# Land Development Code



This Division is necessitated by the traffic impact of new developments and only applies to new or modified improvements. The County anticipates controlling the impacts and maximizing the public transportation system through engineered traffic management.

**Sec. 6.10.2** Functional Classification.

For the purpose of development, operation, and maintenance, roads are classified as Arterial, Collector, or Local based on function as noted below.

(1) Arterial roads are routes that provide service which is relatively continuous and of relatively high traffic volume, long average trip length, high operating speed, and high mobility importance.

(2) Collector roads are routes that provide service which is of relatively moderate average traffic volume, moderately average trip length, and moderately average operating speed. This route also collects and distributes traffic between local roads or arterial roads and serves as a linkage between land access and mobility needs.

(3) Major local roads (within large subdivisions or residential areas) are routes that connect neighborhoods with the arterial and collector road network and provide interconnection between neighborhoods. Major local roads (in rural areas) are routes that collect smaller local roads with the arterial and collector road network.

(4) Minor local roads include all roads outside of subdivisions that are not classified as arterial, collector, or major local.

(5) Subdivision local roads are streets located within subdivisions or neighborhoods that primarily provide access to abutting properties or properties along interconnected neighborhood streets. Generally, these streets will include cul-de-sacs, short blocks of a grid network, or other interconnected neighborhood streets.

A map showing all road classifications is available at the Office of the County Engineer.

**Sec. 6.10.3** Traffic Impact Analysis.

A. A Traffic Impact Analysis is required to determine necessary mitigation and improvements to accommodate the proposed development. The design year shall be Estimated Time of Completion (of construction) plus 20 years. The design year shall include a minimum growth rate and in no case shall the growth rate be less than one percent. For the purpose of determining what level of study must be completed, the following thresholds have been established.

(1) A Traffic Statement is required for projects generating fewer than 50 peak hour trips.

(2) A Traffic Assessment is required for projects generating between 50 and 99 peak hour trips. Unless the project has a four percent or more impact (percent project traffic to adopted LOS volume) on a roadway that has an existing volume/capacity (v/c) ratio of 0.80 or more, in which case a Traffic Study is required.

(3) A Traffic Study is required for projects generating 100 or more peak hour trips. For projects where all impacted roadways are below 0.50 v/c a Traffic Assessment is all that is required with the exception of those projects increasing the v/c ratio on an impacted roadway by 20 percent or more.

B. The requirements for each of these analyses can be found at Office of the County Engineer.

**Sec. 6.10.4** Access Management.

A. All developments shall be responsible for ensuring and providing coordinated access to, from, and between the proposed development and the surrounding lands to ensure that adequate and managed access is available to the development project and the public.

B. Cross Access (Parallel Access).

(1) Cross access is required to reduce the use of the public street system, provide for movement between adjacent and complementary land uses, limit access to Arterial and Collector roads, and minimize full median openings. Cross access may include easements and/or roads and shall be established through the dedication of a public easement.

(2) Cross access shall be provided and constructed for all commercial, industrial, and multi-family residential development on arterial and collector roads unless it is determined by the County Engineer to not be practical or reasonable due to adjacent features, specific type of development, or the potential development of the adjacent property.

(3) Refer to Article 7 for construction details.

C. Access to adjacent lands.

(1) Access to adjacent unplatted land or development shall be provided by the continuation of the Major Local rights-of-way centered on section lines to the subdivision boundary. If existing conditions prohibit right-of-way locations along section lines, access shall be provided at other locations subject to the following requirements:

(a) In no event shall the separation of points of access exceed 1,400’ (refer to details in Appendix B).

(b) At least one such access shall be provided to each adjacent unplatted land which exceeds 40 acres (refer to details in Appendix B).

(c) Full construction of such access roads is hereby required.

(2) Access to adjacent platted lands shall be provided by extending the existing street pattern from the subdivision boundary.

D. Access to adjacent commercial development.

Single family residential subdivisions fronting on collector or arterial roads shall provide for interconnection to adjacent non-residential development.

**Sec. 6.10.5** Driveway Access.

A. Driveways provide the physical transition between a site and the abutting roadway. Driveways should be located and designed to minimize impacts on traffic while providing safe entry and exit from the development served. The location and design of the connection must take into account characteristics of the roadway, the site, and the potential users.

