**Municipal Master Plan Elements**

A municipal master plan can incorporate the ideas presented in this plan, whether the municipality is largely undeveloped, suburbanizing or a town or village. Although master planning initiatives require an upfront expense, effective planning can thwart unwanted growth patterns, an invaluable investment that will be enjoyed by future generations of residents and visitors.

In addition to a statement of goals and objectives and a Land Use Plan Element, the following master plan elements and analyses are crucial components of a municipality’s master plan if it is to be consistent with the vision set forth in this plan. Furthermore, many of these components are required for communities seeking Plan Endorsement from the State Planning Commission.

**Conservation Plan**

The Conservation Plan Element provides the basis for environmental protection planning strategies. This planning element begins with a natural resource inventory (NRI), which documents, maps and describes various natural resources in the community. These resources should be analyzed for the development constraints they may pose, their resource value and how they relate to open space priority areas. In addition to the NRI, the Conservation Plan Element should include goals and strategies to protect the community’s natural resources. Strategies should include the formation of open space priority areas, as well as site planning techniques that preserve natural features (refer to Section 5, “Planning and Designing Hunterdon Communities” for more guidance on this topic).

**Carrying Capacity Analysis**

Carrying capacity studies use the best available science to inform municipalities about the types and magnitude of growth that could compromise public or ecosystem health. In Hunterdon County, carrying capacity studies often focus on ground water limitations, since most residents rely on ground water for drinking water. Other issues of concern include impacts of growth-induced pollutants on surface waters and stream ecology, development-induced habitat disruption and air quality impacts of traffic generation.

**Build Out Analysis**

A zoning build out analysis is a two-step process. First, it analyzes the impact of current residential and nonresidential zoning when the municipality is fully built out. Then it looks at one or more alternative
zoning schemes in order to assess whether these options yield a better or worse build out scenario. Depending on the method and technology used, a build out analysis can evaluate visual impacts, traffic impacts, open space and farmland consumption, impacts to schools and other community costs, and environmental impacts.

Open Space Plan
An open space plan demonstrates a municipality’s commitment to land preservation. The plan includes existing preserved lands, future open space needs, open space priority areas and funding strategies. Traditional methods of land preservation, such as fee simple purchases and easement purchases, should certainly be pursued. However, planning and zoning techniques, including clustering, noncontiguous clustering and Transfer of Development Rights (TDR) can supplement other land preservation methods without the need for additional public expenditures.

Agricultural Assessment
An agricultural assessment helps a community select zoning densities and land development techniques that support agricultural land uses. An agricultural assessment should include a comprehensive analysis of existing agricultural trends in the community and compare it to surrounding municipalities and counties. It should evaluate farmland assessment patterns, document the types and uses of land for various farming operations, and identify preserved farmland. This kind of data helps determine the future viability of agricultural land uses. In addition to the agricultural assessment, a municipality’s master plan should include a Land Use Plan Element that identifies the zoning densities and land development techniques that are supported by the agricultural assessment.

Farmland Preservation Plan
In order to be eligible for New Jersey’s Planning Incentive Grant (PIG) farmland preservation program, a municipality must have established a farmland preservation plan. This plan element includes an inventory and map of the community’s farm properties and agricultural areas. It also includes a section that indicates how municipal ordinances support and promote agricultural land uses. It also includes an agricultural retention component, focusing on future planning for preserved farms and economic development opportunities for farmers and communities. Finally, it outlines the various mechanisms for

In 2002, the New Jersey Superior Court upheld East Amwell’s planning efforts, which combined low density zoning “low enough to be compatible with farming... but not so low as to substantially affect land equity;” cluster zoning or variations thereof; and lot size averaging to preserve rural character and support the continuation of agriculture. The Township’s land use planning strategies emerged in part from its agricultural assessment, a crucial background study for its Land Use Plan Element.
Can municipalities maintain control over future growth when they allow community wastewater systems? In Sod Farm Associates v. Springfield Twp, 297 N.J. Super. 584 (1996), the Superior Court reviewed the Township wastewater management plan, master plan and zoning ordinances. Its ruling held that a township can preclude the extension of sewer capacity to a property when it sets forth reasoned master plan goals, demonstrates master plan consistency with the State Plan, does not deny affordable housing opportunities and still allows an economically viable use of the land.

leveraging funding that will be used to preserve farmland, such as installment purchases and encouraging donations of development rights.

Stormwater Management Plan
All municipalities must adopt a stormwater management plan as part of their master plan. Stormwater management plans must address the quantity and rate of stormwater runoff, ground water recharge and water quality protection. In addition, the plan must include provisions for ensuring proper long-term management and maintenance of stormwater management facilities. The New Jersey Department of Environmental Protection (NJDEP) offers a framework for structuring this plan, which explains all the required data and analyses.

Wastewater Management Plan
Also required by NJDEP, the wastewater management plan identifies areas for individual on lot systems (i.e. septic systems), community wastewater systems and existing municipal and regional sewage treatment plants. Municipalities that want to encourage small-lot cluster developments (generally defined as lots under one acre in size) or TDR receiving areas must plan for alternatives to individual on lot systems. In many cases, the only viable alternative is the construction of community wastewater systems, which range from sophisticated mechanical systems to simple, low-maintenance, constructed wetlands. Wastewater from various residential and nonresidential uses is conveyed to a common system, treated and discharged either to surface or ground water. By dictating the number, location and size of permitted community systems, a municipality maintains full control over future growth.

Community Design Plan
A community design plan is a sub-element of the Land Use Plan Element, which details the community’s vision for the future and recommended ways to achieve that vision. Due to its focus on the design of a community, the plan includes photographs and illustrations. This plan becomes the basis of future land development regulations, such as new zoning ordinances and the establishment of community design guidelines. A community design plan is a powerful tool for addressing complaints about the suburban character of new developments.
Chapter Three  188

Historic Preservation Plan
The landscape of Hunterdon County is dotted with numerous historic towns, villages and hamlets. Many of these are included in the State and National Registers of Historic Places. Preserving their character is essential if these places are to maintain their historic integrity. With proper planning, municipalities can ensure that new development and redevelopment is in keeping with its historic context. The Historic Preservation Plan Element is a prerequisite to adopting design criteria and guidelines in a zoning ordinance for historic sites and districts. Among other things, this planning element documents the location and significance of historic sites and districts in the community, and it identifies the standards that are used to assess their historical value. Finally, it assesses the impact of each of the other master plan elements on the preservation of historic resources.

