CHAPTER 900. DEVELOPMENT STANDARDS

SECTION 901. TRANSPORTATION

901.6. Street Design and Dedication Requirements

A. Intent and Purpose

The intent and purpose of this section is to provide for the classification and design standards of subdivision collector and local streets and for the safety of vehicular and pedestrian traffic.

B. Applicability

This section applies to all development where a street is proposed in the unincorporated County. All development proposals containing new streets or utilizing access from existing streets shall conform to the standards and criteria contained in this section.

C. Classification

All streets functionally classified as arterial and major collector are shown as a collector, arterial, controlled access, or freeway roadways on the Comprehensive Plan Future Traffic Circulation Map Series (presently Maps 7-22, 7-24, 7-35, and 7-36); or classified as a collector, arterial, controlled access, or freeway roadway pursuant to the functional classification or reclassification procedures and criteria established pursuant to the Comprehensive Plan (also known as Major County Roads). Streets shall be classified at the time of rezoning or preliminary plan approval if the streets have not been previously classified by the County. All other streets are classified as local streets or subdivision collector (Types 1B and 1A) in accordance with Table 901.6.A, Street Classification.

The Pasco County street classification system is established as illustrated in Table 901.6.A. The Equivalent Residential Units Served in Table 901.6.A shall be based on the maximum number of potential lots required or allowed to access the roadway (inside or outside of the development) based on the maximum density permitted by the land use classification as designated by the Comprehensive Plan and assuming compliance with Section 901.6.D.11.

D. Design and Construction

With the exception of Minor Rural Subdivisions (MRS) and Limited Family-Lot Division (LFLD) developments, all streets and/or accessways shall be designed and constructed in accordance with the applicable portion of the following:

Florida Department of Transportation (FDOT), *Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways*, latest edition (Green Book).

FDOT, *Standard Specifications for Road and Bridge Construction, Divisions II and III*, latest edition, including:

- Soil Cement as detailed in Section 270 of the FDOT, *Standard Specification for Road & Bridge Construction*, 1991 edition.

- Crushed concrete as detailed by the Engineering Services Department.

FDOT, *Flexible Pavement Design Manual*, latest edition.

However, in no instance shall the roadway standards be less than those required by this Code.

1. Right-of-Way. The right-of-way provided for streets not functionally classified as Major County Roads shall be sufficient to:

   a. Allow development of the full cross section, including travel lanes, parking lanes, medians, and roadside clear zones.

   b. Provide for the layout of intersections and access points.

   c. Allow for sight distances in accordance with the Green Book, latest edition, at all points, particularly on horizontal curves, at intersections, and other access points.

   d. Provide space for placement of pedestrian and bicycle facilities.

   Unless otherwise approved at the time of preliminary plan approval, the minimum right-of-way required shall be as follows:

Street Type	**Urban**	**Rural**
1A without parking	100'	120'
1B without parking	60'	80'
1B with parking on one side	72'	92'
1B with parking on both sides	84'	104'
2 without parking	50'	70'
2 with parking on one side	58'	78'
2 with parking on both sides	66'	86'
3 without parking	50'	70'
3 with parking on one side	58'	78'

Street Type	Urban	Rural
3 with parking on both sides	66'	86'
4 without parking	50'	70'
4 with parking on one side	58'	78'
4 with parking on both sides	66'	86'
5 without parking	20'	N/A

MRS accessways and LFLD accessways shall be within a thirty (30) foot easement. All other access easements shall be a minimum of thirty-five (35) feet. Lot lines may extend into the easement. The accessways are not required to be publicly dedicated.

Where a proposed development includes a previously platted or dedicated street which does not conform to the minimum right-of-way requirements or other requirements determined at the time of preliminary plan approval, additional right-of-way shall be dedicated along either one or both sides of the street so that the minimum required right-of-way can be established and improved if required.

