

Part II: Programs + Operating Strategies

WATER CONSERVATION

Conservation is the single most effective way for new communities to manage their water supplies. Conservation helps minimize the volume of groundwater diversion, allowing much of the area's water to remain at the source, untouched. Accordingly, the Village master plan includes a number of policies and water management practices that will ensure that groundwater for domestic and for irrigation purposes is judiciously guarded.

As noted previously, water conservation will be achieved through a variety of strategies and practices. These will include:

- Limiting the extent of outdoor plantings
- Regulating irrigation technology and practices
- Mandating the use of water saving appliances, showerheads, and fixtures within homes, businesses and institutional facilities
- Educating residents and visitors as to the delicate ecology of the American Southwest, and the role that limited water resources play in sustaining our quality of life

To ensure that water consumption is tightly contained, water meters will be tied to all development uses, and a monitoring system will be established to track the use and/or possible abuse of water resources within the community.

As noted in prior sections of this master plan submission, groundwater and storm water conservation are a fundamental planning objective of the Village at the Galisteo Basin Preserve. To advance this objective, the Village water conservation plan will promote the following policies and practices:

Water Restrictions/Penalties

The water budget for homes connected to the community water system will be limited to 0.17 acre-foot per year. The water budget for commercial and civic facilities will also be tightly constrained in terms of their consumption of groundwater resources. Homes, businesses, and civic facility operators that exceed their water budget will be subject to penalties and property assessments. A detailed "water balance" analysis is presented in Technical Reports + Appendices.

Education

An "operating manual" will be provided to new homeowners and

business property owners to inform and educate them as to the need and opportunity for water conservation within the Galisteo Basin Preserve. The manual will provide property owners with information about the community's groundwater supplies, catchment water sources, and treated effluent irrigation water. Financial incentives and public recognition will be given to households and businesses that demonstrate extraordinary levels of water efficiency and/or which design innovative strategies and techniques of water conservation.

Other Strategies

Irrigation - Common areas, including community gardens, parks, plazas, and playfields, will be irrigated exclusively with recycled and/or catchment derived water. Outdoor landscaping associated with private parcels will be limited to a predetermined size and location. Outdoor irrigation will utilize drip systems with timer controls. The landscape maintenance plan for common areas will include soil amendment and mulching practices to minimize the effects of evaporation.

Meters - All residential and commercial/civic structures will be metered. Water meters will monitor interior and exterior water uses. Meters will be remotely monitored.

Showers/Faucets - All shower heads and faucets for potable water must be equipped with flow-restrictive devices or aerators that ensure a maximum flow of 2.5 gpm.

Toilets - Residential toilets will use no more than 1.5 gallons of potable water per flush. Dual-flush toilets and waterless urinals will be specified for use in commercial and civic buildings.

Washing Machines - Washing machines operated in private homes must be of a front-loading variety that use no more than 12.5 gallons of potable water per wash. Commercial washing machines serving businesses and civic facilities must be front-loading in their design with a maximum draw of 15 gallons per wash.

Hot Water Systems - Hot water systems for potable water must have a re-circulating pump or so-called "instant" hot water heaters near points of use, to minimize water use for dishwashing and bathing.

Wastewater Treatment Systems - The Village wastewater treatment system will be designed to reclaim wastewater to a tertiary quality standard. With authorization from the New Mexico Environment Department, the NM Construction Industries Division, and Santa Fe County, the wastewater treatment system for the Village will reclaim effluent to a standard that will allow for its use in irrigation systems and non-potable domestic water uses (i.e., toilets). A description of the proposed wastewater treatment system is more fully described in the Technical Reports + Appendices.

Rain Water Catchment - In addition to those standards set by Santa Fe County, roof systems for all residential, civic and commercial buildings shall be equipped with canals and gutters such that rain and snow melt can be collected from the roofs of homes, guest houses and other approved structures and stored in covered cisterns, rain barrels, and/or storage devices to supplement the irrigation and/or other non-potable water needs of the residential owner and/or commercial/civic users.

Plant Materials - Within the common areas of the Village, trees, plants, and ornamental and turf grasses will be selected from a plant list compiled by the Village horticulturalist. Common area plants and trees shall be chosen on the basis of their low-water demands and drought tolerance. Within private lots, property owners will be strongly encouraged to cultivate xeric plants and drought tolerant trees and shrubs in their outside gardens and green spaces.

