

CONSTRUCTION STANDARDS HANDBOOK  
FOR  
WORK WITHIN THE PUBLIC RIGHT-OF-WAY  
COLLIER COUNTY, FLORIDA

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
PURPOSE	ii
SURVEY MONUMENTS	iii
TERMS AND DEFINITIONS	iv-v
RELATED DOCUMENTS	vi
I. PERMIT REQUIREMENTS	
A. Application	1
B. Processing	2
C. Inspections	3
D. Blanket Permit	3
E. Exemptions from Permit Requirements	4
F. Remedies for Violation of this Ordinance	4
G. Permit and Inspection Fees	5
H. Performance Bond Requirements	5
II. CONSTRUCTION REQUIREMENTS	
A. Requirements for all Permits	6-7
B. Roadway Crossings	8-9
C. Attachments to Structures	9
D. Safety Requirements	10
E. Restoration Requirements	10
F. Permissible Work Hours	11
III. TURN LANES, DRIVEWAYS, ACCESS ROADS, DESIGN REQUIREMENTS	
A. Separate Turn Lane Requirements	12
B. Geometric Restrictions	13
C. Minimum Design Standards	14-17
D. Access and Site Plan Information Required	17-18
E. Drainage Culvert Installation	18
F. Exceptions	19
IV. MISCELLANEOUS CONSTRUCTION	
A. Sidewalk/Bikepath Construction	20
B. Delineation Devices	20
C. Underground Utility Accommodations	21-25
V. APPENDICES	
A. PERMIT APPLICATION AND CONDITIONS	2 -4
B. STANDARD FOR DESIGN AND AS-BUILT ELECTRONIC DRAWINGS	5-7
C. DRAWING REFERENCE FOR MINIMUM REQUIREMENTS	8

## PURPOSE

This Construction Standards Handbook for Work Within the Public Right-of-Way (the "Handbook") regulates the location, manner, installation, and adjustment of all work performed within the right-of-way of the Collier County roadway network. The issuance of permits for such work is in the interest of capacity, safety, protection of existing facilities, ease of maintenance, and future development of the roadway network. This Handbook provides standards, procedures and guidelines for construction and maintenance within the public right-of-way that are in the best interests of and for the protection of the public.

Included in this Handbook are drawings and illustrations that represent Collier County minimum construction and installation requirements permitted within the public right-of-way, and which include reference to the most current applicable Florida Department of Transportation (FDOT) Road Design and Construction Standards.

The Collier County Land Development Code generally does not apply to County Transportation road projects within the road right of way, including related amenities, required as components of public roadways, with the exception of the following three (3) situations requiring distinct treatment:

### Collier Area Transit Bus Shelters

The Transportation Division shall obtain all necessary permits related to the construction and installation of Collier Area Transit Bus Shelters located within the road right of way. In this regard, the Transportation Division will coordinate and work with Community Development and Environmental Services (CDES) staff as required for all permits related to the location and construction of such bus shelters.

### Road Noise Walls

The installation of Road Noise Walls is not referenced or otherwise defined in the Land Development Code. The county policy to be followed by the Transportation Division as to the construction of Noise Walls is as follows: (1) if required as part of a Transportation road project, a Noise Wall located within the county road right of way is not subject to the Land Development Code, (2) if a Noise Wall is not located in the county right of way and is not a required component of a county road project but rather is desired by private citizens for placement outside of the road right of way, then the persons seeking the construction of such a wall shall be directed to go through CDES and obtain the permits required for the installation of a decorative wall as defined in the Land Development Code.

### Signs

All signs installed by the Transportation Division within the county road right of way required by the United States Department of Transportation's Federal Highway Administration as set forth in the Manual on Uniform Traffic Control Devices (MUTCD) are not subject to the requirements of the Land Development Code. All non-MUTCD signs such as commercial signs, signs identifying neighborhoods, and similar non-roadway signs if permissible by the Transportation Division are subject to the Land Development Code and shall meet all such requirements.

## SURVEY MONUMENTS

- A. GENERAL: To assist in the elimination of possible future boundary disputes and to simplify location of monuments and future construction improvements within the public right-of-way of Collier County, a land surveyor, registered in the State of Florida, should be consulted before actual construction of improvements. Only a land surveyor registered in accordance with Florida Statutes, Chapter 472, may reference monuments for replacement if destroyed or disturbed.
  
