

Town of Woodstock



Urban Development Areas
Comprehensive Plan Amendment

DRAFT
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I. Urban Development Areas

The shape of American towns and cities has changed over time, with a major shift in American town planning coming in the late 1940s, when suburbs as we now know them today were developed. These new real estate projects placed new homes outside of existing towns, where they could only be accessed by car, rather than close to, or within, existing towns where walking or bicycling to destinations was possible. The new suburbs were largely made up of only one type and style of home, rather than the mix of home designs and sizes common in older villages

Suburban development also strictly separated uses so that homes, shops, and offices were all in different locations that had to be driven to. This separation of uses was in contrast to the mixed-use character of older towns and cities, where a resident might find a grocery store at the end of a residential block. Most importantly, suburban development put houses on large lots, while older towns like Woodstock had previously been relatively compact. Woodstock has increasingly seen new development that follows a suburban pattern, rather than the traditional pattern associated with Main Street and close-in residential areas.

While suburbanization does have certain benefits, such as big yards, quiet streets, and the freedom of driving when and where one wants, this pattern of development has had adverse effects over time. The large lots of suburban development consume much more land than more compact traditional forms of building. Because of this, suburban development has pushed new development outward, toward the Town's edges. These new residences and commercial uses take away from the vitality of the Main Street core, and pressure the Town to maintain an expanding system of roads and utilities.

The UDA Legislation

As a way to address some of the negative effects of suburban-style development, particularly on traffic and transportation, new legislation was adopted in 2007 as Virginia Section 15.2-2223.1 of the Code of Virginia, requiring certain high-growth localities to amend their comprehensive plans to incorporate one or more Urban Development Areas (UDAs).

The UDA(s) must be sized to meet projected residential and commercial growth in the locality for the ensuing period of at least 10 years, but not more than 20 years. In addition, federal, state and local transportation, utility, economic development, and other public funding should, to the extent possible, be directed to the UDA(s).

UDAs should be established in areas that are appropriate for higher density development due to (a) their proximity to transportation facilities, (b) the availability of public water and sewer infrastructure, and (c) their proximity to existing developed areas. The boundaries of the selected UDA areas should be identified on the Future Land Use Map.

Pursuant to the statutory requirements, the UDAs shall create appropriate areas within the locality for development at more compact densities, on developable acreage, of at least:

- Four single family residences per acre,
- Six townhouses per acre, or
- Twelve apartments or condominium units per acre; and
- A floor area ratio of at least 0.4 for commercial development.



Development within designated UDAs should be based on the principles and features of Traditional Neighborhood Design (also called new urbanism). These features may include, but aren't limited to, (i) pedestrian-friendly road design, (ii) interconnection of new local streets with existing local streets and roads, (iii) connectivity of road and pedestrian networks, (iv) preservation of natural areas, (v) mixed-use neighborhoods, including mixed housing types, with affordable housing to meet the projected family income distributions of future residential growth, (vi) reduction of front and side yard building setbacks, and (vii) reduction of street widths and turning radii at subdivision intersections.

The Benefits of UDAs

The primary purpose of Virginia's urban development areas legislation is to improve the future efficiency of state-funded road building and maintenance. The suburban sprawl that has resulted from large-lot development and separation of uses in typical suburban development patterns has brought about increased traffic and the financial burden of maintaining a rapidly expanding road network.

The benefits of compactness and traditional neighborhood design can address some of the transportation effects of suburban sprawl. By locating a given number of residences or businesses closer together, these new uses can be connected to existing roads with shorter new road segments constructed and maintained at lower cost. By mixing commercial and residential uses together in the same community, TND communities require much shorter trips to access daily needs. The pedestrian focus of TND communities also means that some trips may be made by walking, thus removing vehicle trips from roads.

UDA development can also help the Town reach its comprehensive plan land use goals. By allowing more intense development in appropriate areas, the Town has the opportunity to preserve open spaces and support the vitality of existing in-town uses.

In addition to transportation and preservation benefits, compact development can also mean shorter and more efficient infrastructure connections for public water, stormwater, and sewer utilities, and improved response times for police and fire services.

II. Demographic Analysis

Objective and Definitions

The approach to determining the boundaries and acreage of the UDAs adheres to the definitions and requirements of Section 15.2-2223.1 of the Code of Virginia. The major statistical objective of the legislation is to demonstrate that the Town's anticipated population growth for the next 10 to 20 years can be accommodated within the designated UDAs.

Land uses to be included in the UDA are defined by the legislation to include residential, commercial, and offices. Residential uses are divided into detached single-family, town homes and attached residential units (such as duplexes), and multifamily residential dwellings (such as apartments and condominiums). The Virginia planning legislation states that UDA densities are to be applied to the calculation of UDA developable acreage, that is, the primary area for active development exclusive of existing parks, road rights-of-way, railroads, utilities, and other public facilities.

Development Densities

The UDA legislation establishes threshold densities for basic land uses within UDAs. These densities are based on levels that have been found to be appropriate for application within Traditional Neighborhood Developments. The following densities are to be applied to the individual uses proposed for the Town's UDA

URBAN DEVELOPMENT AREA LAND USE CATEGORIES

- | | |
|---|----------------------|
| <i>a. UDA Single Family Detached Residential:</i> | <i>4 units/acre</i> |
| <i>b. UDA Attached Residential:</i> | <i>6 units/acre</i> |
| <i>c. UDA Multifamily Residential:</i> | <i>12 units/acre</i> |
| <i>d. UDA Commercial and Office Employment:</i> | <i>0.40 FAR</i> |
| <i>e. A proportional mix of the above densities and intensity of use.</i> | |

While the UDA statute provides a general definition to guide the sizing of the UDA, it does not address a specific technique and process for arriving at the acreage requirements for the UDA land uses. In order to provide a detailed projection of UDA land use needs, the consultant has constructed the UDA Land Use Model. The model generates calculations based on the density thresholds required by the legislation as well as assumed parameters for the distribution of density as established by the Town and consultant. The following section describes the methods and assumptions adopted by this report to establish the total land area that is sufficient to meet the legislative sizing parameters for the UDA developable acreage and the overall yield of the uses contained within the UDA boundaries.

Population Projections

The Code stipulates that the growth projections must be based on those prepared by the Virginia Employment Commission. Unfortunately, and in spite of the requirements of the legislation, the VEC does not prepare population projections for Virginia's incorporated towns; only for counties and cities. Thus, lacking the series of the mandated VEC 2020 and 2030 projections for the Town, an alternative approach was formulated. For Woodstock, the most reliable demographic projection methodology is to closely examine the VEC projections

for Shenandoah County, the other communities located within the region, and other peer locales that currently have or have had similar growth trends to the Town. In addition, secondary sources are important to consider, including estimates prepared by Neilson Demographics. Based on this firm’s research, it is recommended that the Town’s population projections for use in the UDA study be based on a pro-ration of future County population. VEC projects Shenandoah’s 2010-2020 population to grow by 16.6%, with a 15.2% growth rate over the following ten-year period. During the 1990-2000 census period, Woodstock’s population made up 11.3% of the County’s total.

WOODSTOCK POPULATION PROJECTIONS: 2010-2020-2030

	<i>Shenandoah County</i>	<i>The Town of Woodstock</i>
2010	42,395	4790
2020	49,427	5585
2030	56,927	6433

The legislation requires that the combination of designated UDAs in the Town shall be sufficient to accommodate the projected population growth in the locality for at least the next ten years, but not more than the next twenty years. The future residential population and commercial employment sectors that are to be contained within designated UDAs are bounded by the limits of the next two decennial demographic projection periods. In summary, (a) the UDAs can be sized no less than the land area necessary to hold the anticipated Town population growth for the coming decade (2010 to 2020), and (b) they can be no smaller than what is required to hold the anticipated population growth for the next two decades (2010 to 2030). These population projections can be translated into estimated demands for residential dwelling units as well as retail and office demands (per the UDA definition for commercial). These figures were employed to create the Land Use Model that serves as the basis for determining boundaries of Urban Development Area(s).

Distribution of Population Growth by Dwelling Type

The UDA is intended to provide an opportunity for a future population that seeks to live in higher density residential neighborhoods, but, in Woodstock, this has not been the trend in past decades. Due to the relatively small percentage of high density housing in the Town, there is no statistically valid way to employ the existing housing mix to project the distribution of population amongst the future dwelling types. Thus, the projected distribution of population over the next 10-20 year period requires a certain amount of guesswork. Future population demands for particular residential types could vary broadly based on national building conditions, local housing preferences, housing affordability, bank lending patterns, income levels of new residents, proximity to jobs, employment security in the marketplace, changes in Town housing policies, and other factors.

Since the UDA residential developable acreage is intended to recognize a mix of housing types, the designation of the total residential area must be balanced among Detached Single-Family Residential, Town Home and Attached Residential, and Multifamily Residential. The Land Use Model produces a total of three scenarios for the distribution of population by housing type. These scenarios range from growth being accommodated in mostly single family homes to an option that places a heavy reliance on town homes and multifamily development.

The most important planning consideration in the assessment of these alternatives is to understand the relationship between (a) the population projections, (b) the type of dwellings this future population may desire, and, ultimately, (c) the amount of land (“UDA Developable Area”) necessary to absorb and be designated for this population during the years ahead. Ultimately, during the planning process, Town officials will have to make the final selection of the preferred distribution of dwelling unit types to be assigned to the residential portions of the UDA.

For the purpose of testing the amount of required UDA developable acreages, the three scenarios examine differing distributions of Woodstock’s projected population among the three UDA housing types. The first scenario distributes future population among the three dwelling categories based on the ratio of existing approved dwellings (by category) in the Town’s pipeline for construction. The distribution assumptions for the second scenario reflect the status quo in Woodstock housing types over the past two decades. The third scenario is based on an even distribution of the population among the three housing types, with the 33%/33%/33% ratio of residential allocation. The findings reveal very little difference when considering the total required UDA Developable Acreage for the three scenarios. Thus, while housing mix is an important planning consideration, variations in mix among the three categories do not greatly influence the required land area to be designated per the new statutes.

DISTRIBUTION OF RESIDENTIAL POPULATION GROWTH

	Single Family	Townhouses	Multifamily
Scenario 1:	57.5%	40.4%	2.1%
Scenario 2:	30%	44%	26%
Scenario 3:	33%	33%	33%

Residential Dwelling Demand

The residential dwelling demand is calculated by applying the projected population to be distributed within each of the three housing categories to the corresponding density for the housing types. As indicated above, these densities are fixed based on those stipulated by the UDA statute. Keep in mind that the total future dwelling demand is a function of the distribution of projected dwelling types as well as the projected housing occupancy rates by dwelling type. For example, if 100% of future Town residents seek to live in higher occupancy single family detached residences, there will be fewer dwelling units than if 100% of the residents lived in smaller (low occupancy) multifamily units.

Employment projections

The model calculates existing and projected future employment by comparing the established VEC population growth projections to the percentage of Town residents employed within the Town. This percentage is derived from existing VEC statistics. The model also projects that this percentage will increase moderately in the future as UDA development works to stem out-commuting among Town residents. Employment projections are used to estimate commercial land use sizes and allocations within the UDA. The employment calculation incorporates a wide variety of business sectors that create the employment marketplace. These sectors are incorporated into three primary employment

categories, including: (a) UDA Commercial and Office, (b) Non-qualifying Employment Uses (ie. job generating uses not included in the UDA definitions), and (c) Government and Education Uses (also, not included in the UDA definitions.) The statistical distribution of, and projections for employment within, each of the three categories is unique to each locality.

UDA Commercial and Office Demand

Since the legislation recognizes the need for both residential and commercial uses within the UDAs, the Land Use Model also provides estimates for future office, retail, and other commercial land uses as well as justification for the calculation of the areas that they require. Using the generated employment growth projections, the model applies estimated factors for necessary building square feet per employee. These factors are applied in ranges based on commonly held factors and existing studies. As mentioned in the previous section, the commercial calculations are divided into three categories: UDA Commercial, Other Non-Qualifying Commercial (ie. employment uses not included in the UDA definition of “commercial”), and Government and Education.

These three categories allow for recognition of the differing building space and occupancy needs of these various land use categories that will be demanded over the course of the two decennial projection periods. “UDA Commercial” uses are generally defined by the legislation as retail, lodging, restaurants, professional offices, and service-related uses. As with the model’s residential calculations, a vacancy rate is assumed in order to arrive at adjusted estimates that better reflect the actual commercial space needs within the UDA(s).

UDA Developable Acreage

“UDA developable acreage” represents the land area necessary to accommodate the Town’s projected population and employment demands at the legislatively prescribed density thresholds. The total UDA acreage can then be divided between the two UDA locations identified within the Town by either individual UDA use categories or a combination of categories that best represents a more balanced and proportional mix of uses. “UDA developable acreage” is assigned to both undeveloped land and redevelopment or revitalization areas that may be suitable for the absorption of the projected levels of qualifying residential, commercial or mixed uses.