Permeable Surfaces - Whenever possible, pervious materials and construction techniques will be used to surface roads, driveways, parking lots, trails, and pathways to allow storm water to more easily percolate and recharge shallow groundwater aquifers.

By these conservation practices, the Village at the Galisteo Basin Preserve is expected to maintain a community water budget that is 35 to 50 percent less than the County's standard of 0.25-acre/foot per year.

Regional Conservation

The production of electricity from coal-fired power plants in the northwest quadrant of New Mexico uses an extraordinary amount of water to produce a kilowatt of power. To reduce the extraordinary "off-site demands" on the state's limited water resources, the Village will maintain a local electrical generation and heating utility that employs solar, wind, and biomass fuel sources. (See Section 4.50 – Green Development Strategy, Optimizing Energy Efficiency.)

HOUSING DIVERSITY + ATTAINABILITY

The Village at the Galisteo Preserve is designed to provide homes for a range of ages, household types, lifestyles, and incomes. In addition to a diverse selection of market rate housing, the Village is designed to accommodate more than 290 households that earn 50 to 120 percent of Santa Fe County's Area Median Income (AMI). While Village housing sizes and types are likely to be quite broad, Commonweal Conservancy is committed to developing housing for moderate-income families at prices that address Santa Fe County's inclusive housing policy goals.

Santa Fe is distinguished from many other housing markets in the state and nation by an extraordinarily high cost of housing. During the last 15 years, Santa Fe's housing market has become increasingly stratified, with high-end second home owners absorbing a large share of new and existing housing units – leaving little available inventory for moderate-income households.

Two recent market analyses prepared by Economic Planning Systems (EPS) and GreenStreet Ltd. of Denver, Colorado -- as well as studies commissioned by Santa Fe County and the Enterprise Foundation – clearly demonstrate that the Santa Fe market is not adequately serving middle-class and low-income housing needs. These reports identified the following challenges:

- Marginal increases in wages and income have not kept pace with dramatic increases in housing costs. During 2004, the median sales price of homes listed in the Multiple Listing Service (MLS) increased to \$340,000. Meanwhile, the median household income for the Santa Fe area was only \$66,000 in 2004, a level that can afford a \$245,000 home price, after applying typical household expense measurements.²
- The Housing Affordability Index (HAI) index hit a ten-year low at 0.13 in 2004, a ratio that indicates housing affordability has become a systemic problem in Santa Fe. (Higher ratios indicate greater affordability of single-family homes.)
- Traditional primary home buyers and the middle class have been increasingly pushed out of the Santa Fe market, requiring many people to commute 45 to 115 minutes from Albuquerque, Rio Rancho, or Bernalillo, southwest of Santa Fe. According to the 2000 Census, approximately 20 percent of Santa Fe's workforce commuted from outside the County.

The Village is programmed to help address critical housing needs for households earning 50 to 120 percent of AMI by providing more than 300 units of housing for households earning \$35,000 to \$80,000, in 2005 dollars.

² Based on price and income ratios provided by Enterprise Foundation and the New Mexico MFA

While the master plan can facilitate the development of more than 350 units of inclusive housing, Commonweal's capacity to deliver this number of units will be determined by the project's absorption rates and the imputed subsidies derived from sales of market rate homes. Other factors that will determine the ultimate number of inclusive housing units include: construction costs, the availability of cost effective financing for Village infrastructure, and the level of homeowner mortgage support that the project may attract.

Commonweal Conservancy is committed to advancing the policy objectives of Santa Fe County's ambitious inclusive housing program – one that requires 30 percent of all units (290 units, in the case of the Village) to be priced in the “inclusive range” (assuming a full build-out of all approved housing). As currently proposed, the 30 percent inclusive housing goal will serve four income brackets equally. By this approach, the categories will include: 50 to 65 percent; 65 to 80 percent; 80 to 100 percent; and 100 to 120 percent of AMI.