- B. PRESERVATION: Any official monument set for the purpose of locating or preserving the permanent lines of any public street, public easement or recorded subdivision boundary within any Collier County public right-of-way or public easement shall not be removed or disturbed without first obtaining permission in writing from the Community Development and Environmental Services Administrator. Permission shall be granted only upon the condition that the person making application shall pay all expenses incidental to the proper replacement or relocation of such monument by a land surveyor registered in the State of Florida.

The authority for the determination of permanent monuments, as outlined above, shall be the County Plat Books or the instrument and accompanying record drawing conveying ownership of the right-of-way or easement to the public, if properly recorded.

These requirements shall in no way diminish the protection of permanent monuments within the public right-of-way or within easements, which monuments are protected by State or Federal Law.

## TERMS AND DEFINITIONS

Abbreviations, Definitions, and Terms of Articles shall be in accordance with 1.08.02, DEFINITIONS, in the Collier County Land Development Code (CCLDC), as it may be amended from time to time. In addition to the Abbreviations, Definitions, and Terms of Articles noted above, the following specific definitions shall apply to the provisions of this Ordinance:

1. ABBREVIATIONS:

a.	LDC	Collier County Land Development Code
b.	FDOT	Florida Department of Transportation
c.	SFWMD	South Florida Water Management District
d.	ANSI	American National Standards Institute
e.	ROW	Right-of-way
f.	MUTCD	Manual on Uniform Traffic Control Devices
g.	ADA	Americans with Disabilities Act of 1990
h.	OSHA	Occupational Safety and Health Administration

2. DEFINITIONS:

DENSITY TEST is a laboratory or field procedure, or combination thereof, to measure the degree of compaction of the roadway subgrade, subbase, base or surface courses. All DENSITY TESTS shall be performed in accordance with current FDOT Standards.

FACILITY means any hole, excavation, obstruction, construction, disturbance, or compaction in any street, roadway, or intersection, or other structure under the control or authority of Collier County.

GRADE SEPARATION means a crossing of two roadways, or a roadway and any other transportation-related facility, at different elevations or levels.

INVERT ELEVATION means the flow line elevation of a drainage facility.

INTERSECTION means the general area where two or more streets, highways or related facilities cross or join.

MEDIAN means the area between travel lanes of a divided highway.

MONUMENT means an official, permanent artificial boundary marker within a public right-of-way or public easement used for the purpose of locating or fixing survey reference points on the ground or relative to one another. A MONUMENT may consist of a pre-cast or cast-in-place marker, an iron pipe, an iron pin, a boat spike, a railroad spike, a nail and disk assembly, a pre-formed plastic survey cap, or any combination thereof, including similar markers.

NEW CONSTRUCTION means any construction work within a public right-of-way or easement where none previously existed.

PERMITTEE means the person or entity to which the permit is issued, including any and all heirs, successors, assigns, or transferees of the right or property interests of the original permittee. The permittee must have a real property interest in the property upon which the work

is being performed or must be the owner of the utility facility that is the subject of the permit. A PERMITTEE may be the authorized agent of the owner; however, a notarized letter confirming the agency relationship must accompany the permit application.

RADIUS RETURN means the portion of a circular arc defined by the point at which the arc is tangent to the curve and following along the arc to the point at which another tangent line intersects the arc. A RADIUS RETURN is commonly seen at the intersection of two streets, or at the intersection of a driveway and a street.

RECOVERY AREA/ZONE is an area of horizontal clearance that extends from the edge of the travel lane outward that is available for corrective action by stray vehicles.

RIGHT-OF-WAY is land dedicated, deeded, used, or to be used for a street, alley, walkway, boulevard, drainage facility, access for ingress and egress, or other purpose by the public, certain designated individuals, or governing bodies.

ROADWAY is the portion of the right-of-way that includes the paved road and its shoulders.

ROADSIDE is the portion of the right-of-way that includes the paved road and its shoulder.

STREETSCAPE means the appearance or view of a street to include all items within the public road right-of-way and adjacent properties.

TRAVELED WAY means that portion of the roadway right-of-way intended for the movement of vehicles, exclusive of the shoulder area.

TURNOUT means a flared driveway entrance at its junction with the roadway pavement edge.

VEHICLE RECOVERY AREA means that area outside of the traveled way, but within the roadway right-of-way, which can, in an emergency, be used for travel with moderate safety by a vehicle. Such travel is intended to be of short distances and for emergency purposes only.

ARTERIAL is as defined in the Collier County Land Development Code 1.08.02, "Definitions".

COLLECTOR is as defined in the Collier County Land Development Code 1.08.02, "Definitions".