Circulation Plan
The Circulation Plan Element identifies the location, types, conditions and needs of transportation facilities. It indicates where sufficient and deficient capacity exists, given present conditions and projected growth. Roads and bridges are inventoried and analyzed for constraints and needs. This is the opportunity to recognize not only automobile travel, but also pedestrian, bicycle and public transportation needs and opportunities. Here, the community can indicate how new development should be designed to accommodate these alternative modes of transportation and where, if appropriate, existing roads can be redesigned for multiple users.

Utility Service Plan
The utility service plan element analyzes existing and future locations of utilities, including water supply and distribution facilities, drainage and flood control facilities, sewerage facilities, solid waste facilities and stormwater management facilities. A utility service plan element is a prerequisite to adopting a Transfer of Development Rights (TDR) ordinance.

Images 1-3. All three images depict new development. The middle and right images show the positive results of community design guidelines.
Economic Development Plan
Very few municipal master plans in Hunterdon County include an economic development plan element. This plan gives a community the opportunity to carefully analyze existing and anticipated nonresidential development, both locally and regionally, and document the desired type and amount of nonresidential land uses. Likewise, it can include a market analysis of the expected types and intensity of commercial development to expect. Where nonresidential development is permitted, the municipality should undertake a build out analysis in order to ensure that the amount and location of future growth is consistent with the master plan vision and market expectations. The Economic Development Plan Element is also a forum for discussing agricultural trends and strategies for supporting a viable agricultural economy. The State Plan contains 23 policies in support of sustaining agriculture, many of which are good starting points for municipal master plans.

Land Use Plan Element Sub-area Plan
A sub-area plan provides detailed information about a particular area (or areas) of the community. A receiving area for a TDR program or a new mixed-use community may require a sub-area plan. In these cases a municipality may want to invest in a detailed plan that dictates where new roads will be located, where and how sewerage treatment will be provided, where open space will be provided and the general layout of residential and nonresidential uses. When establishing a sub-area plan, the municipality invests in doing some of the site design work that would otherwise be left to developers, allowing the community to retain control over the look and layout of new development. The advantage to developers is a predictable review process and reduced site design costs.
Transfer of Development Rights Plan
A community that wants to implement a Transfer of Development Rights (TDR) program must first adopt a TDR element as part of its master plan. The TDR plan requires a significant financial investment, since there are several components of the plan, including an estimate of population and economic growth over a 10-year period, the identification of areas that will be preserved (sending areas) and developed (receiving areas), an analysis of how the projected population will be accommodated in the designated receiving areas, an estimate of existing and proposed infrastructure in the receiving areas, the means by which development will be sent from one location to another and comprehensive design standards for new development in the receiving areas. In addition to the TDR Plan Element, a TDR program requires a municipality to adopt a capital improvement program and a utility service plan element.

Master Plan Conformance to Highlands Regional Master Plan
Once the Highlands Council prepares and adopts the Highlands Regional Master Plan, municipalities located in the Highlands Preservation Area will need to bring their plans into conformance with the Highlands Plan in order to implement valid zoning regulations. Municipalities located in the Highlands Planning Area will have the option of bringing their plans into conformance with the Highlands Plan. With conformance comes the promise of state funding and planning and technical assistance, as well as the protections offered by COAH-certified housing and fair share plans.
Plan Endorsement
A municipal, county or regional plan receives Plan Endorsement if the State Planning Commission finds that it is consistent with the State Plan. Those that receive Plan Endorsement commit to implementing their endorsed plans through implementation agreements and contracts. In exchange, they have access to financial, planning and technical assistance from the state. Municipalities should note that Plan Endorsement is not applicable to communities in the Highlands Preservation Area. New guidelines are being drafted and should be approved by the State Planning Commission by 2008.

Housing Plan
A housing plan element is required in order to have a valid zoning ordinance. Furthermore, a housing plan and accompanying fair share plan are required to receive the legal protections afforded through the Council on Affordable Housing (COAH). If a municipality is found to comply with the state’s affordable housing mandates, it receives substantive certification from COAH. Under the new rules adopted by COAH in December of 2004, municipalities are required to obtain Initial Plan Endorsement from the State Planning Commission within three years of receiving substantive certification. This link between COAH’s substantive certification and the State Planning Commission’s Plan Endorsement process places more importance all the plans and analyses that are required for Initial Plan Endorsement.

Sustainability Plan
While not required element of a municipal master plan, the development of municipal policies and plans that consider all aspects of sustainable design and planning is encouraged to manage and preserve the county’s land use and energy resources. Municipalities should consider sustainable planning practices in land use planning, building and infrastructure construction, materials usage and recycling, and energy generation and usage. Hunterdon County encourages municipalities to either develop stand alone sustainability plan elements or integrate these aspects into other plan elements in a similar fashion as has been done with this document.
Planning and Designing Hunterdon Communities

Hunterdon County hosts hundreds of acres of farmland and natural resources that are neither preserved nor developed, an invaluable resource in the country’s most densely populated state. Within the context of sustained development, Hunterdon municipalities are in a unique position to direct the future of these lands, impacting generations to come. In an effort to assist municipalities with land use decision-making, this section introduces innovative zoning, planning, and design strategies, which can help facilitate land preservation and environmental protection, while directing the quality and design of new development.

Instead of proceeding at the cost of land preservation, new development can help foster privately-funded land preservation. Zoning and planning strategies including resource protection clustering and the Transfer of Development Rights (TDR) preserve open space while directing the character of new development. Furthermore, green design standards such as site clearing limitations and restrictions on nonnative vegetation can preserve site ecology while maintaining open space vistas. Architectural design standards governing building features, such as roof styles, fenestration, and building materials, ensure that new buildings respect the County’s rural vernacular architecture, an issue of particular importance within historic towns and villages. Similarly, community design standards, such as street regulating plans, building siting specifications, and streetscape standards ensure that new development maintains the character of existing communities. Employing the principles outlined below, municipalities can foster development projects that create new assets rather than liabilities, protecting or even supplying community resources:

- Preserve existing site ecology
- Utilize existing infrastructure
- Respond to community needs
- Ensure attractive, livable communities

Promote the application of green practices in order to ensure that new development respects the ecology of the landscape, and preserves open space wherever possible. Photograph courtesy of Architectural Record.

