DIVISION OF HIGHWAYS
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

TRADITIONAL NEIGHBORHOOD DEVELOPMENT (TND) GUIDELINES

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TRADITIONAL NEIGHBORHOOD DEVELOPMENT STREET DESIGN GUIDELINES

Neither the Administrative Review Criteria nor any other portion of these Guidelines are intended to authorize, regulate or prescribe land uses or to supercede development regulations. These criteria provide a tool to NCDOT personnel for reviewing Traditional Neighborhood Developments that fall within the definition and intent of these Guidelines. ***In areas where City or County governments have a site plan approval process for development plans, local officials shall review the proposed project prior to its submittal to NCDOT.*** *If the intent of the project is to request that the roadways within the subdivision be taken onto the state maintenance system, coordination between the developer, local government and DOT is strongly encouraged during the review and approval process.*

TND DEFINED: A Traditional Neighborhood Development (TND) is a human scale, walkable community with moderate to high residential densities and a mixed use core. Compared with conventional suburban developments, TNDs have a higher potential to increase modal split by encouraging and accommodating alternate transportation modes. TNDs also have a higher potential for capturing internal trips, thus reducing vehicle miles traveled.

A dense network of narrow streets with reduced curb radii is fundamental to TND design. This network serves to both slow and disperse vehicular traffic and provide a pedestrian friendly atmosphere. Such alternate guidelines are encouraged by NCDOT when the overall design ensures that non-vehicular travel is to be afforded every practical accommodation that does not adversely affect safety considerations. The overall function, comfort and safety of a multi-purpose or "shared" street are more important than its vehicular efficiency alone.

TNDs have a high proportion of interconnected streets, sidewalks and paths. Streets and rights-of ways are shared between vehicles (moving and parked), bicycles and pedestrians. The dense network of TND streets functions in an interdependent manner, providing continuous routes that enhance non-vehicular travel. Most TND streets are designed to minimize through traffic by the design of the street and the location of land uses. Streets are designed to only be as wide as needed to accommodate the usual vehicular mix for that street while providing adequate access for moving vans, garbage trucks, fire engines and school buses.

INTENT: That the development encourage walking and biking, enhance transit service opportunities, and improve traffic safety through promoting low speed, cautious driving while fully accommodating the needs of pedestrians and bicyclists.

That such developments should have the potential to reduce the number of external vehicle trips, and thus vehicle miles traveled, by 15% or more through provision of commercial, recreational and other resident-oriented destinations within a walkable community.

That traffic impacts, both on-site and off-site, should be minimized.

DESIGN GUIDELINES.

Relationship to NCDOT Standards – Where TND specific design guidelines have been established, these shall supercede any related design standards contained in "Subdivision Roads Minimum Construction Standards," as well as standards and guidelines for utilities, landscaping and similar considerations. In the absence of TND specific design guidelines, the existing standards, criteria, guidelines or policies shall be applied.

Design Speed – Design speed should closely match the street type, vehicle use and the proposed speed limit. The majority of street types are "streets" and "lanes," which provide direct access to housing and which have a desired upper limit of actual vehicle speeds of approximately 20 mph.

Street types and widths – Dimensions provided in the graphic examples are from curb face to curb face. The specific dimension of each street element is as follows:

Street Type	Lane	Parking	Bicycle*	Gutter	Median Gutter
Lane	8'	8'	na	1'	na
Street	9'	6'	na	2'	na
Avenue	11'	6'	6'	2'	1'
Main Street	11'	6'	6'	2'	1'/na
Boulevard	11'	6'	6'	2'	1'
Parkway	12'	na	na	2'/na	1'/na

* *bicycle lanes are optional if alternate routes to the same destination are provided*

Designers must recognize the implications of shared street space and an interconnected street network. The most frequent and numerous users of TND street networks are motorists, bicyclists and pedestrians. Use by oversized vehicles, such as delivery trucks, moving vans, school buses and fire trucks, is generally infrequent, particularly on residential streets and lanes. A street should be no wider than the minimum width needed to accommodate the usual vehicular mix desired for that street. On a properly designed TND street the occasional oversized vehicle may cross the centerline of a street when making a right turn.

A properly designed street network should provide at least two routes of access to any property within the TND. A high level of accessibility is offered to emergency vehicles by an interconnected TND network. The framework of main streets and avenues should provide appropriate service area routing for school buses and transit vehicles. Designers should coordinate with and involve all appropriate parties to ensure that oversized and emergency vehicles are accommodated while facilitating the needs of the most frequent users.