In addition to meeting the challenge of affordable pricing for first generation Village homes, Commonweal Conservancy will dedicate a portion of Village housing stock to the stewardship of a nonprofit community land trust. By this approach, Commonweal hopes to facilitate the development of 50 to 80 homes that would be sold at a below market price, subject to long-term ground leases, with price appreciation restrictions upon resale.³ Although narrowly tested in Santa Fe, community land trusts have won market acceptance in other communities around the country. The CLT model may offer the best opportunity for permanent affordability in rapidly appreciating markets like Santa Fe.

Commonweal anticipates that the marketing and development of a portion of the Village's inclusive housing will be accomplished in collaboration with Santa Fe's two nonprofit housing providers: Homewise and Santa Fe Community Housing Trust. As presently conceived, these organizations will collaborate with Commonweal to identify, pre-qualify, and train buyers in homeownership.

While respecting fair housing requirements, the Village's inclusive housing program will give priority to teachers, nurses, nontraditional doctors, public sector employees, nonprofit professionals and artists. Concurrently with its master plan approval, Commonweal plans to forge alliances with health care providers, the Santa Fe Public Schools, and nonprofit organizations, as well as with city, county and state leaders, to ensure that their employees will have access to the Village's inclusive housing program.

³ Upon the sale of a community land trust domicile, the Village-based community land trust would purchase the unit, share a portion of the market appreciation with the home seller, and then resell the home to another qualified homebuyer at a price that matches the original household's income category, indexed for time.

GREEN DEVELOPMENT STRATEGY

The green development strategy for the Village involves an integrated development process and an environmentally respectful design and construction practice. It will employ “best practices” from the land planning, architecture, and material science disciplines. It will require, furthermore, a project management approach that values synergy, leverage, and longevity as priority decision-making criteria.

Green Development Principles

As presently conceived, the Village will be guided by the following green development principles:

- Local, national, and global natural resource conservation
- Water and energy efficiency
- Healthy living practices

An integrative planning process that actively engages residents and professionals in the design of a new community, and which fairly balances the needs and values of the natural resources with the needs of human communities

Green Development Metric

The green development planning and construction process for the Village will be informed by the U. S. Green Building Council’s LEED (Leadership in Energy and Environmental Design) rating system. USGBC developed the LEED system during the 1990s to qualify building projects and developments in terms of their environmental efficiency.

As presently conceived, the Village will seek certification under a pilot category known as LEED-ND, or “LEED for Neighborhood Developments.” The ND rating will measure the Village’s conformance to principles of smart growth, new urbanism, and green building.

Green Development Standards

Based on the LEED-ND standards, the Enterprise Foundation’s Criteria for Green Development, New Mexico Mortgage Finance Authority’s Green Criteria, and the Department of Energy’s Energy Star rating system, the Village will establish a set of Green Development Standards with specific criteria that will guide village “users” including builders, contractors, residents, visitors, businesses, organizations, partners, and other representatives of the Village. The following sections outline the major principles by which the Green Development Standards will be created:

Integrated Design and Development Process - The Village will employ an integrated design process that considers the multivariate effects of development on the environment, local residents, and surrounding communities. By applying a “full life cycle assessment” to sourcing and recycling of construction materials, the structural durability of building materials, the operational efficiency and sustainability of infrastructure systems, and the ultimate livability by residents, the Village will significantly reduce its impact on the environment throughout the development process, as well as over the next five to ten decades. The Village’s integrated design process will also strive to incorporate a high degree of transparency and participation such that issues of health, safety, culture, aesthetics, economic sustainability, and livability for both internal and external community members are fully addressed.

Green Land Planning and Design - The Village land use plan has been informed by detailed site analyses, dialogue with community members, strategy sessions with Santa Fe County planning staff, and planning meetings and “project critiques” with local and national industry professionals. To ensure that the priority environmental values of the Village are well served, Commonweal Conservancy will bring careful attention and substantial resources to the following:

- Minimizing overall land disturbance
- Protecting natural resources
- Optimizing solar orientation
- Minimizing view shed impacts
- Improving site hydrology
- Limiting soil loss/erosion control
- Minimizing stormwater run-off and pollution into natural drainage corridors
- Enhancing soil quality with respect to matter, structure, density, and biodiversity
- Creating neighborhood permeability (i.e., paths, trails, alleys)
- Developing inner-village recreational opportunities
- Achieving optimal community fire and health safety

Optimizing Energy Efficiency - Given the extraordinary environmental burden imposed on the regional and national environment from coal-fired electricity and natural gas extraction and refining, the energy demand of the Village is designed to be exceptionally efficient and, to the extent possible, served by energy sources that are locally derived and non-polluting.