Since the total “UDA developable acreage” for these uses is legislatively collared between the growth projections for the 2010-2020 and the 2010-2030 periods, the model’s results are expressed as minimum and maximum areas for the absorption of future development or redevelopment activities. For the purpose of determining the “UDA developable acreage” of the land that is to be allocated to defined residential and commercial development, the calculation is derived by applying the “unit/acre” divisor for the residential category (as *established by the statute*) to the corresponding category’s “total residential dwelling demand” quotient.

As an example, if the anticipated demand for single family housing were determined to be 200 units, the “developable acreage” for this category of residential use would be 50 net acres (200 units/4 dwelling units per acre). Accordingly, if only detached housing were to be included in the UDA, then the comprehensive plan must recognize a minimum of 50 “developable acres”. However, since the intent of the UDA is provide the opportunity for a mix of uses, the net acreage must be determined for each of the land use categories

included in the comprehensive plan, employing the “dwelling unit per acre” and “floor area ratio” factors prescribed by the legislation.

The equation for the determination of the total UDA land area to be designated by the Town is expressed by the following:

$$\text{UDA Developable Acreage} = \text{UDA Single Family Detached} + \text{UDA Attached Residential} + \text{UDA Multifamily Residential} + \text{UDA Commercial}$$

UDA Impact Area

It is important to note that the Urban Development Areas are functionally planned as areas for village-like development within certain land use categories. For example, the legislative definition of TND commercial use, as it applies to UDAs, excludes certain economic development activities such as manufacturing, processing, assembling, storage, warehousing, and distribution facilities. The definition of UDA developable acreage further excludes existing street rights of way, easements, parks, civic spaces, and other publicly owned lands. Of course, a wide variety of land uses, including those specifically excluded from the UDA developable acreage, are important to the overall function of any community, and cannot be discounted.

While not specifically defined or excluded, it is also important to recognize the stability and importance of certain existing land uses, as well as the development restrictions posed by certain environmental or topographic factors within the desired Urban Development Area.

Because Traditional Neighborhood Development as envisioned for UDA land use activities does not, and cannot, exist in a vacuum, the Land Use Model recognizes and incorporates “UDA Support Areas” into several of its calculations. The UDA Support Areas are meant to quantify the land use categories that evolve in response to the future population and employment demands. The support areas should be sized for incremental growth in civic uses, open spaces, recreation uses, transportation infrastructure, utility easements, and environmental protection areas. These support areas should be considered separately, and at rates that may vary based on perceived and assumed needs. These UDA-supporting areas may also include areas that provide support for employment growth and other uses that are not specifically identified or defined in the UDA legislation. The sum of the defined UDA Developable Acreages and the UDA Support Areas are viewed as creating a UDA Impact Area. Although only the UDA developable acreage is defined and designated by this model, the Town should recognize and plan for support uses as a part of the overall comprehensive planning process.

Summary

Given the broad fluctuations that inevitably occur in predicting actual demographic demands from one decennial period to the next, estimates for the UDA developable acreage are presented in a broad range that represents the probable inside and outside acreage. From a comprehensive planning perspective, the estimated acreage must be viewed as a guideline to be revisited on a periodic basis with adjustments made to reflect evolving demographic trends and land use patterns.

Results

The Town’s Urban Development Areas must be sized to accommodate 10 to 20 years of projected Town growth. As of 2010, Woodstock had 5,097 residents. This model projects that Woodstock’s population will increase to 5,585 by the year 2020, and to 6,433 by the year 2030. As a result, Woodstock must plan for UDAs to accommodate between 795 and 1,643 new residents.

To properly size the Town’s urban development areas, The Cox Company prepared mathematical studies based on existing US Census and Virginia Employment Commission demographic data. The purpose of these studies was to transform existing and projected Town population numbers, as well as data on Town employment, into an accounting of the land area that would be necessary to accommodate future Town growth at given TND densities. These studies were based on several different scenarios of the mix of residential unit types, including scenarios based on existing Town development, permitted but unbuilt development, and an equal mix of the three residential types, each at densities contained in the UDA legislation. In all scenarios, commercial uses were also considered at the 0.4 FAR specified by the legislation. The result of these exercises showed a need for UDA areas containing between 65 and 164 developable acres for residential uses, as well as 12 to 27 acres for commercial uses, for a total UDA developable acreage of 77 to 191 acres.

The Town of Woodstock		Summary of Scenarios 1, 2 and 3: UDA Developable Areas and Impact Areas		
SCENARIO COMPARISON		<i>Unadjusted UDA Acreage</i>	FMM = 1.5	FMM = 2.0
SCENARIO 1: UDA Designated Developable Acreage		(= UDA Residential + UDA Commercial)		
Minimum Designation Area Threshold (2010 - 2020)	▶ 85.9	▶ 128.9	▶ 171.8	
Maximum Designation Area Threshold (2010 - 2030)	▶ 191.4	▶ 287.1	▶ 382.8	
SCENARIO 2: UDA Designated Developable Acreage		(= UDA Residential + UDA Commercial)		
Minimum Designation Area Threshold (2010 - 2020)	▶ 81.3	▶ 122.0	▶ 162.6	
Maximum Designation Area Threshold (2010 - 2030)	▶ 183.3	▶ 275.0	▶ 366.6	
SCENARIO 3: UDA Designated Developable Acreage		(= UDA Residential + UDA Commercial)		
Minimum Designation Area Threshold (2010 - 2020)	▶ 77.5	▶ 116.3	▶ 155.0	
Maximum Designation Area Threshold (2010 - 2030)	▶ 175.2	▶ 262.8	▶ 350.4	

III. UDA Locations

The select areas of the Town that will serve as Urban Development Areas must be carefully chosen to take advantage of existing facilities and infrastructures, and to introduce Traditional Neighborhood Development in a way that best promotes the Town's vision for its future growth. The relatively small acreage range generated by the UDA demographic calculations mean that a relatively small number of individual parcels will be included within the UDAs. Careful selection of UDAs should focus on designating areas that are acceptable locations for higher density given the community's vision, as well as areas that best provide the infrastructure support necessary to make TND projects successful. In general, UDAs should be located based on:

- Proximity to existing transportation facilities,
- Availability of public water and sewer systems, and
- Proximity to areas of existing development.

The existing 2007 Comprehensive Plan for Woodstock recognizes a number of goals that should also be used to locate UDAs in the most desirable and efficient way possible. The selected UDA locations reflect these goals, and propose concentrating future development in areas that bring these goals to reality:

Housing Goal: To maintain a balanced community with a wide range of housing opportunities and services for present and future residents.

Transportation Goal: Develop a safe and convenient transportation system serving all modes of travel including automobile, pedestrian, and bicycle.

Land Use Goal: Encourage well-planned land uses that enhance the town's unique history and small town character while adding to the town's tax base.

The existing Comprehensive Plan maintains an important sense of Woodstock's unique historic and small-town character, and expresses a desire to maintain this character despite future growth.

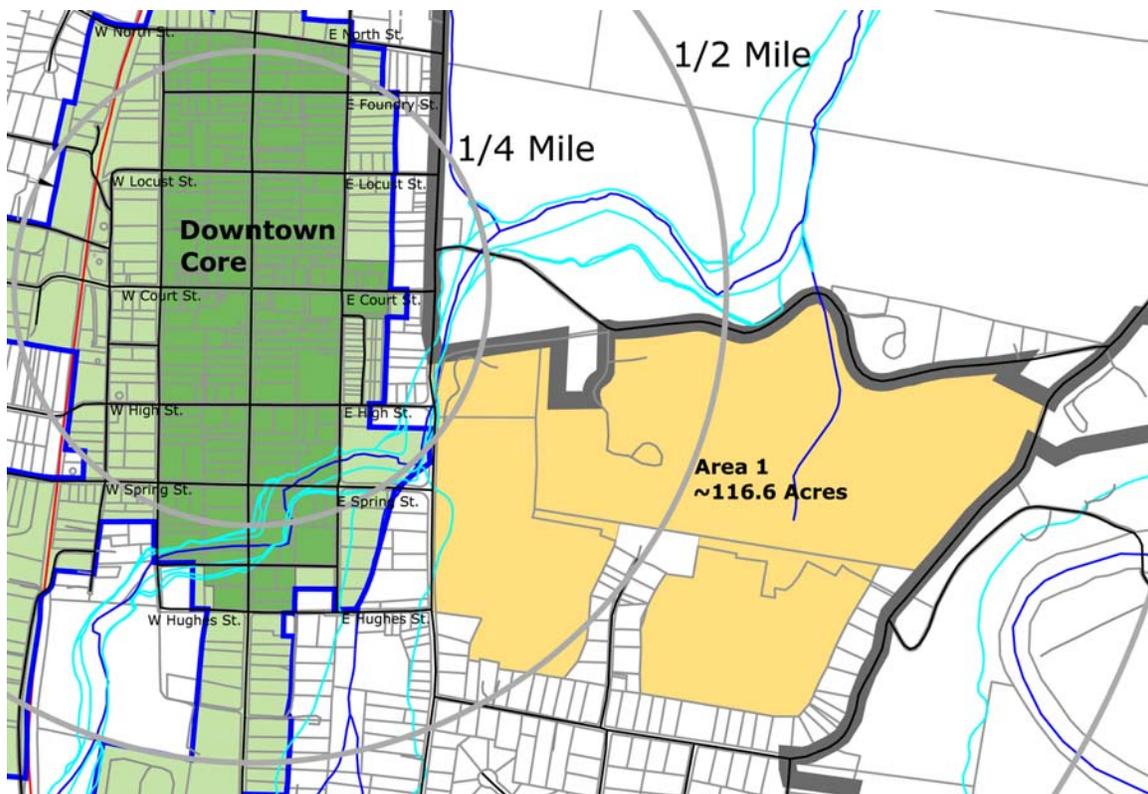
UDA Area 1

The primary proposed UDA area consists of several parcels, totaling approximately 116.6 acres, known collectively as the Eagle property. These undeveloped parcels are located directly to the east of Woodstock's primary downtown district, and represent one of the last development parcels of significant size within the core of the town. The existing 2007 Comprehensive Plan marks this area for future high and medium density residential use. This area is a critical location for a variety of compact residential uses to support Woodstock's Main Street core. The area may also have potential for some select commercial uses with a neighborhood scale and focus. However, commercial use in this location should be carefully considered as not to take away from existing commercial areas of Main Street.

The closest areas of the property, located along Water Street, are within ¼ mile of Main Street, and no location on the property is located greater than 1 mile from Main Street. This

proximity means that future residents of the UDA would be within walking distance of downtown businesses, lending support and patronage to Woodstock's historic center.

Because of its unique position within the developed area of Woodstock, this area possesses excellent transportation access. Being surrounded on all sides by existing roads, potential future development of this area can, and should, have multiple access points, and act as an extension of the existing transportation network. This configuration can reduce or eliminate traffic bottle-necks associated with single-entrance suburban developments. The Eagle property has excellent access to Water and Main Streets; Woodstock's primary north-south routes. These routes, combined with Reservoir Road, provide good access to Interstate 81. In addition to this beneficial transportation arrangement, this proposed UDA is within the Town's service area for public water and sewer utilities.