B. General Driveway Requirements.

(1) Each buildable lot, parcel, or tract is entitled to a driveway unless cross access is available.

(2) Adjacent properties under the same ownership shall be considered as a single property for application of driveway spacing or for driveway permits. Applicants may include a request that properties be considered individually for permitting purposes but the request must be specifically included in the permit and a sketch included that details the lot configurations and driveway placement.

(3) Driveway location and minimum spacing shall be consistent with traffic safety standards. If standards cannot be achieved, the County Engineer, or designee, can review and approve on a case-by-case basis.

(4) Driveway width shall be subject to internal and external traffic flow considerations. The driveway width considerations include, but are not limited to, the number of lanes, the driveway geometrics, internal obstructions, and traffic safety.

(5) Concrete mitered end sections are required for culverts when used for driveways accessing a roadway with posted speeds of 40 mph or greater.

C. Commercial Driveway Requirements.

(1) All driveways on corner parcels must access the lower classified road. The following tables give the minimum allowed distance between the commercial driveway and the nearest intersecting roadway, and the commercial driveway and the nearest driveway, respectively.

**Table 6.10.5-1 Minimum Commercial Driveway Corner Separation**

| Median Restriction | Position | Access Allowed | Minimum Separation (Feet) |
|---|---|---|---|
| Yes | Approaching Intersection | Right In/Out | 115 |
| Yes | Approaching Intersection | Right In Only | 75 |
| Yes | Departing Intersection | Right In/Out | 230 |
| Yes | Departing Intersection | Right Out Only | 100 |
| No | Approaching Intersection | Full Access | 230 |
| No | Approaching Intersection | Right In Only | 100 |
| No | Departing Intersection | Full Access | 230 |
| No | Departing Intersection | Right Out Only | 100 |

**Table 6.10.5-2 Minimum Commercial Driveway Spacing**

| Speed Limit (MPH) | Spacing (Feet) |
|---|---|
| 35 or less | 245 |
| 36-45 | 440 |
| Over 45 | 660 |

*on the same side of the road as the proposed driveway

(2) Driveways on the opposite side of the road from the proposed driveway shall be shown on the plan for coordination purposes.

(3) All commercial driveway access shall meet FDOT sight distance requirements. A note is required on Improvement Plans and Major Site Plans stating that “sight distance at driveways complies with FDOT requirements.”

(4) The length of commercial driveways shall be designed to provide for an uninterrupted traffic flow on the public street. The driveway length shall be subject to the anticipated required stacking length of entering and exiting vehicles during the peak period in accordance with FDOT.

(5) Commercial driveways shall have a minimum of 12’ single lane width for entry and a 25’ radius. The Office of the County Engineer may require wider driveway and radius for commercial properties with heavy truck traffic.

(6) The maximum allowed commercial driveway grade is 10%. The maximum algebraic difference between two different grades is 12%.

D. Residential Driveway Requirements.

(1) All developments with residential uses shall prohibit direct access onto a Major Local, Collector, or Arterial roadway. Individual lots shall be accessed through the use of an internal roadway network.

(2) Driveways shall not access Major Local, Collector, or Arterial roads if alternate access is available.

(3) Multi-family sites require adequate vehicular maneuvering area off of the right-of-way to prohibit backing out of driveway.

(4) No driveway shall be located within the sight triangle at corners. Refer to Section 5.5.16. Driveway to corner lots shall be located no closer than the lesser of half of the lot width or 50' from the end of the radius. Driveway restriction areas shall be graphically shown on Final Plats for corner lots in compliance with this section.

(5) All residential driveways shall make every effort possible to meet FDOT sight distance requirements. This may include relocating driveway, removing structures such as fences, and removing vegetation from the driveway owner's parcel.

(6) The driveway radius shall be a minimum of 5' for Subdivision Local or Minor Local road and a minimum of 10' on a Major Local, Collector, or Arterial road.

**Sec. 6.10.6** Construction Access/Route.

For any phased development, or development within an existing residential area, a plan for the construction access or construction route shall be approved by the County prior to construction.

Any activity excavating and removing material from the site shall include a designated access route and be approved by the County prior to utilization.

**Sec. 6.10.7** Loading Areas.

The arrangement of truck loading and unloading facilities for commercial development shall be such that in the process of loading or unloading, no truck shall block or impact the flow of traffic on any adjacent street.