2. Pavement Width. The minimum pavement widths required shall be as follows:

Street Type	Urban Pavement Width/Lanes	Rural Pavement Width/Lanes
1A	48/4	50/4
1B without parking	24/2	26/2
1B with parking on one side	32/2	34/2
1B with bike lane and parking on one side	36/2	38/2
1B with parking on both sides	40/2	42/2
1B with bike lane and parking on both sides	48/2	50/2
2 without parking	24/2	25/2
2 with parking on one side	31/2	32/2
2 with parking on both sides	38/2	39/2
3 without parking	22/2	23/2
3 with parking on one side	29/2	30/2
3 with parking on both sides	36/2	37/2
4 without parking	20/2	21/2

Street Type	Urban Pavement Width/Lanes	Rural Pavement Width/Lanes
4 with parking on one side	27/2	28/2
4 with parking on both sides	34/2	36/2
5 without parking	14/1	N/A

In general, pavement widths for rural streets shall be one (1) foot wider to allow for edge protection.

MRS accessways shall consist of a twelve (12) foot paved cross section with 1.5 feet of stabilized shoulders. This exception only applies where interconnection is not required. LFLD accessways shall consist of twelve (12) foot paved or unpaved stabilized sections with 1.5 feet of stabilized shoulders.

All accessways in excess of 500 feet shall provide a 10' X 38' turnout. The exact location of the turnout shall be determined by the Fire Marshal or designee. Additional turnouts may be required by the Fire Marshal or designee. (Figure 901.6.A: Accessway with Turnout)

Parking lanes shall be a minimum of eight (8) feet in width on Type 1B streets and a minimum of seven (7) feet in width on Types 2, 3, and 4 streets. On-street parking is not allowed on a Type 1A street, unless an alternative standard is approved in accordance with this Code, Section 407.5.

3. Pavement Cross-Slope. If approved by the County Engineer, the selection of pavement cross-slope may be a compromise between meeting the drainage requirements and providing for smooth vehicle operation.

   The recommended pavement cross-slope for a crowned pavement is 0.02 feet per foot. The pavement cross-slope shall not be less than 0.015 foot per foot or greater than 0.04 feet per foot. The change in cross-slope between adjacent through-travel lanes shall not exceed 0.04 feet per foot.

   Inverted crown may only be used for Type 5 streets.

   Where inverted crown is used, the centerline of the invert shall contain a minimum two (2) foot modified valley gutter.

4. Pavement Structure and Road Design. The pavement structure required shall be based on the street classification and the number of lots proposed, cumulative with the number of lots that can reasonably be anticipated to use the street.

The pavement structure required shall be based on a structural number obtained by multiplying the structural layer coefficient by the thickness of each type of material, then adding the resultant in accordance with the FDOT, *Flexible Pavement Design Manual*. Each layer shall adhere to the minimum thickness required by the FDOT.

The minimum pavement structure required for residential subdivisions (Note: this does not include Limited Family Lot Divisions) and for subdivision collectors, shall be as follows:

Land Use Classification	**Number of Proposed Lots**	**Structural Number**
AG (Agricultural)	Less than 16	2.04
AG (Agricultural)	16 or greater	2.34
AG/R (Agricultural/Rural)	Less than 16	2.04
AG/R (Agricultural/Rural)	16 or greater	2.34
RES-1 (Residential - 1 du/ga)	Less than or equal to 10	2.04
RES-1 (Residential - 1 du/ga)	Greater than 10	2.34
RES-3 (Residential - 3 du/ga)	N/A	2.34

Where minimum structural numbers of 2.04 or 2.34 are required, the pavement structure shall contain a minimum of one and one-half (1½) inch of Type SP asphaltic-concrete surface course.

Where a subdivision collector is required, a pavement design shall be submitted with the construction plans to determine the minimum pavement structure required. However, in no case, shall a structural number less than 3.5 with a minimum of three (3) inches of Type SP asphaltic-concrete surface course be provided.

