Technical and Physical Feasibility Fact Sheet
Alternative 28: Infill/Density

Acknowledgements: This fact sheet was written by Phyllis Taylor of Sites Southwest as part of the "Evaluation of Alternative Actions for Technical, Physical, Hydrological, Environmental, Economic, Social, Cultural, and Legal Feasibility and Water Quality Issues and Legal Overview" contracted to Daniel B. Stephens & Associates, Inc. The format and organization of the fact sheet and the definition of the alternative were developed by the Water Assembly.

1. Definition of Alternative

A-28: Increase building densities (as compared to typical suburban density) and infill development through adoption of local government land use policies and regulations.

2. Summary of the Alternative Analysis

As described by the Water Assembly, this alternative is primarily a land use alternative with incentives and regulations related to the density and location of new development. This approach is most applicable in urban areas, including Albuquerque, Rio Rancho, and other parts of Bernalillo County. Implementation of the proposed policies and regulations would affect water demand, primarily because of lower per capita outdoor water use resulting from reductions in the amount of land devoted to irrigated landscapes.

The following alternative actions, recommended by the Water Assembly, have been incorporated into this alternative:

- Develop land at higher densities and in patterns that use less water than typical suburban development
- Increase building densities (multifamily housing)
- Increase infill development
- Redevelop brownfields
- Encourage infill by reducing new service charges

Residential and commercial (office and retail) developments are the most promising for high density development and infill. Industrial and institutional projects, which tend to be larger and require more space for parking, would be more difficult to locate on smaller infill sites. High density housing could include single-family detached homes on smaller-than-average lots, attached housing, and multifamily developments. Urban commercial centers and mixed-use centers that contain retail, office, and possibly housing on a single site typically would have less outdoor landscaping than standard suburban shopping centers.

Zoning and financial incentives are common methods used by local governments to encourage increased development densities and infill. Examples of these approaches are described below:

- *Local land use regulations.* Communities in New Mexico regulate development through zoning and subdivision ordinances and building codes. Zoning ordinances specify the land use, lot sizes, building setbacks, building height, parking requirements, and other development criteria within specified areas of the community. Subdivision ordinances specify infrastructure requirements and define rules for lot layouts within a subdivision. Building codes establish safety requirements for building construction. High density and infill developments are often difficult to develop because nearby neighbors may oppose them, the approval process may take longer than usual, and existing regulations may not be appropriate for the unique circumstances of an infill site. High density development can only occur if it is allowed by the community's land use regulations. Infill and higher density development is more likely if there are no regulatory impediments—that is, if this type of development is as easy as any other new development.

- *Streamlined development process*. One method of encouraging "desirable" development is to streamline the development process so that less time is needed to gain project approval. By reducing the amount of time needed for a developer to obtain zoning, subdivision, and other approvals, the community can help make the project more financially feasible. This can be accomplished by expediting technical review of the project and reducing the time from plan submittal to public hearings.

- *Density bonuses*. Density bonuses allow developers to increase the number of housing units or the square feet of commercial space on a site above what is normally allowed by

the community's zoning ordinance. Density bonuses are granted for projects that meet specified community goals, and the method for granting bonuses is described in the community's land use regulations. For example, the State of California adopted a state density bonus law to make affordable housing development economically feasible (Section 65915, Chapter 842, Statutes of 1989). This statute requires all cities and counties to adopt ordinances that grant bonuses to developers who agree to construct a portion of the units in their subdivisions for low-income households or senior citizens. A similar approach could be used to encourage development that meets other community goals, such as infill, redevelopment, or water conservation. The community's comprehensive plan would list the community's goals, and the relevant ordinances would describe the actions that would trigger density bonuses and how these bonuses would be granted.

- *Variable impact fees*. The New Mexico Development Fees Act states that once a community establishes impact fees, all development is subject to these fees. A community cannot grant a "waver" that exempts a development from fees, but the community can pay a portion of the fees out of other community funds to lower the cost of projects that meet community goals.

- *Metropolitan redevelopment incentives*. Municipalities in New Mexico have the power to assist development in areas that have been declared slum and/or blighted according to the requirements of the New Mexico Metropolitan Redevelopment Act. The local government can choose to reduce local taxes for a certain period of time or can participate directly in a project as described below. These community incentives help make the projects economically feasible and help mitigate the risks associated with projects deteriorated parts of the community. The costs of these incentives include lost tax revenue or direct participation costs. The benefit to the community, in the long run, is additional tax revenue associated with property improvements.