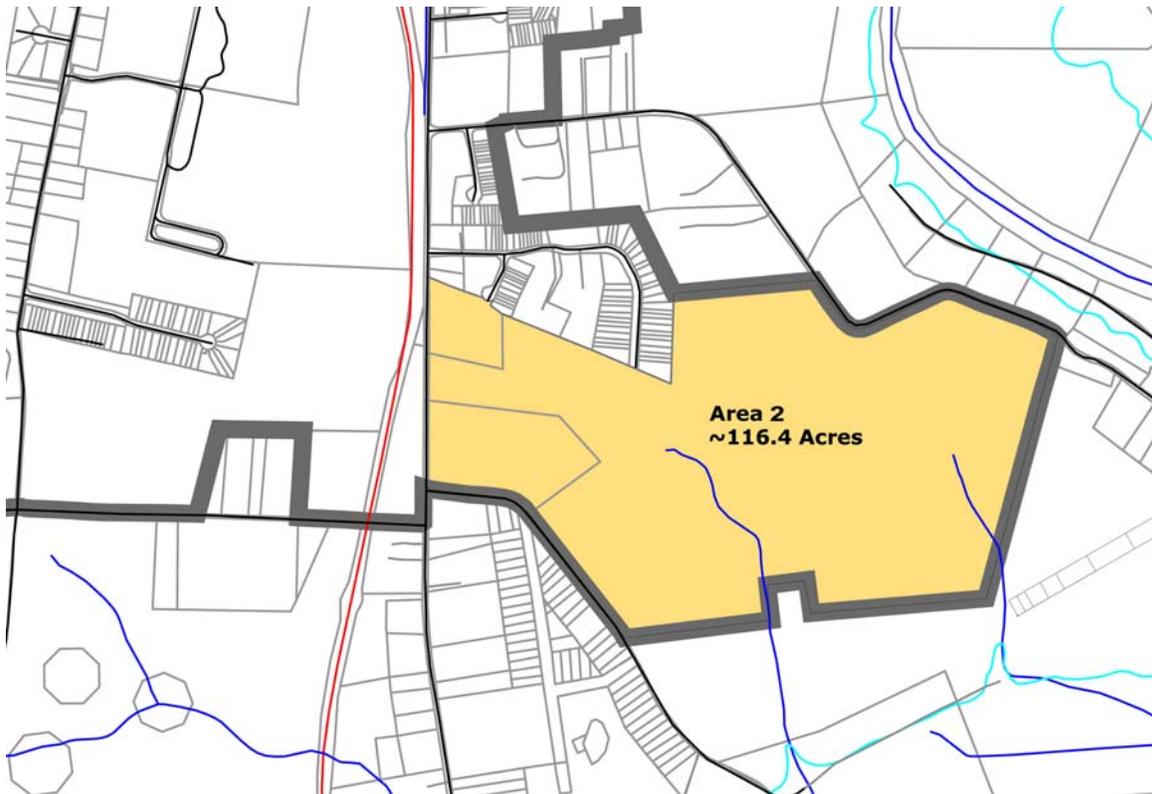


UDA Area 2

The secondary proposed UDA is located at the southeast edge of Woodstock, on several parcels collectively known as the Locke property, and totaling 116.4 acres. This, currently undeveloped, area is located south of Woodstock's downtown core, in an area with a mix of suburban-style development and undeveloped properties. The area is delineated in the 2007 Comprehensive Plan for future Highway Commercial and Planned Unit Development uses. This property can be an ideal location for TND-style development that is transitional in nature, combining both village-scale residential and commercial opportunities. Because of the undeveloped nature of the area's surroundings, development on these parcels will likely

shape the development of this entire area of Woodstock, and so, should be carefully planned and designed.

The area has direct road frontage on Route 11 (Main Street), giving it excellent access to downtown Woodstock, as well as to Interstate 81 via Reservoir Road. Additional perpendicular public roads can, and should, also be access point to future development of this area. The area is currently served with public water, and public sewer currently serves adjacent parcels, making incorporation of village-scale development in this area into the public utility system possible.



IV. UDA Comprehensive Plan Goals

Future development in Woodstock's Urban Development Areas will be guided by this, and other, sections of the Comprehensive Plan, as well as by applicable zoning, subdivision, and other ordinances, and should reflect the community's shared vision for its future, as well as state requirements. As amply stated in the 2007 Woodstock Comprehensive Plan, Woodstock exists not only as a town, but as the important governmental and retail center of the larger county. Given this position and relationship, the Comp Plan recognizes that growth will occur, but creates a vision for development in an attractive pattern that adds to, rather than detracts from, the historic, small-town atmosphere of Woodstock.

The addition of Planned Unit Development to the most recent Comp Plan is a step toward encouraging village-scaled development in select areas of Woodstock rather than suburban-style development, and is very much in line with the principles of UDA and TND development. By encouraging a mix of land uses, rather than dividing the town into single use sectors, the impact of new development on road capacity can be minimized.

In pursuit of the Town's overall land use goal: to "*encourage well-planned land uses that enhance the town's unique history and small town character while adding to the town's tax base*", and in recognition of Traditional Neighborhood Design principles stated in the UDA legislation, the following goals should be considered when weighing the approval of any proposed development within Woodstock's designated Urban Development Areas:

Goal 1:

Establish appropriate locations to satisfy UDA developable acreage requirements in the UDAs for residential and commercial land uses with development densities that promote TND growth.

Goal 2:

Promote a mix of residential and non-residential land uses that reflect TND planning objectives.

Goal 3:

Create a variety of housing types, including affordable and workforce housing, to meet the range of anticipated family income distributions of future residential growth.

Goal 4:

Encourage better spatial organization through the reduction of building setbacks, lot widths, and front and side yards, and the incorporation of smaller lot sizes.

Goal 5:

Incorporate pedestrian-friendly road and street designs.

Goal 6:

Reduce subdivision street widths and turning radii at streets intersections, and provide standards for enhanced street landscaping, pedestrian improvements, and pavement design.

Goal 7:

Establish connectivity between internal road and pedestrian networks within TND projects, providing a grid rather than cul-de-sac street pattern.

Goal 8:

Promote the interconnection of new TND streets with existing streets and roads.

Goal 9:

Ensure the preservation of natural areas and open space in conjunction with the TND master planning process.

Goal 10:

Plan for the phasing of new TND development within the Town's UDAs consistent with anticipated population and employment growth.

Goal 11:

Explore strategies and initiatives to concentrate financial and other incentives that encourage development within the UDAs rather than scattered throughout the Town.

Goal 12:

Evaluate the potential for the UDAs to serve as receiving areas for any future TDR program established between the Town and County.

Goal 13:

Prioritize funding for housing, economic development, public transportation, and infrastructure projects within the UDAs.

V. TND Design Guidelines

A positive response to the ill effects caused by suburban development over the past 50 years has been the efforts of some architects, engineers, and planners to design a new form of real estate development that draws on the features of successful cities and towns of the past. Alternately called Traditional Neighborhood Development, New Urbanism, or Neo-traditional Neighborhood Design, this form of development attempts to build mixed-use communities that function as villages rather than as disparate parts, to place uses close enough to each other to allow walking or bicycling in addition to automobile travel, and to build all of this at a convenient, attractive, and functional human scale.

TND PRINCIPLES

The following is a list of TND Neighborhood features drafted by Andres Duany, an architect and urban planner who has been instrumental in establishing TND as a modern community planning movement. Mr. Duany's list of TND neighborhood features provides a good base for understanding TND development. The neighborhoods that this list talks about are the basic building blocks of TND communities. Each neighborhood is a well-defined place with its own uses, look, and feel. Any number of residential neighborhoods, transitional neighborhoods, or core neighborhoods, where commercial uses are located, can combine to make up a larger TND community

While it may not be possible for a given TND project to exhibit all of these features, each of the items in this list builds upon the others to create a meaningful place that is viewed more as a village and community than simply as a housing development. It is no coincidence that these features are also those exhibited by the most successful and desirable historic towns and villages in Virginia.

1. The Neighborhood has a discernible center. This is often a square or green, and sometimes a busy or memorable street intersection. A transit stop would be located at this center.
2. Most of the dwellings are within a five-minute walk of the center. This distance averages one-quarter of a mile.
3. There is a variety of dwelling types within the Neighborhood. These usually take the form of houses, rowhouses, and apartments, such that younger and older people, singles and families, the poor and the wealthy, may find places to live.
4. There are shops and offices at the edge of the Neighborhood. The shops should be sufficiently varied to supply the weekly needs of a household. A convenience store is the most important among them.
5. A small ancillary building is permitted within the backyard of each house. It may be used as one rental unit, or as a place to work.

6. There is an elementary school close enough so that most children can walk from their dwelling. This distance should not be more than one mile.
7. There are small playgrounds quite near every dwelling. This distance should not be more than one-eighth of a mile.
8. The streets within the Neighborhood are a connected network. This provides a variety of itineraries and disperses traffic congestion.
9. The streets are relatively narrow and shaded by rows of trees. This slows down the traffic, creating an environment for the pedestrian and the bicycle.
10. Buildings at the Neighborhood center are placed close to the street. This creates a strong sense of place.
11. Parking lots and garage doors rarely front the streets. Parking is relegated to the rear of the buildings, usually accessed by alleys.
12. Certain prominent sites are reserved for civic buildings. Buildings for meeting, education, religion, or culture are located at the termination of the street vistas or at the Neighborhood center.

TRANSECTS

Transects are an attempt to describe built and natural environments within a regional context. Born out of the New Urbanism movement of the 1980s, transects describe a geographical gradient of development areas, uses, and densities based on their proximity to the jurisdiction's core area. As a planning doctrine, transects mimic the concentric ring plan seen in many city plans. Transects organize all development along a scale centered on the existing core area; the farther out one gets from the core, the less density is allowed. From a comprehensive planning standpoint, transect areas are typically defined by and organized into six distinct planning sub-areas, ranging from sparse rural farm houses to dense urban buildings. Each transect has specific rules and regulations governing building types, development form, densities, setbacks, and lot types. These zones are generally classified, as follows:

- *Natural areas and preservation areas (little or no development),*
- *Rural areas (very low residential densities associated with agricultural activities),*
- *Neighborhood edge areas (transitional, suburban densities on the edge of town),*
- *General neighborhood areas (medium residential densities within traditional subdivisions),*

- *Neighborhood centers (high density residential areas within walking distance to core areas), and*
- *Urban core areas (highest residential densities coupled with town center commercial development).*



In the case of Woodstock, the full spectrum of transects would encompass the Town, as well as areas of Shenandoah County. It is important to note that this UDA planning study deals only with the more dense, urban end of the transect spectrum, while other elements of the Town and County comprehensive plans will continue to treat other areas of the spectrum. While not intended to conflict with other components of the comprehensive plan, the UDA planning priority is to establish locations and guiding principles for the governance of higher density, mixed-use TND projects. This should certainly not diminish the importance and viability of transect planning as a bona fide regional growth management process for the entire Town and Shenandoah County.

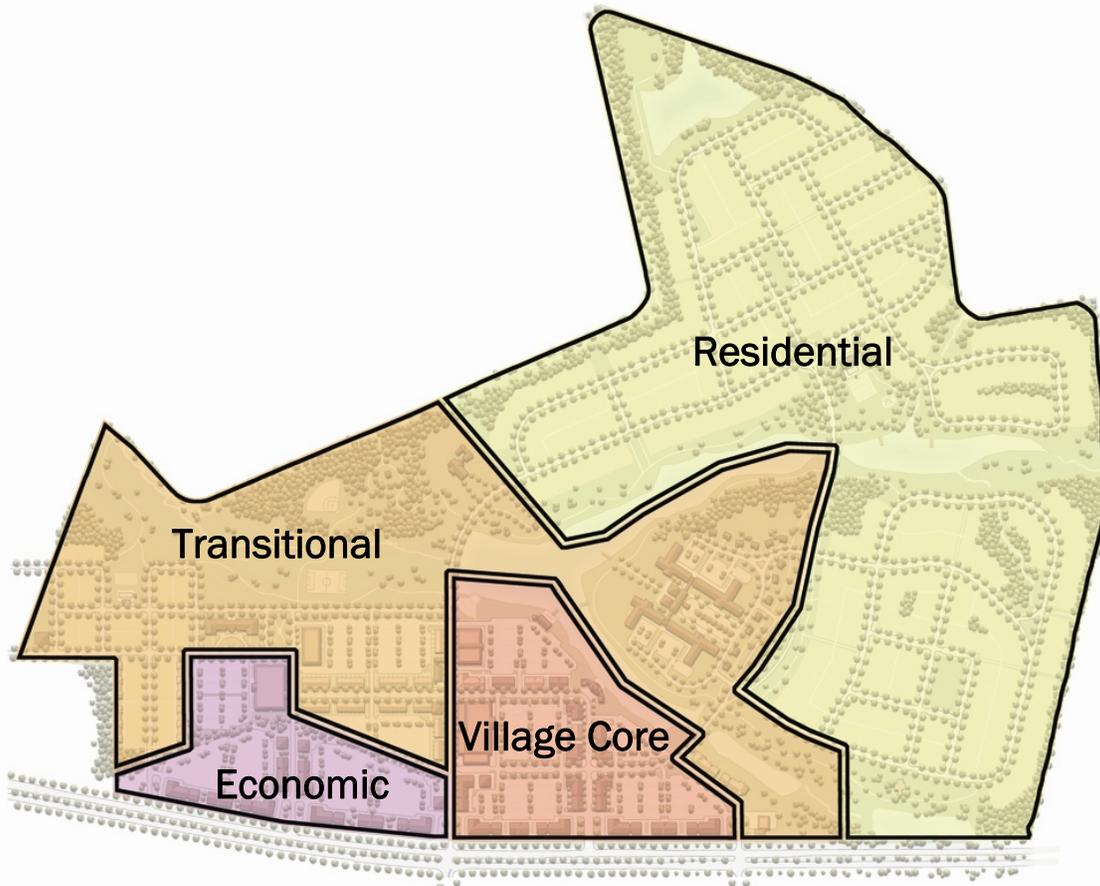
TND LAND USE AREAS

Just as TND streets are designed and constructed much differently from typical suburban streets, TND land uses are very different from their suburban counterparts. TND development is set apart from typical suburban construction by its focus on compactness, its mix of land uses, and other features aimed at building meaningful neighborhoods and places rather than monotonous tract housing and shopping centers. While it is a common suburban development practice to organize land uses into areas for commercial use, residential use, etc., TND development is organized into areas based on intensity of use and activity instead. The land use components of the TND can generally be divided into three main categories of intensity:

- *Core Area*
- *Transitional Area*
- *Residential Area*

The Core Area contains most of the community's commercial uses, including shopping, dining, and offices, in multi-story buildings along walkable streets. The upper floors of these buildings might also include condominiums or apartments. The core is modeled after Main Street areas of older Virginia towns like Woodstock. Nearby the core area is a Transitional Area where dense residential uses like condominiums and town homes are found, along with some small commercial uses that serve these residences, such as corner stores and coffee shops. Even farther out from the core are Residential Areas that are mainly made up of single-family homes, but also with some town homes or condos mixed in. There are no commercial uses in the residential areas, but these areas are still within walking distance of the village core.

