November 15, 2026

To: Sanibel Planning Commission and City Council

Subject: Causeway Feasibility Study — Unresolved Engineering and Life-Safety Questions

Dear Planning Commissioners and Council Members,

Before the Planning Commission acts on the Transportation Master Plan at its November 17 meeting, I wish to bring attention to what **appears to be a material error** in the December 2025 Kimley-Horn Causeway Feasibility Study.

The study evaluated three lanes only at 11- and 12-foot widths, relied in part on shoulder criteria for new bridges, and concluded that three lanes within the existing bridge pavement would mean "violating all current standards (even bare minimum ones)." It did not document an evaluation of the separate minimum widths for existing bridges in FDOT Design Manual Section 260.9 and Table 260.9.1, or the conditional 10-foot travel-lane provisions in FDM Table 210.2.1 and Florida Greenbook Table 3-20, Footnote 3.

The arithmetic shows why this matters. Three 10-foot lanes require 30 feet. Where bicyclists are accommodated on the shoulder, the Florida Greenbook requires a minimum usable width of 4 feet, "5 feet if adjacent to a barrier" (Section C.7.c.1, p. 3-46). With 5-foot shoulders against the bridge barriers, the configuration requires 40 feet — Kimley-Horn's own measured maximum, and within inches of the "39 feet and change" it reports at most locations. (FDM Table 260.9.1's 4-foot existing-bridge shoulder would require 38 feet.) A shortfall of inches is what a design variation exists to address, not grounds to eliminate the alternative. Whether the 10-foot lane provisions apply to the Causeway's context classification and design speed, how Table 260.9.1's approach-lane requirement is met, and the verified width at each location must be determined — not presumed.

Kimley-Horn also discussed safety and liability concerns from narrower shoulders without documenting a comparable evaluation of the existing life-safety consequences of congestion. FDM Section 260.9 calls for operational and safety impact evaluations. The Greenbook states that modifications to increase capacity "should be evaluated for the potential effect on the highway safety characteristics" (Section C.11.a, p. 3-123), and its Chapter 14, Section D (p. 14-4) includes long-term and cumulative effects on adjacent roadways when a design exception or variation is justified.

These concerns are not hypothetical. In a February 3, 2025 Final Order, a Florida Administrative Law Judge recorded Sanibel Police Chief William Dalton's testimony that traffic congestion delayed an ambulance attempting to reach a heart-attack patient on the west end of the island. The patient died before the ambulance could transport him off the island. (Case No. 24-1951GM, Finding of Fact 13.)

The Sanibel Plan itself anticipates this alternative: the "reconstructed bridges of the Sanibel Causeway provide an opportunity to provide two lanes off the Island for evacuation purposes," and two lanes off the island "could reduce clearance time by as much as 50 percent" (Sanibel Plan Vol. 1, p. 20).

I respectfully request that the Planning Commission recommend that the Transportation Master Plan preserve the alternative of **one inbound lane and two continuous outbound lanes during periods of peak congestion**, pending a supplemental engineering evaluation that (1) determines which standards apply to restriping the existing bridges, (2) verifies usable widths location by location, and (3) compares the overall operational, emergency-access, and safety outcomes of one versus two outbound lanes. This alternative adds no inbound capacity. The single inbound lane stays as it is today; the change affects only how efficiently vehicles can leave the island.

I am not asking for approval of three lanes. I am asking that the City not eliminate an alternative on the basis of an engineering evaluation that did not examine it.

Attached are highlighted excerpts from Kimley-Horn's report, the FDOT Design Manual, the Florida Greenbook, and the Sanibel Plan, together with a one-page summary of the relevant safety-evaluation provisions.