Stopping Sight Distances - Minimum stopping distances should conform to the design speed for the particular street and the stopping distances required for wet pavement conditions, as follows:

20 mph	125 feet
25 mph	150 feet
30 mph	200 feet

These sight distances should be provided by both vertical and horizontal alignment. Where grades vary from level conditions, stopping sight distances can be decreased for uphill grades and must be increased for downhill grades.

Vertical Curve Design – K values for vertical curve design should be consistent with design speed. Maximum centerline grades should also be consistent with design standards.

Centerline Radii – The criteria for minimum centerline radius for design speeds of 25 mph and less (no superelevation) are:

20 mph	90 feet
25 mph	175 feet

Curb Radii – For design speeds of 20 mph the criteria for curb radius is 15 feet. Some intersections on avenues, main streets and boulevards may require curb radius of up to 25 feet. With larger curb radii sidewalks may be set back 6 to 10 feet from curbs and on-street parking may be restricted 30 feet back from the intersection on each street.

Intersection sight triangles – The minimum sight triangle for stop conditions at street intersections shall be 70 feet along the major road right of way and 10 feet along the minor road right of way. The intersection sight triangle shall be permanent right of way. This may be reduced for lower design speeds on lanes and streets.

Curb construction. All curbed streets shall be built in accordance with NCDOT requirements for vertical curb and gutter construction. As noted under "Street types and widths" above, most gutters are anticipated to be 2 feet in width. Gutters for lanes and street medians are anticipated to be 1 feet.

Pavement Design - When the developer proposes to construct alleys, the facility should meet locally approved design criteria. Where alleys are to be unpaved, a minimum paved apron of at least 50 feet from edge of pavement shall be required at the tie in with any paved facility. Lanes, Streets, Boulevards, and Parkways shall meet the pavement design criteria established in the "Subdivision Roads Minimum Construction Standards."

Sidewalks and Pedestrians – Minimum width for a sidewalk is 5 feet. Sidewalks which directly abut curbing shall be a minimum of 6 feet. Sidewalks may need up to an additional 2 feet of width if they directly abut fences, walls and buildings. Within commercial areas and places with high pedestrian volumes, sidewalks should be sized and surfaced appropriately for anticipated pedestrian traffic volumes and to meet or exceed ADA guidelines.

Bicyclists – On lower volume streets bicyclists should be considered a normal part of the vehicle mix on the street. On higher volume streets bicyclists should be accommodated with 6 feet wide bike lanes, but separate routes for less experienced bicyclists may be considered as well. Routing bicyclists within and through TNDs may include signage and striping, including changing the color of the entire bike lane, as appropriate.

Transit – TND design should be inherently compatible with transit. Transit should be addressed wherever it is present and should be appropriately planned where it may not yet exist. Transit services are typically provided within core areas and along avenues, main streets and higher-capacity roads. Due to size and interconnected street pattern, residents often do not need to walk more than ¼ mile to the nearest transit stop.

On-street Parking – "Informal parking" refers to parking that is allowed along lanes and residential streets, but is not designated or marked as parking areas. On-street parking along major streets should be signed, marked or otherwise clearly designated.

Planting Strips and Street Trees – Planting strips, located between the curb and sidewalk parallel with the street, shall be 6 feet or more in width. Care should be used to ensure that larger planting strips do not push pedestrian crossing areas back from intersections by requiring a larger curb radius. On streets with design speeds of 20 mph or less, or on streets with on-street parking, small street trees may be planted within 3 feet of the back of curb and should generally be planted along the centerline of the planting strip. Within commercial areas and other sidewalks with high pedestrian volumes, grated tree wells may be used in lieu of planting strips. To maintain sight lines, trees and other objects should be restricted from corners for distances of 30 feet on all sides. Along all planting strips the area between 2 feet and 7 feet above ground shall be maintained as a clear zone to preserve sight lines and accommodate pedestrians.

Utilities – All utility installations within rights-of-way shall be consistent with NCDOT's current Utility Policy. For residential subdivision streets, herein defined as "lanes" and "streets," and residential collector streets, herein defined as "avenues" and "main streets," underground utilities may cross under or run longitudinally under the pavement, provided future utility stub-outs are installed prior to paving. For all other streets and highways, underground utilities may cross under but may not run longitudinally under the pavement, except in unusual situations approved by the Division Engineer.

For installations outside of rights-of-way, utilities (either above or underground) may be located in alleyways. If utilities are not to be placed in alleyways the developer should consider providing a 5 foot (minimum) utility easement behind the sidewalk.

Lighting – As a general rule, more and shorter lights are preferred to fewer, taller, high-intensity lights. The scale of lighting fixtures and the illumination provided must be appropriate for both pedestrian and vehicular movements.