Outside of the Core, Transitional, and Residential areas of the UDA, other planning areas of the Town will continue to focus on lower density residential, environmental conservation, agriculture, and other uses. These other uses will be governed by other sections of the comprehensive plan, as well as by other planning documents and growth management efforts.

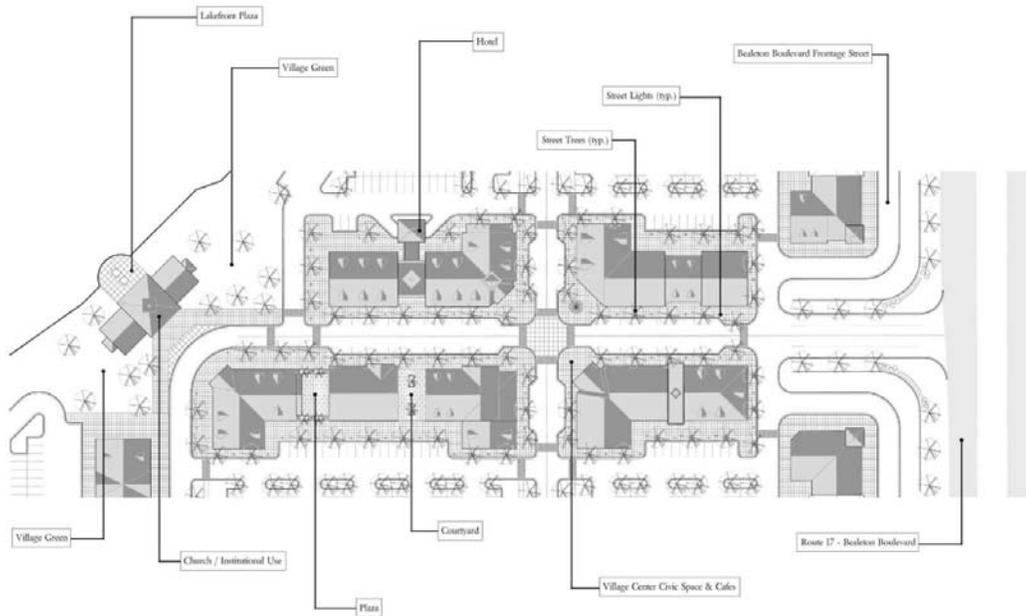


THE CORE AREA: THE VILLAGE CENTER

The core blocks of Woodstock’s Main Street are the geographical and functional heart of the community. Neighborhood gathering, recreation, shopping, and transportation are all largely focused on this core area. Traffic patterns for automobiles and pedestrians also have an important hub in this central location. This same Village Center function is repeated in much the same way in Main Streets, important crossroads, or sets of downtown blocks in older towns and villages throughout Virginia and elsewhere. The community as a whole should have a concentric relationship to the village center, with the densest development located within the village center, town homes and other attached units located nearby, and detached homes farther from the center.

UDA development in very close proximity to the existing Village Center of Main Street (UDA #1) should build upon this existing center by adding housing and support uses with walking distance, thus adding support and vitality to Main Street. In keeping with the overall goals for TND development, the village center should incorporate a mix of uses, including residential, while organizing these uses into a compact and walkable plan with ample public spaces. These elements should be considered and encouraged in relation to future Main Street infill and redevelopment projects.

When considering UDA development farther from the existing Main Street core (UDA #2), the Town should consider allowing some instances of village center-type development as a supplemental district to the existing Main Street Core, supporting an additional center of walkable housing and commerce.



Mixed Use

The principles of Traditional Neighborhood Design place commercial, civic, and residential uses in close, walkable proximity to each other, rather than separated into distant locations only within driving distance. The TND village center is the primary location where commercial uses can be mixed into the community, alongside, or collocated with other land uses. The village center should allow and encourage small retail, service, and office uses, located along walkable streets within the TND core. Commercial and civic uses should be designed to serve the needs of the immediate neighborhood, including dining, as well as serve customers traveling to the village center from other communities. The typical layout of such uses places retail and service uses at the street level, with office or residential uses above.

Yards and Setbacks

As with TND residential uses, commercial uses should be located close to or immediately at the edge of the sidewalk. Because the village center is designed with pedestrians in mind, shallow setbacks allow users to access the commercial uses quickly and safely, without crossing large parking lots. This arrangement also creates a sense of enclosure on village center streets that adds to the appearance and vitality of the village center.

Within this arrangement, larger setbacks are possible, but should be reserved for certain cases. One such case is for important buildings such as museums, libraries, or other civic spaces where a plaza or other appropriate open space can add importance and interest to

the building and surrounding streetscape. In another case, dining establishments can use a deeper setback to include outdoor dining space that will add vitality to the street. In both cases, these deeper setbacks should be used carefully and sparingly, with the overall pattern of the village center in mind.

Civic spaces

In addition to commercial and residential uses, the village core should include at least one civic space as a community gathering space for residents, or for community events. This civic space may take the form of a landscaped park, hardscaped plaza, or civic building such as a library, church, or government center. Such a civic space can provide an important relief from the density of the town center, and should be placed near the center of the village, or in a place of importance, such as at the termination of a street.

Parking

The village center is intended as a commercial area that caters more to pedestrians than do typical suburban shopping centers. For this reason, parking in the village center should be carefully planned to allow access to village center uses without harming the look or function of the area.

All streets within the village center, and within the TND community in general, should include on-street parallel parking. When off-street parking is necessary, parking lots should be implemented behind buildings. When street-front parking can not be avoided, parking lots should be screened from view with walls, fences, or landscaping. To facilitate these parking arrangements, shared parking strategies, public parking areas, and structured parking should be considered.

TRANSITIONAL AREA

The Transitional Area is meant to divide the active and highly commercial Core Area from quieter Residential Areas. Its primary function is as a bridge between the activity and high density of the core, and quieter, less dense TND residential areas. The Transitional Area will be primarily residential, but made up of more intensive residential uses such as apartments, condominiums, and town homes. The Transitional Area will also include a mix of commercial uses, but at a lower commercial density than in the Core Area. This area is the ideal location for small shops, restaurants, or offices that primarily serve the residences around them.

Development parameters for the Transitional area should seek to bridge those used in Core and Residential areas, including minimums and maximums established for building height, front and side yards, and other parameters.

Live-Work Units

The Transitional Area is a good place to allow live-work units, a type of commercial and residential use in one, designed to have a ground floor shop, with an apartment or townhouse on floors above for the shop owner or operator. These units are typically associated with small startup businesses that are ideal for the TND scale and transitional area.

RESIDENTIAL AREA

These guiding principles for TND residential neighborhoods are intended to promote the positive qualities of older Virginia towns and cities. These principles may be incorporated into the Town's Comprehensive Plan or a separate TND Design Guidelines Manual. Implementation regulations and standards may be introduced into a new zoning district consistent with the purpose and intent of Section 15.2-2223.1 of the Code of Virginia.

Lot Size

TND residential lots are necessarily smaller than lots in many typical suburban developments. Smaller TND lots put houses closer to each other, and closer to the village center, in order to preserve walkability in a more compact community. The result is a given number of residential lots occupying less total acreage than with typical suburban construction. The TND community should include a wide variety of lot and house types at a variety of sizes, from small town house lots near the village center, to small single family detached lots, and larger estate lots away from the core.

Final lot sizes should be based on careful master planning, as well as market demand for TND residential uses. The examples shown here serve as a guide to a variety of potential lot sizes. These lots vary from 18' wide townhouse lots to 80' wide single family residential lots.

Yards and Setbacks

In order to achieve TND density and walkability goals, houses in a TND community are built closer to the street, and closer to each other. Within the narrow, pedestrian oriented streets of a TND, an appropriate residential front yard may be as little as 10 or 15 feet. TND communities also often have a maximum building setback (for example, 20 feet) in order to allow variation, while also maintaining a regular and ordered appearance within the neighborhood. In the lot examples below, the minimum setback is 10 feet, and the maximum is 20 feet.

Relegated garages and parking areas

As with parking in the village center, residential parking areas and garages should be established in a way that make vehicle access convenient, but without harming pedestrian access. In most cases, TND communities are designed with mid-block alleys, allowing access to garages at the rear of residential lots, as illustrated in the lot types below. Also shown below are options for front access lots that attempt to maintain TND principles, including driveways shared between two houses, and side yard driveways to access rear lot garages.

Lot mix

In order to recreate the type of successful neighborhoods found in many established towns and cities, Traditional Neighborhood Development projects must maintain a careful balance between housing types and sizes. In typical suburban neighborhoods where only a few (or only one) home type or design is allowed, the result is the overwhelming sameness seen in many tract housing developments. While this mix will necessarily be influenced by market demand, various house types (single family, town home, and condo) and sizes should be mixed together generously to give the TND neighborhood a feeling of originality and variety.

TND RESIDENTIAL LOT EXAMPLES

The following examples show potential TND lot sizes and layouts. The lot sizes vary from town home lots to larger single family lots, and include the reduced setbacks and pedestrian orientation that are typical of TND communities.

Final lot types and requirements and designs should be sensitive to existing and projected housing demands and be based on an appropriate TND master plan and Code of Development for each planned TND project.

Rear Load Lots

A prevalent theme within successful American TND models is the use of rear loading for residential lots. Of course, this theme among TND developments is drawn from the prevalence of alleys within successful residential neighborhoods in some of the Town's most well-liked old towns. The use of alley access has the advantage of allowing an unbroken streetscape, including eliminating conflicts between pedestrians and cars pulling into and out of driveways. In addition, the alley provides a convenient utility or service access, including a more attractive way to deal with trash pickup.

Most TND communities are designed to include mid-block rear alleys like the ones shown here. These alleys allow access to garages at the rear of residential lots. Additional parking within lots, trash collection, and other needs can also use these alleys. These lot examples

show a minimum front setback of 10 feet, and a maximum front setback of 20 feet. Establishing a minimum and maximum setback allows design flexibility and variation, while also maintaining an organized and cohesive look within the neighborhood. Side setbacks shown here are 6 feet for each lot, for a minimum of 12 feet of separation between houses.



Front Access Lots

While residential lots served by alleys are predominant in well-planned TND communities, lots with vehicle access from main residential streets are still possible within TND principles, and may be necessary based on market demand, or on physical site features like topography. Even in cases where vehicle access must come from a street rather than an alley, steps should be taken to preserve the walkability and density of the neighborhood by sharing driveways, using side yard driveways to access garages behind the home, or for corner lots, accessing parking or a garage from the more minor of the two fronting streets.



ECONOMIC DEVELOPMENT AREA

Just as the mathematical model establishing and projecting UDA size encourages the Town to recognize non-TND land uses that may still be important to the overall function on a community, TND land use planning should not completely rule out certain economic development activities that are not traditionally included in Traditional Neighborhood Design. These uses might include light manufacturing uses, big-box development, or even agriculture at certain scales. While these uses are not traditionally compatible with TND planning, or with strict UDA definitions, they may be incorporated into a larger plan as a thoughtfully planned exception, and should not be excluded outright without careful consideration.

TND STREET FEATURES

The streets of Traditional Neighborhood Developments are necessarily different from the streets in conventional suburban developments. Because the density of the TND encourages walking, biking, and general community activity, the streets of the TND are designed more completely than those of the conventional suburb. The concept of “complete streets” should focus on the following major objectives:

- Continuity of street design throughout the community.
- A hierarchy of street design scale to emphasize important connections or areas

- Connectivity of pedestrian and vehicular infrastructure
- Standardized landscaping as an aesthetic and functional element of the street
- Building frontage guidelines to create an ordered and uniform street wall.

Over the past several generations, suburban residential streets have featured abnormally wide pavements and broad, clear shoulders, a condition that promotes high speeds. In order to make TND streets safe for pedestrians and cyclists, the speed of cars is slowed somewhat. Additional features are also added to the street to increase the safety and comfort of pedestrians, as, well as to make for a more visually interesting environment.

Narrow lanes and streets

By narrowing driving lanes, the TND street slows drivers to speeds that are safer for cars, pedestrians, and cyclists alike. Due to the increased density of TND communities, slower speeds do not necessarily mean longer trips, as destinations are much closer. In many suburban areas, lane widths are a minimum of 16 feet, while TND streets typically specify lanes of 12 feet or less. The grid, or network, street pattern typical of TNDs also divides traffic between multiple small roads, rather than combining traffic onto multilane collector roads as in suburban locations, meaning fewer lanes for pedestrians to cross and generally safer conditions. Traffic calming techniques, including speed bumps or bulb-outs at intersections, can further slow traffic and protect pedestrians and cyclists.