- *Direct participation in development*. Municipalities can participate directly in a metropolitan redevelopment project, thus reducing project costs and/or development risks. The City of Albuquerque has purchased land and made property available, through a public bidding process, to developers who agree to meet the City's goals for the project. In some cases, the City has also constructed needed infrastructure, such as

roadway and drainage improvements, and amenities, such as landscaping. Local government incurs the costs of these improvements.

The City also has used standard zoning categories, special zoning through neighborhood scale plans, and its metropolitan redevelopment authority to encourage higher density and infill development. The City and County Planned Growth Strategy (PGS) identifies additional techniques, including new mixed-use zoning categories, variable fees, utility services areas, and policies regarding higher densities in specific areas as ways to encourage more infill and higher density mixed-use development in new communities.

In 2002, the City Council began implementing parts of the PGS through the adoption of ordinance number O-02-39, which specifies what the City will do to begin implementing the PGS, and resolution number R-02-111, which provides policy guidance for further legislation. The City has appointed a citizen task force to advise the administration and council on implementation. It has also agreed to establish impact fees, amend the Albuquerque/Bernalillo County Comprehensive Plan, adopt an infrastructure plan for future capital improvements, and encourage sequencing of capital expenditures so that new infrastructure is provided to new planned communities in a timely fashion. The community continues to debate exactly how the goals of the PGS will be met, and new ordinances will be required to accomplish the recommendations in the PGS.

Development economics can result in higher development densities without regulatory changes. For example, as land prices have increased in Albuquerque, the result has been smaller lots, which effectively increase the density of new single-family subdivisions. Rural communities in the region have experienced suburban development, which is higher density that existing rural development. New subdivisions near I-25 in Los Lunas are examples of this. New communities such as Mesa del Sol, south of Albuquerque International Airport include some higher density centers in their plans. The “village centers” proposed for new communities include a mix of commercial and higher density housing in fairly compact areas that are surrounded by more traditional single family subdivisions. The new communities have not yet been built, but their master plans incorporate new ideas about land use and include water conservation as part of the overall development plan.

An increase in residential density would reduce demand for outdoor irrigation by effectively reducing the area to be irrigated. Higher density development is only one way to accomplish this goal; low water use landscaping can accomplish the same result. Water conservation techniques for outdoor irrigation and landscaping are discussed in other alternatives.

3. Alternative Evaluation

3.1 Technical Feasibility

Enabling New Technologies and Status

Technically, municipalities in the region can adopt zoning regulations and planning policies that encourage higher densities and infill development. However, the success of this alternative is probably more related to administrative and political feasibility issues than to technical issues.

A county or municipality usually specifies its goals for the future in a comprehensive plan. These documents are created by the local government with community participation through public meetings and hearings. The community's land use regulations can then be modified to be consistent with comprehensive plan goals. For example, if infill development is a goal, the comprehensive plan will describe how infill development should be accomplished. The local government will amend its zoning ordinance, if necessary, to allow the types of land uses desired and to map areas where infill is desired. The local subdivision ordinance may be modified to define desirable lot layout characteristics and street standards. Other incentives could be applied, such as a streamlined review process for infill projects.

If metropolitan redevelopment incentives are appropriate for a particular area, the jurisdiction must formally (by ordinance) declare the area blighted, adopt a metropolitan redevelopment plan that describes the projects that the jurisdiction will undertake, and implement the projects described.

Each of these approaches requires time and financial resources from the local government. Some technical training or hiring of qualified staff or consultants may also be required if the community does not have the administrative capacity to do this work themselves.

Infrastructure Development Requirements

In new areas, infrastructure can be designed from the start to accommodate higher densities. However, the cost of infrastructure upgrades is a potential issue for infill development and brownfields redevelopment areas that lack adequate capacity. Streets, water and sewer systems, and storm water drainage facilities may need to be upgraded in portions of some communities to implement this alternative.

Total Time to Implement

The time needed to implement this alternative includes the time to change land use policy and the time for new development to respond to the policy change. The City of Albuquerque has spent several years debating the policies in the PGS and is just beginning the process of changing its local laws. Other communities may be able to act more quickly if the community supports the proposed changes.

A change in land use policy will impact new development, but will not have an impact on existing developed areas. Therefore, there is a lag time between policy implementation and a noticeable effect on water demand. The Mid-Region Council of Governments (MRCOG) projects the average annual growth rate over the next 50 years to be 1.5 percent per year in its Focus 2050 plan (MRGCOG, 1999).