Resolution of Conflicts – Whenever the reviewer, after due consideration of all relevant factors, determines that an irreconcilable conflict exists among vehicular and non-vehicular users of a TND street space, that conflict should be resolved in favor of the non-vehicular users, unless the public safety will truly be jeopardized by the decision.

ADMINISTRATIVE REVIEW CRITERIA.

CRITERIA PURPOSE. The criteria help outline a "classic" TND. The purpose of these criteria is to provide a guide to a District Engineer when determining whether a proposed development may thus be designed according to TND guidelines rather than conventional subdivision street standards. Failing to meet all of the criteria does not imply that a proposed development is not a TND. However, proposals not fitting the "classic" criteria may require additional review as is described in the "Review and Approval Process" section.

TND REVIEW CRITERIA FOR NCDOT DISTRICT ENGINEERS.

1. **SIZE**: A TND should be designed at a walkable scale – considered to be approximately a 5 to 10 minute walk from core to edge, or a ¼ to 1/3 mile maximum distance. All or most residential development must fall within this range. The proposed development should be a minimum of 40 acres and a maximum of 125 acres.

2. **COMPOSITION**: There is a discernable community center or core area. The proposed development must have a mixture of residential and non-residential land uses, with at least 10% of the developed area consisting of non-residential uses. Most non-residential uses are located within the community core area. Within the core area, a minimum of 15% of floor area must be devoted to commercial uses oriented towards TND residents. Elementary schools are an important community element. Public structures, such as schools, churches and civic buildings, and public open spaces, such as squares, parks, playgrounds and greenways, shall be integrated into the neighborhood pattern.

3. **DENSITY AND INTENSITY**: Residential densities, lot sizes and housing types may be varied, but the average gross density of the developed area should be at least 8 units per acre. Higher densities, often involving multi-family or attached dwelling units, are generally proposed in, adjacent to or within close proximity to the core area. Lower densities, usually detached single family dwellings, are generally located towards the edges.

   Non-residential development intensities should be sufficient to encourage and promote pedestrian access. Development intensities of non-residential buildings should generally be such that buildings emphasize street frontages, sidewalks and paths, and transit stops. Regardless, the intensity of non-residential development should be compatible with and reflective of surrounding residential development patterns.

4. **STREET PATTERN**: All or most streets within the proposed network must be part of a dense, interconnected pattern. TND streets should connect with adjacent street networks as much as possible. The degree of interconnectivity should be assessed by its ability to permit multiple routes, to diffuse traffic and to shorten walking distances. Most TND streets are designed to minimize through traffic. Streets are relatively narrow and often shaded by rows of trees. Alleys may be used to provide site access. Larger vehicular corridors are usually, although not exclusively, found within the core area and near the perimeter of the proposed development.

5. **BLOCK LENGTH**: All or most low speed, low volume streets should have short block lengths of between 250 and 500 feet. Exceptions may be needed due to topography, environmental protection, preservation of cultural resources, and similar considerations.

6. **RIGHTS-OF-WAY**: Within a TND, the right-of-way is an important design element of the public space or "streetscape." The right-of-way width should be the minimum needed to accommodate the street, median, planting strips, sidewalks, utilities, and maintenance considerations. The right-of-way width should be appropriate for adjacent land uses and building types. Planting strips between curb and sidewalk may be used to provide sufficient space for street trees. Use of alleys and other alternate access or easements for utilities and maintenance vehicles should be taken into account when determining sizes of rights-of-way.

7. **RELATIONSHIP OF BUILDINGS TO STREET**: Buildings are oriented toward the street. Buildings within the core area are placed close to the street. All lots and sites must have pedestrian connections and the core area must be fully accessible to pedestrians. Parking lots and garages rarely face the street. Off-street parking may be located to the side or behind buildings but not in front of buildings or in such a manner as to interfere with pedestrian access.

8. **SIDEWALKS**: To comply with the Americans with Disabilities Act, sidewalks are a minimum of 5 feet wide and should be wider in commercial or higher intensity areas, when directly abutting curbs without a planting strip or parked cars, or when adjacent to walls or other built elements which reduce usable width. Sidewalks should be on both sides of the street. Wherever possible, there should be a continuous pedestrian network adjacent to the streets. Curb cuts should be minimized to reduce conflicts with pedestrians.

9. **PEDESTRIAN STREET CROSSINGS**: Street crossings must not be longer than are actually necessary. The needs of pedestrians should be balanced with the needs of vehicular traffic. Mid-block crossings, bulb-outs, raised crosswalks and similar techniques are commonly used to accommodate pedestrians when appropriate for traffic conditions and site specific situations.