Establish capacity-based growth limits in order to take advantage of available infrastructure, and channel new development into compatible infill, renovation, and restoration projects.

Ensure that new development reflects community needs, providing housing options, transportation alternatives, and amenities, such as neighborhood parks, street trees, and sidewalks.

Direct the quality and design of new construction to ensure attractive, livable communities, drawing architectural cues from vernacular styles, particularly where development occurs in or near existing towns, villages, and hamlets.
Building Community Assets

Recognized as outstanding additions to local communities, the following development projects have been awarded in recent years at the Hunterdon County Planning Board’s Annual Planning and Design Awards Program.

**Lebanon Borough General Store**

After being vacant for over six years, Lebanon Borough’s 19th Century luncheonette required major structural work, including a new roof and modern mechanical, electrical, and plumbing systems. The owners used old photographs, library articles, and information from previous owners and lifelong village residents to reconstruct the building to its original character. The luncheonette doubles as a convenience store and ice cream shop, attracting commuters, families, and groups of children arriving by foot and bicycle.

**Rollin’ Fast Cycle Sports**

Originally an automobile service station, the existing early 20th Century building in Lebanon Borough had been vacant for a number of years and was in poor condition, with a crumbling foundation, a collapsed rear wall, and a caving concrete floor. In an effort to uphold the architectural character of the original building and the site’s environmental features, the new owners renovated the structure using natural materials, including stone, stucco, and paving bricks. New storefront windows replaced plywood openings and glass entry doors with sidelights replaced an overhead garage door. The project reused materials and finishes from local businesses, and relied on local suppliers for the building’s masonry, stone, lumber, and floor tile. As an Aprilia motorcycle and scooter dealer, the store has attracted enthusiasts from throughout the tri-state area, further contributing to the revitalization of the village’s Main Street.

**Unity Bank**

Pickell Architecture recently restored the Central Railroad of New Jersey’s Flemington’s 1865 train station. The original station, which has since housed many commercial enterprises including a diner, has been restored and renovated to house the Main Street headquarters of Unity Bank. As much original woodwork as possible was salvaged and matched and drive-through stalls were sensitively designed to integrate with the historic station.
Step 1: Establishing Community Goals
In order to more effectively direct the character of new development, communities need to establish a community design vision that fully articulates the views of residents, business leaders, local officials, and other professionals who participate in land use decision-making. A unified vision provides the municipality with a comprehensive blueprint for planning document changes. These changes include the addition of vision statements, community design plans (an addition to the land use plan element of the master plan), and new or edited land use ordinances, such as historic preservation regulations and form-based zoning codes.

Based on a series of countywide resident surveys and public meetings conducted during this plan’s visioning phase, the County’s unified vision centers on a concept of “good design.” For Hunterdon County good design describes development patterns that reflect the foremost values of County residents, including environmental preservation, housing choices, and master planned commercial development. Above all, good design necessitates a reevaluation of current residential and commercial development patterns. Throughout the visioning process, Hunterdon residents identified the preservation of rural character as an issue of critical importance, associating the deterioration of rural character with existing land use patterns. (Other surveys have found similar results, including the “2004 American Community Survey,” conducted for the National Association of Realtors in October 2004.)

Highly Rated Residential Design
Poorly Rated Residential Design
Highly Rated Commercial Corridor
Poorly Rated Commercial Corridor

The County’s 2003 Public Opinion Survey documented residents’ responses to various housing developments. The single-family homes in the above image were considered appropriate for Hunterdon County by 60% of the respondents.

During the 2003 Internet Survey, respondents rated the view of the above homes a 1.6 on a four-point scale (4 being very appropriate for the County; 1 being inappropriate). Residents preferred homes with mature landscaping and backyard privacy.

The Internet Survey documented residents’ responses to various highway corridors. This image received a 3.4 on the four-point scale, with respondents favoring the tree-lined median, sidewalks, and transit stop.

One of the lowest-rated images in the Internet Survey, this corridor received a 1.4 out of four. Respondents cited a lack of pedestrian access, poor landscaping, and uninterrupted pavement as primary reasons for the low rating.
Defining Rural Character
While the definition of rural character may vary between individuals, for the purposes of this plan the expression refers to a predominance of natural landscaping, open space and farmland. Hunterdon County’s historic towns and villages contribute to the area’s rural character as well, since they established the County’s vernacular architectural styles, construction methods and planning practices.

Although Hunterdon’s historic towns and villages are too small to be considered urban, their identity derives from their physical and functional separation from the surrounding countryside. By definition a hamlet, village or town is a compactly settled area that offers urban functions—such as a market, meeting hall, general store and post office—at a smaller scale than a city. Historically, Hunterdon farmers relied upon the urban functions provided by these settlements in order to market their goods and purchase needed tools and materials. Similarly, towns and villages became obsolete unless they offered the goods and services required by the community. As a result, the dichotomy between town and country was essential in order for Hunterdon’s rural community to be sustained. From a land use perspective, the compactness of the County’s historic towns also contributed to the preservation of area farms by preventing spatial conflicts between the two uses and by providing efficient, convenient marketplaces for farmers.

In contrast, suburban land use patterns lessen the separation between town and country, focusing development away from existing settlements into the surrounding countryside. By occupying large tracts of land outside towns and villages, suburban developments consume natural resources and farmland, increase traffic congestion on outlying roads, and generate land use conflicts between residents and farmers. Existing settlements become equally threatened by suburban development, as the introduction of suburban-style, large-scale formula businesses along highways reduces the economic viability of businesses located in towns and villages. Moreover, the highway dependency wrought by suburbanization increases traffic congestion within existing settlements, since most of Hunterdon’s towns and villages are located along state or County roads. Responding to these and other issues, residents have expressed the desire to contain future suburban development and require new construction to respect the area’s rural setting.
Step 2: Balancing the Preservation of Rural Character with Population Growth

To preserve rural character in a context of sustained development pressure, new growth should enhance the distinction between town and country, limiting land use conflicts, highway traffic congestion, pollution, and the consumption of natural resources. The following zoning, planning, and design strategies can direct the development of more sustainable, livable communities.

Ia. Land Preservation

Limiting land consumption is crucial to the preservation of rural character in three fundamental ways: first, by ensuring the preservation of natural resources; second, by retaining agricultural land uses; and third, by maintaining the functional relevance and physical identity of towns and villages. In addition to outright land acquisition, open space zoning strategies, green design standards, and agricultural viability measures can be used to advance preservation efforts.