Sidewalks and crosswalks

The key feature of TND streets is that they should be designed for multiple users, not solely for drivers. The streets within a TND community should all have sidewalks, almost always on both side of the street. Sidewalks are often four to five feet wide in residential areas, and separated from the street by a planting zone. This separation gives the sidewalks a safer feel, removed from moving cars. Given their importance in supplementing the civic spaces in the community, commercial street sidewalks must be much wider to accommodate busier uses, and may also provide for café space. Crosswalks must be clearly marked within the street. The use of contrasting materials, or hardscaping, such as brick or stone can make crosswalks stand out, as well as signal to drivers to slow for pedestrians.

Street trees

The presence of evenly spaced trees along a street creates a sense of enclosure that slows traffic, while also providing shade to pedestrians in warm climates, and making for a generally more attractive street environment. On residential streets, trees are commonly planted in a four to eight foot planting zone between the street curb and sidewalk. For commercial streets, trees may be planted in planting beds, or may be installed in tree grates to create additional sidewalk space.

On street parking

In contrast to typical suburban construction that includes both roads and large parking lots on individual commercial parcels, TND streets are designed to include on-street parking. This parking arrangement works toward the TND community's land use goals, as well as its goals for multi-use streets. By parking within the street rather than on individual parcels, the TND can reach much higher densities. In addition, a row of parked cars forms a buffer between moving traffic and pedestrians to give sidewalks a safer and more pleasant feel.



Buildings close to the street

Instead of the minimum setback lines established by traditional zoning codes to ensure that buildings aren't built too close to the street, TND communities are often governed by build-to lines to ensure that structures aren't built too far back from the street. Shallow front setbacks help TNDs achieve their goals of higher density, as well as their street design goals. While in a car-only suburb, buildings near the street might block sight lines and slow traffic, TNDs desire slower traffic, as well as convenience for pedestrians. With closely set buildings and on-street parking, pedestrians do not have to cross parking lots to reach the fronts of buildings as they would in suburban settings.

Street furniture

An additional enhancement of TND streets over traditional suburban streets is the provision of street furniture. Street furniture includes benches, bicycle racks, bollards, planters, and other accessories placed on or near TND streets and sidewalks for the convenience of non-automobile travelers. At the same time, features not friendly to pedestrians and cyclists, such as trash pickup are often handled in alleys or other off-street locations.

EXAMPLE TND STREET SECTIONS

Because of their narrower pavement width, on-street parking, and other pedestrian amenities, Traditional Neighborhood streets are necessarily different in section and overall design from typical suburban feeder or collector streets.

The following examples show three types of TND streets, for use within appropriate areas of master planned TND communities. These examples illustrate potential street sections that include travel lanes, landscape areas, and sidewalks within a public right of way.

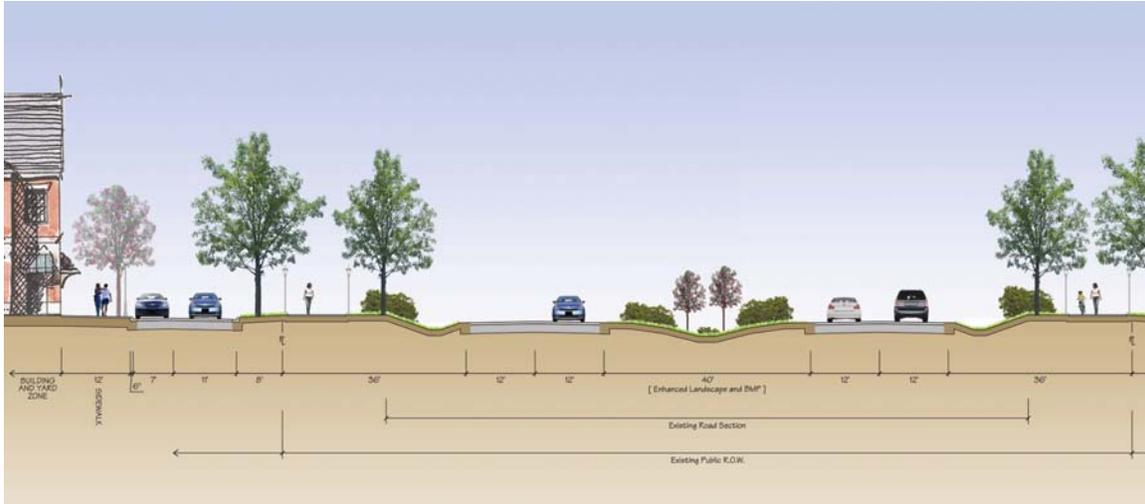
Thoroughfare

A constant question when it comes to TND development is how to address major, existing transportation corridors. These are typically divided highways with two lanes in each direction. The same traffic calming measures that are applied to new TND streets often can't be applied to these roads due to state highway requirements or to the importance of these routes to the larger community and region.

Improvements can be made to major roads to make them more functional within TND zones, including pedestrian and landscape upgrades, to turn a collector road into a boulevard. Pedestrian access can still be provided along major routes by implementing walking and biking trails sufficiently removed from the roadway. These paths should be wider than neighborhood sidewalks, and allow for short walking trips, as well as longer bicycle trips, including commuting. Landscaping can be added to major routes in the form of uniformly spaced street trees, as well as screening plants along pedestrian paths and right of way edges. This landscaping can help to delineate select portions of the major route as TND zones, as well as make TND communities and entrances more obvious from the road.

Over time, some major routes can transform from high-volume arteries to community thoroughfares in order to compliment new, dense, mixed use development in the UDA. Access roads outside of the ROW will serve these new developments directly, while increased landscaping and new pedestrian amenities will turn the existing ROW into a gateway asset for the community while, at the same time, moving traffic efficiently.

Right of Way:	<i>existing, variable</i>
Lanes:	<i>existing, often 12'+</i>
Pavement edge:	<i>ditch sections (rural/suburban areas) curb and gutter (new and urban areas)</i>
Parking:	<i>none</i>
Sidewalks:	<i>sidewalks or multi-use trail, variable width</i>
Speed:	<i>35 - 45 mph</i>
Landscape:	<i>street trees and screening</i>
Hardscape:	<i>delineated crosswalks, street lights</i>



Village Center Street

One of the most important features of Traditional Neighborhood Design is that developments in this style have a clearly defined center. This center is often made up of a mixed use street or crossroads with retail, office, and residential uses in multi-story buildings, not unlike Main Street development in traditional Virginia towns. This street design provides a framework for such a mixed-use arrangement by being as much a street for pedestrians as for cars. The wide, shaded walks shown here support retail shopping and an active pedestrian environment. Street furnishings should be provided, in the form of benches, streetlights, and other amenities, and buildings should be built at the sidewalk's edge, with setbacks granted for café seating or civic gathering spaces. Ample parking is provided at the curb, and may be supplemented by additional off-street parking.

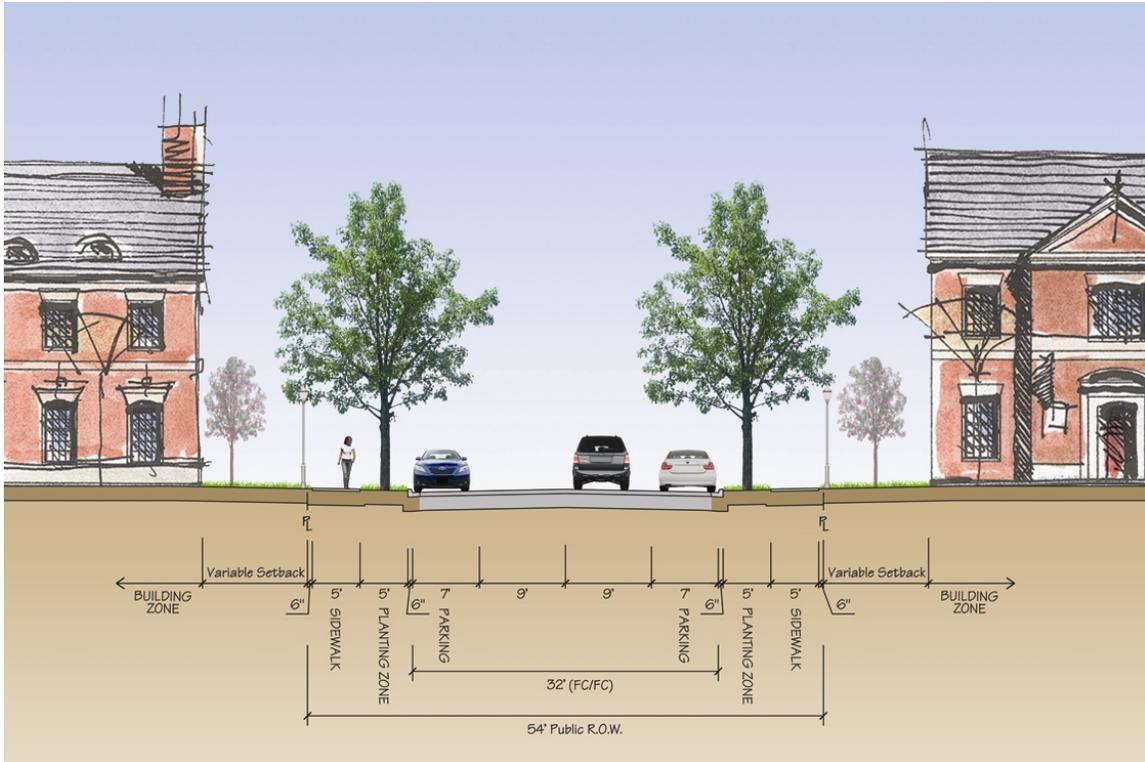
Right of Way:	61'
Lanes:	11'
Parking:	<i>parallel parking, both sides</i>
Sidewalks:	12'
Speed:	25mph max.
Landscape:	<i>street trees in grates (approx. every 40')</i>
Hardscape:	<i>delineated crosswalks, street lights, bollards</i>



Residential Street

Residential streets within Traditional Neighborhood Developments must provide convenient vehicle access to neighborhoods, but must also be conducive to a quiet and safe neighborhood character. This street design can be used as the primary public street within TND residential neighborhoods. It serves as the neighborhood's spine, providing access to residential blocks and connections to the mixed-use core and external roads. The section design is compact, with narrow lanes that slow vehicle speeds to create a quieter neighborhood environment that is safer for pedestrians. This street section design includes sidewalks on both sides, separated from on-street parking and travel lanes by landscape and tree planting zones.

Right of Way:	54'
Lanes:	9'
Parking:	parallel parking, both sides
Sidewalks:	5'
Speed:	25mph max.
Landscape:	street trees in 5' planting strip (approx. every 40')
Hardscape:	delineated crosswalks



One Way Street

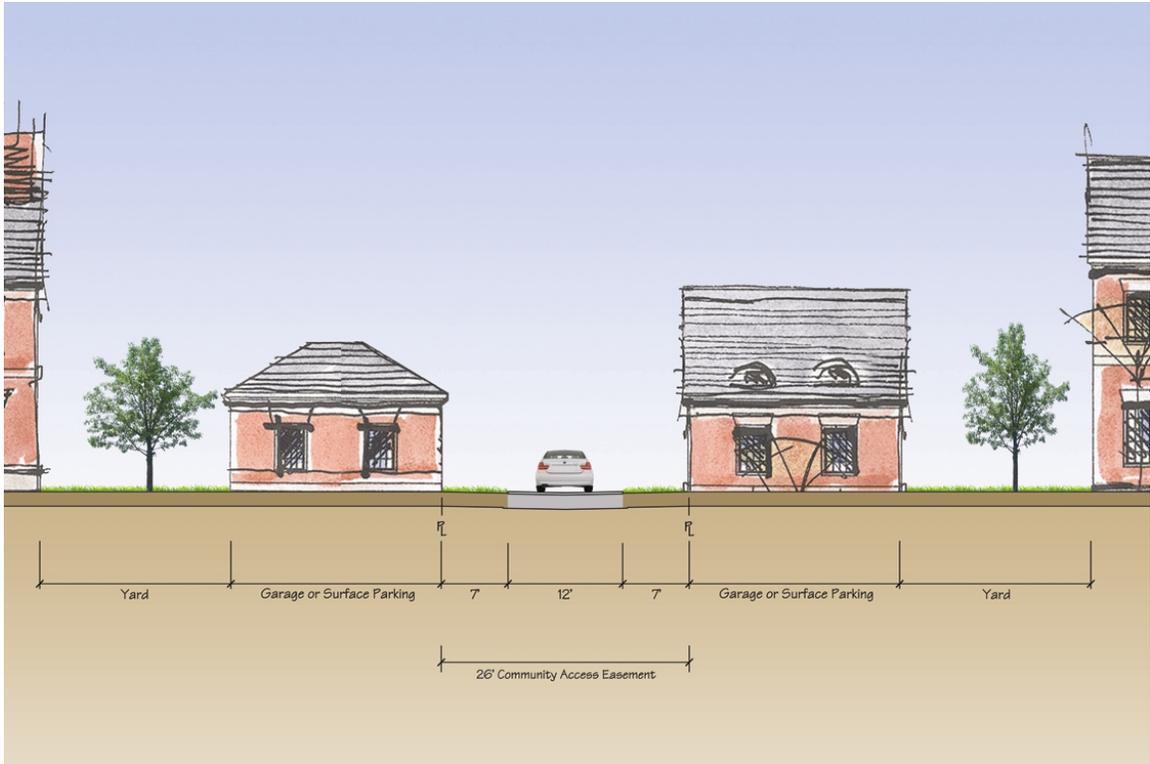
Within the TND, a one way street is sometimes desirable, whether it is necessary to save space, improve traffic organization, or increase pedestrian safety. It is best though, that one way streets be used sparingly, and only for short distances, as they make it harder for vehicles to navigate, especially for those unfamiliar with the area. When a one way street is used, landscape quality and pedestrian amenities should not be sacrificed, even though the street might be of minor importance to cars.