10. **ON-STREET PARKING**: Many streets have on-street parking. On-street parking is a common traffic calming element of a TND, in that it slows vehicular traffic while providing a buffer between street and sidewalk.

11. **CURB CUTS**. Curb cuts should be minimized to reduce effects on on-street parking, conflicts with pedestrians and cyclists, and interruptions of traffic flow.

12. **HIGHWAYS AND LARGE THROUGH CORRIDORS**: The proposed development cannot be penetrated by arterial highways, major collector roads and other corridors with peak hourly traffic flows of 1,200 vehicles, or average daily traffic volumes of 15,000 or more vehicles. Such corridors can only be located at the edge of a TND.

POLICIES.

- NCDOT will not accept alleys onto the state system. However, these features are encouraged as appropriate and desirable elements of a walkable community. Construction and maintenance of alleys will be the responsibility of the property owners' association or comparable individual, group or local government that has responsibility for other common assets.

- NCDOT, consistent with current policies, will not install street trees or median plantings or construct sidewalks or bike paths, nor will the Department maintain trees, plantings, sidewalks, bike paths or similar features within the right-of-way. However, these landscape features are recognized for their traffic calming, aesthetic and environmental benefits. Installation and construction of such features is the responsibility of the developer. Maintenance of such right-of-way features will be the responsibility of the property owners' association or comparable individual, group or local government that has responsibility for other common assets.

- Vertical curb and gutter construction is preferred throughout the entire development. Vertical curb and gutter construction is required within the community core, in all areas where densities are 6 units per acre or greater, and where sidewalks on both sides of the street are proposed. Alternative construction will be considered in low density areas, where sidewalks on one side of the street are proposed, or within water supply watersheds and similar environmentally sensitive areas, or preserved open space and natural areas.

APPLICATION REQUIREMENTS FOR TNDS. In addition to all materials noted in the "Application Requirements" section of "Subdivision Roads – Minimum Construction Standards," a developer must provide to the District Engineer a preliminary site plan and supplemental documents, as needed, for review and approval. The preliminary site plan must include the following additional information:

1. The use, approximate size, and location of all buildings and structures.
2. All proposed land uses and the densities of dwelling units.
3. Proposed on- and off-street parking and circulation plan showing the location and arrangement of parking zones or parking spaces, along with all driveways connecting with adjacent streets and highways.
4. The proposed location, use, improvements, ownership and manner of maintenance of common open space areas.
5. In the case of proposals which call for phased development, a schedule showing the time period proposed, the type and square feet of non-residential land uses, and the number of and density of dwelling units for each phase.

REVIEW AND APPROVAL PROCESS. A TND subdivision proposal should embody the elements of the "Intent" and "TND Defined" sections to the greatest extent possible. When a proposed TND subdivision plat is submitted to the District Engineer for review, the engineer will use the "TND Review Criteria for District Engineers" to determine if the proposed development may be reviewed according to the "TND Subdivision Street Design Guidelines."

If the proposed development meets all of the "Criteria," or if most "Criteria" are met and the Division Engineer finds that the design fulfills the "Intent" and "TND Defined" elements, the proposed subdivision plat and all associated information, including the District Engineer's comments on the plan, will be forwarded to the TND Committee for review. The TND Committee will also review appeals if the District Engineer and Developer cannot come to an understanding on the nature of the proposed development.

While the Committee will try to seek consensus whenever possible, decisions will be determined by simply majority vote. The TND Committee's determination is final.

During review of the proposed development by the TND Committee, the Committee will assess whether or not the proposal fulfills the intent and definitions established for these Guidelines, as well as how well the criteria are met. The Committee may find that some proposals which do not fully match all criteria may still be TNDs. These findings shall be based on meeting the intent and definition and providing the essential functions of a TND. All determinations shall be fully documented as to the reasons for approval or disapproval, and all determinations shall establish precedents for future development review.

If the proposed development is found to be a TND, the developer may choose for the project to be developed in compliance with the TND guidelines established by NCDOT. Upon submittal

for final subdivision plat review, the District Engineer will review the plans for compliance with TND guidelines as part of the regular subdivision review process.

The proposed TND subdivision must meet all applicable local and state requirements. Whenever a local government establishes a higher standard than the subdivision review criteria contained in these Guidelines, the subdivision must be designed according to the more restrictive local standards. This does not, however, imply that NCDOT is obligated to approve a design that is so restrictive as to create unsafe or difficult driving conditions. If any element of these Guidelines is more restrictive than local requirements, NCDOT will be as flexible and as open to local requirements and design context as possible. However, NCDOT is not authorized to approve any design that does not fulfill the "Intent" and "TND Defined" sections of these Guidelines.