**Sec. 6.10.8** Parking Requirements.

A. Number of Spaces.

(1) If the applicant demonstrates that the parking needs can be satisfied using alternative criteria, the Development Review Committee will evaluate the proposal and provide direction.

(2) Parking spaces for residential and non-residential developments shall be provided consistent with tables 6.10.8-1 and 6.10.8-2.

(3) A one-car garage or carport and driveway combination shall count as two off-street parking spaces provided the driveway measures a minimum of 25' in length between the face of the garage or carport door and the sidewalk, or 30' to the curb line.

(4) A two-car garage or carport and driveway combination shall count as four off-street parking spaces, provided the minimum width of the driveway is 20' and its minimum length is as specified above for a one-car garage or carport.

(5) For mixed-use developments, a shared parking approach to the provision of off-street parking shall be permitted.

(6) Where housing for the handicapped, elderly, ACLF, nursing homes, or similar use is being built there shall be a minimum of one parking space per two dwelling units.

(7) Any change of use on a site to a use which requires more parking spaces than are provided on the site shall require submission of an appropriate site plan showing the required parking spaces.

**Table 6.10.8-1 Minimum Off-Street Parking Requirements for Residential Land Use**

| Housing Unit Type and Size | Off-Street Parking Requirements |
|---|---|
| Single-Family Detached | |
| up to 3 Bedrooms | 2.0 |
| 4 or 5 Bedrooms | 3.0 |
| Multi-family and Manufactured Home | |
| 1 Bedroom | 1.5 |
| 2 or 3 Bedrooms | 2.0 |

**Table 6.10.8-2 Minimum Off-Street Parking Requirements for Nonresidential Land Use**

| Nonresidential Land Use | Required Off-Street Parking Spaces Per Indicated Area | |
|---|---|---|
| Bar | 1 | Per 4 seats |
| Bowling alley | 3 | Per lane |
| Car wash | 5 | Per washing lane |
| Church/Place of Worship | 1 | Per 3 seats |
| Fiduciary institutions | 1 | Per 300 sq. ft. GFA |
| Hotel | 0.5 | Per guest room, plus |
| | 10 | Per 1,000 sq. ft. GFA non-room area |
| Industrial | 1 | Per 675 sq. ft. GFA |
| Library | 1 | Per 300 sq. ft. GFA |
| Manufacturing | 1 | Per 675 sq. ft. GFA |
| Medical Center | 1 | Per 250 sq. ft. GFA |
| Neighborhood or convenience center under 100,000 sq. ft. GLA | 4 | Per 1000 sq. ft. GLA |
| Nightclub | 1 | Per 3 seats |
| Offices | 2.5 | Per 1000 sq. ft. GFA |
| Research | 1 | Per 1000 sq. ft. GLA |
| Restaurant | 1 | Per 4 seats |
| Fast-food establishments | 1 | Per 75 sq. ft. GFA |
| Retail store | 1 | Per 300 sq. ft. GFA |
| Elementary or Middle School | 2 | Per classroom; but not less than 1 per teacher & staff |
| High School | 5.5 | Per 30 students; but not less than 1 per teacher & staff |
| Service station | 3 | Per bay & work area |
| Shopping center | 3.5 | Per 1000 sq. ft. GLA |
| Storage areas | 1 | Per 2000 sq. ft. GLA |
| Theater | 1 | Per 4 seats |
| Warehouse | 1 | Per 3000 sq. ft. GFA |
| Loading spaces for all business, industrial, warehouse use | 1 | Per 25,000 GFA |
| Handicapped Spaces | 1 | Per 25 spaces |

* Parking requirements for land use types that are not listed shall be based on other documentation approved by the County such as the ITE Parking Generation Manual or American Planning Association Publications.

B. Each off-street parking space shall measure, at a minimum, 9' wide by 18' long. Pavement markings in parking lots shall be a minimum of 4" wide.

C. Disabled permit parking spaces shall be provided in compliance with the requirements of the Florida Building Code, American with Disabilities Act, and the FDOT Design Standards. A detail or label shall be provided on plans indicating that these spaces will be striped in accordance with FDOT index 17346.

D. All off-street parking areas shall be paved for all developments, except as listed below. The following uses may use grass parking except for employee and disabled permit parking spaces which must be paved. The perimeter of a grass parking lot shall be delineated with railroad ties, wheel stops, or other means as may be approved by the County Engineer.