To advance a clean-energy strategy for the Village, the following technologies, systems, and strategies will be pursued as sources of

heat, cooling, and power:

Perhaps the most efficient and effective means of reducing the community's demand for electricity and natural gas involves a disciplined approach to site planning that affords a high proportion of homes and businesses with passive solar energy and natural day lighting.

As noted in other sections of this document, green building design and construction (e.g., material specifications that require super-insulated windows, thermal mass-oriented wall systems) will play a critical role in minimizing the community's overall energy budget.

To facilitate the development of a community-owned clean energy system for the Village, over the next year Commonweal Conservancy will explore the legal, financial, and technical opportunities and challenges associated with establishing a "municipal utility district" that would supply electricity, heating, and cooling to the community. As presently conceived, the utility district would develop a number of power sources such as:

- A network of photovoltaic arrays on the rooftops of homes, businesses, and schools
- A network of geothermal heating and cooling systems
- A network of bio-mass fired boilers for heating and cooling
- Wind turbines for electricity development

During its initial phases of development, Commonweal Conservancy anticipates that the Village will be connected to the regional electrical grid and to natural gas lines serviced by PNM. To limit the air pollution consequences of the Village's electrical energy demand, Commonweal Conservancy will pursue a contract with PNM that supplies the community with 100 percent wind power – an elective source of power that supports the state's alternative energy investment program.

Water Efficiency and Green Infrastructure - To minimize the Village demand on local water resources, developers, builders, businesses, and residents will comply with rigorous water conservation standards. As outlined in the Water Conservation section of this document, the Village will establish guidelines, and in some cases absolute requirements, to limit water consumption from the development of new homes and businesses. Among the areas of focus will be:

- Rain water catchment for irrigation and household use
- Low-flow water control devices
- Highly efficient water-using appliances
- Non-potable water only for irrigation

- Drought tolerant/xeriscape landscaping

Other community infrastructure strategies being considered include:

- Tertiary waste water processing for home and business toilets and irrigation
- Tertiary waste water processing for community landscaping
- Natural stormwater retention (i.e. bio-swales) and infiltration for landscaping
- Solid waste-recycling for fertilizer.

Local Natural Resource Protection - A cornerstone of Commonwealth Conservancy’s vision for the Galisteo Basin Preserve is the conservation and regeneration of the region’s exquisite scenic, cultural, and wildlife resources. Many aspects of the Preserve and the Village have been designed to achieve maximum protection of these resources and include such elements as:

- Water conservation
- View shed protection
- Cultural resource protection
- Habitat corridor protection
- Habitat restoration
- Native vegetation for landscaping
- Removal of non-native species that are invasive and deleterious to the local ecosystem
- Minimal pesticide use
- Arroyo protection from erosion and restoration
- Aquifer regeneration with on-site infiltration

Global Natural Resource Protection (Construction Materials Sourcing and Recycling) - The construction process associated with standard residential and commercial development often ignores the resource consumption effects associated with sourcing, selecting, and recycling construction materials. Indeed, the environmental impacts of the construction process are considered “externalities” – the impacts on water, energy, air, and habitat are absorbed far away from the construction site. In sourcing and recycling practices, Commonwealth will pay careful attention to the environmental impact of the following activities and materials:

- Shipping and hauling distance (embodied energy costs and impacts)
- Manufacturing byproducts
- Production process and global warming potential

- Recycled content and waste (i.e. carpet, tile, concrete, agricultural materials)
- Life cycle/recyclable nature of materials
- Renewable materials/rapid renewability (i.e. bamboo flooring, natural linoleum, textiles from wool, hemp, and organic cotton)
- Sustainably harvested materials (i.e. certified, salvaged, and engineered wood)
- Salvaged materials (bricks, lumber, fixtures)
- Non-petroleum based materials
- Construction waste minimization and recycling

Proper materials selection and sourcing also have tangible economic and public health benefits. These include lower operating costs via reduced energy and water utility bills, and reduced maintenance and replacement costs due to greater durability of materials.