Respectfully,

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Feasibility Study

Sanibel Causeway Lane Expansion

Prepared for:
City of Sanibel

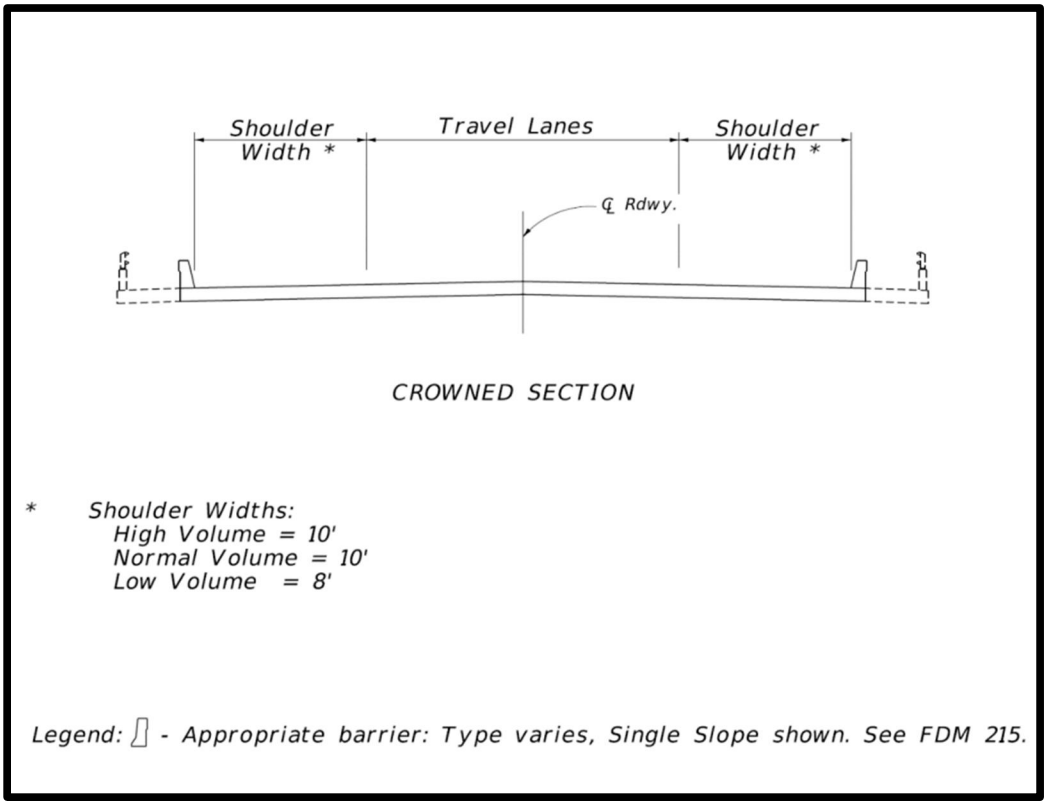
Prepared by:
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December 2025

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Figure 1**: Bridge Shoulder Width per FDM **Figure 260.1.2



The below table summarizes the possible recommended and minimum criteria for the Sanibel causeway:

Table 1: Design Criteria Summary

Feature	Bare Minimum Criteria (AASHTO)[See Note]	Preferred Minimum Criteria (AASHTO)	Reduced Criteria (FL Greenbook)	Optimal Criteria (FDM and FL Greenbook)
Travel Lane Width	11’	11’	11’	12’
Shoulder Width	4’	6’	10’	10’
Total Width Required	41’	45’	53’	56’

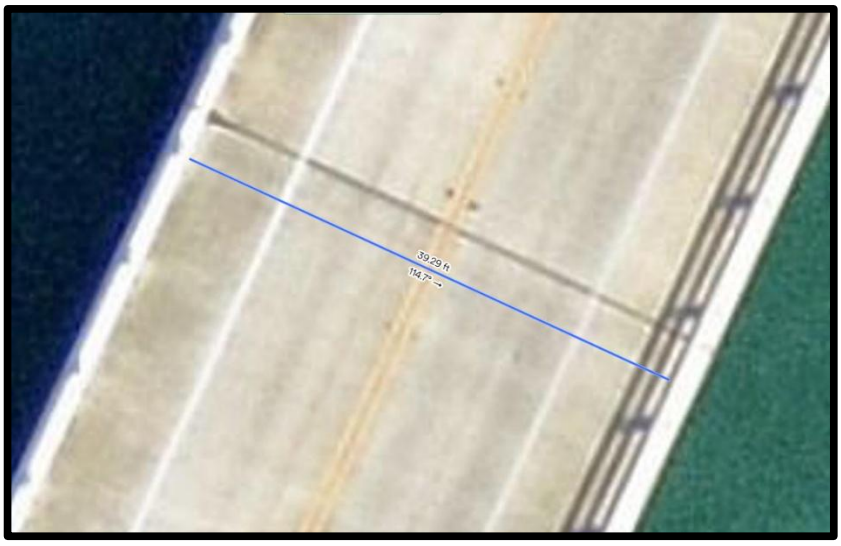
Note: While the AASHTO Standards technically allow for 11’ lanes and 4’ shoulders, they include provisos such as “if safety is not compromised” and “for low volume roadways.” Using these bare minimum criteria for the Sanibel Causeway would be risky from a liability perspective as the causeway is a heavily trafficked road and reduction of these criteria would inherently cause safety concern, and it would worsen the existing condition from a safety perspective.