(1) Churches or other places of worship
(2) Private clubs or lodges
(3) Community centers
(4) New and used motor vehicle sales and leasing
(5) Trucks and commercial tractor/trailer units
(6) Sales and leasing of new and used manufactured homes
(7) Sales of new and used farm tractors or equipment
(8) New or used construction equipment

E. Alternative parking area improvement standards may be accepted if the applicant demonstrates that such standards better reflect local and project conditions. Parking spaces in excess of minimum requirements may be provided as grass parking if approved by the Zoning Manager.

F. Access to parking areas shall be designed so as not to obstruct free flow of traffic. There shall be adequate provision for ingress to and egress from all parking spaces to ensure ease of mobility, ample clearance, and safety of vehicles and pedestrians

G. Developer shall account for a two foot vehicle overhang where sidewalks are located in front of a parking space. Wheel stops can be used to prevent the vehicle overhang over the sidewalk and maintain the intended walkway width.

H. Parking areas shall be suitably landscaped in accordance with Section 8.2.10.i.(5).

I. The width of all aisles providing direct access to individual parking stalls shall be in accordance with Table 6.11.7-3.

**Table 6.10.8-3 Aisle Width Requirements**

| Parking Angle (degrees) | Aisle Width, One-way Traffic (feet) | Aisle Width, Two-way Traffic (feet) |
|---|---|---|
| 30 | 12 | 22 |
| 45 | 13 | 22 |
| 60 | 18 | 22 |
| 90 | 24 | 24 |

**Sec. 6.10.9** Traffic Control Devices.

A. Signals

(1) The installation of a traffic signal requires a signal warrant analysis to be performed. The County's Traffic Engineer shall determine if the signal warrant analysis justifies the need for a traffic signal. Traffic signals warranted due to the development shall be installed and paid for by the developer.

(2) Justification must be provided for the left turn treatment, phases, deceleration lane lengths and timings proposed.

(3) In addition to the plan requirements listed below, shop drawings with FDOT approved materials and a maintenance agreement must be provided and approved.

(4) Illuminated Street Name signs shall be required at all signalized intersections.

(5) A box-span configuration is required if strain poles are used.

(6) Traffic signal plans shall be 11"X 17" and shall include the following.

(a) A Key sheet including the name of the intersecting roads, an index, a location map, a list of the utility companies that exist in the location of the signal, and the posted speeds of the approaching roadways.

(b) A Tabulation of Quantities sheet that lists the item numbers, description and quantity of materials and equipment, listed in numerical order. Pay item notes and general notes that refer to item numbers shall be shown on this sheet.

(c) A General Notes sheet including all general notes, related to the specific signal, as required by the Traffic Section of the Marion County Office of the County Engineer. Contact the Office of the County Engineer for the current required general notes.

(d) A Plan sheet at a scale large enough to show all details clearly and legibly. The recommended scale is 1" = 40' or 1" = 50'. The plan sheet shall include existing and proposed:

1. Edge of pavement
2. Street names
3. Drainage structures including curb and gutter and drainage inlets
4. Sidewalks and right-of-way lines
5. Pavement markings
6. Signal heads with directional arrows and movements (movement 2 and 6 shall be the major streets)
7. Detection devices such as video detection with detection field or loop detection with conduit locations
8. Pull boxes
9. Control cabinet location
10. Signal poles and span wire
11. ATMS Equipment (if applicable)
12. North arrow and scale
13. Phasing Diagram
14. Controller timings using calculated optimum timings and clearance intervals meeting FDOT requirements
15. Sign detail with dimensions of letters and sign

16. Signal head details
17. Pedestrian head details
18. FDOT pay item numbers for all equipment

(e) A structural analysis with soil boring data signed and sealed by an Engineer.

B. Traffic Signs.

(1) The Developer's Project Engineer shall design the project plans providing for installation of signs as per the requirements of this Code and the MUTCD.

(2) Street Name signs at every roadway intersection are required.

(3) Stop signs and stop bars are required on the minor street at all intersections. Yield signs may be permitted if approved by the County Traffic Engineer.

(4) Speed Limit signs are required at subdivision entrance roads and all locations where speed zones change. The speed limit shall be determined by the Project Engineer in accordance with FDOT policies. A speed limit resolution is required when the posted speed differs from the statutory speed.