Design guidelines established for TNDs will remain separate and apart from the standards for conventional subdivisions as defined in "Subdivision Roads – Minimum Construction Standards." TND and conventional development concepts shall not be combined within the same development.

TND COMMITTEE: The TND Committee will have one representative from each of the following:

- Chief Engineer's Office – Operations (committee chair)
- Chief Engineer's Office – Secondary Roads
- Roadway Design
- Traffic Engineering
- Bicycle & Pedestrian Division (program manager or planner)
- Public Transportation Division (planner or transportation consultant)
- Office of Planning & Environment (planner or landscape architect)

The reviewing Division Engineer, or their designee, will be part of the review and approval process for subdivision proposals. Persons with additional expertise, both from NCDOT and from other state agencies, may assist the Committee on an as-needed basis.

The Committee shall initiate its review of a proposed TND within two weeks of its submittal to the Committee and shall have a response within 30 calendar days. The Committee will meet on an as-needed basis. The Committee may, at the discretion of the chair, meet periodically to review and refine the Guidelines, Criteria, or other elements related to TNDs.

The Committee shall provide reference and educational materials to District Engineers related to TNDs. The Committee is responsible for maintaining and disseminating a list of available and appropriate resources to interested developers, other public agencies, local governments, and the public.

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E-Mail billcampbell@dot.state.nc.us
Counties- Montgomery, Richmond, Scotland

9 **District 1**- C.T. Corriher, P.E. (704) 639-7560
4770 South Main Street (704) 639-7569 FAX
Salisbury, N.C. 28147
E-Mail ccorriher@dot.state.nc.us
Counties- Davidson, Rowan

District 2- M.C. Shaffner (336) 761-2410
2135 Cloverdale Avenue (336) 761-2116 FAX
Winston-Salem, N.C. 27103
E-Mail mshaffner@dot.state.nc.us
Counties- Davie, Forsyth, Stokes

10 **District 1**- J. K. Wilson ? , P.E. (704) 982-0104
615 Concord Road (704) 982-9659 FAX
Albemarle, N.C. 28001
E-Mail jkwilson@dot.state.nc.us
Counties- Stanly, Cabarrus

District 2- Davis Diggs, P.E. (704) 596-6900
P.O. Box 190 (704) 598-1758 FAX
Newell, N.C. 28126
E-Mail ddiggs@dot.state.nc.us
Counties- Mecklenburg

District 3- Richie Hearne, PE (704) 289-1397
130 S. Sutherland Ave. (704) 292-1800 FAX
Monroe, N.C. 28112
E-Mail rhearne@dot.state.nc.us
Counties- Anson, Union

11 **District 1**- Charles Reinhardt (336) 835-4241
P.O. Box 558 (336) 835-1615 FAX
Elkin, N.C. 28621
E-Mail creinhardt@dot.state.nc.us
Counties- Alleghany, Surry, Yadkin

District 2- M.L. Bolick (828) 265-5380
P.O. Box 1460 (828) 265-5414 FAX
Boone, N.C. 28607
E-Mail mbolick@dot.state.nc.us
Counties- Caldwell, Avery, Watauga

District 3- D.J. Tetzlaff (336) 667-9117
P.O. Box 250 (336) 903-9219 FAX
North Wilkesboro, N.C. 28659
E-Mail dtetzlaff@dot.state.nc.us
Counties- Wilkes, Ashe

12 **District 1**- D. D. Reece (704) 480-5402
P.O. Box 47 (704) 480-5438 FAX
Shelby, N.C. 28151-0047
E-Mail dreece@dot.state.nc.us
Counties- Cleveland, Gaston, Lincoln

District 2- J.W. Rand (704) 876-3947
P.O. Box 1107 (704) 876-0602 FAX
Statesville, N.C. 28625
E-Mail jrand@doh.dot.state.nc.us
Counties- Alexander, Catawba, Iredell

13 **District 1**- S.A. Moore, P.E. (828) 652-3344
Route 1, Box 169C (828) 652-8391 FAX
Marion, N.C. 28752
E-Mail tmoore@doh.dot.state.nc.us
Counties- Burke, McDowell, Rutherford
Mitchell

District 2- Ken Wilson, P.E. (828) 298-2741
P.O. Box 3279 (828) 299-3747 FAX
Asheville, N.C. 28802
E-Mail kwilson@doh.dot.state.nc.us
Counties- Buncombe, Madison, Yancey