POTENTIAL EXPANSION ALTERNATIVES

Overview

The existing bridges have only at most 40 feet of available pavement; to determine this several measurements were taken from a high quality Nearmap aerial along the causeway, Figure 2 below shows a representative sample of the measurements taken, at this and most locations the width was measured at 39 feet and change, the widest section measured showed a width of 40 feet. This fact constricts options for expanding the causeway to a 3-lane facility. To meet even current bare minimum requirements, the bridge would have to provide a minimum of 41 continuous feet of available pavement. This leaves only two options for a 3-lane facility. The first would be violating all current standards (even bare minimum ones) to have 3 travel lanes and substandard shoulder width. The second would be to expand the existing bridge deck to meet current requirements, which is not feasible to meet the immediate needs of Sanibel.

Figure 2: Existing Available Pavement Width



Alternative I: Maintaining Existing Bridge Width with Design Exceptions

This option utilizes the current 40-foot bridge width to create three 12-foot travel lanes or three 11-foot travel lanes, leaving only minimal space for shoulders (2 feet for 12-foot lanes or 3.5 feet for 11-foot lanes). While this approach avoids costly widening, it introduces several challenges:

- Safety Concerns: The absence of standard shoulders eliminates refuge areas for disabled vehicles and emergency responders, increasing the risk of traffic blockages and secondary crashes. Furthermore, moving traffic closer to the guardrail increases the likelihood of an errant vehicle striking the railing systems because the recoverable area has been reduced.
- Design Exceptions Required: FDOT Standards clearly require 10’ minimum shoulder width on new bridge construction per FDM 260. Florida Greenbook standards would defer to FDM 260 since they do not specifically speak to shoulders on bridges. AASHTO Standards state that shoulders on bridges should match those of adjacent roadways, and state that the minimum shoulder is 2’ but the minimum lateral offset from the travel way to a barrier is 4 feet. Lane reapportionment would allow only for 2’ from the traveled way to the barrier wall which would

2026 FDOT Design Manual

200 Series: Design Criteria

Table 210.2.1 Minimum Travel and Auxiliary Lane Widths

Context Classification		Travel (feet) Design Speed (mph)			Auxiliary (feet) Design Speed (mph)			Two-Way Left Turn (feet) Design Speed (mph)	
		25-35	40-45	≥ 50	25-35	40-45	≥ 50	25-35	40
C1	Natural	N/A	N/A	12	N/A	N/A	12	N/A	
C2	Rural	N/A	N/A	12	N/A	N/A	12		
C2T	Rural Town	11	11	N/A	11	11	N/A	12	12
C3	Suburban	10	11	12	10	11	12	11	12
C4	Urban General	10	11	N/A	10	11	N/A	11	12
C5	Urban Center	10	N/A	N/A	10	N/A	N/A	11	N/A
C6	Urban Core	10	N/A	N/A	10	N/A	N/A	11	N/A

Notes:

N/A indicates this combination of Design Speed and context classification is outside the intended design range and should be avoided. See ***Table 201.5.1*** for context classifications and Design Speed ranges.

Travel Lanes:

(1) Minimum 11-ft travel lanes on designated freight corridors, SIS facilities, or when truck volumes exceed 10% on very low-speed roadways (Design Speed ≤ 35 mph) (regardless of context classification).

(2) Minimum 12-ft travel lanes on all undivided two-lane, two-way roadways. However, very low-speed and low-speed table values may be used for roadway sections with both of the following:

(a) C2T, C4, C5, or C6 context classification.

(b) Tangent horizontal alignment or curve radii large enough to accommodate the design vehicle within the travel lane in accordance with ***AASHTO Green Book***.

(3) Consider wider lanes on very low-speed roadways (Design Speed ≤ 35 mph) when transit is present.