Construction of a subdivision collector may be completed in stages with 2¼ inches of SP 12.5 or S-1 asphaltic-concrete surface course along with the required pavement markings installed at the time of the initial construction and ¾ inches of SP 9.5 or S-3 asphaltic-concrete surface course installed along with any required thermoplastic stripes, prior to release of the assurance of maintenance of improvements surety.

Where a connection is made to a street functionally classified as a Major County Road, then the minimum structural number required within the right-of-way of the functionally classified street shall be based on a minimum pavement design, but in no case less than:

a. Major Collector: 3.70 with a minimum of three (3) inches of Type SP asphaltic-concrete surface course.

b. Arterial: 4.00 with a minimum of three (3) inches of Type SP asphaltic-concrete surface course.

A minimum structural number of 4.00 is required on local, major collector, and subdivision collector roadways if heavy vehicles are ten (10) percent or more of the total daily driveway trips.

For commercial and industrial subdivisions, a pavement design shall be submitted with the construction plans to determine the minimum pavement structure required. However, in no case shall a structural number less than 3.5 (with a minimum of three [3] inches of Type S asphaltic-concrete surface course) be allowed.

For major collector, arterial, and subdivision collector roads below the stabilized subgrade, a minimum of two (2) feet of select material consisting of A-3 (SP) soil and/or A-2-4 with a maximum fifteen (15) percent passing number 200 sieve, shall be provided. The project engineer responsible for the project shall certify to the County Engineer that the select material meets these standards prior to installation of the base. Certification shall strictly comply with the subgrade certification form available in the Engineering Services Department's *A Procedural Guide for the Preparation of Assurances of Completion and Maintenance*.

For major collector, arterial, and subdivision collector roads, a minimum of twelve (12) inch stabilized subgrade (Type B) LBR 40 minimum shall be provided under all bases except for soil cement, which shall be constructed on a stable, nonyielding subgrade of LBR 20. The layer coefficient for LBR 20 shall be 0.04 and shall be limited to a maximum depth of twelve (12) inches.

The minimum separation between the bottom of the base to the design seasonal high water table (SHWT) shall be no less than two (2) feet where a limerock base is provided. Where soil cement, ABC-3 asphaltic concrete, or crushed concrete base material is used, the minimum separation between the bottom of the base to the design SHWT shall be no less than one (1) foot.

Design SHWT is the elevation to which the ground or surface water can be expected to rise due to the worst wet season within a ten (10) year period. The project engineer shall make a recommendation as to the SHWT elevation based on the assessment of historical records or other available data. This recommendation shall be reviewed for approval by the County Engineer or designee.

When required, either by the geotechnical report or as determined by the County Engineer, underdrains shall consist of aggregate, pipe, and filter fabric as indicated in the FDOT Index Drawing No. 286 and as referenced in any other FDOT index drawings and standard specifications. Underdrain inverts shall be located a minimum of two

(2) feet below the bottom of the base. The engineer responsible for the project shall certify to the County Engineer that the underdrains have been properly installed prior to the installation of any asphalt. Certification shall strictly comply with the underdrain certification form available in the Engineering Services Department's *A Procedural Guide for the Preparation of Assurances of Completion and Maintenance*. An inspection and maintenance program shall be established by the design engineer designating an entity on the design drawings that shall be responsible for maintenance.

5. Shoulders. The primary functions of a shoulder are to provide emergency parking for disabled vehicles and an alternate path for vehicles during avoidance or emergency maneuvers. To properly function, the shoulder shall have adequate stability and surface characteristics.

   Shoulders shall be provided on all streets incorporating open drainage (rural sections) or mountable curbs. The minimum shoulder widths, measured from the edge of pavement, shall be as follows:

Street Type	**Minimum Shoulder Width (Feet)**
1A	8
1B	8
2	6
3	6
4	6
5	N/A
MRS and LFLD Accessway	1½

   The shoulder serves as a continuation of the drainage system; therefore, the shoulder cross-slope shall be somewhat greater than the adjacent travel lane. The cross-slope of the shoulders shall not be steeper than .06 feet per foot.

