its members – property owners in the communities south of the City of Espanola including: La Pueblo; Sombrillo; Cuartelez; and El Valle de Arroyo Seco.

The health and safety of citizens within the Cuatro Villas service area is at risk as they continue drinking and using the existing contaminated water sources from their service providers at La Pueblo and El Solacito and from individual domestic wells. Studies indicate elevated levels of fluoride, arsenic, nitrates, radionuclides, and uranium in the water supply. Additionally, the Cuatro Villas population is expected to grow in the next 30 years, placing further pressure on the limited water supply and greater health and safety risk. To address the water quality and quantity issues, the Cuatro Villas MDWUA is promoting the development of an improved mutual domestic system for the four communities of Cuatro Villas.

At the time of this report, the Cuatro Villas MDWUA had recently completed *Phase III-Need for Project Feasibility Study, Cuatro Villas MDWUA Regional Water System Improvements*. Phase IV is expected to provide water system design alternatives, while Phase V will offer cost estimates for construction and proposed phasing of the final system. Representatives from the City of Espanola have been informed of the project and have been invited to participate in this regional initiative.

6.02 Wastewater

A. Wastewater System Master Plan. The City of Española has hired Molzen-Corbin to prepare a Waste Water System Master Plan for the city and immediate area. The overall objectives of the Master Plan are to analyze the existing waste water system, and identify current and future needs. Phase I of the Master Plan focuses on current population and immediate needs and was completed in January 2000. Phase II focuses on future growth and expansion of the wastewater service area, and at the time of this report, was still under development.

Phase I of the Master Plan includes the following:

1. analysis of current population connected to existing wastewater system
2. analysis of existing wastewater flow
3. review of wastewater quality characteristics
4. examine current & proposed regulatory requirements
5. summarize existing wastewater treatment system
6. propose wastewater treatment and sludge disposal needs and alternatives
7. cost estimates of treatment and sludge disposal needs and alternatives
8. summary of existing wastewater collection system and hydraulic capacity
9. propose collection system needs
10. provide overall recommendation and implementation plan

Phase I of the Master Plan estimates the City's 1999 wastewater service population to be approximately 9,100 persons. Unlike the water system, there are no wastewater accounts outside of City limits. (Molzen-Corbin 2000)

The city's wastewater system discharges about 1 million gallons per day of treated effluent into the Rio Grande. In recent years, there have been regulatory changes regarding the discharge of the treated effluent to the Rio Grande. With regards to the City of Española's wastewater treatment plant, an ammonia limitation requires the City de-rate the capacity of the existing plant from 1.6 million gallons per day to 0.66 million gallons per day. The City has received a final permit from the Environment Protection Agency and must comply with the new regulation by March 2004. (Molzen-Corbin 2000)

Many of the areas outside of the City's boundaries rely on private

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septic systems for wastewater disposal. As these areas continue to grow and develop and septic system drain fields adjacent to City limits continue to serve more households, the chance of nitrate contamination of the water-bearing strata in and around the City increases. The contaminants directly affect the quality of the City's water system and make it increasingly difficult to drill new wells to accommodate immediate and future municipal water needs. (A study conducted ten years ago found that nitrate remediation for the entire region could cost approximately \$120 million.) (CUED 2001) In light of the regional implications of water and wastewater use, the City has been involved in the initiation of a regional approach to managing water and wastewater demands now and for the future.

The City has received funding from Congress to either increase the size of the City's existing Wastewater Plant to meet federal standards or to construct a larger Regional Wastewater Facility at a central location. On November 19, 2001, the City of Española, in conjunction with Santa Clara Pueblo, Molzen-Corbin & Associates, ASCG, and a Representative from Senator Domenici's Office met with the United States Environmental Protection Agency to discuss the effects of the new permit on the City's existing waste water treatment plant (WWTP). The following is a summary of some of the alternatives available to the City that emerged from this discussion:

1. Santa Clara Pueblo/EPA revises ammonia limitation.

The City of Española continues to negotiate with Santa Clara Pueblo and EPA to relax the ammonia limitations and modify the new NPDES permit. It is anticipated that if the limitations are relaxed, some level of ammonia limitation will remain, which will result in some improvements to WWTP. The costs associated with these improvements will be determined should the permit be revised.

2. Expand the Existing WWTP to 2.0 Million Gallons per Day (MGD)

Section 7.0 of the Wastewater Masterplan completed in January 2000, describes the alternative selected by the City at that time to expand the WWTP to 2.0 MGD. The new NPDES permit dewatered the existing WWTP from 1.6 MGD to 0.66 MGD.