RELATED DOCUMENTS:

(All related documents refer to the latest adopted editions)

- a. Collier County Land Development Code
- b. Collier County Roadway Elements Task Force “Typical Roadway Sections”
- c. FDOT “Roadway and Traffic Design Standards” Indexes
- d. U.S. Department of Transportation Federal Highway Administration  
“Manual On Uniform Traffic Control Devices” (MUTCD), Part VI
- e. Florida Water Management Districts “WaterWise Florida Landscape” publication
- f. South Florida Water Management District Water Use Restrictions
- g. FDOT “Florida Highway Landscape Guide”
- h. Florida Irrigation Society “Standards and Specifications for Turf and Landscape  
Irrigation Systems” third edition, 1996
- i. Florida Department of Agriculture and Consumer Services  
“Grades and Standards for Nursery Plants”
- j. Florida Power & Light “Right Tree Right Place” Publication
- k. FDOT Manual of Uniform Minimum Standards for Design, Construction, and  
Maintenance
- l. “Americans with Disabilities Act of 1990”
- m. FDOT “Utilities Accommodation Manual”
- n. FDOT “ Plans Preparation Manual “, Volume I & II
- o. ANSI A300 “Standard Practices for Trees, Shrubs and Other Woody Plant  
Maintenance”
- p. FDOT “Standards Specifications for Road & Bridge Construction”
- q. Florida Building Code
- r. Collier County Landscape and Irrigation Specifications for Beautification  
Improvements within the Public Right-of-Way

## I. PERMIT REQUIREMENTS

Permits are required for all work performed in any public right-of-way or easement provided for public use in the unincorporated area of Collier County and in those public right-of-way or easements maintained by Collier County, but which lie within municipal boundaries.

When permitted facilities are placed within a public right-of-way or easement, the installation is for permissive use only and placing of facilities shall not operate to create or vest any property right in the associated right-of-way or easement in the Permittee. Furthermore, the Permittee shall be responsible for maintenance of such facilities until they are removed unless otherwise specified in the particular instance.

Whenever necessary for the construction, repair, maintenance, improvement, alteration or relocation of said right-of-way or easement as determined by Collier County, any or all poles, wires, culvert pipes, cables, sod, landscaping, driveways, sprinklers, or other facilities and appurtenances authorized shall be removed from said right-of-way or easement, or reset or relocated thereon as required and so notified by the County, and at the expense of the Permittee, his successor or assigns.

Where the Permittee, or his successor or assigns, is notified of a need for construction, repair, maintenance, improvement, alteration of or relocation within the right-of-way or easement and no action is taken by the responsible party within the time frame specified by the County, Collier County shall cause the permitted work to be altered, relocated, or removed, with the total expense being borne by the Permittee or the responsible party.

Permits shall be in a form approved by the Board of County Commissioners and shall include the time of commencement of the work to be performed, the number of days the work is expected to take, and the approximate date of completion. The Permit will expire thirty days after the designated completion date unless authorized in the specific instance for a longer or shorter period.

A permit must be obtained from the County before the commencement of any construction within a public right-of-way or easement, except as noted in this Handbook. All correspondence regarding construction procedures will be handled directly with the Permittee or his authorized agent, and not through a Contractor or Sub-Contractor.

A. Application requirements are as follows:

1. The applicant shall submit one complete application form titled "Permit to Perform Work and/or Maintenance in Public Right-of-Way," to the County for its approval, with all the required information on the Permit filled in.
2. Two prints (or more if deemed necessary by Collier County), shall accompany the application, reflecting a plan view of the proposed construction. The plan shall show the off-set from the centerline of the right-of-way or easement to the proposed construction installation, the roadway right-of-way, pavement width and location, and distance from edge of pavement to the proposed facilities. The plan must also show all existing above and below ground improvements within 100 feet of the proposed construction. The drawing must also show information, such as materials to be used, pipe or conduit size, and other pertinent details. If a pipe is to be jacked and bored or directional bored, it shall be stated as such on the print and indicated as to the length, size, and depth. The use of pneumatic underground piercing tool will not be approved. One or more typical cross-sections as required adequately reflecting the location of all existing facilities and facilities of other right-of-way users shall be shown. Underground facilities need not be shown for overhead installations on new poles. Overhead facilities need not be shown where underground work is proposed unless the use of cranes or boring rig is proposed. Additional information such as the location of the nearest road intersection, median opening, bridges in the vicinity, railroad crossing, if any, and other physical features shall be indicated on the print, as necessary to locate the proposed installation.
3. The applicant shall be responsible for the notification of all utilities in the immediate vicinity of the proposed installation. It is the applicant's responsibility to coordinate its work with any utility relocation that may be necessary.
4. The following additional information shall, upon request, be supplied to the County if the proposed work involves the alteration of a public drainage facility.
  - a. Calculated capacity if existing and/or proposed pipe, swale or ditch.
  - b. Existing or proposed pipe diameter, length, and type.
  - c. Plan and cross-section of existing and/or proposed pipe, swale or ditch including invert elevations.
  - d. Proposed fill material and source.
  - e. Catch basin or clean-out arrangements, if applicable.
  - f. Joint connections, if applicable.
5. Prior to the issuance of a permit within the right-of-way, the following additional information shall be supplied to the County if the proposed work involves the alteration of a public landscape and irrigation facility in County right-of-way.
  - a. Existing inventory of landscape, irrigation (above and below ground), sleeving of irrigation piping required under driveways, sidewalks and turnlanes, and site material to include but not limited to the plant type, size, quantity, square footage of sod, median backfill (soil), pavers, and mulch.