Growth projections to 2050 indicate that the number of housing units and jobs in the region will double in the next 50 years (MRGCOG, 1999). While change in water demand as a result of land use change is an incremental process, decisions made today could have a significant impact on water demand in 20 to 50 years.

3.1.1 Physical and Hydrological Impacts

Effect on Water Demand

Approximately 56 percent of urban land use in the region is for residential use; however, multifamily residences occupy only about 2 percent of urban land. Based on current trends, the MRCOG projected that single family residential land use would increase to 79 percent of the region's total urban land use, while multifamily land use would decline to 1.7 percent of total (MRGCOG, 1999). From 2000 to 2050, the number of housing units in the region is expected to more than double. In the long term, land use policies that encourage more compact

development, with smaller irrigated yards, could make a significant difference in residential outdoor water demand.

An analysis of City of Albuquerque residential water use record shows that per capita household use in Albuquerque is about 100 gallons per capita per day (gpcd), of which an estimated 40 gpcd is for outdoor use and 60 gpcd is for indoor use. City of Albuquerque building permit records for 2001 and 2002 indicate that the average lot size for single family homes in Albuquerque is 6,500 square feet. The average house area under the roof (including garages and covered porches and patios) is about 2,500 square feet, and a typical driveway is 400 square feet (minimum of 20 feet deep and 20 feet wide for a two-car driveway). On average, a home would have a maximum of 3,600 square feet of landscaped area. If lot size were reduced to an average of 5,000 square feet, with no change in the size of house, the maximum landscaped area would be reduced to 2,100 square feet, or about 58 percent of the current amount of landscaped area. This could reduce outdoor water usage for new homes to less than 23 gpcd, making Albuquerque's per capita water usage more in line with that of Santa Fe, Tucson, and El Paso.

The irrigated landscaped area of a commercial property in a typical suburban development is based on zoning requirements for landscaping. In Albuquerque, 15 percent of the lot, excluding the building footprint, must be landscaped. According to City of Albuquerque building permit records, a typical retail or office building occupies 20 to 25 percent of the lot area, leaving 5,000 to 5,250 square feet of required landscaped area per acre of development. A more compact development would increase the ratio of developed floor area to lot size, and could reduce the required landscaped area by as much as 25 percent for an equivalent building size. However, the major determinant of lot size is surface parking. Multi-story buildings and shared or structured parking would be needed to significantly reduce commercial lot sizes. This approach is most appropriate in dense urban centers, which are most likely to occur in the region's urban areas of Albuquerque and, potentially, Rio Rancho.

Rural communities do not tend to require landscaping in new development; therefore, reductions in water demand due to more dense commercial development would be realized in urban areas.

It should be noted that similar results could be achieved through xeriscaping, increased paved patio areas, and other water conservation approaches. Increased densities are only one way to reduce residential and commercial water usage.

Effect on Water Supply (surface and groundwater)

This alternative does not have an impact on water supply.

Water Saved/Lost (consumption and depletions)

The greatest water savings under this alternative would be the reduction in residential outdoor water usage. The average density of new single-family homes would increase from 5.7 units per acre to 7.4 units per acre if the average lot size were reduced from 6,500 square feet to 5,000 square feet. In Albuquerque, approximately 3,600 new homes are built per year. The savings in water usage for 3,600 homes, based on a reduction of outdoor water usage from 40 gpcd to 23 gpcd and assuming 2.7 people per single family home, is about 170 acre-feet per year. These savings would compound as new homes are built.

Approximately 5,000 new homes are built each year in the greater Albuquerque area, which includes Bernalillo, southern Sandoval, and Valencia Counties (City of Albuquerque, 2002; Bernalillo County, 2002; City of Rio Rancho, 2002; MRGCOG, 2002). Approximately 90 percent of these are suburban homes in Albuquerque, Rio Rancho, and Los Lunas. These are the communities most likely to achieve water savings through increased densities.

MRCOG projects approximately 225,000 to 275,000 new single family homes will be built in the region by 2050 (MRGCOG, 1999). If water savings as calculated above were realized for 90 percent of these new units, the long-term savings would be about 11,000 acre-feet per year by 2050.

Impacts to Water Quality (and mitigations)

None.

Watershed/Geologic Impacts

None.