(4) Travel lanes should not exceed 14 feet in width.

(5) On RRR projects, 11-ft lanes may remain on divided multilane roadways with C3 context classifications and 50 mph design speeds.

Auxiliary Lanes:

(1) Table values for right turn lanes may be reduced by 1 foot when a bicycle keyhole is present.

(2) Median turn lanes should not exceed 15 feet in width.

(3) For high-speed curbed roadways, 11-ft minimum lane widths are allowed for the following:

(a) Dual left turn lanes.

(b) Single left turn lanes at directional median openings.

(4) For RRR projects, 9-ft right-turn lanes are allowed on very low-speed roadways (Design Speed ≤ 35 mph).

Two-Way Left-Turn Lanes:

For RRR projects, the values in the table may be reduced by 1 foot.

ILLUSTRATIVE WIDTH CALCULATION - NOT FDOT TEXT
During peak congestion: 1 inbound + 2 outbound lanes, 10 ft each = 30 ft.
Add 4 ft outside shoulder on each side: 30 + 4 + 4 = 38 ft total width.
Only if lane/bridge criteria apply; verify approach lanes, width and safety.

If a bridge is functionally obsolete but structurally sound, complete replacement is usually not warranted. For these structures, a full range of possible improvements should be considered to bring the structure into compliance with minimum criteria. Widening of the structure or rail retrofits are primary options. If a roadway is being programmed or considered for improvements or widening (adding lanes), consider the needs of the future structure(s).

When evaluating bridge replacement or widening, the following should be considered:

(1) Cost of replacing the existing bridge with a wider bridge designed to new bridge criteria.

(2) Cost of widening the existing bridge (if widening is practical), including life cycle costs of maintaining a widened bridge.

(3) The number of crashes that would be eliminated by replacement or widening.

(4) The hydraulic sufficiency and the risk of failure due to scour and/or ship impact as well as the consequences of failure.

260.9.1 Bridge Width

Required bridge widths for new bridge structures are illustrated in the partial bridge sections in ***Figures 260.1.1 – 260.1.4***.

Minimum existing bridge widths for arterials and collectors are provided in ***Table 260.9.1***.

See ***FDM 210.4.5*** for information concerning narrow bridge shoulder warning devices.

Bridge widening is to be in accordance with the ***SDG*** and meet the geometric requirements for new construction.

Table 260.9.1 Minimum Widths for Existing Bridges

Bridge Median Treatment	Minimum Width		
	Traveled Way Width	Shoulder Width (feet)	
		Median	Outside
Undivided (AADT < 750)	Total Width of Approach Lanes	n/a	2.0
Undivided (AADT ≥ 750)	Total Width of Approach Lanes	n/a	4.0
Divided (Median Separator)	Total Width of Approach Lanes	1.5	4.0
Divided (Median Barrier Wall)	Total Width of Approach Lanes	2.5	4.0
One Way Bridges	Total Width of Approach Lanes	2.5	4.0

