### GENERAL NOTES

1. For descriptions and definitions of access connection "Categories" and access "Classifications" of highway segments, and for other detailed information on access to the State Highway System, refer to FDOT Rule Chapter 14-96, "State Highway Connection Permits Administrative Process" and Rule Chapter 14-97, "State Highway System Access Management Classification System And Standards."

2. For this index the term 'turnout' applies to that portion of driveways or side roads adjoining the outer roadway. For this index the term 'connection' encompasses a driveway or side road and their appurtenant islands, separators, transitioning devices, auxiliary lanes, travelway flares, drainage pipes and structures, crossovers, sidewalks, curb cut ramps, signage, pavement marking, required signalization, maintenance of traffic, and other means of access to or from controlled access facilities. The turnout requirements set forth in this index will not provide complete intersection design, construction or maintenance requirements.

3. The location, positioning, orientation, spacing and number of connections and median openings shall be in conformity with FDOT Rule Chapter 14-97.

4. On Department construction projects all driveways not shown on the plans shall be reconstructed at their existing location in conformance to these standards, or, in conformance to permits issued during the construction project.

5. Driveways shall have sufficient length and size for all vehicular maneuvering, stacking, maneuvering, and parking to be carried out completely beyond the right of way line. Except for vehicles stopping to enter the highway, the turnout areas and driveways within the right of way shall be used only for moving vehicles entering or leaving the highway.

6. Connections with expected daily traffic over 4000 vpd shall be constructed as intersecting side road connections. The design requirements of this index and that of the local government will be used to select appropriate connection widths, radii and intersection design, subject to the approval of the Department. For connections with expected daily traffic less than 4000 vpd, the Department will determine if a drop curb or radius returns are required in accordance with existing or planned connections. Where radius returns apply, the design requirements of this index and that of the local government will be used to select appropriate connection widths, radii and intersection design, subject to the approval of the Department.

7. Where a connection is intended to align with a connection across the highway, the through lanes shall align directly with the corresponding through lanes. For connections that are intended to align with a connection across the highway, the through lane openings shall be in conformance with FDOT Rule Chapter 14-97.

8. For new connections and for connections on all new construction and reconstruction projects, pavement materials and thicknesses shall meet the requirements applicable to either that detailed for "Urban Flared Turnouts", or, that described in "Table 515-1" for single unit vehicles exceeding 25' in length, returns with 50' radii shall be used, unless otherwise called for in the plans or otherwise stipulated by permit. Where large numbers of multi-unit vehicles will use the connection, the connection width and radii shall be increased and auxiliary lanes, lappers, lane flares, separators and islands constructed, as determined by the Department to be necessary for safe turning movements.

9. Any connection requiring or having a specified median opening with left turn storage and served directly by that opening shall have radial returns.

10. The responsibility for the cost of construction or alteration to an access connection and the maintenance of access connections shall be in accordance with FDOT Rule Chapter 14-96.

### DESIGN NOTES

1. Prior to the adoption of FDOT Rules Chapters 14-96 and 14-97, connections to the State Highway System were defined and permitted by Classes. Connections have been redefined by Categories under Rule 14-96, and the term "Class" has been applied to highway segments of the State Highway System as defined under Rule 14-97.

### ELEMENT DESCRIPTION

<table>
<thead>
<tr>
<th>CONNECTION WIDTH W</th>
<th>FLARE (Drop Curb) F</th>
<th>RETURNS (Radius) R &amp; U</th>
<th>ANGLE OF DRIVE Y</th>
<th>DIVISIONAL ISLAND (Throat Median)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-20 Trips/Day or 1-5 Trips/Hour</td>
<td>24' Min. or 25' Max.</td>
<td>25 Min. or 25' Max.</td>
<td>60°-90° or 60°-90°</td>
<td>4'-22' Wide or 4'-22' Wide</td>
</tr>
<tr>
<td>2-60 Trips/Day or 6-60 Trips/Hour</td>
<td>24' Min. or 25' Max.</td>
<td>15 Min. or 15' Max.</td>
<td>60°-90° or 60°-90°</td>
<td>4'-22' Wide or 4'-22' Wide</td>
</tr>
<tr>
<td>60-400 Trips/Day or 61-400 Trips/Hour</td>
<td>24' Min. or 25' Max.</td>
<td>25 Min. or 25' Max.</td>
<td>60°-90° or 60°-90°</td>
<td>4'-22' Wide or 4'-22' Wide</td>
</tr>
</tbody>
</table>