Healthy Living Environment - Indoor air quality is an increasingly important concern among health care professionals and policy makers. More than 30 percent of buildings in the U.S. yield poor indoor air quality – in large part due to poor air circulation, off-gassing construction materials, and mold. To improve indoor air quality, and the health and well-being of Village residents, Commonweal will carefully consider:

- Using materials and products that minimize off-gassing of volatile organic compounds (i.e. no chemicals or pesticides during treatment or production, no dioxin-producing polyvinylchloride (PVC) or ozone-depleting HCFCs)
- Maximizing natural air flow through careful design and window placement
- Encourage the use of ceiling fans to improve air circulation
- Planting trees to shade parking lots, capture air pollutants, and minimize evaporative emissions of volatile organic compounds that might otherwise migrate into homes

Natural Outdoor Living Environment - In addition to protecting the ecology, view sheds, and historic values of the Galisteo Basin, the Village will also promote a quiet and unobtrusive living environment that minimizes noise, light pollution, and noxious odors. To achieve these goals, the following design and development standards will be pursued:

- “Dark skies” protection. In general, the use of public lighting will be restricted to the minimum necessary to address safety concerns. Where public lighting is used, lighting will be directed toward the earth, will be shielded, and

will incorporate low glare filaments. Residential lighting will be similarly guided in its design and use.

- Noise control. Carefully designed noise control measures will include neighborhood separation strategies that utilize landscape features (i.e., berms, rock outcroppings, and hills), vegetative and fence divisions, and neighborhood noise ordinances for business, institutional, and residential uses.
- Noxious odors control. Air pollution and noxious odors will be regulated by the community governance authority and by governmental agencies (i.e., Santa Fe County, NMED, EPA).

FIRE + EMERGENCY SERVICES

The Village at the Galisteo Basin Preserve has been planned to minimize the risks and consequences of fires and other emergencies to people and property. Six primary criteria have been identified in establishing a sound fire prevention and emergency response strategy for this project:

- Proximity of Fire Services** The Eldorado Fire District will provide fire service and may construct a fire station site near the Village center during the first phase of the project. If the station is constructed, volunteers from the Galisteo Basin Preserve will supplement the staff at the new station. A new facility will likely house a pumper, tanker, and grassfire equipment that have adequate capacity to serve the Village and open space areas surrounding the Village, Lamy, Galisteo, and other nearby communities.
- Emergency Vehicle Access** Primary roads within the community will be designed to provide emergency vehicle access into each residential neighborhood from two directions. All roads will have appropriate lane widths and be built at a maximum gradient of 10 percent. Spurs that serve areas off the primary roads will terminate in cul-de-sacs with turnarounds adequate for emergency vehicles. All roads will be maintained to Santa Fe County standards.
- Emergency access easements to residential area perimeters and major open space areas will be provided at strategic locations, including the ends of cul-de-sacs and between adjoining lots.
- Water Supply** The water system of the Galisteo Basin Preserve will be designed to accommodate the community's demand for domestic water use and need for fire protection. The water system will include strategically placed tanks along the northern boundary of the Village that ensure immediate access and substantial supplies are available to firefighters. As noted in earlier sections of this document, fire flow will provide a minimum discharge volume 500 gallons per minute in residential areas, with additional buffering during peak hour demands.
- Water mains will be sized to supply fire hydrants at a maximum spacing of 1,000 feet in residential areas and 250 feet near commercial and community structures. Hydrants will be strategically sited near emergency access easements along the residential perimeter and Preserve open space areas, as well as intermittently along roadways. Booster pumps and back-up power will also be part of the water distribution design.
- Site Planning** Careful site planning for fire protection at the perimeter of the

residential neighborhoods, as well as protection for individual home sites, is a critical component of the wildfire prevention program for the Galisteo Basin Preserve. As such, a comprehensive system of roads, trails, riparian greenways, and open spaces is integral to neighborhood design. This system will provide strategic emergency access and firebreaks at neighborhood perimeters, enabling firefighters to confine any fire to a small area.

Non-Combustible Materials Architectural design guidelines will require use of non-combustible materials such as tile/slate and standing seam metal for roofing. The guidelines will also require that any highly combustible materials used for exterior siding, paneling, fencing, and other wood structures are fire-rated beyond minimum standards.