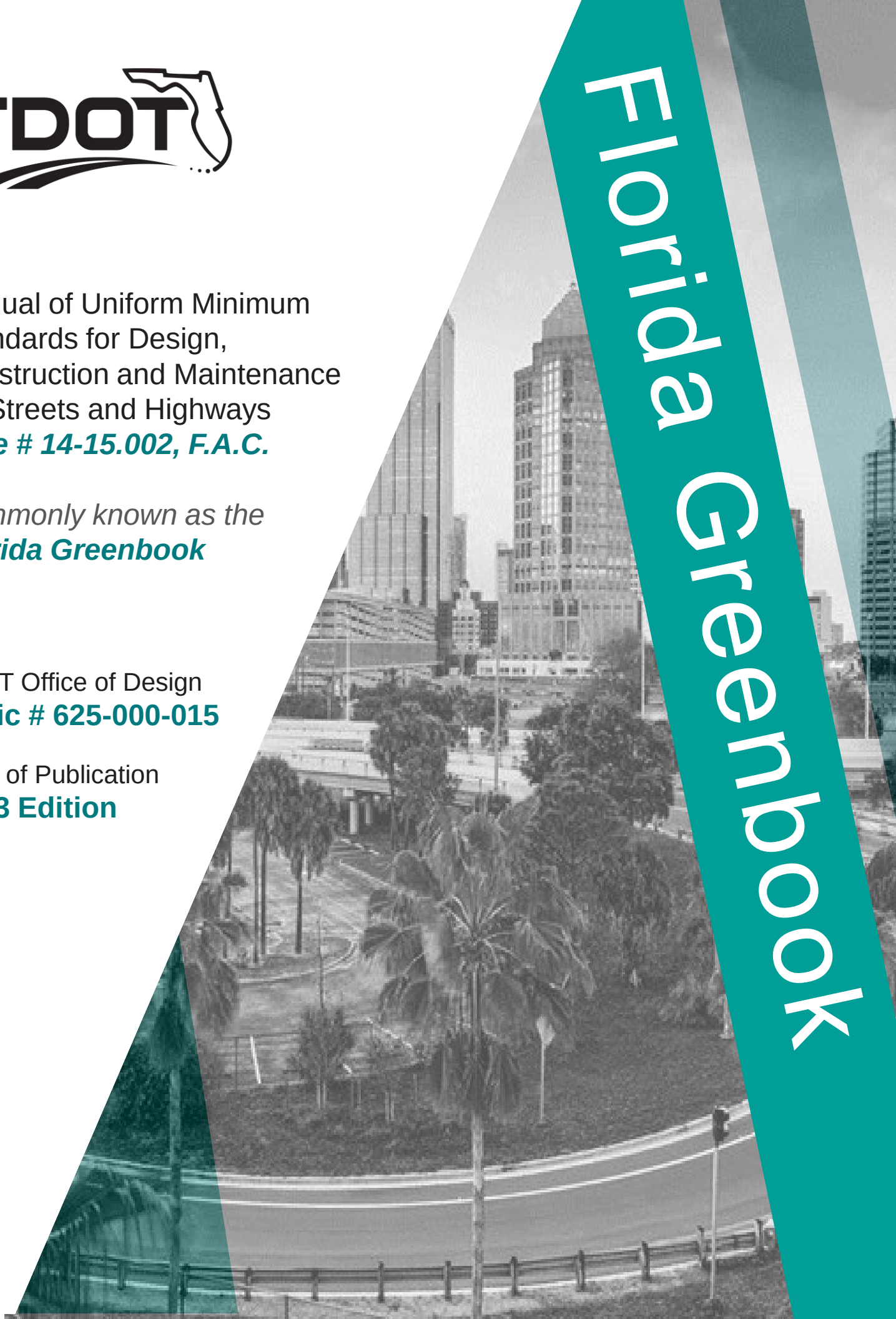
Florida Greenbook

Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways

Rule # 14-15.002, F.A.C.

Commonly known as the

Florida Greenbook



FDOT Office of Design

Topic # 625-000-015

Date of Publication

2023 Edition

Table 3 – 20 Minimum Lane Widths

Facility		ADT (vpd)	Design Speed (mph)	Lane Width – (feet)		
				Travel Lanes[1]	Turn Lanes[6] (LT/RT/MD)	Passing Lanes
Freeway	Rural	All	All	12	--	--
	Urban	All	All	12	--	--
Arterial	Rural	All	All	12[9]	12[9]	12[9]
	Urban	All	≥ 50	12	12	12
		All	≤ 45	11[3, 4]	11[3, 4, 7]	11[3, 4]
Collector	Rural	> 1500	All	12[9]	12[9]	12[9]
		401 to 1500	All	11[3, 4]	11[3, 4]	--
		≤ 400	≥ 50	11	11[7]	--
			≤ 45	10	10	--
	Urban	All	All	11[2, 3, 4]	11[2, 7]	--
Local	Rural	> 1500	All	12[9]	12[9]	12[9]
		401 to 1500	All	11[3, 4]	11[3, 4]	--
		≤ 400	≥ 55	11[3]	11[3, 4]	--
			45 to 50	10	10	--
			≤ 40	9	9	--
	Urban	All	All	10[2, 5]	10[8]	--

See Footnotes on next page

Footnotes

1. A minimum traveled way width equal to the width of two adjacent travel lanes (one way or two way) shall be provided on all rural facilities.

2. In industrial areas and where truck volumes are significant, 12' lanes should be provided, but may be reduced to 11' where right of way is constrained.