In existing agricultural zones, the adoption of comprehensive Right to Farm policies may be the most immediate and far-reaching open space preservation technique available, since farmland preservation programs require a significant financial and time investment for each preserved parcel. By adopting Right to Farm ordinances, municipalities prioritize agricultural land uses in open space areas, protecting not only the rural image, but the foundation of the rural economy. Agriculture viability measures can take on many forms, including flexible land use regulations, a simplified permitting process, protection from nuisance complaints and public education.

Preserving Agriculture as a Viable Land Use
Choosing a Zoning Strategy

Environmental conditions, the amount of undeveloped land, public support and other factors unique to each municipality can help determine the most appropriate land preservation zoning strategy. In some cases, a combination of strategies may be more suitable, particularly for municipalities that do not participate in a Transfer of Development Rights (TDR) program. See Appendix A for a full discussion of various land preservation zoning strategies.

Transfer of Development Rights (TDR), where new units are transferred to growth areas that are designated by the municipality. TDR banks are established to facilitate expedient, ongoing transactions.

Noncontiguous clustering yields the same results as TDR, but requires the coordination of individual landowners, lacking the benefits of a TDR bank and master planned growth areas.

Onsite clustering, where the remaining open space is managed by another party, and lot size averaging, where the remaining open space is retained by a private landowner with easement restrictions.

Lot size averaging, where the cluster is reduced to allow for more than one farm, and another variation where the open space is divided into several farmettes and a few units reserved for farm labor.

Sliding scale zoning limits the number of times a parcel can be split, based upon its size. The number of potential buildable lots decreases as the parcel size increases.

Quarter-quarter zoning is a zoning technique where a limited number of non-farm homes are allowed for every 40 acres of land, resulting in small residential clusters within large areas of contiguous farmland.
**Step 2: Balancing the Preservation of Rural Character with Population Growth (Continued)**

### 1b. Zoning Strategies for Land Preservation

Zoning strategies including a Transfer of Development Rights (TDR) and noncontiguous clustering prioritize open space by directing new development into more concentrated growth areas. In turn, concentrated development patterns favor locations that could house the infrastructure needed for new settlements, as well as locations where the infrastructure required for denser development already exists. The establishment of settlement boundaries can help curb the overdevelopment of growth areas, preserving perimeter agricultural lands, environmental features and other open space areas, such as village greenbelts. By bridging land preservation with concentrated development patterns, new development can foster land preservation and town and village renewal simultaneously.

In addition, municipalities can zone for agriculture. The New Jersey Municipal Land Use Law authorizes planning and regulation to effect the preservation of farmland (NJSA 40:55D). Agricultural zoning is legally defensible if (1) the land constitutes a valuable natural resource, the preservation of which is in the public interest; (2) it is based on a comprehensive plan for the community; (3) it does not remove all economic use of the property; (4) it does not result in the exclusion of certain people from the community (e.g. the construction of affordable housing); and (5) it is applied fairly and consistently among all landowners in the agricultural zone.

In the agricultural zoning example to the left the base zoning is 6 acres per dwelling (the minimum for farmland assessment), limiting the need for downzoning. Permitted uses in the district are restricted to agriculture, ancillary residential uses and uses related to agriculture production. This zoning example is based upon new trends in agriculture where the size of farms in New Jersey is decreasing and the number of part-time farmers is increasing.

Municipalities could build in flexibility by allowing non-farm dwellings under certain conditions, in this case where a certain percentage of the original tract is preserved for larger farms and/or farmettes, or open space (note: exceptions should be granted for parcels of land that are not suitable for farming). Density penalties would accompany all non-farm units, increasing as the percentage of non-farm dwellings increases, acknowledging that in agricultural areas the addition of non-farm dwellings often produces land use conflicts.
Practicing Green Design

In order to facilitate green practices, municipalities should catalog local environmental features and produce updated environmental standards for each site feature. Furthermore, municipalities should prioritize environmental features by designating preservation zones that are geared toward the preservation of particular site conditions. For example, in a farmland preservation zone, development may be directed to nearby woodlands, whereas in a woodland preservation zone development may be directed to existing cultivated land. The overall development potential of a site can be reduced through adjusted density calculations, where critical environmental features, such as wetlands and steep slopes, are removed before calculating the site’s density allowance.

- **Conventional Site Planning**
  - Top: Site clearing that disregards natural topography and wooded areas.
  - Bottom: When permitted, conventional layouts often disregard natural features.

- **Stricter Site Standards**
  - Top: Development preserves existing wooded areas with limited site clearing.
  - Bottom: Environmental setbacks protect wetlands and streams.

- **Sustainable Site Design: The Willow School in Gladstone, NJ**
  - Top: School buildings conform to the site’s existing environmental features.
  - Bottom: Constructed wetlands treat human waste to drinking water standards.
  - Top: New landscaping uses native species and encourages habitat diversity.
  - Bottom: Vegetated drainage swales filter pollutants and recharge groundwater.

Image and Design © Back to Nature Landscape Associates, Oldwick, NJ,

[www.backtonature.net](http://www.backtonature.net)
Balancing the Preservation of Rural Character with Population Growth (Continued)

2a. Green Practices

All types of construction, including new development, redevelopment, and new or expanded roadways, can utilize green practices to preserve natural resources, or in some cases, even revitalize damaged site ecology.

For large-scale developments, municipalities should consider zoning strategies that require subdivisions to respect existing site conditions, such as adjusted density calculations (the subtraction of critical areas from density allowances) and resource protection clusters. For all types of development, municipalities could introduce additional setback requirements for significant natural resources, such as wetlands and NJDEP Category One streams, and areas considered habitat for threatened or endangered species. Furthermore, stricter site design standards, such as limits on site clearing and grading, and restrictions on the planting of nonnative species, temper the impact of new development.

On a smaller scale, architectural design standards that restrict the use of standardized plans promote green practices by requiring new buildings to be site-sensitive. Buildings that utilize changing site topography can reduce weather exposure in areas, increasing energy efficiency. Furthermore, architectural design standards can be used to address energy efficiency through building orientation and fenestration requirements. By combining natural features with new technologies, architects and engineers have the opportunity to create unique, eco-friendly buildings, as shown with recent innovations in green roof designs.