14 **District 1**- E.A. Green. P.E. (828) 891-7911
4142 Haywood Road (828) 891-5026 FAX
Horse Shoe, N.C. 28742
E-Mail egreen@doh.dot.state.nc.us
Counties- Transylvania, Henderson, Polk

District 2- C.R. Styles, P.E. (828) 488-2131
P.O. Box 250 (828) 488-3518 FAX
Bryson City, N.C. 28713
E-Mail rstyles@doh.dot.state.nc.us
Counties- Haywood, Jackson, Swain

District 3- VACANT (828) 321-4105
P.O. Box 1551 (828) 321-3228 FAX
Andrews, N.C. 28901
E-Mail
Counties- Cherokee, Clay, Graham, Macon

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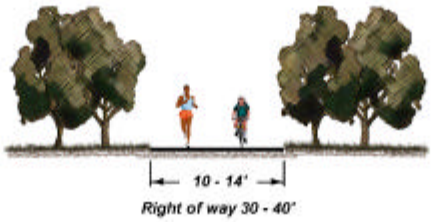
FIGURE 7



TRAIL

Purpose: Provides non-motorized access throughout the neighborhood.
[Note: Not to be accepted onto the state system]

Features

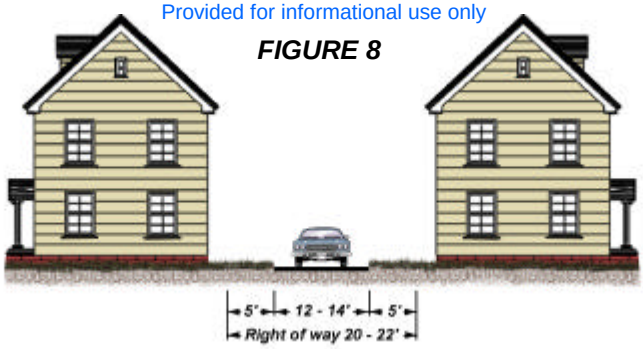
- Shade trees recommended
- Trail width 10—14'
- Stopping sight distance 125'
- Clear zone 3—6'

Building and Land Use

- Link to make connections between homes, parks, schools, and shopping districts

Provided for informational use only

FIGURE 8



Alleys

Purpose: Although part of the interconnected street system, alleys provide access to property but are not intended to accommodate through traffic. Alleys are often used by garbage trucks. In some areas alleys must accommodate dumpsters.
[Note: Not to be accepted onto the state system]

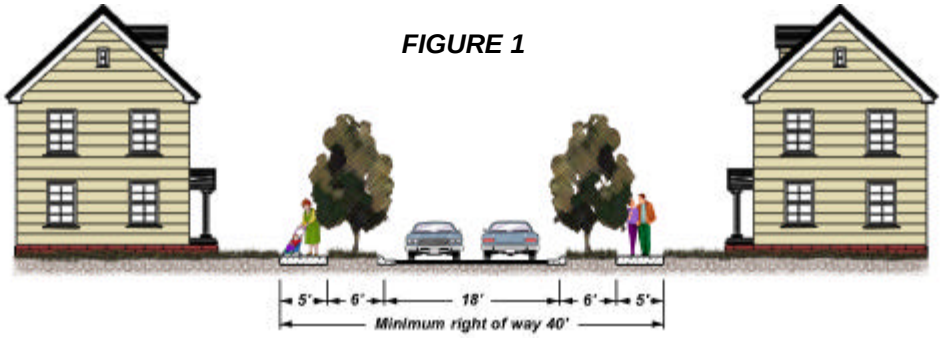
Features

- Requires 20' right of way (minimum)
- Utilities, either above or underground, may be located in alleyways to provide service connections to rear elevations
- Width 12' (minimum)
- Additional pavement at alleyway intersections is necessary to facilitate turns.

Building and Land Use

- Residential - primarily single family
- Provides rear access to garages

FIGURE 1



LANE

Purpose: Provides access to single-family homes.