Landscaping and Fuel Reduction

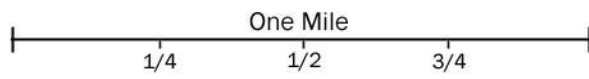
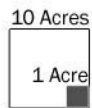
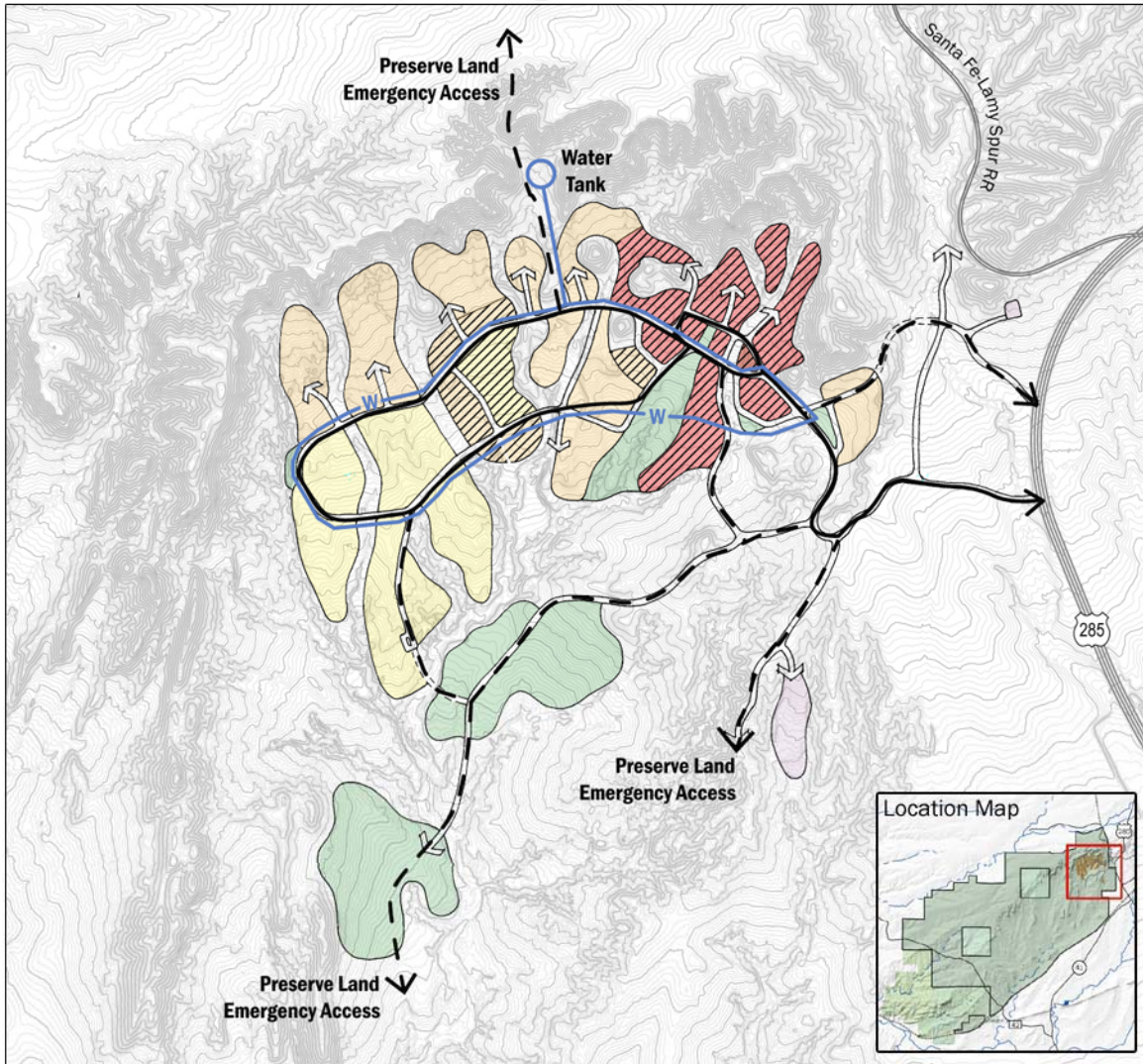
The landscape planting guidelines will include provisions for wildfire prevention in conjunction with site planning, aesthetics, water requirements, use of native plants, and ongoing maintenance programs. The goals of these guidelines are (i) to reduce fuel loads in the common and perimeter areas, and (ii) to provide individual home sites with fuel reduction strategies.