Both new development and redevelopment projects can address environmental issues by improving energy conservation, introducing recycled materials, utilizing local building materials and revitalizing damaged site ecology. In 2004, the County Planning Board awarded the owners of Basil Bandwagon in Raritan Township the county’s first green development award. The owners utilized a number of green design techniques, including high efficiency lighting, heating and cooling, and recycled floor tile, carpet and shelving. In 2005, the county green development award was given to Fern Valley, a four-home development off Boulder Hill Road in Tewksbury Township designed by Back to Nature Landscape Associates. Numerous green design techniques have been integrated into the site plan. Vegetative swales and wetland pools have been designed to capture stormwater runoff along the roadway, while native plantings, limited site disturbance, and limits on site clearing and impervious surfaces have been planned to improve groundwater recharge and reduce soil erosion throughout the site. All homes will include roof drains to collect rainwater, which will be stored in cisterns, then reused to water the garden and flush toilets.
Practicing Green Design Regionally

The Spruce Run Initiative Corridor Study was sponsored by the New Jersey Water Supply Authority (NJWSA), the Association of New Jersey Environmental Commissions (ANJEC), and the Spruce Run Initiative (members include Bethlehem Township, Glen Gardner Borough, High Bridge Borough, Lebanon Township and Union Township). The Corridor Study developed recommendations for promoting economic development in a manner that protects the Spruce Run Reservoir watershed and respects the area’s community character. The study area included three roadway corridors within the watershed: Route 173 in Union Township and a portion of Bethlehem Township; Route 31 in Lebanon Township and Glen Gardner Borough; and a portion of commercially-zoned Route 513 in High Bridge Borough. The final report presented a set of recommendations that addressed the watershed as a whole, as well as individual sites. The watershed scale proposed recommendations for managing growth over the entire study area, most notably with a plan of proposed higher density nodes separated by low density areas (refer to Section 4 of this chapter, Maps 5 & 6). Site scale recommendations focused on ways to improve the design of nonresidential sites along the corridors. All the recommendations resulted from a series of roundtables, workshops, interviews, and public meetings, a process that involved key stakeholders, municipal mayors, town planning committee members, environmental commission members, town planners, business persons, members of the public and Hunterdon County.

Images from “The Spruce Run Initiative Corridor Study,” 2004
Balancing the Preservation of Rural Character with Population Growth (Continued)

2b. Green Practices for Roadways

As with land use policy, transportation policy can promote green practices and eco-friendly behavior. Thinning or pruning techniques offer a green design alternative to the razing of vegetation for sight distance. Similarly, in areas surrounding new development, extensive road widening can be supplanted by pedestrian and transit accommodations, ample road connections and traffic calming measures, such as roundabouts and speed tables. Associated with the loss of rural character in Hunterdon County (refer to “Step 1: Establishing Community Goals” of this section), road widening has been identified as a generator of sprawl in recent transportation studies. New and expanded roadways, most notably highways, increase roadway capacity, which in turn increases the accessibility of nearby lands, many times spurring new development in the area (for more information about these studies see Appendix B). Furthermore, wider roadways facilitate faster speeds, generating additional land use conflicts while making remote lands more viable bedroom communities for commuters. By replacing roadway widening with other, more eco-friendly transportation improvements, municipalities can address transportation needs without overwhelming the rural environment.

Ultimately, the most important factor in ensuring green practices is the ongoing enforcement of new design standards, particularly during early construction phases. In addition, municipalities should disseminate information to residents throughout the year covering topics such as lawn care, tree planting, stormwater management and new land use ordinances.

Rural Traffic Calming Measures

Images from “Virginia’s Route 50 Traffic Calming Project Design Memorandum,” Fauquier and Loundoun Counties, Virginia, February 2003
Implementing the Vision

Left: Historic vernacular farm buildings.
Middle: New building replicating rural vernacular.
Right: Innovative design ideas based on the rural vernacular. Photograph courtesy of Architectural Record.

Left: Historic vernacular village houses with porches.
Middle: New buildings replicating village house vernacular.
Right: New houses introducing innovations while reflecting village vernacular.

Left: Historic vernacular small village house.
Middle: New buildings replicating small village house vernacular.
Right: Unique rowhouse designs reflecting the size and scale of village houses.

Left: Historic vernacular village storefronts.
Middle: New storefront replicating village vernacular.
Right: Unique building design melds with surrounding village.
Balancing the Preservation of Rural Character with Population Growth (Continued)

3. Historic Preservation

Municipalities can maintain the character of growing areas by establishing historic preservation ordinances, an issue of critical importance in the County’s towns and villages. Historic preservation should encompass not only individual buildings, but historic planning methods as well, including towns, villages and farmsteads. Redevelopment incentives can be used to channel development into compatible infill, renovation and restoration projects, in historic settlements and on farms, most notably with the adaptive reuse of barns, mills, and other functionally obsolete rural structures.

Rural and suburban planning mismatches

Mismatches with vernacular building styles

Adaptive reuse of vernacular architecture

Conventional plans feature wide streets without sidewalks, often ending at cul-de-sacs, and large lots with expansive lawns.

Conventional styles offer interiors that suit a typical family and front facades that suit a number of locations.

Often abandoned or replaced, farm structures could be used to cater new development to a particular community.

Similarly, underutilized or abandoned buildings in towns and villages present opportunities for rural redevelopment.

Historic planning methods include narrow, interconnected streets, abundant street trees, sidewalks and small lots of varying sizes.

Hunterdon’s vernacular styles range from Colonial to Victorian with designs catered to specific families and unique locations.

Farmsteads can be used for a variety of new functions, including housing, antique stores, farmers markets and theatres.

In towns and villages, the adaptive reuse of historic buildings can spur tourism by promoting a community’s uniqueness.
Understanding “Good Design”
Throughout the County’s master plan visioning phase, residents identified a loss of open space and farmland, overdevelopment and traffic as major areas of concern, all of which were associated with poor planning and design practices. For Hunterdon County, “good design” refers to development patterns that respect the area’s rural setting, most notably the County’s supply of farmland and open space and historic towns and villages. Four primary planning and design factors contribute to the impact that new development has upon the rural environment: first, site planning, including new roads, lot sizes, setbacks and landscaping; second, the material usage and construction quality of new buildings; third, architectural design, including building massing, roof styles and façade treatments; and fourth, a development’s functional contribution, whether a public park, chain store, affordable housing unit, single-family home or local business. Looking more closely at the desirable and undesirable qualities of each factor can bring to light a wide array of planning and design solutions.
Step 3: Fostering Innovative Planning and Design

While preservation of the County’s historic structures and open space is essential to the preservation of the area’s rural character, these efforts do not have to occur at the cost of innovation. Ironically, a need for wide-ranging rural preservation can stimulate innovative planning and design strategies, given that a wholesale mimicking of historical models would not suit contemporary needs. By preserving rural spatial relationships on a large scale through the separation of town and country, and on a small scale through site-specific building practices, municipalities can help generate the development of attractive, livable communities for the 21st Century.