6. Roadside Clear Zone. The roadside clear zone is that area outside the traveled way, available for use by vehicles that have left the traveled way during avoidance maneuvers due to loss of control or due to collisions with other vehicles. The primary function of the roadside clear zone is to allow space and time for the driver of a vehicle to retain control and avoid or reduce the consequences of collision with roadside objects. This area also serves as an emergency refuge location for disabled vehicles.

The width of the roadside clear zone should be as wide as possible. The minimum widths, measured from the face of the barrier curb or edge of pavement where a barrier curb is not provided, shall be as follows:

Street Type	FDOT Type F and D Curb	FDOT Type A, E, and Miami Curb
1A	4'*	10'
1B	4'*	10'
2	4'*	6'
3	4'*	6'
4	1½'	6'
5	1½'	6'
MRS and LFLD Accessways	N/A	6'

*If private streets are allowed, then any entrance and exit gate equipment, guardhouse, or other like structure may be setback 1½ feet from the FDOT Type F and D curb.

On those roads where the minimum required clear zone is four (4) feet, the minimum cannot be reasonably obtained, and other alternatives are impractical, the minimum may be reduced to no less than 1½ feet pursuant to the alternative standards provisions set forth in this Code, Section 407.5. The County Engineer shall make a determination on the alternative standards application.

The slopes within the roadside clear zone shall be as flat as possible to allow for safe travel of a vehicle which has left the traveled way. The slope of the area within the roadside clear zone shall not be steeper than six (6) feet horizontal to one (1) foot vertical (6:1).

Outside of the roadside clear zone, where roadside swales or cuts require slopes, the slopes shall not be steeper than four (4) feet horizontal to one (1) foot vertical (4:1). Ditch bottoms shall be at least two (2) feet wide and may be flat or gently rounded.

If space constraints are severe, the County Engineer may permit the use of guardrails in lieu of the requirements for width and slope of the roadside clear zone. Guardrails shall also be considered for protection of pedestrian pathways or protection of immovable roadside hazards.

Where the maximum slope or roadside clear zone requirement cannot be met, guardrails in conformance with applicable FDOT standards shall be installed.

7. Vertical Clearance. Vertical clearance of 16.6 feet shall be provided above all streets.

8. Medians. Median separation of opposing traffic provides a beneficial safety feature in terms of reducing headlight glare, thus improving the safety and comfort for night driving. Medians provide provisions for drainage from the street surface, provide for preservation of existing vegetation, act as a vehicle refuge area, provide a logical location for left-turn, storage lanes, and provide a means for future addition to existing traffic lanes.

   Where medians are proposed or required by this Code or the County Engineer, the minimum widths shall be as follows:

   a. Type 1 and 2 Streets

      (1) Twenty-two (22) feet where no curb or mountable curbs are used.

      (2) 15½ feet where barrier curbs are used.

   b. Types 3 and 4 Streets: The minimum median width shall be twice the roadside clear zone minimum width, plus the width of the existing or proposed obstruction. The pavement lane width around each side of the median shall be the total street width prior to encountering the median, divided by two (2), plus two (2) feet of additional pavement.

   c. Type 5 Streets: Medians shall not be allowed.

   Paved medians with a minimum width of twelve (12) feet may be used for two (2) way turn lanes and painted medians.

   The unpaved median cross-slope shall not be steeper than six (6) feet horizontal to one (1) foot vertical (6:1). The depth of depressed medians may be controlled by drainage requirements. Increasing the median width, rather than increasing the cross-slope, is the acceptable method for developing the required median depth.

   Structures, permanent materials, or plantings within the median shall not obscure the visibility of vehicles in accordance with the clear-sight requirements of the Green Book.