- b. Proposed relocation of existing material, reimbursement for disposed materials to include plant material, irrigation (above and below ground), replacement of sleeving of irrigation piping required under driveways, sidewalks, and turnlanes, sod, median backfill (soil), pavers, and mulch.
  - c. Proposed landscape and irrigation plans following current FDOT standards.
  - d. All plans to be prepared by a Florida registered landscape architect.
6. The applicant will be held responsible, for compliance with all "Conditions of the Permit" and/or additional stipulations.
7. Issuance of a right-of-way permit for work within public easements shall not relieve the permittee of obtaining written permission from any underlying fee-simple owner, or other beneficiary of co-located easements and/or right-of-way.
8. When conflicting conditions, stipulations, or requirements of permits issued by other agencies (or within a Collier County right-of-way permit) exist, the more restrictive condition, stipulation, or requirements shall be adhered to (as applicable or required by Federal, State, or Local law).
9. All right-of-way permits shall comply with requirements set forth in an overlying PUD or any conditions set forth in any preceding or concurrent Development Order.

B. The application will be processed as follows:

1. The Permittee shall submit the application to the Transportation Right-of-Way Permitting and Inspection Section for review and approval. If the Permittee is not able to begin construction of the work within thirty days of the date on which a permit would be issued, then a Notice of Intent to Issue a Permit will be provided to the Permittee in lieu of the Permit. At such time as the Permittee is within thirty days of the beginning of the permitted construction, she/he must request that the Permit Section issue the actual Permit to begin construction. At that time, the Permit Section will once again review the permit application to assure that there have been no changed conditions and issue the permit. If there are changed conditions, the Permit will be modified to reflect those changed conditions.
2. Permits approved will be distributed as follows: One copy retained in the Permit Review Section's file to be used as needed; and, the original copy to the applicant.
3. If the Permit is denied, the applicant will be notified as to the reason(s) for denial, and shall be entitled to submit a new or modified application in accordance with this Handbook.

- C. Inspections are for the purpose of correcting errors seen at the time of inspection and do not constitute acceptance for maintenance by the County, nor do they release the Permittee from liability if a failure occurs in the future. Collier County requires inspections for the following items:
1. Open-cutting of roadways.
  2. Drainage culvert installations and any final swale grading.
  3. Jack-and-bore construction, after opening of the jacking and receiving pits and before closure of the pits.
  4. All work to be performed by means of directional boring.
  5. Any other work which may disturb private property or which may require restoration of the right-of-way by the Permittee.
  6. Any work which may disturb County owned or maintained landscape and irrigation within the right-of-way.
  7. A county authorized inspector may, at the discretion of the Right-of-Way Section Manager or designee, impose immediate cessation of work in the right-of-way and may impose immediate corrective measures if the health, safety, or welfare of the public is determined to be at risk. The ordering of cessation of work on the basis of health, safety, or welfare shall not be cause for damages against the County or its representatives.”
- D. An annual “Blanket Permit” will be issued and the Permit fee waived for all publicly regulated and/or franchised utility companies under any of the following conditions:
1. Where overhead lines cross the public right-of-way and there is no physical construction in the right-of-way.
  2. For any construction in utility easements, unless the easement is a combination utility/drainage easement.
  3. For pole replacement, except in combination utility/drainage easements.
  4. When underground secondary and/or service cables are to be installed less than 300 feet in length, and on road crossings where conduits or casings exist under the street.
  5. Routine Maintenance.