(5) Curve and Advisory Speed signs shall be installed as recommended by MUTCD.

(6) Dead End signs shall be erected at the beginning intersection of all discontinuous roads. No Outlet signs shall be erected at the entrance intersection when this intersection is the only outlet from a street network.

(7) Delineators shall be installed at the ends of all cross drain culverts in accordance with construction details in Appendix B.

C. Pavement Markings.

Pavement markings shall be installed in accordance with the MUTCD and as approved by the County Engineer. Stop bars shall be required at every intersection approach where Stop signs are located. A minimum of 200' of double solid yellow striping extending back from the stop bar is required on all paved roads that intersect with an Arterial, Collector, or Major Local road. All pavement markings in County right-of-way shall be thermoplastic, except bicycle lane markings which shall be paint. All centerline, lane line, and edge-line striping shall be six inches wide.

## Division 11 Transportation Facilities

**Sec. 6.11.1** Purpose and Intent.

All improvements that will be located within the public or private right-of-way, such as new roads, new signals, auxiliary turn lanes, sidewalks, trails, golf cart paths, pedestrian paths and other public transportation facilities, shall be designed to the "FDOT Greenbook" and "FDOT Design Standards" unless noted differently herein. In case of a conflict, the more stringent standard shall be used.

**Sec. 6.11.2** Right-of-Way.

A. When a subdivision is being platted, right-of-way shall be dedicated for internal streets and adjacent roads to provide the minimum width specified in the table below.

B. For Major Site Plans, right-of-way shall be dedicated along adjacent roads per the table below. The existing centerline of the adjacent road shall be the reference line used to determine the needed right-of-way on each side of said centerline. This right-of-way can be provided by dedication or easement.

C. In the urban area, right-of-way shall also be dedicated along section and quarter section lines if future roadway corridors are contemplated in the Comprehensive Plan and/or the Transportation Planning Organization (TPO) long range plan.

D. If the required right-of-way is not necessitated by the proposed development to mitigate traffic impact, the owner shall be compensated based on the just value established by the Marion County Property Appraiser. Compensation may be in the form of impact fee credits or other available funding.

**Table 6.11.2-1 Minimum right-of-way widths**

| Road Classifications | Minimum Right-of-Way |
|---|---|
| Subdivision Local | 60’ |
| Minor Local | 80’ |
| Major Local | 100’ |
| Collector, Arterial | 120’* |

*180’ is required if the road is to be designed as a rural four-lane divided collector or arterial.

**Sec. 6.11.3** Typical Sections.

A. All roadway improvements shall meet the minimum requirements given in the table below and be in concurrence with the additional tables in this Division. Typical sections are detailed cross section depictions of the highway's principal elements that are standard between certain station or milepost limits. These sections are the basis for construction details and information shown on the various plan sheets.

**Table 6.11.3-1 Typical Section Minimum Requirements**

| Street Design Type | Lane Width | Median Width | Bike Lane | Shoulders | | Sidewalks (if required) |
|---|---|---|---|---|---|---|
| | | | | Paved | Grass | |
| 2-lane urban subdivision local | 10' | 0’ | 0’ | 0’ | 0’ | 5’ |
| 2-lane rural subdivision local | 10’ | 0’ | 0’ | 0’ | 4’ | 5’ |
| 2-lane rural minor local | 11' | 0’ | 0’ | 0’ | 6’ | 5’ |
| 2-lane urban major local | 12' | 0’ | 4' | 0’ | 0’ | 5’ |
| 2-lane rural major local | 12’ | 0’ | 4' | 1' | 7’ | 5’ |
| 2-lane urban collector/arterial | 12' | 0’ | 4' | 0' | 0’ | 5’ |
| 2-lane rural collector/arterial | 12' | 0’ | 4' | 2’ | 6’ | 5’ |
| 4-lane urban collector/arterial | 12' | 30’ | 4’ | 0’ | 0’ | 5’ |
| 4-lane semi-urban collector/arterial | 12' | 30’ | 0' | 4’ | 4’ | 5’ |
| 4-lane rural collector/arterial | 12' | 40’ | 0’ | 4’ | 4’ | 5’ |

Note:
1) This table applies for new construction. Maintenance and rehabilitation projects shall attempt to satisfy these requirements as deemed practical.
2) Refer to Appendix B to review the Typical Sections.
3) Sidewalks shall be 6’ wide if adjacent to the back of the curb.