3. In constrained areas where truck volumes are low and design speeds are ≤ 35 mph, 10' lanes may be used.

4. On roadways with a transit route, a minimum of 11' outside lane width is required.

5. In residential areas where right of way is severely limited, 9' may be used.

6. Turn lane width in raised or grass medians shall not exceed 14'. Two-way left turn lanes should be 11 – 14' wide and may only be used on 3- and 5-lane typical sections with design speeds ≤ 40 mph. On projects with right of way constraints, the minimum width may be reduced to 10'. Two-way left turn lanes shall include sections of raised or restrictive median for pedestrian refuge.

7. Turn Lane width should be same as Travel Lane width. May be reduced to 10' where right of way is constrained.

8. Turn Lane width should be same as Travel Lane width. May be reduced to 9' where truck volumes are low.

9. For design speeds below 50 mph, lane widths of 11 feet are acceptable.

C.7.b.2 Traveled Way Cross Slope (not in superelevation)

The selection of traveled way cross slope should be a compromise between meeting the drainage requirements and providing for smooth vehicle operation. The recommended traveled way cross slope is 0.02 feet per foot. When three lanes in each direction are necessary, the outside lane should have a cross slope of 0.03 feet per foot. The cross slope shall not be less than 0.015 feet per foot or greater than 0.04 feet per foot. The change in cross slope between adjacent through travel lanes should not exceed 0.04 feet per foot.

ILLUSTRATIVE WIDTH CALCULATION - NOT GREENBOOK TEXT
During peak congestion: 1 inbound + 2 outbound lanes, 10 ft each = 30 ft.
Add 5 ft shoulder on each side where bicyclists ride adjacent to the bridge barrier: 30 + 5 + 5 = 40 ft total width.
Kimley-Horn measured "39 feet and change" at most locations, 40 ft maximum (Study p. 4).
Only if lane criteria apply; verify widths at each location, approach lanes and safety.

C.7.c Shoulders

The primary functions of a shoulder are to provide emergency parking for disabled vehicles and an alternate path for vehicles during avoidance or other emergency maneuvers. In order to fulfill these functions satisfactorily, the shoulder should have adequate stability and surface characteristics. The design and construction of shoulders shall be in accordance with the requirements given in ***Chapter 5 - Pavement Design and Construction.***

Shoulders should be provided on all streets and highways incorporating open drainage. The absence of a contiguous emergency travel or storage lane is not only undesirable from a safety standpoint, but also is disadvantageous from an operations viewpoint. Disabled vehicles that must stop in a through lane impose a severe safety hazard and produce a dramatic reduction in traffic flow. Shoulders should be free of abrupt changes in slope, discontinuities, soft ground, or other hazards that would prevent the driver from retaining or regaining vehicle control.

Paved outside shoulders are required for rural high speed multilane highways and freeways. They provide added safety to the motorist, public transit and pedestrians, for accommodation of bicyclists, reduced shoulder maintenance costs, and improved drainage.

C.7.c.1 Shoulder Width

A shoulder is the portion of the roadway contiguous with the traveled way that accommodates stopped vehicles, emergency use, and provides lateral support of subbase, base and surface courses. In some cases, the shoulder may also accommodate pedestrians or bicyclists. Shoulders may be surfaced either full or partial width and include turf, gravel, shell, and asphalt or concrete pavements.

The minimum width of outside and median shoulders is provided in Table 3 – 21 Minimum Shoulder Widths for Flush Shoulder Highways. Shoulders for two-lane, two-way highways are based upon traffic volumes. Shoulder widths for multi-lane highways are based upon the number of travel lanes in each direction. Where bicyclists or pedestrians are to be accommodated on the shoulder, a minimum usable width of 4 feet is required (5 feet if adjacent to a barrier). On approaches to narrow bridges where the paved shoulder is reduced, the FDOT's ***Standard Plans*** provide information on signing and marking the approaching shoulder.

Emergency Management Plan contains a provision for Causeway lane conversion procedures. Depending on storm type, direction, intensity and calculated clearance time, conversion to two outbound lanes on the Causeway can be ordered by the Emergency Operations Center head in concert with the Lee County Disaster Director. Sanibel police will stop all inbound traffic allowing only predetermined vehicles to access the Causeway. This increase in road capacity on Sanibel's primary evacuation route can significantly reduce the clearance time component for calculating hurricane evacuation times. This method to increase road capacity can be enhanced by incorporating lane conversion procedures for the replacement bridges of the Sanibel Causeway.