3.1.2 Environmental Impacts

Impact to Ecosystems

To the extent that smaller residential lots reduce land area impacted by development, this alternative could reduce the demand for undeveloped land and the rate of land development, while providing for the region's population growth. However, implementation of this alternative would not necessarily protect ecosystems unless it is linked to other policies such as a policy to protect sensitive lands, as described in Alternative 30, Land Use. In fact, high-density development is not feasible in certain areas, such as those with steep slopes or fragile soils, and could have negative consequences on habitat, views, and other environmental resources if not located appropriately.

Implications to Endangered Species

As with ecosystem protection, this alternative would not protect endangered species unless linked to other policies explicitly geared to protection of endangered species. This alternative affects the flow of the Rio Grande to the extent that it could reduce demand for surface water for outdoor irrigation.

3.2 Financial Feasibility

3.2.1 Initial Cost to Implement

For a local government, the initial cost to implement this alternative will be the cost of amending local policies and ordinances such as the community's comprehensive plan and zoning and subdivision ordinances. Costs would include expenses for a city or county planner or the cost of contracting with MRCOG or a consultant. The cost of a comprehensive plan can range from $25,000 for a fairly simple plan in a small community to over $100,000 for a more complex document. Revisions to local ordinances can have a similar cost, depending on the extent of revisions, the amount of public participation, and the length of time the community spends on evaluating the changes.

If infrastructure must be upgraded to accommodate increased densities in existing developed areas and infrastructure upgrades are provided by the local government as an incentive, the cost of these upgrades will be borne by taxpayers. If the developer must pay for upgrades, the cost will be passed onto the consumer.

3.2.2 Potential Funding Source

The Local Government Division of the State of New Mexico Finance and Administration Department provides grants of $25,000 to small communities for planning through the Community Development Block Grant Program. Local governments in New Mexico have used these funds to develop or update comprehensive plans and to pay for new or amended land use regulations. Other sources of funds include the local government's administrative budget.

Potential funding sources for infrastructure upgrades in developed areas include utility rates, general obligation bonds, and state and federal grants.

Potential funding sources for new infrastructure needed to accommodate new growth include utility rates, development fees, general obligation bonds, and state and federal grants.

If per capita water usage declines, utility revenues would decline proportionally unless rates are increased.

3.2.3 Ongoing Cost for Operation and Maintenance

Operation and maintenance costs would be a normal part of ongoing local government operations. Experts debate whether infrastructure costs for compact development are less than infrastructure costs at traditional densities. The PGS includes a literature review in support of compact development; PGS opponents have submitted counter arguments. The ongoing costs for water utility operations and maintenance would likely remain the same as current costs since much of the cost for these systems is based on production, plant capacity, and plant operation and maintenance rather than construction of the distribution system.

3.3 Other Considerations:

Political acceptability. To date, efforts by the City of Albuquerque to implement a land use policy that supports increased densities and MRCOG's *Focus 2050 Regional Plan* have had mixed support. The City of Albuquerque is seeking to increase infill development, redevelopment, higher densities along major transportation corridors, and mixed-use centers. Rural and suburban communities have not followed this strategy.

Higher density developments, infill, and redevelopment are often met with neighborhood resistance. A jurisdiction that implements this policy will need to work carefully with

neighborhood groups and developers if infill development and higher densities are to be successful.

Local governments in the region may need to amend their existing land use plans, and possibly their land use regulations, to allow for increased densities.

References/Bibliography

City of Albuquerque. 2002. *Planned Growth Strategy, Part 1: Findings Report and Part 2: Preferred Alternative*.

Middle Rio Grande Council of Governments (MRGCOG). 1999. *Focus 2050 Draft Regional Plan*.

Middle Rio Grande Council of Governments (MRGCOG), in collaboration with the Middle Rio Grande Water Assembly. 2001. *Future water use projections for the Middle Rio Grande water planning region*. September 2001.

Schultz Communications. 1999. *A water conservation guide for commercial, industrial users.* Prepared for the New Mexico Office of the State Engineer. July 1999.

Shomaker, John & Associates, Inc. and Pioneer West, 2000. *Historical and current water use in the Middle Rio Grande region.* Prepared for the Middle Rio Grande Council of Governments and the Middle Rio Grande Water Assembly. June 2000.

U.S. Census of Population and Housing. 2000.

University of New Mexico Bureau of Business and Economic Research. 2002. Population projections for New Mexico and counties, Projected population: New Mexico Counties 2000 to 2030. <http://www.unm.edu/~bber/demo/table1.htm.> August 2002. Last revised September 10, 2002.