Depending on a municipality’s specific land use goals, innovative planning and design solutions can focus on one or more of the following development categories:

- **Responding to Contemporary Needs**
  - Top left: Within towns and villages green belts play an important role in attracting tourists, improving residents’ quality of life and defining settlement boundaries.
  - Top middle: Outside towns and villages businesses can maintain the area’s rural character by renovating existing farm structures.
  - Top right: Similarly, farm structures can be utilized to satisfy housing needs, most notably for accessory units and multi-family housing.
  - Bottom left: Mixed-use development provides opportunities for affordable housing, public transportation and other amenities.
  - Bottom middle: New commercial development in outlying areas can respect rural character through context-sensitive designs.

- **Towns and Villages**
- **Rural Commercial Areas**
- **Rural Residential Areas**

Photographs of Barn Renovation and Lath House Addition (top right) and Conference Barn (bottom middle) courtesy of Architectural Record.
Redeveloping Suburban Areas

Washington Township in Mercer County, located near the metropolitan areas of Philadelphia and Trenton, became the first municipality in the nation to design its own neo-traditional town center. In an effort to curb sprawling large-lot development, the township established a Transfer of Development Rights (TDR) program, designating a 400-acre receiving area with 30 acres of public gardens, parks, lakes and village squares, and a preserved green belt around the center totaling more than 300 acres.

By infilling higher-density development into a low-density suburban landscape, the township provided new pedestrian and roadway links to and from existing suburban areas, while adding new amenities to the community, including multi-family housing, shopping areas and preserved open space. Comprehensive planning in conjunction with exhaustive architectural design standards, ensured that the town center maintained the historic character of the township, requiring alley garage access, front porches and architectural details such as dormer windows and all-brick facades.
Fostering Innovative Planning and Design (Continued)

1. Redevelopment

In order to satisfy demands for suburban amenities while promoting compact, attractive communities, municipalities need to balance land use flexibility with comprehensive master planning. Redevelopment is an often overlooked, but increasingly important planning tool for developing rural areas. By focusing new growth into established developments, municipalities can restore the functional relevance of towns and villages on the one hand, and introduce new amenities to single-use suburban areas on the other.

With the arrival of big-box stores and other formula businesses, Hunterdon’s towns and villages have struggled to compete with the larger selections, lower prices and ample parking offered by suburban business models. Depending on the location and the appeal of their downtown commercial districts, some municipalities have been able to transform historic areas into tourist destinations, although highway commercial strips have retained a monopoly on day-to-day shopping destinations. Redevelopment projects, including building restorations and renovations, infill development, and environmental restoration can help establish a viable downtown shopping district for local residents and tourists alike. When applied to existing suburban areas, redevelopment projects can help transform fragmented single-use developments into more cohesive, functionally diverse neighborhoods that more accurately reflect Hunterdon’s historic development patterns. Redevelopment is an indispensable method for achieving a reciprocity between the old and the new, allowing municipalities to respond to contemporary needs while retaining the character of Hunterdon’s historic communities (Municipalities should consult “The Redevelopment Handbook: A Guide to Rebuilding New Jersey’s Communities,” published jointly by New Jersey Department of Community Affairs and the New Jersey Chapter of the American Planning Association).

Redeveloping Towns and Villages
Keeping in Scale with Existing Communities

In 1998 Chesterfield Township established a Transfer of Development Rights (TDR) program, designating a 560-acre receiving area near the historic Village of Crosswicks. In order to keep in character with the township’s historic planning and design practices, the municipality’s planning consultant, Clarke Caton Hintz, developed a master plan for the new settlement that followed the principles of traditional neighborhood design (TND). The plan for Old York Village includes mixed-use buildings, a wide variety of housing types and an interconnected street network organized around civic elements and parks. The township adopted comprehensive architectural design standards to ensure that new buildings would echo the architectural styles, building materials and colors of Chesterfield’s historic villages.

While the new settlement is located near historic Crosswicks, it is separated from the village by a greenbelt. Open space buffering between the two settlements allows Old York Village to respect the original boundaries of Crosswicks, preserving the size and scale of its historic neighbor (see opposite page for more town and village expansion techniques). In order to provide Old York with a pedestrian-scaled commercial center, the village has been positioned along the edge of Old York Road, separated from the highway by a small vegetated buffer.
Fostering Innovative Planning and Design (Continued)

2a. New Development: Town and Village Expansion

When the scale and character of an existing community is retained, town and village expansion can enrich the community, providing needed amenities, such as new housing types, commercial businesses and public infrastructure. Comprehensive master planning, including street layouts, growth boundaries and open space provisions, is an essential component of the development process, providing builders with the necessary guidelines for the creation of context-driven designs.

An inventory of existing conditions should inform community design standards that take into account all aspects of new development, from building facades to street trees to the location of parking areas. In order to ensure that development proposals adequately follow the design criteria, municipalities should establish a rigorous development review process and if necessary, consult planning and design professionals for analysis and feedback. A three-step review process is recommended, including: a pre-design meeting where the applicant presents a sketch plan with building specifications, a pre-construction review where the applicant submits all necessary documentation for construction approval, and a final review where the applicant submits the completed development plan. Municipalities should regard the review process as the keystone of their master plan, since this process ensures that the community’s vision for their town or village is properly implemented. The process should be thorough enough to direct all aspects of the proposal’s design, but flexible enough to allow for new and innovative design ideas.

Models for Town and Village Expansion

Centralized Plan

Crossroads Plan

Expanded Perimeter

Expanded Blocks

Adjacent Neighborhood

Satellite Neighborhood
Developing Communities Along Highways

In order to successfully direct the character of new development, municipalities need to establish the “bones” of the community: a master planned street network. In the same way a creature’s bone structure influences how the body looks and functions, street networks influence land use on several levels, from how walkable a community is to where water and sewer services run. Street networks can take on several forms and still achieve the same planning and engineering goals, whether a uniform grid, a radial plan or a naturalistic pattern of curved streets. The most important aspect of the plan is a redundant array of street connections, which can disperse traffic and ensure good access to public spaces, a note of particular importance to local businesses. Once the structure of the street network is established, municipalities need to determine site plan design standards that will further support the goals of the master plan.