Right of Way:	42'
Lane:	13'
Parking:	<i>parallel parking, one side</i>
Sidewalks:	5'
Speed:	25 mph max
Landscape:	<i>street trees in 5' planting strip (approx. every 40')</i>
Hardscape:	<i>delineated crosswalks</i>



Alley

The goal of the TND street is to add amenities that increase the street's usefulness to all street users while removing certain street elements that obstruct non-car street users. The use of alleys helps to relocate some street elements that obstruct pedestrians, yet are necessary to the function of the neighborhood. Alleys are narrow, very low volume vehicular paths located mid-block to provide access to the rear of TND homes or businesses. In TND construction, garages are located on the alley, as is any off-street residential parking. Alleys may also be used for trash pickup, utility service corridors, or occasional loading zones. The alley may be maintained as a private street under the authority of a home owners association, or in some circumstances, dedicated as public access. With utilitarian functions moved off of the main street, the usefulness and attractiveness of the neighborhood street is enhanced.



Other TND Features

Pedestrian Improvements

Any development within an Urban Development Area should function as a pedestrian-friendly environment favoring Traditional Neighborhood Design precepts in which residents have convenient walking access within the development, as well as access to amenities, goods, and services in other parts of the community. Any TND development proposal should include standards the location and design of all sidewalks and trails necessary for complete pedestrian accessibility throughout the community

Sidewalks should be provided along all public streets within the UDAs. Sidewalk locations, as well as design and construction details, should meet all state and local requirements for adoption into the public street system, and should also meet ADA requirements where applicable. Sidewalks should generally be at least 3 feet in width, with wider sidewalks necessary in the most dense and active areas of TNDs. Crosswalks should also be included, and should be well marked.

Pedestrian trails can be provided within public spaces and common areas, forming a more passive off-street circulation system connected to the traditional sidewalks located in the public street rights-of-way. Whereas sidewalks follow the streets and are built of durable materials, paths might curve throughout parks and open space and be built of gravel or other natural materials.



Fences and Walls

In general, Traditional Neighborhood Development rules should approach fencing with broad flexibility. The design of fences for residential neighborhoods should be coordinated to the extent possible to maintain an ordered look to neighborhoods. Fences should also be built of quality, durable materials. Walls, whether for privacy or as a landscape retaining wall, should be built of quality, attractive materials, and designed with the overall look and feel of the neighborhood in mind.

Benches and Other Hardscape Improvements

Benches, tables and other outdoor furnishings are an amenity to pedestrians in any TND, and should be provided in public parks and civic spaces. The style of these should complement the overall look of the neighborhood. Trash receptacles should be provided in parks and other places where people are expected to gather.



Building Form and Massing

The objective of architectural design for a TND project should be to ensure a continuity and compatibility amongst all architectural elements and to maintain a high level of quality and design excellence. While it is not the intent to legislate taste, building forms in a TND community should achieve compatibility in scale, visual order, rhythm, and proportion. The scale of building elements (roofs, doors, windows, porches, columns) should be chosen with the pedestrian in mind and should be proportioned to building's height and volume. Visual order is achieved through a consistent use of these elements in individual buildings. The coordinated repetition and massing of building forms and architectural elements achieves a proper rhythm of neighborhood buildings.

Landscape Design

One of the distinguishing features of Traditional Neighborhood Development is the coordination of streets, buildings, and landscape into a cohesive whole, rather than a group of disparate parts as in typical suburban development. The coordination of these elements is essential to the livability and vitality of Virginia's most attractive towns and cities, and is sorely missing from others. Landscape forms associated with streetscapes, buffer areas, and other landscape zones will be important ingredients in the success of UDAs as ordered village areas, rather than merely intensive subdivisions.

This section establishes landscape expectations for projects within Urban Development Areas, including design concepts, types of plants, and maintenance standards

Grading and Building Sites

The compactness of Traditional Neighborhood Design, including its emphasis on pedestrian activity and buildings sited closer to streets, means that relationships between buildings and landscape are much more obvious than in other types of development. Landscape improvements within the UDA's major development categories; Village Core areas, Transitional areas, and Residential areas, should focus on complementary landscape forms, patterns, and materials to create an ordered appearance.

In general, it is desirable for residential dwellings to be slightly elevated above public streets to improve aesthetics, visibility, and site drainage. Where buildings are lower than street level, special landscape and hardscape attention should be given to the street's edge with private lawns, creative sidewalk placements, or civic spaces.

While not possible in every case, buildings within the same neighborhood grouping or cluster should have coordinated finished floor elevations and/or massing and details which relate the individual buildings to each other. Berms, when they are used, should be gently curved and rolling at an appropriate scale. Artificial-looking earth mounds are not recommended.

To reduce potential environmental impacts, site designs should minimize the extent of mass grading within the community. All site grading should be done in a way that preserves existing trees and vegetation when possible. A maximum slope of 3:1 around exterior building walls should be maintained, provided that retaining walls may also be necessary in some instances to preserve existing vegetation and to create an attractive landscape.

Existing natural areas, passive open spaces, and pocket parks situated outside building zones should be treated as parts of a community-wide system of open spaces to enhance the visual character of the community.

Plant Materials

The following standards should apply to plants, trees, and other landscape materials in order to create the desired visual harmony among the individual development areas within UDAs. All plant material should be selected from varieties that are native to Virginia whenever possible.

All streets within TNDs should have a regular pattern of street trees for aesthetic value, and to shade sidewalks. Street trees should generally be placed 40 to 60 feet apart, and planted in a landscape zone provided as part of the street section design, or in large, permanent planters or tree grates as necessary.

Ornamental trees should be provided in residential yards, parks, and in landscaped areas of the Village Core for accent and visual emphasis.

Evergreen trees should be used at strategic locations for screening and buffering due to their dense foliage, but also incorporated into landscaping in parks and civic spaces to enhance aesthetics during winter.

Deciduous shrubs should be used as accents on private residential lots, as well as in parks, commercial areas, and other community spaces. Shrubs can be used for visual interest, as well as for screening of items like utility meters and HVAC equipment.

Areas of grass and ground cover can be used in a variety of applications, including hillsides, as a way to control erosion and runoff, and park spaces for recreational use. Care should be taken to use grasses that require as little maintenance as possible.

Landscape Maintenance

Property Owners' Associations or Business Associations should be used to maintain streetscape and ornamental landscaping within condominium-type residential and business districts. Where parks or other open space are dedicated to public use, these spaces should be publicly maintained. Landscaping within other residential areas will be maintained by individual lot owners. In all cases, proper maintenance should be encouraged, with neighborhood covenants as necessary, to maintain an attractive and vibrant community life. By carefully choosing plant materials, including native species, at the outset, some maintenance effort can be saved.

Stormwater Management and Best Management Practices

A TND rezoning application should contain documentation satisfactory to the Town that a system of best management practices (BMPs) and stormwater management (SWM) improvements can be implemented. Rather than constructing SWM/BMP facilities on a lot-by-lot basis, a more regional, comprehensive approach should be developed to address the stormwater runoff of the TND and its watershed. The environmental goal should be to make downstream runoff conditions better than current conditions. The use of contemporary Low Impact Development improvements is highly recommended.

In conjunction with a rezoning application, the applicant should be required to prepare a comprehensive Stormwater Management Master Plan in coordination with the Town addressing the contributing drainage sheds intersecting the property. The study would include preparation of preliminary hydraulic and hydrologic engineering designs for an integrated system of on-site stormwater management facilities to further establish the feasibility of the stormwater or floodplain improvements as depicted on the master plan.

Where TND projects incorporate floodplains and stream valleys, the master plan should integrate the design for the stormwater management facilities into a comprehensive stream valley open space, parks, and trails system that benefits the entire community. In addition, the applicant should be required to develop a program for the perpetual maintenance of on-site stormwater management facilities, floodplain areas, and related improvements that is acceptable to the Town.

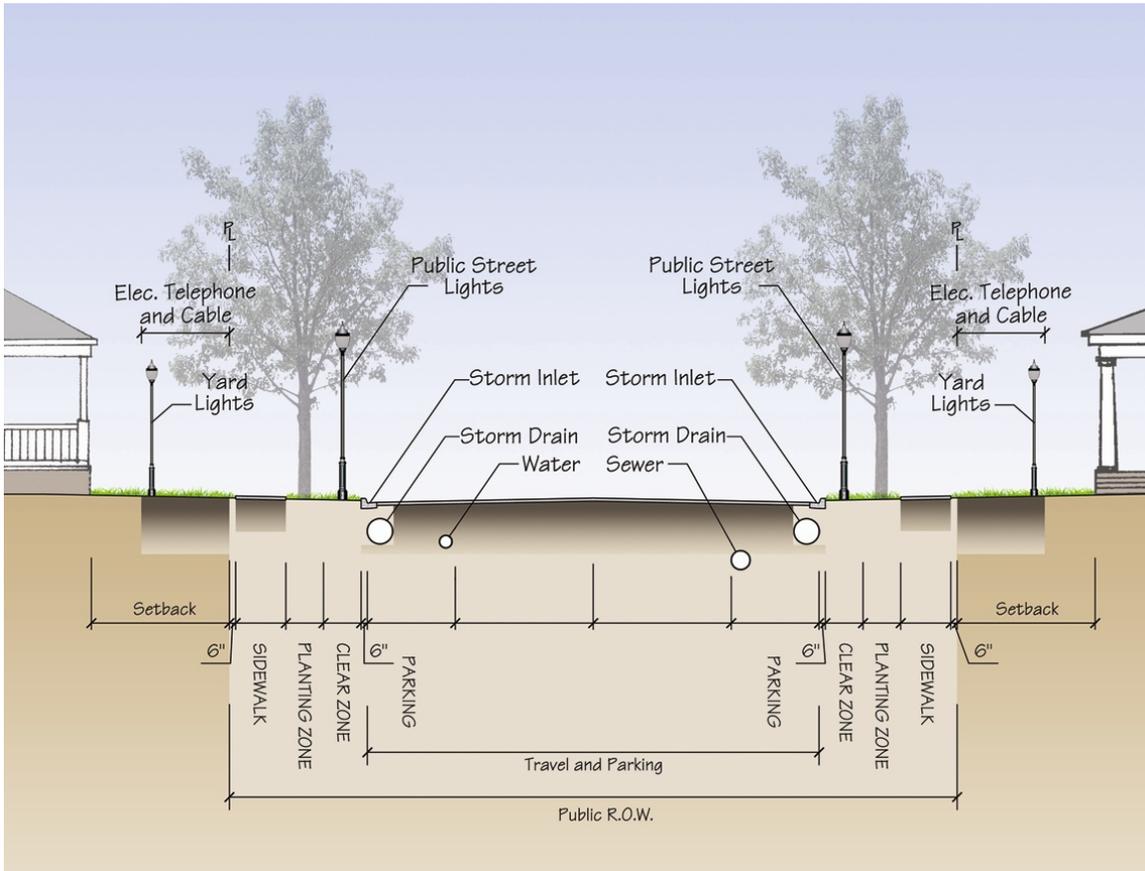
From an environmental management standpoint, SWM and BMP facilities should be protected and maintained during the construction process, and, upon completion, they should be maintained by either a property owners' association or the Town. It should be the responsibility of individual lot developers to provide this protection during construction and to ensure that both SWM and BMP capacity is maintained throughout. Where LID and BMP facilities are to be constructed on private lots (and which are not otherwise publicly maintained), the maintenance should be the responsibility of the individual lot owner.