B. Typical sections shall show typical conditions only. Existing elements that are to be incorporated into the highway's final section are depicted in conjunction with the proposed elements.

C. Typical section stationing shall cover the entire project. Transitions from one typical to another shall be included in the stationing of one or the other typical section.

D. Typical sections for all projects shall include the following data:

(1) Cross slopes of roadway pavement, shoulder surfaces, and sidewalks shall be expressed as a decimal part of a foot vertical per foot horizontal. These cross slopes shall be rounded to two decimal places. Outer slopes shall be shown by ratio, vertical to horizontal.

(2) Feathering details and/or notes shall be shown when resurfacing without milling in urban curb and gutter sections as specified or when milling depth is less than the overlay thickness.

(3) Profile grade point shall be identified when applicable.

(4) Pavement construction shall be described in a clear, precise manner by indicating the LBR requirement and the thickness of the subgrade stabilization, subbase or base, as well as thickness for structural course, friction course and shoulder pavement. Use 4 inches for both base extension on rural sections and for stabilization extension on curbed sections. Pavement structure information shall be obtained from the approved pavement design and shall be described in the order of construction, i.e. starting with bottom layer and ending with friction course. Show pavement thickness descriptions for top, leveling, structural, and friction courses in inches (and fractions of an inch). The thickness shown should be to the nearest ½" (except for FC-5 which is a standard ¾").

(5) Limits of grassing.

(6) Sidewalk location and width.

(7) Curb and gutter location and type.

(8) Limits of clearing and grubbing, where applicable.

(9) Right-of-way and/or easements, where applicable.

(10) For widening projects, the existing pavement width shall be shown as a +/- dimension, and the base widening width shall be shown with an asterisk. For typical sections with varying dimensions, the dimensions shall be clearly indicated on the plan-profile sheets.

(11) Shoulder treatment shall be identified.

**Sec. 6.11.4** Plan and Profile.

A. The roadway plan sheet shows the project's complete horizontal alignment. The plan-profile sheet shows the project's complete horizontal and vertical alignments. Various roadway elements such as pavement width, medians, paved shoulders, curbs, drainage elements, tapers, turn provisions, and intersecting roadways, are also shown on these sheets.

B. Plotting should typically be done at a horizontal scale of 1" = 50'.

C. The baseline survey and/or centerline of construction should be centered in the plan portion of the sheet, with stationing running from left to right. For resurfacing projects, simple projects, or sections of a project without a profile view, "stacking" multiple plans on one sheet is generally permitted if clarity and legibility are maintained. PC and PT points of horizontal curves shall be indicated.

D. All existing topography shall be shown. Existing roads, streets, drives, buildings, underground and overhead utilities, walls, curbs, pavements, fences, railroads, bridges, drainage structures and similar items shall be plotted and labeled. Streams, ponds, lakes, wooded areas, ditches and all other physical features shall also be shown.

E. Proposed construction and project limits shall be indicated in the plans.

F. Plan Layout

(1) Right-of-way lines shall be shown.

(2) At locations along the alignment where traveled way dimensions change, or begin to change, the station and dimensions of the traveled way shall be shown.

(3) Curb, curb and gutter, traffic separators, sidewalks, curb ramps, retaining walls, driveways, etc. shall be shown.

(4) Stations of return points shall be shown in tabular form or shown on the plan, unless shown on an intersection detail sheet. Offsets shall also be shown, if not governed by a typical.

(5) Station of end of curb and gutter at side street intersections (when end is not at a return point) shall be shown with proposed gutter grade elevation of these points.

(6) Limits of pavement and grading at side street intersections shall be indicated.

G. Profile Layout

(1) The horizontal scale for the profile portion of the sheet shall be the same as that used for the plan portion. Station limits of the profile shall correspond to those of the plan portion of each sheet. Station numbers shall be placed across the bottom of the sheet just above the title block. Intervals for profile stations shall be the same as those in the plan view.

(2) A general guideline is the vertical scale should be 10% of the horizontal grid. Elevation datum shall be shown.

(3) The existing ground line profile shall be shown and labeled. Existing ground line elevations shall be noted vertically, just above the station numbers at each end of the sheet only.