9. Horizontal and Vertical Alignment. The following minimum and maximum posted/design speeds are established:

Street Type	Minimum	Maximum
1	30	40
2	25	35
3	20	30
4	15	30
5	15	20

Horizontal and vertical alignment shall be designed in accordance with the established speeds in accordance with the applicable sections of the latest edition of the FDOT *Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways*, latest edition (Green Book).

10. Cul-de-sacs. Unless otherwise approved at the time of preliminary plan approval, cul-de-sacs shall be provided on all dead-end streets, except those planned for future extension. Cul-de-sacs shall have a minimum paved radius of fifty (50) feet and a minimum right-of-way of a sixty (60) foot radius, unless the Fire Code requires a greater radius.

Cul-de-sacs shall not exceed 1,760 feet in length.

11. Continuation of Existing Street Pattern and Street Access to Adjoining Property. The proposed street layout shall take into consideration the street system of the surrounding area. Streets in the proposed development shall be connected to streets and/or rights-of-way in adjacent areas to provide for proper traffic circulation unless approved otherwise at the time of preliminary plan approval, or unless all lots within a proposed MRS subdivision are five (5) acres or greater, or unless the lots are within a proposed LFLD. Street connections and rights-of-way to adjoining areas shall be provided to give access to such areas and/or to provide for proper traffic circulation as determined necessary at the time of preliminary plan approval. Where a cul-de-sac is not provided, a temporary T-type turnaround, including barricades, shall be provided on all dead-end streets with more than two (2) fronting lots or parcels. Subdivision collectors shall also comply with Section 901.1.H.

The developer, when required at the time of preliminary plan approval, shall extend, improve, and construct off-site streets and rights-of-way providing access to the development. The developer shall bear all costs of such extensions, improvements, and construction unless alternative relief pursuant to Section 407.4 has been granted. Mobility

fee credit for off-site improvements shall be in accordance with Section 1302.2.

12. Intersection Design and Separation. Intersections of all street types with subdivision collectors, major collectors, and arterials shall adequately provide for all turning and through-traffic movements by construction of additional lanes as determined necessary at the time of preliminary plan approval.

Right-of-way for additional turning lanes shall be provided by the developer in excess of the minimum required for the various types of streets as listed in this Code, as determined necessary at the time of preliminary plan approval. The minimum intersection spacing within the subdivision shall be 150 feet. Connections to streets functionally classified as Major County Roads shall be as specified in this Code, Section 901.3, Access Management.

Unless otherwise approved at the time of preliminary plan approval, intersections of Types 1, 2, 3, and 4 streets shall be T-type intersections.

E. Roadside Design

1. Vegetation. Grass or other low growing vegetation that is easily maintained shall be used on medians and roadside clear zones. To aid in erosion control, a sixteen (16) inch strip of sod shall be placed adjacent to the street pavement/back of the curb. The placement of the sod shall not unreasonably impede drainage of the pavement.

The remainder of the roadside shall be vegetated as follows:

a. On slopes of four (4) feet horizontal to one (1) foot vertical (4:1) and flatter, seed and mulch or sod may be used.

b. On slopes steeper than four (4) feet horizontal to one (1) foot vertical (4:1), sod shall be used.

All vegetation shall be carefully maintained by an entity other than the County.

Landscaping in excess of the requirements of this Code may be installed within the right-of-way provided that the plantings are located outside of the roadside clear zone and do not obstruct the clear site triangle. In addition, the maintenance shall be provided by an entity other than the County and shall comply with Section 406.5 relating to Right-of-Way Use Permits and License and Maintenance Agreements.

2. Drainage. Drainage swales shall be protected from scouring by the appropriate vegetation and, if required due to velocity of flow, erosion control measures shall be provided.

   Drainage inlets shall not be placed in the travel lane of a Type 1, 2, 3, or 4 street. Drainage inlets placed within the median or roadside clear zone shall be flush with the ground surface. An area around the inlet shall be paved or concreted to improve drainage and to reduce erosion per the applicable FDOT standards.