Strategies for fuel reduction in the common areas and residential neighborhoods will include: planting fire resistant plant materials; establishing irrigated landscape envelopes around each home site; developing vegetation buffers that serve as a transition to adjacent native vegetation; and establishing criteria for clearance between buildings and plantings.

Ongoing maintenance, management and enforcement of the wildfire prevention program will be the responsibility of the community association and will be governed by the Village's covenants, codes and restrictions. The community's design guidelines will be administered by a design review committee for site planning, as well as for architectural and landscape design compliance with the wildfire prevention program. Additionally, public information and education programs about wildfire prevention will be developed in cooperation with the Santa Fe County Fire Department.

Figure 4.N

Fire/Emergency Services



Legend	 Fire Hydrant Spacing 0'-500'	 Primary Emergency Access
	 Fire Hydrant Spacing 250'-1000'	 Secondary Emergency Access
	 Fire Hydrant Spacing 500'-1000'	 Water/Fire Main

PUBLIC SERVICES

A public services plan will be crafted to optimize conditions for the health and safety of Village residents. The plan structure that has been formulated to date is as follows:

Fire Protection: To be provided by the Santa Fe County Fire Department with local service coordinated by the Eldorado Fire District. A site within the Village will be donated to the Santa Fe County Fire Department for development of a new fire and rescue station.

Health Services: Presbyterian Medical Services has expressed interest in creating a small clinic to serve Village residents, and the students and staff of Charter School 37.

Emergency Medical Services: To be provided by aid units from Santa Fe County.

Police Protection: To be provided through the Santa Fe County Sheriff Department.

Trash Removal: To be provided by Waste Management Inc. through a contract with the Property Owners Association. (See page 6.6 – Governance + Community Evolution.)

Waste Recycling: To be provided by Waste Management Inc. through a contract with the Property Owners Association.

Housing Services: Inclusive housing services associated with the Village are likely to be managed through cooperative agreements with Homewise, New Mexico Mortgage Finance Authority, and/or the Santa Fe Community Housing Trust.

FINANCING STRATEGY

Given the ambitious public benefit objectives of the Galisteo Basin Preserve, the capital structure for the project will require a complex array of private, nonprofit and public funding sources. At present, Commonweal Conservancy has been fortunate to secure loans from Los Alamos National Bank, the New Mexico Mortgage Finance Authority and Enterprise Foundation to underwrite a large portion of the project's predevelopment planning expenses, as well as the initial land acquisition costs.

As Commonweal Conservancy pursues financing for the next phase of land purchases, infrastructure development, community facility development, land restoration, etc., the financial structure of the project will involve a larger and more diverse set of partners. Presently, we expect that financing will need to be secured from the following sources:

Private equity	\$7-10 million
Private debt (commercial & nonprofit)	\$4-6 million
Quasi-public debt (NMMFA)	\$4-6 million
Public Improvement District Bonds	\$6-12 million
State Capital Outlay Appropriation	\$2-3 million

The private equity portion of the financing plan is anticipated to involve a number of traditional investor groups, and a handful of "socially responsible investors" – the latter of whom may choose to trade reduced financial returns for more socially productive outcomes (i.e., conservation, affordable housing, educational development) than may be otherwise achieved from more traditional commercial ventures.

Private sources of debt financing are expected to include Los Alamos National Bank, New Mexico Mortgage Finance Authority, Enterprise Foundation, and Fannie Mae. The New Mexico Mortgage Finance Authority has also agreed to support the Galisteo Basin Preserve's affordable housing program through a homebuyer loan program.

The use of Public Improvement Bonds to finance infrastructure development, open space protection, arroyo restoration (for improved groundwater recharge), and educational facility development would be a path-breaking element of the Galisteo Basin Preserve financing plan. To date, Santa Fe County has not adopted a formal policy for the issuance of Public Improvement District (PID) bonds. Given the ambitious public benefit purposes of the project, however, Commonweal Conservancy will respectfully request consideration by the Board of County Commissioners for a \$6-12 million PID bond to help underwrite the initial phase of infrastructure development and open space protection.