### LEGEND

- Return Radius Point R or Flare Point F
- Buffer Areas B
- Frontage Boundary Line W
- Driveway Width D
- Driveway Angle Y
- Corner Clearance C
- Setback S
- Outside Radius U
- Inside Radius I
- Distance Between Connections D
- Flare F

### SKETCH ILLUSTRATING DEFINITIONS

**NOT INTENDED FOR FULL INTERSECTION DESIGN**

**SUMMARY OF GEOMETRIC REQUIREMENTS FOR TURNOOUTS**

**INDEX SHEET**

**DESIGN STANDARDS**

**DESCRIPTION:**

**2016 TURNOOUTS**

**REVISION:**

**07/01/13**

**INDEX NO.: 515**

**SHEET NO.: 1 of 7**
URNAL FLARED TURNOUTS

1. Driveways indicated as 'Adverse Applications' are those with slopes that can cause overhang drag for representative standard passenger vehicles under fully loaded conditions; or, those with slopes that can cause drivers who are leaving the roadway to slow or pause to the extent that traffic demand volumes will be impeded.

Driveways indicated as 'Marginal Applications' are those with slopes that can readily accommodate representative standard passenger vehicles and those that can accommodate representative standard trucks, vans, buses and recreational vehicles operating under normal crown and super-elevation conditions.

2. The standard flared driveways on this index may not accommodate vehicles with low beds, low undercarriage or low appendage features. Where such vehicles are design vehicles, driveways shall have site specific flare designs or Category III designs.

3. When specific flare type driveways shall be constructed, the type shall be designated in the plans using the assigned alpha-numeric designation.

- Footnotes:
  - All 1/2" joints shall be constructed with preformed joint filler.
  - 1/2" open joints placed at equal (20' max) intervals for driveways over 20' wide. Joints in curb and gutter to match joints in driveways.
  - When connecting to side road curb and gutter sections, the no drop curb limits should extend back to the side road radius point. With or without curb and gutter, no driveway should encroach on the corner radius.
  - Driveways (6" concrete) shall be of a uniform width (W) to the right of way line.
  - Alpha-numeric identification of a flared driveway type specifically called for in the plans, see sheets 3 and 4.

- Specifications:
  - 1. All pavement markings on the State highways, including acceleration and deceleration lane markings, and signing installed for the operation of the State highway shall be maintained by the Department.
  - 2. All signing and marking installed for the operation of the connection (such as stop bars and stop signs for the connection) shall be the responsibility of the permittee.
  - 3. In the plans using the assigned alpha-numeric designation.

- DESIGN NOTES FOR URBAN FLARED TURNOUTS
  - 1. Driveways indicated as 'Adverse Applications' are those with slopes that can cause overhang drag for representative standard passenger vehicles under fully loaded conditions; or, those with slopes that can cause drivers who are leaving the roadway to slow or pause to the extent that traffic demand volumes will be impeded.
  - 2. The standard flared driveways on this index may not accommodate vehicles with low beds, low undercarriage or low appendage features. Where such vehicles are design vehicles, driveways shall have site specific flare designs or Category III designs.
  - 3. When specific flare type driveways shall be constructed, the type shall be designated in the plans using the assigned alpha-numeric designation.
See 'DESIGN NOTES FOR URBAN FLARED TURNOUTS'.

GENERAL APPLICATIONS

MARGINAL APPLICATIONS ON LOW SIDE OF FULLY SUPERELEVATED ROADWAY (REFER TO MODIFICATIONS ON SHEET 4)

ADVERSE APPLICATIONS (REFER TO MODIFICATIONS ON SHEET 4)

SIDEWALK ADJACENT TO CURB

SIDEWALK WITH UTILITY STRIP ON 0.02 SLOPE

SIDEWALK WITH UTILITY STRIP ON 0.04 SLOPE

DRIVEWAY SECTIONS ON CURBED FACILITIES WITH SIDEWALKS
MODIFICATIONS OF 'ADVERSE' AND 'MARGINAL' APPLICATIONS

SIDEWALK ADJACENT TO CURB
SIDEWALK WITH UTILITY STRIP ON 0.02 SLOPE

MODIFICATIONS TO ADVERSE AND MARGINAL SECTIONS

* See 'DESIGN NOTES FOR URBAN FLARED TURNOUTS'.
Typical Half Section For Low Volume/Residential Connections

Typical Half Section For Higher Volume Connections

R/W Line

Drainage Pipe

Roadway Ditch

Shoulder Line

Sod (See Opposite)

Width (See Sheet 1)

Point of Connection as Shown on the Plans

Or As Determined By The Engineer During Construction Or As Stipulated By Permit. II

Return Radius Point or Flare Point.