(4) All high water elevations affecting base clearance or roadway grades shall be shown and labeled.

(5) Benchmark data shall normally be given just below the upper margin of the profile portion.

H. Utilities, including drainage, shall be provided as follows:

(1) All existing and proposed utilities shall be shown on the plan and labeled properly.

(2) Proposed stormwater systems, water and sewer lines, and gas lines shall be shown on the profile with invert elevations at every inlet or manhole or at top of pipe elevations every 500' intervals, as appropriate.

(3) When using stationing, all design features and utilities shall be referenced to station and offset information.

**Sec. 6.11.5** Cross Sections.

A. The interval selected for showing sections on the cross section sheet will vary according to project specific factors. For new construction and reconstruction, the normal interval for cross sections is 100' and at all utility, including drainage, crossings. For new subdivision construction, cross sections shall only be required at utility, including drainage, crossings if detailed construction information meeting the intent of the Code is shown on the plan and profile.

B. Cross sections depict the existing ground conditions, including all manmade features, as sections perpendicular to the respective stations along a survey baseline or construction centerline. The proposed cross-sectional outline of the new facility with all its functional elements is also shown on cross sections. Existing ground lines shall be shown and the existing elevation at the centerline shall be noted just below the ground line at the centerline. The station number of the section shall be indicated.

C. Existing parallel underground utilities which lie within the horizontal limits of the project shall be shown. Utilities that have been verified should be labeled. Small distribution or service lines need not be drafted.

D. Soil data and water table shall be shown and labeled on cross sections.

E. The proposed roadway template and the proposed profile grade elevation shall be shown.

F. The right-of-way and construction limits shall be shown for each cross section.

G. The begin and end stations for project, construction, exceptions, bridge/bridge culvert and the toe of slope under the bridge shall be shown. The beginning and ending earthwork stations shall be shown.

**Sec. 6.11.6** Pavement Sections

All roadway improvements shall meet the minimum requirements given in the table below.

**Table 6.11.6-1 Pavement Design**

| Road Classification | Pavement (Type S or SP) as approved by the project engineer | Base (Limerock) LBR 100 | Stabilized Subgrade (LBR 40) | Structural Number (SN) |
|---|---|---|---|---|
| Subdivision Local | 1.25" | 8" | 12" | 2.95 |
| Minor Local | 1.50" | 10" | 12" | 3.42 |
| Major Local | 1.50" | 10" | 12" | 3.42 |
| Collector* | 2.50" | 10" | 12" | 3.86 |
| Arterial* | 3.50” | 10” | 12” | 4.30 |

* Pavement design shall be in accordance with FDOT.

**Sec. 6.11.7** Soil Data.

Soil test borings are required for all roadway improvements as indicated below. If it is determined that an organic or plastic material must be removed below the finished grading template, the lower limits of removal of organic or plastic material shall be shown to determine the area and volume of subsoil excavation.

(1) Auger boring depth shall be a minimum of four feet below proposed finish grade or six feet below natural grade, whichever is the deepest.

(2) Spacing of borings shall be at a maximum interval of 600 feet along the roadway centerline.

(3) A minimum of two soil test borings per roadway, taken within the road right-of-way are required.

**Sec. 6.11.8** Subdivision Roads and Related Infrastruture.

A. In residential subdivisions, the road system shall be designed to serve the needs of the neighborhood and to discourage use by truck traffic and through traffic and still provide access to adjacent neighborhoods for emergency services. The use of neighborhood traffic calming devices is encouraged in residential areas such as traffic circles, cul-de-sac, etc.

B. Major local roads shall be identified on plans.

C. All roads and related infrastructure within the proposed subdivision shall be designed, constructed, and paved to County specifications provided herein.

D. The developer shall be required to design, construct, and pave to County specifications, one road from the subdivision to the nearest paved, public roadway with legal access, if such a road does not already exist.

E. Roads and stormwater facilities within a subdivision shall be dedicated as either public or private.

F. Public dedications shall be pre-approved by the Development Review Committee. If a MSBU is established as the maintenance and operation entity, roads and stormwater facilities can be platted as public.

G. Cul-de-sac diameters to the right-of-way line shall not be less than 120' with a pavement radius of 40' for residential subdivisions and shall not be less than 120' to the right-of-way line with a pavement radius of 45' for commercial or industrial subdivisions (see standard plans in Appendix B). A grassed island no greater than 50' in diameter may be constructed in the center of a cul-de-sac. If trees are to be placed in the island, root barriers or other protection to pavement shall be installed as approved by County Engineer.