Expanding the WWTP to 2.0 will meet the new ammonia limitations and provide 0.40 MGD of additional capacity. This additional capacity is needed to serve the proposed subdivisions and/or extend the collection system to reduce the groundwater contamination. This 0.4 MGD will accommodate an equivalent

of approximately 4,000 people in addition to the population currently served by the sewer system.

The estimated cost for these improvements is \$8.5 million.

3. Expand the Existing WWTP to 2.5 Million Gallons per Day (MGD)

The expansion of the existing WWTP to 2.5 MGD will meet the new ammonia limitations and provide 0.9 MGD of additional capacity. This expansion may serve as a component in the proposed Regional Wastewater System and will accommodate an equivalent of approximately 9,000 people in addition to the population currently served by the sewer system. This additional capacity is needed to serve the proposed subdivisions and/or extend the collection system to reduce the groundwater contamination. The estimated cost for these improvements will be determined if this option is considered further.

4. Construct a New WWTP in La Mesilla

This alternative includes the construction a new WWTP in La Mesilla and a new interceptor from the existing WWTP to the new WWTP. This new WWTP would serve as a major component of the proposed Regional Wastewater System and would be sized initially to accommodate the population of approximately 20,000 people in addition to the population currently served by the existing WWTP. This additional capacity is needed to serve the proposed subdivisions and expand the service area to reduce the groundwater contamination in the entire region. The estimated cost for these improvements will be determined if this option is considered further.

5. Change to Zero Discharge:

This alternative would no longer include the discharge of effluent into the Rio Grande.

The following are the advantages and disadvantages of this option:

Advantages:

- Does not require an NPDES permit.
- Allows for beneficial use of the effluent.
- Extends water supply to the City by replacing potable water used for irrigation with treated effluent.

Disadvantages:

- May require a Ground Water Discharge Permit issued by the State of New Mexico for each site that effluent is discharged.

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- Cost of construction and maintenance of effluent piping distribution network.
- Effects to City water rights i.e. return flow credits.
- Winter operation/storage of effluent.
- Future requirement for filtering of effluent prior to use.

The costs associated with this alternative will be determined if this option is considered further.

In summary, the City is required to be in compliance with the new NPDES permit by March 1, 2004, which is three years of the effective date. Expanding the existing WWTP or constructing a new WWTP would not be accomplished prior to March 1, 2004 and the City would then be in violation of the NPDES permit. The City may consider requesting an extension from EPA which will allow the City sufficient time to consider all of the alternatives and to find the funding required to construct the facilities.

6.03 Stormwater Drainage

During heavy rainfall events (1 – 2 inches per day), flooding in and around City limits often occurs. In particular, North Railroad Street's southern most intersection and Sombrillo Elementary school are two areas prone to stormwater flooding during heavy rainfall events. Molzen-Corbin, the City's engineering firm, have been hired to (at the time of this report) to prepare improved stormwater drainage plans for both of these sites.

6.04 Capital Improvements

To meet current and future water and wastewater system needs, address the water and wastewater issues, and achieve recommendations outlined in the Molzen-Corbin water and wastewater studies, the City has developed a capital improvements program.

In August 2002, citizens voted to increase Gross Receipt Tax by 3/8 percent to generate revenue (to be matched by federal and state sources) for the comprehensive capital improvement program, which would include replacing water lines (existing lines result in a water loss of about 55 million gallons each year – 14 percent of the City's annual water production), developing a water filtration plant and two new wells, and developing a new regional wastewater treatment facility. (City of Española 2002)

Overall, the City's 2000-2004 Capital Improvement Program

includes a number of sewer and water projects. The projects and their total costs projected over the five-year period of fiscal years 2000 to 2004 are indicated below. (CUED 2001)

- Wastewater treatment plant expansion* \$7.5 million
- Regional wastewater facility** \$150 million***
- McCurdy Well replacement \$1.3 million
- North Well/Tank rehabilitation \$356,000
- N. Prince Drive sewer line \$3.5 million
- Lamb/Pacheco Street sewer line \$500,000
- US 84/285 sewer line replacement \$260,000
- New water well and tank \$800,000
- Booster pump station #3 \$300,000
- Treatment plant facility \$160,000

* to expand capacity

** project is still in pre-design phase and is not yet been implemented at the time of this report

*** total cost over five years

6.05 Telecommunications

The state of New Mexico has faced considerable challenges in improving its telecommunications network. It is estimated that only 3 percent of New Mexico's population has computers with broadband access compared with 13 percent nationally. While urban

areas will have more choices for broadband service, rural areas are considered the "new frontier" for service providers.

Rural areas, such as Española, have fewer options for broadband service. DSL service is currently constrained by distance limitations- cable modem access is being upgraded but could take a few years before it is available in rural areas; and ISDN is an older, slower, and more expensive technology than DSL.