Utilities

The goals for compact development set by the Urban Development Area legislation-cannot be reached without the provision of similarly compact public water, sewer, drainage and other essential utilities. Highly coordinated designs for public utility systems require less space than would otherwise be consumed by conventional easements. Further, they allow homes to be placed on much smaller lots than would be necessary if they were to be served by only on-site well and septic systems. Traditional Neighborhood Design densities and street section configurations also mean that stormwater runoff will often be handled by a curb and gutter setup with underground piping to convey collected surface runoff, rather than by ditches. In addition to water, sewer, and stormwater, other infrastructure such as gas, electrical, communications, and television cable are typically provided in TND construction.

Utilities should primarily be located within public street rights of way in order to allow full use of buildable areas, facilitating the desired shallow setbacks typical of TND construction. In

addition to these rights of way, utility easements may also be established within the rear alleys that will serve many TND neighborhoods. To achieve this goal, easements of reduced width as well as shared easements are appropriate for this type of neighborhood. In certain cases, common, shared, or overlapping easements for water, sewer, and drainage improvements will be needed to achieve the desired street sections and building lot placements. Town officials will likely need to lead in the coordination effort, given the suburban mentality of many local utility agencies to protect their own easement territory.



VI. TND Implementation

The Urban Development Areas are separate and distinct planning areas recognized by the Town on the Future Land Use Map for Traditional Neighborhood Development forms of land use, and are an essential component of the Comprehensive Plan. In essence, the Comprehensive Plan articulates the land use vision and design principles while the Future Land Use Map establishes the geographical boundaries of the UDA. The implementation process for individual TND projects should afford an applicant the opportunity to create a TND master plan and development proposal for a specific project at a specific location within the UDA.

From an implementation standpoint, the TNDs are a marked departure from typical suburban zoning practices. The TND promotes compact, mixed-use development with a village scale, density and infrastructure configuration that requires enhanced zoning techniques. However, there is no single, existing zoning district in the Woodstock Town zoning ordinance that fulfills the range of TND principles cited in the UDA Comprehensive Plan Amendment.

Many TND zoning district structures have been promoted and tested throughout the United States over the past generation, each having their own assets and liabilities to controlling growth within the designated UDA. In arriving at the best type of TND district for the Town, a range of alternative TND ordinance formats were considered. For the Town, the most effective governing document in the implementation system will be a new, freestanding TND zoning district.

The recommended TND zoning application structure will be one triggered by a private sector zoning amendment application. It provides the platform on which the Town and the development community interface to create new projects. In creating this district, the underlying strategy is to create and employ a regulatory device that promotes:

- (1) *creativity and flexibility for the applicant in establishing the TND master plan, mix of uses, and densities that best serve the land use and marketplace objectives for the project,*
- (2) *essential and sufficient regulatory controls by the Town to translate the TND master plan into a unifying zoning code that ensures the agreed mix of uses, neighborhood organization, lot and building types, density, development phasing, and community infrastructure, and*
- (3) *the most efficient and cost effective allocation of Town management and administration resources.*

The ideal TND district is one that is tailored to the particular needs of the Town. For Woodstock, the TND district should be one that can best translate the Comprehensive Plan's TND planning policies into a manageable regulation that recognizes:

- 1. the character of the key locations of the primary and secondary UDAs (Eagle and Locke properties) within the Town,*
- 2. the existing demographic composition of the Town,*

3. *the UDAs' potential to accommodate the projected level of population and residential growth,*
4. *its compatibility with the UDA land use designation,*
5. *the physical development potential and environmental limitations of the individual UDA properties where TND rezonings may be appropriate,*
6. *the extent to which the Town is committed to employing a transect-based comprehensive planning ethos for the entire Town, and*
7. *the technical and administrative resources of the Town.*

PHYSICAL FRAMEWORK FOR THE TND DISTRICT

The basic goal of the TND is to enhance the Town's standing as a complete village, with multiple land use facets and neighborhoods. In order to recognize the unique physical requirements for residential, cultural and the shopping components of any village, the TND District introduces the concept of Sub-Districts. Sub-Districts are geographical planning areas internal to the TND that are unique in their physical character, intensity of development, and land use composition.

Three primary TND Sub-Districts—**Core (Village Center), Transitional, and Residential**—are structured to differentiate the geographical location of land uses, mix of uses, densities and other design parameters of land use groupings. A fourth Sub-District—**Economic Development**—allows for specialized and conditional accommodation of certain large scale commercial, manufacturing, warehousing, and other employment uses that are not commonly located within traditional neighborhood developments and village centers. Given geographical and marketplace conditions, every TND application may not require that all sub-districts be included. During the TND application process, the Applicant and the Town will determine the optimal mix and match of sub-districts.

The Core (or Village Center) Sub-District is intended to support the existing downtown, or to create new sub-districts, as activity centers for the majority of town center uses, providing neighborhood-scaled retail shops, restaurants, service, and civic uses. The Transitional Sub-District is intended to accommodate a transitional mix and lower intensity of uses in areas that separate the Core Sub-District from the lower density Residential Sub-District. The Residential Sub-District provides the structure for neighborhoods with lower density residential uses than those found in the Core and Transitional areas. Mixed housing types, sizes, and lot types are recommended, with guidelines for the mix established with each TND District application. The Economic Development Sub-District recognizes that certain uses of a higher density and community impact may be appropriate for inclusion in a TND District zoning application but, due to type, scale and intensity of use, are inappropriate for the other sub-districts.

TND Implementation System

There are two essential components that comprise an effective and comprehensive TND implementation program. A TND zoning district coupled with enhanced subdivision amendments should be drafted along with a clear administrative process that defines the

desired level of plan review and oversight by the Town. However, this process should be efficient and not force unnecessary road blocks and time delays on private sector applicants. A properly structured TND District can provide the platform on which the Town and the development community interface to create new projects. Private and public sector project objectives are often competing. While comprehensive planning is conducted in a public venue, project master planning for private development is often originated outside the public's view. The TND zoning district and its companion administrative process should bring these two together.

The Applicant begins the zoning process with the submission of a Code of Development. The Code of Development is essentially a "mini-zoning ordinance" that is written to meet the specific needs of the property, its location, the marketplace, and the Town's ability to provide adequate public infrastructure. Fundamentally, the Code must demonstrate the feasibility and appropriateness of the planned TND project. The rezoning application process allows the Applicant to present the plans, zoning regulations, and agreements that translate one's purpose and intent for the project into a set of efficient regulatory controls. The use of the Code of Development is intended to better define the mix, scale, character, form and intensity of any given development proposal than that which could be otherwise governed by the Town's conventional zoning districts. The TND District should incorporate the following application requirements:

- A. TND Master Plan:** The master plan establishes the physical and geometric organization of the community. It includes a graphic representation of the existing site conditions, the proposed physical layout of the project, the location of the individual TND Sub-Districts and internal neighborhoods, and planned open space and recreation areas.
- B. Development Code:** The code provides the regulating criteria and guidelines for the Sub-Districts within the community. Similar to conventional zoning districts, it provides documentation for permitted and special permit land uses, building minimum and maximum density, lot types and yard dimensions, building heights, mix of uses, and parking requirements for each of the TND Sub-Districts.
- C. Street Classification Plan:** The street classification plan (often referred to as a "regulating plan") provides the framework for both vehicular and pedestrian systems within the community. It describes the location and category of streets to be developed within the TND community, establishing recommended street widths, utility and landscape placements, street lighting, on-street parking, and right of way designations.
- D. Building Form and Landscape Guidelines:** Building and landscape guidelines establish the desired level of cohesiveness and harmony in the community's overall design scale and theme. These guidelines provide the documentation and graphics to describe the proposed characteristics of building design and landscape architectural improvements for each TND Sub-District.
- E. Schematic Infrastructure Plans:** The compact nature of TND projects requires close design and construction coordination for public infrastructure. The infrastructure schematics provide the recommended layouts and easement requirements for site grading, sanitary sewer, domestic water, and other utilities and facilities. Recognizing the critical importance of environmental controls, this

section provides the opportunity for the Applicant and Town to work jointly in developing a comprehensive approach to storm drainage systems, stormwater management facilities, and best management practices.

- F. Traffic Impact Analysis (TIA):** The TIA demonstrates the overall impact of the existing transportation system as well as future traffic generated by the proposed community. The typical TIA study analyzes the need for both on-site and off-site transportation improvements. Where the master plan generates minimum traffic demand thresholds, the study is prepared in compliance with VDOT 527 and SSAR standards.
- G. Zoning Conditions and Proffer Agreements:** A TND project provides wide flexibility to a property owner to plan a fully integrated mixed-use project. Once the master plan and code of development is established, other details related to the implementation framework are documented by proffer agreements and special conditions.

Phasing

It is important to note that Traditional Neighborhood Development projects tend to be more complexly designed, and often larger in scale, than many other types of development, including single lot and infill development. Large TND developments are often built in a series of phases, primarily for market and economic reasons, but also due to infrastructure capacity and extensions related to adequate public facilities. From the developer's perspective, commercial and residential units can only be built at the pace at which business owners or residents are willing to buy them. From the local government's perspective, new commercial and residential units cannot be allowed to outstrip the locality's ability to serve them with public utilities, police, fire, and rescue services, and schools, among other concerns.

The Town should carefully consider the optimal number of new residential or commercial units that can be served by Town facilities over time. If facilities are limited, the phasing of a project should be linked to the adequacy and availability of public facilities. By entering into proffer agreements with potential TND land developers, the Town can, and should, restrict large TND developments to a phased development schedule that limits new building to a reasonable rate based on building permits or utility connections.

Early TND development phases should concentrate on areas of a larger property with direct and visible access to transportation, such as major streets. A mix of land uses is desirable at all phases of the development, but cannot always be guaranteed if market support does not exist. Commercial development may be more predominant when there is substantial existing residential development nearby. When there is existing commercial development, residential development is most needed, and will come before later commercial growth.



A development in multiple phases should build from a central point, whether an existing downtown or new development, not begin development of a remote pocket of development that does not relate to earlier phases. New development should extend the community's grid of streets, and strive to complete the vision for the TND and Town in general. Care should be taken in all new phases to avoid disruptions to existing homes and businesses.



VII. Transportation Benefits of TND

The rise of Traditional Neighborhood Development as a planning and land use trend over the past 20 to 30 years can be attributed to its many advantages and benefits when compared to conventional suburban planning and development patterns. Most important among these are TND traffic planning techniques and transportation systems that serve as the foundation for “smarter communities.” This has given rise to the notion of the “complete street”, one which acknowledges the need to accommodate vehicles, pedestrians, cyclist, and other forms of transportation service. From a community master planning standpoint, the transportation design response has been to create networks that ensure the interconnectivity of TND streets.

The benefits of TND transportation planning extend to those people who will live and work in these new communities, but also to local governments and citizens of the larger region. Many of the benefits of TND streets can be measured in terms of increases in system capacity, greater choices to satisfy travel demands, shorter travel times, construction cost savings, and reduced maintenance. On the other hand, other (equally important) attributes are linked to less scientific quality of life, esthetic, and safety factors.

Reduced trip generation and internal capture

A well planned TND street network has the distinct advantage over a conventional suburban subdivision in that it can reduce the overall traffic burden on a locality’s regional traffic system as well as the number of trips that are internally generated. A main focus of TND communities is their mix of uses that combines residential, civic, institutional, and commercial uses into one project on one site, as opposed to creating an “enclave” or isolated development “modules” each serving a different use. A resident of a typical TND community would be able to complete certain daily tasks, like grocery shopping, dropping a child off at school, or going out for a meal, without leaving the community. With tighter knit neighborhoods, the vehicle does not need to be used to satisfy each and every trip purpose.

In contrast, these same tasks in a single use suburban community would require leaving a residential development and driving on an arterial highway or major collector road to a commercial development. Trips by TND residents that are made without leaving the TND are called internal capture. These are trips that are shorter, more accessible, safer, and, in some cases, can be substituted by pedestrian trips.

When analyzing traffic impacts for new developments, the Virginia Department of Transportation allows for the possibility that up to 15% of all trips by TND residents will be internally captured. This means 15% less traffic placed on existing external roads, which can lead to savings in road widening, turn lanes, and signalization. However, actual case studies comparing TND to conventional suburban projects in Virginia and other states have realized even better rates of internal capture, with 20%-25% of trips staying within the TND.

Increased transportation system capacity

The key difference between TND street patterns and those found in conventional suburban developments is TND's use of an interconnected grid of streets, while most sprawl subdivisions use a disconnected pattern of streets with many cul-de-sacs and several high-volume collector roads. The overall effect of the TND grid pattern is to divide neighborhood traffic between many small streets rather than concentrate it on a few large collector roads.

Traffic analyses employing commonly accepted Highway Capacity Manual calculation methods for these two types of street networks clearly reveal that a compact network of small interconnected streets has more traffic capacity than the same street area combined into large collector streets. Intersections, not travel lanes, control the capacity of a street system, and left hand turning movements represent the critical factor that impacts capacity reduction. The typical TND network reduces the loading of left hand turning movements by distributing traffic to and through a larger number of intersections, allowing the entire system to carry a greater load. The net benefit is fewer travel lanes, fewer traffic signals, and fewer traffic accidents while increasing overall system effectiveness.