   Drainage swales perpendicular to the roadway shall not be used within the median or roadside clear zone. Drainage swales within the median or roadside clear zone shall meet the requirements for slope and changes in grade given in this Code.

3. Culverts. Where culverts are provided, the ends of pipes shall be flush with the adjacent ground or located outside the roadside clear zone. The slope and changes in grade at the structure shall conform to the minimum requirements for roadside clear zones. Unless otherwise approved at the time of preliminary plan approval, all culverts, with the exception of those under residential driveways, shall be reinforced concrete pipe with a minimum diameter of eighteen (18) inches. Residential driveway culverts may be made of other materials acceptable to the County Engineer with a minimum diameter of fifteen (15) inches.

   Headwalls and mitered end sections shall be designed and constructed in accordance with the applicable standards referenced in this Code.

4. Curbs. Curbs may be used to provide drainage control and to improve delineation of the street pavement. The two (2) general classes of curbs are barrier curbs and mountable curbs. Both types of curbs shall be designed with a gutter to form a combination curb and gutter section. Barrier curbs shall be relatively high and steep-faced and designed to discourage vehicles from leaving the roadway. Mountable curbs shall be low with a flat-sloping surfaced designed so that vehicles can mount them when required. Where mountable curbs are used, the width may be included in the calculation of the required shoulder width.

F. Pedestrian and Bicycle Facilities

Provisions for public pedestrian and bicycle traffic shall be incorporated into development layout.

1. Bicycle facilities shall be in accordance with this Code, Section 901.7.

2. Pedestrian facilities shall be in accordance with this Code, Section 901.8.

G. Traffic Control Devices

Traffic control devices shall be in accordance with this Code, Section 901.10.

H. Street Names

Streets shall be named in accordance with this Code, Section 901.9, Street Naming and Addressing.

I. Street Lighting

Street lighting shall be in accordance with this Code, Section 901.11.

TABLE 901.6.A

Street Classification

Classification	Subclassification	Definition	Equivalent Residential Units Served
Type 1		Type 1 streets are subdivision collectors connecting Types 2, 3, and 4 streets. Type 1 streets may carry traffic from one (1) development to another or from the development to streets functionally classified as Major County Roads. Driveway access to individual lots shall not be allowed except where the County Administrator or designee determines that no feasible alternative exists and where approved at the time of preliminary plan approval.	Greater than 200
	1B	Requires a minimum of two (2) thru lanes.	201-600
	1A	Requires a minimum of four (4) thru lanes.	Greater than 600
Type 2		Type 2 streets are streets providing two (2) thru lanes and may provide subdivision connections to streets functionally classified as Major County Roads.	101-200
Type 3		Type 3 streets are streets providing two (2) thru lanes and may provide connections to streets functionally classified as Major County Roads.	51-100
Type 4		Type 4 streets are streets providing two (2) thru lanes and usually serve as cul-de-sacs. Type 4 streets may provide connections to streets functionally classified as Major County Roads.	50 or less
Type 5		Type 5 streets are also referred to as "alleys." Type 5 streets are used to serve as a secondary means of access to lots and are located at the rear of residential and commercial lots. Type 5 streets shall not connect to streets functionally classified as Major County Roads.	N/A
MRS Accessway		MRS accessways are accessways used to serve lots within a Minor Rural Subdivision where the accessways are not required to be connected to streets and/or rights-of-way in adjacent areas.	N/A

Classification	Subclassification	Definition	Equivalent Residential Units Served
LFLD Accessway		LFLD accessways are private accessways (paved or unpaved) used to serve lots within a Class LFLD. LFLD accessways are not required to be connected to streets and/or rights-of-way in adjacent areas. In order to qualify as an LFLD accessway and be eligible for the associated alternative design and right-of-way standards, there shall be an agreement binding on the adjacent property owners to jointly maintain the private accessways.	N/A