See "Summary Of Geometric Requirements For Turnouts" chart for return radii lengths and supplemental information.

Paved turnouts shall be constructed for all paved connecting facilities. The connecting point will be determined by the Engineer.

Paved turnouts shall be constructed for all business, commercial, industrial or high volume residential graded connecting facilities. The connecting point shall be 30' from edge of travel way or at R/W line, whichever is less.

Paved turnouts shall be constructed for all connecting facilities over 4000 vehicles per day. The connecting point shall be at the R/W line.

See "Summary Of Geometric Requirements For Turnouts" chart for return radii lengths and supplemental information.

Return Radius Point or Flare Point.
**MATERIAL TYPES AND THICKNESSES IN DRIVING AREAS FOR RURAL AND URBAN CONNECTIONS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Materials</th>
<th>Thickness (in.)</th>
<th>Connections</th>
<th>Roadway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural</td>
<td>Asphaltic Concrete</td>
<td>1&quot;</td>
<td>176&quot;</td>
<td></td>
</tr>
<tr>
<td>Bases</td>
<td>Optional Base (See Index No. 514)</td>
<td>0.B.G. 1</td>
<td>0.B.G. 3</td>
<td></td>
</tr>
</tbody>
</table>

1. Minimum thickness.
2. Structural materials shall be approved by the Department prior to being placed.
3. Connection structure other than traffic lanes. See Notes 1 and 2 below.
4. Travel way flares (bypass lanes), auxiliary lanes serving more than a single connection, and all median crossovers including their auxiliary lanes and/or transition tapers. See Notes 1 and 2 below.

**NOTES**

1. The pavement should be structurally adequate to meet the expected traffic loads and should not be less than that shown above, except as approved by the Department for graded connections. Other Department-approved equivalent pavements may be used at the discretion of the Engineer. For additional information see Index No. 514.

2. Auxiliary lanes and their transition tapers shall be the same structure as the adjoining travel way pavement thickness or any of the roadway structures tabulated above, whichever is thicker.

3. If an asphalt base course is used for a turnout, its thickness may be increased to match the edge of travel way pavement thickness in lieu of a separate structural course. 6" of Portland cement concrete will be acceptable in lieu of the asphalt base and structural courses. See Notes 4 and 5 below.

4. A structural course is required for flexible pavements when they are used for auxiliary lanes serving more than a single connection.

5. Connections paved with Portland cement concrete shall be Class NS concrete at least 6" thick. The Department may require greater thickness when called for in the plans or stipulated by permit. Materials and construction shall conform with FDOT Standard Specifications Sections 347, 356 and 522.

6. The Department may require other pavement criteria where local conditions warrant.

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**PAVEMENT STRUCTURE FOR TURNOUTS AND AUXILIARY LANES**

**TABLE 515-1**

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**LIMITS OF CONSTRUCTION AND MAINTENANCE FOR RURAL CONNECTIONS**
URBAN TURNOUT PROFILES

When restoring or reconstructing existing commercial turnout connections on new construction or reconstruction projects, the maximum 10% commercial grade may be exceeded provided this does not create adverse roadway operational or safety impacts. This shall be approved by the District Design Engineer and supported by documented site specific findings.

STORMWATER RUNOFF AND PROFILE OPTION NOTES

1. Turnouts shall neither cause water to flow on or across the roadway pavement, nor cause water ponding or erosion within the State right of way. On all rural turnouts the transition (L) nearest the roadway shall be sloped or crowned to direct stormwater runoff to the roadside ditch. Inlets, flumes, or other appropriate runoff control devices shall be constructed when runoff volumes are sufficient to cause erosion of the shoulder. Similar runoff control devices shall be constructed as necessary to properly direct and control the stormwater runoff on urban turnouts.

2. The Option 1 profile is intended for locations where roadway, turnout taper and auxiliary lane stormwater runoff volumes are relatively large. The Option 2 profile is intended for locations where runoff volumes are relatively small and/or where there is no roadside ditch.

RECOMMENDED TURNOUT PROFILE TRANSITION LENGTHS (L) (FT.)

ROADWAY PAVEMENT SLOPES AND SLOPES OF ABUTTING RURAL TURNOUT SURFACES (G)