Reduced traffic times and Less signal wait

While TND streets have many small, relatively quiet intersections, a locality's major collector and arterial roads typically have very large, complex intersections. All internal TND streets should be considered "local" with the express purpose of providing direct access to community land uses via narrow travel lanes with on-street parking. More complex collector intersections require multiple lanes, a variety of turning lanes, and traffic signal cycles for a variety of movements, all leading to longer waits at traffic lights and reduced system capacity. The transportation network goal should be to plan for sufficient intersections within the community in order to stay below the traffic warrant thresholds for signalization. When the TND pattern spreads traffic over several smaller roads, traffic at these intersections may fall below rates at which signalization is warranted, or, if a signal is necessary, its cycles will be less complex and less time consuming.

Relationship to regional traffic network

An additional feature of TND street patterns is the interconnections of adjacent TND developments. Sprawl subdivisions are typically self-contained, having a single entrance from a major collector road. This is common to many rapidly growing Virginia localities that have experienced increased frontage development pressure on their arterial highways but little in the way of contiguous collector and local street improvements. This means that to visit an adjacent development, a resident would have to drive onto the arterial highway or major collector road and then enter the adjacent development.

Arterial highways are intended to serve regional traffic patterns, with limited access to private properties. While traffic engineers ascribe high capacity ratings to arterial and major collector roads, in reality their functional capacity and operating speeds are often much less than predicted. Arterials located in locales that lack interconnectivity attract dense commercial growth along their frontage. In effect, traffic is funneled to commercial centers from a wide catchment area, creating traffic characteristics that are unbecoming to the original purpose of the arterial.

Regional arterial systems are not designed to function well with high levels of frontage access, but commercial traffic cannot be restricted unless local zoning laws become extremely onerous. The latter is fraught with political obstacles. The result is increased travel time and trip distance while further diminishing the capacity and function of the existing

system. Over time, as arterial traffic increases, the trend is to add lanes to the existing system rather than building another way to access the developed commercial areas, and this rarely fixes the problem.

With TNDs, connections to adjacent developments are encouraged as part of an overall grid street system. In this system, a TND resident can access adjacent developments using internal streets built by the TND developers instead of using the external collector road that must be improved at public expense. An interconnected TND system also benefits by accommodating reasonable levels of diverted traffic movements when other peak-hour routes are operating at full capacity. In a region that grows by building multiple TNDs, regional traffic can be shared over many roads rather than crowding a single collector. The Virginia secondary street acceptance requirements (SSAR) provide effective guidelines for VDOT and localities to coordinate and promote interconnectivity between future developments.

Pedestrian and Non-car trips

The density, mix of uses, and connected streets that are key features of all TNDs make it possible to navigate the development, and possible nearby areas, without a car at times. TNDs should ideally place a commercial core within a walkable distance from residential areas. While this doesn't mean that cars aren't necessary in TND communities, it does mean that certain trips, for shopping, dining out, or visiting neighbors, might be short enough to consider walking or bicycling. The narrower TND street with a more compact intersection design and smaller curb radii better accommodates pedestrians and cyclists in a safe and comfortable way to make non-car trips more desirable. TND transportation guidelines encourage reduced lateral clearance between the street lanes and street trees and other forms of landscaping, thereby creating a natural, more attractive form of traffic calming. Further, with a well planned, interconnected street system, pedestrians and cyclists have the option to select safer and quicker routes based on their knowledge of real-time traffic conditions in their neighborhoods.

The number of trips made without a car will vary widely depending on the features of the town center, as well as factors like weather. However, case studies of TNDs reveal high levels of internal traffic capture, showing that among people shopping and dining in TND commercial areas, as many as 18% had traveled there on foot. This represents an 18% reduction in traffic over single-use suburbs where no walking trips are possible due to long distances and unfavorable conditions between residential and commercial areas.

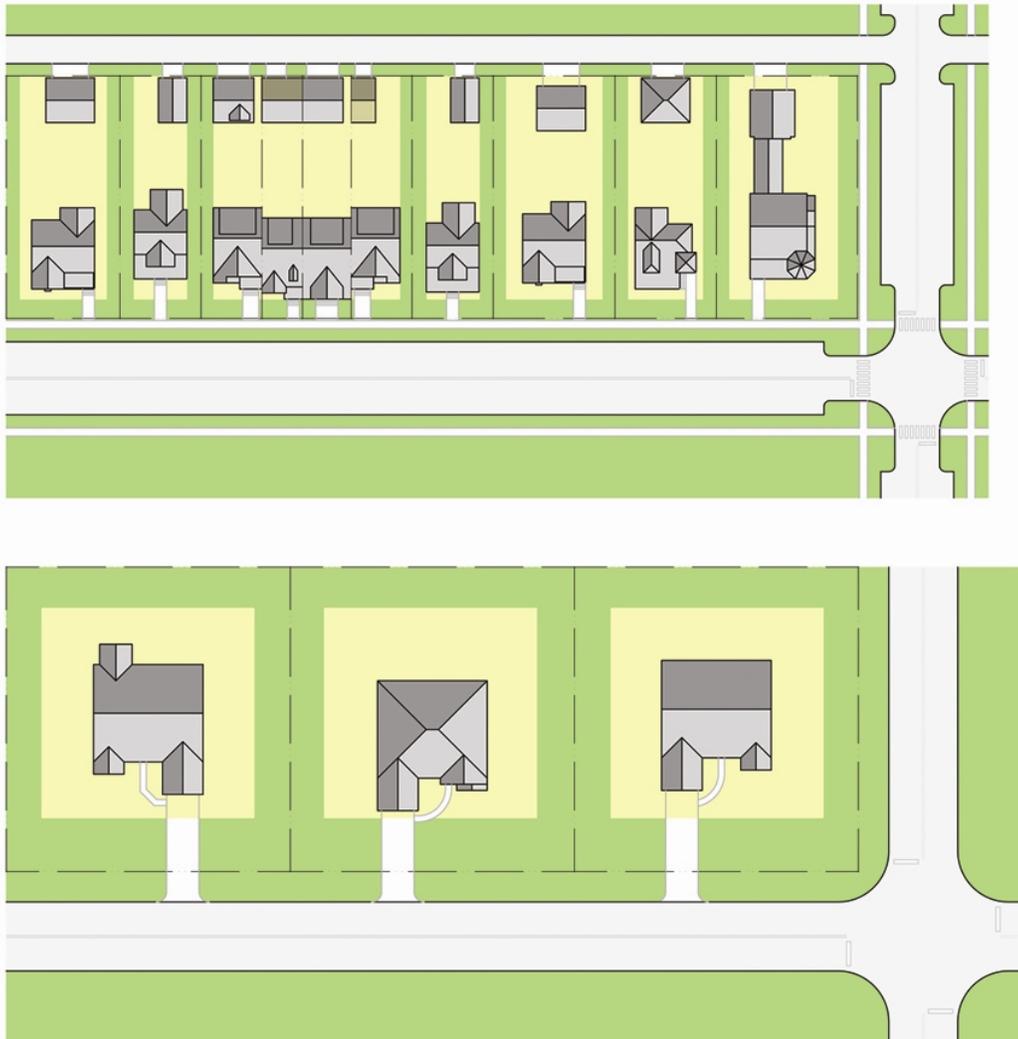
INFRASTRUCTURE SAVINGS

Shorter streets

Due to TND densities of four or more units per acre, a TND with a given number of units is much more compact than a conventional suburb containing the same number of homes. This means more homes on a given length of street. Individual house lots in this dense configuration have a much narrower street frontage than do conventional lots, and the grid orientation neighborhood streets reduces the sometimes meandering interconnections between suburban subdivisions.

The examples below show a hypothetical 420-foot street frontage in both a Traditional Neighborhood Development, and in a more typical suburb. In the suburban model, wide streets lead to long driveways that access homes set well back from the street. With lots at

½ acre each, this 420-foot section of street serves only 3 houses. The TND street has narrower lanes, but provides parking on the street. Houses are close to the street, with garages on an alley in the rear. With lots from 20 to 70-feet wide, the same 420' length of street accommodates 10 houses.



Narrower streets

Traditional Neighborhood Developments are typically designed around much narrower street cross sections than those found in conventional suburban subdivisions. These narrow streets serve to slow traffic, increase safety for pedestrians, help meet the community’s goals of higher density, and also to lower infrastructure costs. These narrow streets of course require less surface pavement, but also save on foundation materials, pavement depth, turn lane length, and other factors due to their lower design speed.

On-street parking

Parking within the well-designed TND is primarily found along streets and not in large surface lots at the front of buildings as in many sprawling suburbs. This means less pavement overall dedicated to parking as parking lots provide spaces and aisles, while on-street parking uses the travel lane to serve the aisle function. Many conventional residential

suburbs actually are planned for on-street parking, but with ample private driveway access in front of each home, the on-street spaces are very inefficient and rarely used. Outside of cost alone, this on-street parking solution is more attractive, brings buildings closer to the street, and serves pedestrians better than suburban methods.

More Efficient Utility Systems

Another result of TND density is the ability to serve larger numbers of homes with shorter lengths of utility infrastructure. As with roads, more homes are served by a given length of service for sewer, water, electric, and other public services. Storm drainage systems can be incrementally reduced by virtue of less public street pavements and impervious surface. While increased density may mean a more complex infrastructure within the TND, the greatly reduced length can mean overall savings on capital and maintenance costs for these services.

In addition, narrower streets allow for shorter lateral stub-outs to individual lots for public water, sewer, electricity, gas and the like. For TNDs to achieve the desired intent, it will be necessary in many jurisdictions for VDOT, quasi-public utility agencies and local governments to rethink and revise suburban engineering standards for compact infrastructure, alignments, shared easements and rights of way, and reduced geometric requirements.

The combined effect of the instances of infrastructure savings mentioned here is to reduce the cost of building TND developments as compared to conventional suburban sprawl developments. This effect has been measured in a 2009 study for the EPA to be an infrastructure savings of between 32% and 47%. Also, while these benefits to transportation and other infrastructure are directly measurable, TND communities present additional aesthetic and quality of life benefits that, while difficult to measure, are no less important and desirable.

OTHER BENEFITS

Safer Streets

The inherently slower speed of TND streets when compared to highways and suburban collector roads means greater safety for drivers and pedestrians alike. With cars slowed to reasonable in-town speeds, pedestrians are more easily seen by drivers and have more time to cross streets to reach their destinations. Slower automotive speeds also increase safety for drivers, with damage and injury reduced when collisions do occur. A study by Swift and Associates determined that the safest streets were those built 24 feet wide. Despite this, many suburban zoning codes require streets to be built at a minimum of 36 feet wide.

Transit Compatibility

The benefits of public transit are well established, including reductions in traffic and parking demand, as well as cost savings to the individual transit commuter. However, transit cannot deliver these benefits when combined with the very low densities of typical suburbs. A transit stop must be located within a short walk of a substantial number of homes or businesses in order to make the transit system useful and viable. The compactness of TND development makes public transit a viable option. A typical TND town or neighborhood plan is organized around a town center or main street where density or activity is highest. Places like these are ideal locations for transit stops.

Improved emergency response

Another safety issue presented by sprawling and disconnected suburban streets is their effect on emergency response by fire and rescue services. Sprawling suburbs mean longer distances to travel between fire and rescue facilities and some homes, while the disconnected nature of cul-de-sac streets means traveling indirect routes to answer calls. The proximity and connectivity of TND communities has the potential to shorten emergency response times.

Less time spent traveling

Density and mix of uses puts daily shopping, employment, and entertainment needs within much closer proximity to residential areas. This proximity reduces time spent commuting and adds to residents' free time.

Quality of life

Quality of life in TND communities is difficult to measure but is apparent in a variety of ways. The goal is to create roads and neighborhoods that have a human scale and functionality. TND communities might be described as healthy for two principal reasons. First, these places tend to have much greater levels of neighborhood social interaction, with residents experiencing a sense of belonging to a community. In effect, they are more "livable". This community vitality promotes the development and serves to attract new residents and businesses, as well as to further promote the TND pattern for future developments. Second, the individual residents of a TND may see health benefits from walking or bicycling within the community in ways that aren't seen in conventional suburbs due to the safety concerns of walking or cycling where appropriate facilities are not present, or where greater travel distances and high speed traffic discourage anything but automobile travel. Right of way landscaping, civic spaces, street lighting, clearly identified crosswalks, and coordinated streetscape elements all contribute to the desirable quality of life in a TND.

Sources:

Smart Growth and Conventional Suburban Development: Which Costs More?
Traditional Neighborhood Development: Will the Traffic Work?
Emergency Response and Street Design
Defining and Measuring the Sustainable Transportation Network
VDOT TIA Guidelines
UNC TND Trip Generation Study