Prospect, a town center development in Longmont, Colorado, aligns a highway (located to the right) and provides for future street connections along each side of the tract. The irregular street pattern produces unique vistas and provides opportunities for several small parks.

Image courtesy of Prospect New Town, Longmont, Colorado

Rear alley garage access allows narrow lots, while off-street parking pods allow streets to be narrower, both of which contribute to the development’s village scale.

An array of pedestrian paths, both along the streets and in between buildings, provides a plethora of opportunities for strolling, gathering and socializing. With a well-thought out, master-planned street network, new development can incorporate a higher level of community design.
Fostering Innovative Planning and Design (Continued)

2b. New Development: Commercial Districts

Positioned midway between New York and Philadelphia, Hunterdon County hosts a significant amount of regional thru traffic, impacting federal and state highways, as well as county and municipal roads. As suburban areas continue to grow, regional demand for commercial amenities produces a fragmented pattern of local commercial development along area highways and thoroughfares. Designed to accommodate the automobile, low-density, segregated land uses further exhaust automobile congestion by producing long distances between daily destinations.

Municipalities can curb fragmented development patterns by positioning higher-density, mixed-use nodes in strategic locations near key transportation infrastructure. Development nodes provide opportunities for municipalities to fulfill affordable housing requirements, as well as provide transportation alternatives within and between higher-density areas, an issue of particular importance to children and the elderly. Echoing the “beads on a string” development pattern that followed expanding rail lines in the previous century, development nodes can produce the incentives needed to reintroduce or improve public transportation infrastructure. However, in order make public transportation viable, municipalities need to ensure that nodes house a wide array of uses, including housing and jobs for a variety of income levels. Otherwise, public transportation within and between districts will fail to reduce the amount of traffic generated by work commutes.

To offset node upzoning, land capacity-based population estimates, alongside market analyses of existing commercial areas, can help municipalities determine if and where highway commercial corridors have been overzoned. In rural and environmentally sensitive areas, municipalities may be able to zone considerable portions of existing commercial zones for lower-intensity uses, creating a natural buffer between development nodes. Commercial downzoning in rural areas could provide unique opportunities for agriculture tourism businesses, such as produce stands, bed and breakfast inns and local food production facilities with public viewing areas. Municipalities could further encourage ag-tourism by offering a simplified review process, exempting agriculture-related businesses from exhaustive site plan requirements, such as paved parking, curbing and roadway paving and widening.

Models for Highway Development Nodes

- From Point
- Along Edge
- To Side
- Offset
- On Center
- At Intersection
- Along Axis
- Perpendicular To
- Interlocked
- In Between
Developing Rural Clusters
Located near the village of Marine on St. Croix, the oldest European settlement in Minnesota, Jackson Meadow reflects the planning and architectural design of its historic setting. Together landscape architects Coen + Partners and architect David Salmela designed the rural residential cluster for 64 houses on 70 acres, preserving the remaining 230 acres of open space for active farmland and restored prairie grasses and woodlands. The community features buildings that are reminiscent of Marine’s historic Scandinavian architecture, with snow-white finishes, high peaked roofs, and large porches. The houses are arranged on a neighborhood grid along narrow, inverted-crown roads that align with the land’s low spots, and pedestrian paths link the community to the surrounding open space. The homes are designed for energy efficiency, each pre-slated for photovoltaic solar panels, while several houses include geo-thermal heating and cooling systems. The development uses a septic filtration system designed by North American Wetland Engineering that uses subsurface water flows to treat effluent with plants and natural processes.

Photographs courtesy of Jackson Meadow Company LLP
Fostering Innovative Planning and Design (Continued)

2c. New Development: Residential Neighborhoods in Rural Areas

In developing rural areas, municipalities can employ planning and design strategies to reduce the impact that new development has upon agricultural uses, as well as upon the character of the rural landscape. Cluster zoning techniques, including on-site clustering, noncontiguous clustering, and the Transfer of Development Rights (TDR), reduce the amount of land consumption for new development while facilitating privately-funded land preservation. When coupled with agricultural viability measures and Right to Farm policies, rural cluster zoning can help municipalities strike a balance between a community’s desire to preserve rural land uses and the need for municipalities to respond to current development pressures.

In order to lessen the impact of new development, municipalities should set stringent goals for developers proposing rural clusters. For example, if the proposed development adjoins an existing community, the municipality should require the developer to provide ample circulation connections, both vehicular and pedestrian, to previously developed areas. On the other hand, if the development borders agricultural fields the municipality should require extensive buffering between the two land uses in order to protect farmers from nuisance complaints and easement creeping. Despite the specific goals of each cluster, municipalities should require that all developments be built to the scale of Hunterdon’s historic towns and villages, with buildings reflecting vernacular architecture clustered along narrow roadways.

Cul-de-sac Design Alternatives

By including greenspace, an “end circle” offers an attractive variation on the cul-de-sac design, and provides an opportunity to capture stormwater runoff.

Driving speeds are lowered and through-traffic is discouraged with a crescent road connection, while the greenspace captures stormwater runoff at the road intersection.

Similarly, a “loop lane” provides an opportunity to capture stormwater runoff close to its source, as well as ample neighborhood greenspace.

A splitter island can function as a temporary loop lane, allowing automobile turnarounds while providing an opportunity for future road connections.
Establishing Community Design Standards

In order to be effective, community design standards need to be exhaustive, particularly for designated growth areas and other large-scale developments. Within existing towns and villages, community design standards are an important tool in ensuring that new buildings respect their historic context. For smaller rural developments, design standards can temper the impact that new development has upon the rural landscape. All design standards should include drawings and photographs in order to clearly and effectively communicate the community’s design vision. While the primary purpose of one municipality’s standards may be to clarify the goals of the master plan and land use ordinances, another municipality may adopt more proactive community design standards that regulate all aspects of new development, from the arrangement of streets and land uses to acceptable architectural details.