Features

- Street width 18' with curb and gutter and informal parking designated on street
- Planting strips 6'
- Sidewalks 5' on each side
- Design speed 20 mph
- Posted speed 20 mph
- Requires a 40' right of way
- Drainage - curb and gutter

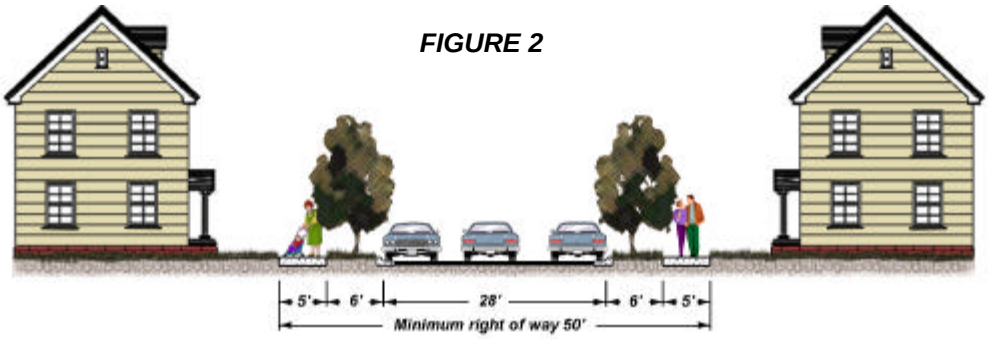
Features

- Generally two to six blocks long

Building and Land Use

- Residential - primarily single family homes

FIGURE 2



STREET

Purpose: Provides access to housing

Features

- Street width 28' with curb and gutter and informal parking
- Planting strips 6'
- Sidewalks 5' on each side
- Design speed 20 mph
- Posted speed 20 mph
- Requires a 50' right of way
- Drainage - curb and gutter

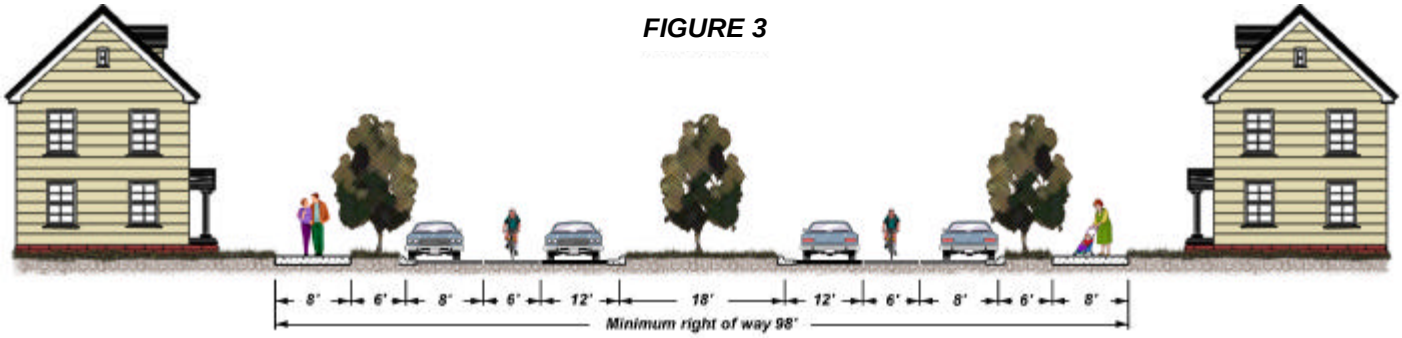
Features

- Generally two to six blocks long

Building and Land Use

- Residential - many residential types

FIGURE 3



AVENUE WITH PARKING

Purpose: Avenues are short distance, medium speed connectors between neighborhoods and core areas. As such, they are used in both residential and commercial areas, often terminating at prominent buildings or plazas. Avenues may also circulate around squares or neighborhood parks.

Features

- Street width 26’ on both sides of median with on-street parking, 18’ if no parking or curb and gutter
- Median width 18’ (minimum)
- Travel lanes 12’
- Maximum 2 travel lanes
- Bike lanes and planting strips 6’
- Sidewalks 8’ on each side
- Design speed 30 mph (maximum)

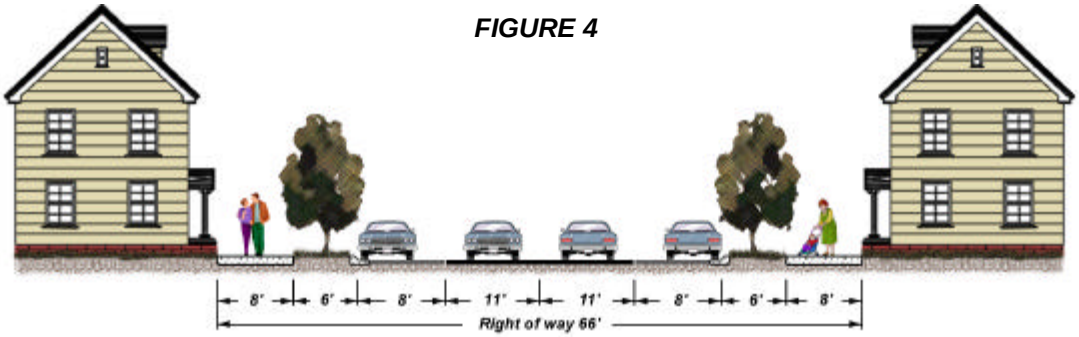
Features

- Posted speed 25 - 30 mph
- Requires a 98’ right of way
- Drainage - curb and gutter