H. Dead end roads shall not exceed 1,500' and shall have a cul-de-sac at the terminal end (See details in Appendix B). Dead end roads intended to provide future access to adjacent unplatted areas may be permitted without a cul-de-sac provided that no lots front thereon, the length does not exceed 1,500', and appropriate temporary end-of-road markers are provided.

I. The total perimeter of a block shall not exceed 4,500'. Larger block perimeters will be permitted for blocks surrounding or adjacent to natural or artificial features such as lakes, rivers, and golf courses where limiting rights-of-way are not feasible and impractical.

J. Corner radii at the intersection of the two rights-of-way shall be not less than 25'. Minimum pavement radii shall be 40' for residential subdivisions and 50' for commercial or industrial subdivisions.

K. Centerline radii shall be designed to accommodate the minimum design speed of 30 mph for subdivision local and minor local roads, 40 mph for major local and collector roads, and 45 mph for arterial roads.

L. Evacuation routes for developments shall be indicated on the improvement plans.

**Sec. 6.11.9** Intersection Layout.

A. Roadways shall intersect at approximately right angles. Opposing streets shall have horizontal and vertical alignments in accordance with FDOT.

B. Roadway access location and minimum spacing shall be consistent with traffic safety standards. If standards cannot be achieved, the County Engineer, or designee, can review and approve on a case-by-case basis.

C. All median openings shall be designed in accordance with FDOT Median Opening Handbook.

D. All intersection users shall be accommodated including pedestrians and bicyclist.

**Sec. 6.11.10** Turn Lanes.

Turn lanes shall be required as warranted by the project's Traffic Impact Analysis and in accordance with FDOT or as approved by the County Engineer. In addition, turn lanes shall be considered any time an unsafe condition exists or will be created. The cost of construction of such lanes shall be the responsibility of the developer. Additional right-of-way may be required and shall be dedicated by the developer and shown on the Improvement Plans and Final Plat. Any off-site improvement designs shall be submitted as an Improvement Plan application.

**Sec. 6.11.11** Sidewalks.

A. A sidewalk system shall be provided in the Urban Area where expected vehicle traffic conditions dictate the need for physical separation of pedestrians from street traffic. Sidewalks shall be constructed with all-weather surfaces, shall meet Americans with Disabilities Act, Florida Building Code, and FDOT Design Standards, and shall be installed along arterial, collector, and major local streets where these streets adjoin the project and along internal streets where the following conditions will exist:

(1) Vehicular traffic is expected to exceed 100 peak hour trips, as determined by standard trip generation calculation methods, or

(2) The posted speed of the street exceeds 30 miles per hour.

B. Sidewalks outside the right-of-way and independent of the street system are encouraged as an alternative to sidewalks parallel to a roadway, provided equivalent pedestrian needs are met.

C. The sidewalk system shall provide connectivity between existing and proposed developments.

D. At the discretion of the Development Review Committee, in lieu of construction, the developer may pay a sidewalk fee to the County in an amount necessary to complete construction. This amount shall be determined by the project engineer and approved by the County with payment required prior to final plan approval. The County may use these funds toward the construction of sidewalks throughout the County based on priorities established by the Board.

**Sec. 6.11.12** Utility Position in Right-of-Way.

Utilities, when constructed in the right-of-way, shall be positioned in accordance with construction details in Appendix B. Work within a public right-of-way shall be subject to a Right-of-Way Utilization Permit issued by the Office of the County Engineer.

**Sec. 6.11.13** Street Lighting

A. Street lighting, if provided, shall be in accordance with a plan designed by the utility company, or using the Illuminating Engineering Society (IES) Lighting Handbook, current edition.

B. An individual, homeowner's association or other legal entity shall be responsible for care, maintenance and costs of street lighting

C. Spacing of light poles or posts shall conform to the standards in the IES Lighting Handbook, current edition.

D. The maximum height of light poles or posts shall not exceed the maximum building height permitted or as may be specified by the zoning classification.

E. The height and shielding of lighting fixtures shall provide proper lighting without hazard to drivers or nuisance to residents. The design of lighting fixtures shall be of a type appropriate to the development.