Evacuation Times

The severity of the storm, the number of vehicles evacuating, the capacity of evacuation routes, distance to shelter destination, and behavioral tendencies are factors contributing to clearance time. Pre-landfall storm conditions, such as flooding and high wind, also add to evacuation time.

The critical link for Sanibel's near-shore evacuation is the Sanibel Causeway. This is a two-lane facility that is low lying and subject to inundation by tropical storm flooding. Upon reaching the mainland, the route becomes McGregor Boulevard / Summerlin Road and is a four-lane facility to its terminus in Fort Myers. Periwinkle Way, the primary evacuation route within the City, is planned to remain two lanes. Portions of Summerlin have been widened or are under construction to become six lanes, from the intersection with SR865 (San Carlos Boulevard) to Boy Scout Road. The reconstructed bridges of the Sanibel Causeway provide an opportunity to provide two lanes off the Island for evacuation purposes.

Recognizing that the Causeway is the critical link for reaching mainland shelters, it is a point of survival for the City to make sure that the Causeway is fully functional with undiminished capacity, and that McGregor/Summerlin's capacity for evacuation is not reduced through growth of surrounding areas beyond that which enables the City to have a timely evacuation. Currently, that time is estimated to be 13 to 14 hours to clear the Island, with more than an additional hour to reach the shelter at the expected reduced rates of speed of service level "D". This estimated time includes the Captiva evacuees and applies to all categories of hurricanes; however, great hurricanes, requiring the evacuation of major portions of the mainland, will drastically increase the time required to reach shelters.

Evacuation time is of concern for the City of Sanibel. Considering pre-landfall wind conditions of up to eight hours (and, in some circumstances, pre-landfall flooding of similar times), total evacuation of the Island to mainland shelter could take over 20 hours, exceeding the 18 hour goal for evacuation planning. Consequently, there have been alternatives discussed to reduce this time. The most common is providing two lanes off the Islands across the Causeway, which could reduce clearance time by as much as 50 percent.

The estimation and projection for hurricane evacuation clearance times for now and at build-out (existing development and approximately 600 additional dwelling units) on Sanibel and Captiva can be significantly reduced by providing a second lane for evacuation traffic along the evacuation route. This proposed increase in hurricane evacuation road capacity, which is projected to reduce and maintain evacuation clearance times below 1987 levels, is implemented by operational procedures contained in the Sanibel Emergency Management Plan rather than as a capital

EXISTING-BRIDGE & SYSTEM SAFETY EVALUATION

One-page source excerpts | Sanibel Causeway | November 15, 2026

This page summarizes what the cited manuals say about safety and operational impacts. It does not establish that a three-lane Causeway design is approved.

1 FDOT: Evaluate the existing bridge as a system

FDOT Design Manual (2026), Section 260.9, Bridge Structures, printed p. 16

The engineering report supporting an existing-bridge decision is to include:

- "Operational impact evaluation"
- "Safety impact evaluation" with review of crash history, severity, and contributing factors
- "Benefit/cost analysis"

2 Florida Greenbook: Evaluate safety effects of capacity changes

Florida Greenbook (2023), Chapter 3, Section C.11.a, printed p. 3-123

> "Modifications to increase capacity should be evaluated for the potential effect on the highway safety characteristics."

3 Florida Greenbook: Look beyond the individual design dimension

Florida Greenbook (2023), Chapter 14, Section D, printed p. 14-4

Where a **Design Exception or Variation** is needed, the justification considers:

- "Safety and Operational performance" and "Level of Service"
- "Community impacts"
- "Long term and cumulative effects on adjacent sections of roadway"

QUESTION FOR SUPPLEMENTAL ENGINEERING REVIEW

Did the December 2025 feasibility study compare the safety risks of narrower shoulders with the existing consequences of peak Causeway congestion, including delayed emergency response and effects on adjacent island roads?

Scope distinction: Greenbook Chapter 14, Section D applies when justifying a design departure. The applicability of existing-bridge and 10-foot-lane criteria to a proposed peak-period one-inbound/two-outbound configuration remains for the responsible engineer to determine.