Building and Land Use

- Mixed residential and commercial use

FIGURE 4



MAIN STREET WITHOUT MEDIAN

Purpose: Main streets provide low-speed access to neighborhood, commercial, and high density residential areas

Features

- Travel lanes 11’ with striped parking
- Maximum 2 travel lanes
- Planting wells 6’- landscaped median optional (minimum 18’)
- Sidewalks minimum of 8’ each side
- Design speed 25 mph (maximum)
- Posted speed 20 - 25 mph
- Requires a 66’ right of way

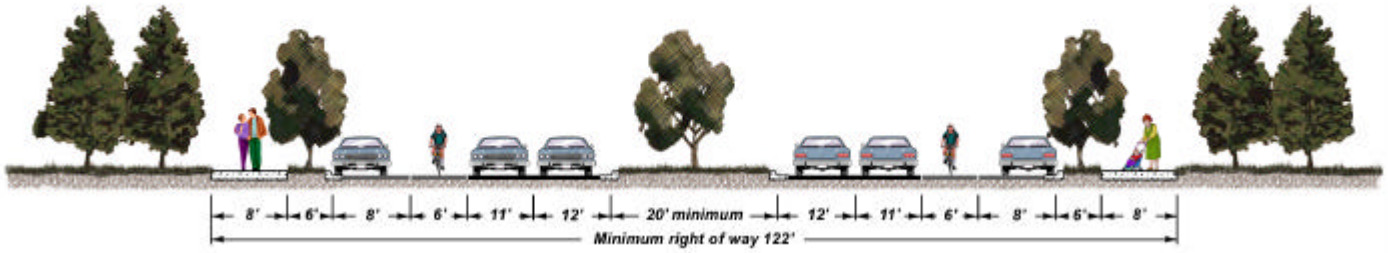
Features

- Drainage - curb and gutter
- Includes bulbouts at intersections and mid-block crossings
- Bike lanes optional but preferred (minimum 6’)

Building and Land Use

- Commercial and mixed use
- High density residential

FIGURE 5



BOULEVARD

Purpose: Provides multi-lane access to commercial and mixed-use buildings, and carries regional traffic.

Features

- Lanes 11' with striped parking and bike lanes
- Maximum 4 travel lanes
- Planting wells 6 - 11'
- Sidewalks 8' on each side
- Design speed 40 mph (maximum)
- Posted speed 30 - 35 mph

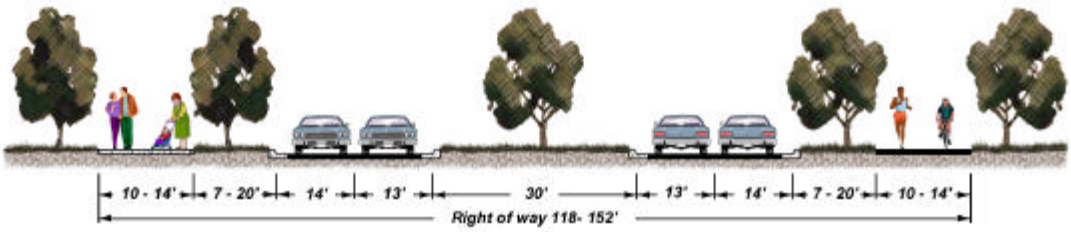
Features

- Requires a 122' right of way
- Drainage - curb and gutter

Building and Land Use

- Commercial and mixed use

FIGURE 6



PARKWAY

Purpose: Parkways bring people into town, or pass traffic through natural areas. Parkways are not designed for development. When the parkway enters town, it becomes a boulevard.

Features

- Travel lanes 11 - 12'
- Median width 30'
- Design speed 50 mph (maximum)
- Posted speed 45 mph (maximum)
- Requires a 118' right of way (minimum)
- Drainage - swales allowed, or curb and gutter
- Multi-use trails 10 - 14'
- Planting strips 7 - 20'
- Bike lane not adjacent to travel lane

Features

- 6' minimum paved shoulder on high-speed parkway (greater than 45 mph: typical section has shoulder with ditches)

Building and Land Use

- Parkways are designed to be on the edge of towns, nature preserves, or agricultural areas
- Multi-use trails may be on either or both sides