Ultimately, broadband access can be provided in one of three ways: 1) T- 1 lines which are expensive, but fast, predictable, offer dedicated service and provide network connections across remote distances; 2) satellites which are fast, but expensive; and, 3) wireless service which is cheaper than the others but requires line-of-sight communication across radio towers. (CUED 2001)

A. Telecommunications Providers. Española has access to dial-up internet service providers. However, this method of access is slower and less predictable than access through broadband service such as T- 1, DSL, or ISDN.

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GTE recently sold almost 400,000 customer access lines in New Mexico and parts of Texas to Valor Telecommunications. Valor plans to bring T-1 access to northern New Mexico and establish a repair bureau's industrial park. Española will be Valor's fifth largest market. In the past, customers have complained about the lack of services provided by GTE and the slow response on new orders. In response to these complaints, GTE put in a new switch in Española at a cost of \$4-5 million that allows new features such as T-1 access, caller ID, and voice mail. Additionally, with the arrival of Valor to northern New Mexico, service should be quicker and customer-oriented. (CUED 2001)

Currently, there are two high-speed internet access providers—Range Fire and New Mexico Internet Services—serving Valor Telecommunications. Range Fire leases lines from Valor and U.S. West and bundles them and is targeting northern New Mexico. (CUED 2001)

U.S. Cable has recently finished building a fiber optic and coaxial network in the Española Valley. These lines will have a higher capacity than phone lines and will eventually be available to residential and commercial customers in and around the City limits.

Ultimately, technology-related issues, such as power availability, and affordability remain a challenge for broadband service in the rural areas of Northern New Mexico. Jemez Mountain Electric Cooperative, the power company that serves Northern New Mexico, has indicated an insufficient number of transmission lines for the service area.

Nonetheless, JMEC has been unable to build more lines due to local opposition. In addition, fiber networks may be in place in rural areas, but it may be too expensive for local customers to utilize the service. DirectPC and New Mexico TechNet, the state's largest ISP, provide service for small communities and their schools. However, many rural consumers are unaware of the options these service providers offer. (CUED 2001)

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B. Improved Telecommunication Service Efforts. Overall, statewide efforts have emerged to improve broadband access. Those efforts include: Connect New Mexico, The Broadband Coalition, and the New Mexico Telecommunications Advocacy Group (TAG Team). Connect New Mexico and the TAG Team are both mapping the telecommunications infrastructure and identifying gaps in the state's network. All three emphasize bringing advanced technology to rural areas. In addition, the TAG Team, the Northern New Mexico Community Development Corporation (CDC), and the Regional Development Corporation (RDC) are currently conducting an assessment to produce a "business case" showing gaps in service for the City of Española specifically. With the completed assessment, the organizations and the City hope to encourage internet service providers to offer the City and surrounding area improved access and features at a reasonable cost. (CUED 2001)

Jemez Electric Cooperative along with other cooperatives in Northern New Mexico have discussed joining together to create a local competitive exchange company and provide broadband service. In addition, some rural local telephone companies have begun installing their own fiber-optic cable and copper phone wire as a means to bring broadband access to their customers. For instance, Valor Telecommunications is in the process of purchasing phone lines from GTE and has plans to upgrade the existing infrastructure to offer broadband service for Northern New Mexico. (CUED 2001)

The "E-Rate" program provides a discounted rate to schools and libraries for services such as telecommunications services, internet access and internal connections. Discounts are based on the number of students eligible for the National Free Lunch Program. Schools and libraries in low-income urban communities and rural areas qualify for the highest discounts. Commitments are made annually and the discounts are paid directly to the companies that provide schools and libraries with these technology services. Española schools received a 90 percent discount up to a total of \$2.1 million in the second year of the program; they were not included in the first year. Currently, 17 schools in the region are getting hooked up to T-1 lines as part of the E-Rate program.

The Regional Development Corporation has funded initiatives both to improve access to broadband and to support training in website development and web-based marketing. RDC has



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provided Range Fire (a company offering broadband access via T-1 lines) with a grant of \$750,000 in exchange for free broadband access to Northern New Mexico Community College and reduced rates to other major institutions. Two grants totaling \$1.2 million were awarded to northern New Mexico community colleges and to the Northern New Mexico Internet Professionals Association. The community colleges implemented a comprehensive website design and operations curriculum in January 2000. Part of the program is an internship to assist small businesses with website design and operation. The second grant for training was awarded to the NNMIPA for technical assistance to small businesses in website design and maintenance. The NNMIPA will work with the community colleges and the Small Business Development Center to coordinate assistance. (CUED 2001)

TRADE is also working on initiatives to improve access in northern New Mexico. Their annual technology conference will focus on identifying where the gaps are in high-speed access.

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