The design standards adopted for Washington Town Center in Mercer County dictate all aspects of the development’s design, from the location of garages to chimney heights. The street regulating plan specifies a hierarchy of streets, each with its own set of design standards, including parking and pedestrian accommodations, street lighting and landscaping. Site plan and architectural design standards specify how land uses relate to neighborhood streets, with higher density uses, such as apartments and townhouses, positioned closer to the street on smaller lots. Washington Town Center’s zoning and design regulations create a comprehensive streetscape by commanding standardized street treatments and an overarching architectural aesthetic. At the same time regulations prevent homogeneity by alternating housing types and requiring architectural design variations (refer to the redevelopment discussion in “Step 3: Fostering Innovative Planning and Design” for a project summary).

Municipalities that have not created community design standards, but wish to dictate the form of new development, should consider adopting a form-based zoning ordinance. Unlike conventional Euclidean zoning, which separates uses into distinct districts, form-based code organizes development by street type, with height, siting, architectural and land use specifications linked to the function of the street that the building fronts. Street functions can range from “major street,” commonly defined as a mixed-use street with a 70-foot right of way and dedicated on-street parking, to a “country road,” defined as a tree-lined rural lane with a 50-foot right of way and no curbing. Typically, a form-based zoning ordinance includes regulating plans (for part or all of the municipality), building placement standards, architectural standards, streetscape standards and an enhanced approval process.

Ensuring Architectural Variety

In order to keep building costs low, the New Holly affordable housing project in Seattle, Washington incorporated numerous two-family duplexes with the same main floor configuration. Designers provided architectural variety by adding three different upper floor plans, each with a unique roof form. A simple requirement, such as alternating roof styles, can produce rich architectural variety.

Images courtesy of Weinstein A/U Architects and Urban Designers
Fostering Innovative Planning and Design (Continued)

2d. New Development: Residential Neighborhoods in Areas with Considerable Natural Resources

In areas that house considerable natural resources, municipalities may want to apply cluster zoning techniques that allow for more design flexibility.

Where woodlands are prominent, municipalities may require that new parcels be clustered in a manner that ensures a minimal amount of tree clearing. Similarly, where more than one soil type is present, municipalities may require that the most valuable land remain open space. Archeological, historic and cultural sites should receive the same treatment as significant environmental features. In order to achieve an array of preservation goals, development proposals may need to incorporate multiple clusters or looser, more organic layouts. Rather than establishing specific layout requirements, such as roadside buffer dimensions, municipalities should adopt performance standards that accommodate a wide variety of designs, requiring instead the realization of broader preservation goals (for guidance refer to “An Ordinance for the Protection of Resources in Major Subdivisions,” published by the Hunterdon County Environmental Toolbox Committee and the Hunterdon County Planning Department).

In one such example, the Beverly Hills site (top left image) necessitated a tight cluster in order to preserve the woodlands and wetlands near the Rouge River; conversely, the site in Hanover County required a looser layout located further from the roadway in order to preserve existing woodlands. Environmental features on adjacent sites can be a design factor as well, as with the Hanover County subdivision, where military earthworks located along the property line continued into the Richmond National Battlefield Park. In this case, a significant amount of the preserved open space was dedicated to the neighboring park.

As with farmland preservation clusters, clusters that are designed to preserve natural resources should set aside future road connections wherever possible. This is particularly important for natural resource clusters, since layouts may require longer roads that wind around significant environmental features, reducing the efficiency of internal roadways. In general, municipalities should pay special attention to potential roadway links between neighboring parcels, limiting the use of cul-de-sacs unless they support a larger design objective, such as greater open space provisions or extensive pedestrian linkages (refer to Part 2c for cul-de-sac design alternatives).

Thinking Regionally

In order to successfully implement the planning and design strategies described in this plan, municipalities need to be able to understand the implications of land use decisions at both a local and a regional scale. After considering the issues confronting neighboring jurisdictions, municipalities need to reach a consensus about the pattern that development should take regionally, then implement that vision on a local level. Only then will comprehensive planning curb existing ad hoc development patterns.

Regional planning efforts could include inter-municipality Transfer of Development Rights (TDR) and the designation of Special Resource Areas, the former directing the location(s) of new growth, the latter protecting the character of existing land use patterns (for more information about the State’s definition of a Special Resource Area see page 171 of the New Jersey State Development and Redevelopment Plan). Other regional planning efforts can focus more specifically on environmental issues, such as watershed protection and woodlands conservation, or infrastructure issues, such the I-78 corridor.

On a local level, comprehensive planning efforts could be realized in a number of ways. For example, if residents and local leaders have designated several areas to be suitable for development, development patterns may be more dispersed, possibly near or within existing communities in some places, and in the form of new communities in others. Conversely, if significant natural resources exist in one area of the municipality, development may be clustered within less environmentally sensitive areas. If residents and leaders have determined that a significant amount of contiguous open space should be preserved, new development may be restricted to a limited number of established centers. No matter what strategy is pursued, when planning and design efforts on local and regional levels are interdependent, municipalities will ensure more cohesive, better functioning communities.

Models for Regional Development
Conclusion
In addressing local land use issues, municipalities need to recognize the reciprocity that exists between urban conditions—whether in big cities or small towns—and rural land preservation. Healthy cities, towns, and villages safeguard New Jersey’s rural areas by concentrating development into locations most suitable for development, away from valuable land resources. In order to resolve regional issues, such as agricultural viability, pollution and traffic, local planning efforts need to extend beyond municipal boundaries.

Public officials, residents, developers and other professionals who participate in land use decision-making should work together in order to reevaluate current development patterns, and develop a community vision for the future. Public officials should make an effort to become more educated about planning and design alternatives, and be prepared to educate their constituents as well. Municipal leaders should use the visioning process to resolve possible conflicts between residents’ desires for suburban amenities and their wish to protect historic and environmental resources. Public education is essential for building a consensus about policy changes, and should be an integral part of the planning process from inception to implementation.

In order to ensure that a community’s vision is realized, municipal leaders may need to reform their development review process, consulting planning and design professionals for analysis and feedback. The process should be thorough enough to direct all aspects of a development proposal’s design, but flexible enough to allow for new and innovative design ideas. Ultimately, the success of a community’s vision relies upon the patience and endurance of its local leaders. Seemingly unattainable at times, visionary planning and design will benefit New Jersey residents for generations to come.

Exploring New Planning and Design Solutions

Photographs of Hageneiland by of Rober't Hart, courtesy of ArchiNed.nl