E. Exemptions from Permit Requirements:

1. Minor repairs of a pedestal or pole, provided the pedestal or pole occupies the right-of-way or easement, by virtue of an approved Permit, and provided that no damage is caused to the right-of-way or easement by the repair servicing vehicles.
2. Routine maintenance of permitted facilities. The ROW Section Manager or designee will determine if the proposed activity is routine or not (if it is determined the activity is not routine, a ROW permit will be required). A schedule and a Blanket Permit shall be provided to the County where routine maintenance will occur.
3. An overhead pole-to-pole service drop if the pole occupies the right-of-way or easement by virtue of a County approved Permit and applicable minimum overhead clearance is maintained.
4. A temporary service wire placed across, or adjacent to, the roadway which wire placement does not create a hazard to the traveling public.
5. Work to be done in or on private property, providing construction will not be accomplished within a County-dedicated utility/drainage easement.
6. To run a drop from the tapped pedestal directly to a private property line, so long as the portion of the cable drop is buried in the right-of-way or easement and is physically not longer than the total width of the easement.

EXAMPLE: From a pedestal located in the middle of a ten-foot easement, a drop can be run directly to an abutting property line without a Permit so long as that drop runs no longer than ten feet in the easement.

7. Locating lines and/or valves for other construction.
8. Hydrant and/or valve adjustments.
9. Residential water or gas meter installations provided the meter and main are located on the same side of the street.
10. Installation of United States Post Office mailboxes.
11. Lawn, landscape, and irrigation maintenance.

\*When the construction activity impedes the traffic flow (arterial or collector), a certified Maintenance of Traffic plan, shall be submitted to the Permit Section prior to start of work.

F. For violations of the Permit's requirements, stipulations, and/or "Conditions of Permit," the County may:

1. Void the approved Right-of-Way Permit.

2. Impose administrative restraints until the violation has been corrected.
3. Require the Permittee to fulfill the Permit requirements, additional stipulations, and/or "Conditions of Permit" at the expense, if any, of the Permittee, his successors, and assigns.
4. Bill the offending person, firm, corporation, or association for costs incurred.
5. Inform the County Attorney that a violation of this Handbook has taken place, and seek legal action against persons responsible for such violations.
6. Take any other actions permitted by general law.

G. The Board of County Commissioners shall, by separate Resolution, establish fees for the issuance of permits for work within the County's right-of-way for the following types of permits and inspections:

1. The initial fee for a Work Within the County Right-of-Way Permit will be paid upon application for such Permit, including permits for jack-and-bore, open-cut, turn lane/median work, sprinklers and for regulated and/or franchised utilities. Any additional fees shall be paid prior to receiving the approved permit.
2. Re-inspection Fee, if required, due to improper or incomplete work within the County's right-of-way shall be paid prior to such re-inspection.
3. Prior to the continuance of any work requiring an after-the-fact Permit, the additional fee for such permit has been established and shall be paid prior to the re-commencement of any such work.

H. Any Permittee, including private contractors, public utility companies and regulated franchisees may be required to post a Performance Bond, in a form acceptable to the County at the option of the Transportation Services Division Administrator.

## II. CONSTRUCTION REQUIREMENTS

- A. The basic requirements governing location and construction methods of facility installation will follow the FDOT Standard Specifications for Road and Bridge Construction, Road Design Standards and Traffic Operation Standards, latest applicable editions(s), the Collier County Land Development Code, latest adopted edition (Public transportation projects in Collier County ROW are exempt from the provisions of L.D.C.), current County Construction Standards, the FDOT Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets & Highways, latest edition, and the Manual on Uniform Traffic Control Devices, latest edition. Of primary concern in the design, construction and location of facilities is the safety of roadway users and the protection of the right-of-way. In all cases, highest consideration shall be given to sound engineering principles over economic factors.
1. At locations where Collier County traffic control and/or safety devices will interfere with proposed construction, the Permittee or his consultants must notify the Collier County Transportation Division, Traffic Operations Department (TOD) at least three working days in advance of the specific job commencement. All such devices will be removed or relocated only upon TOD approval and under the supervision of the TOD. Any traffic control and/or safety devices damaged or destroyed shall be replaced by and at the expense of the Permittee, his successors or designee.
  2. For installation of overhead facilities, a minimum clearance shall be maintained as required by the National Electrical Safety Code, latest applicable edition, or as otherwise specified by the County. One side of the right-of-way is usually reserved for communication lines and the other side is reserved for power lines. In cases where more than one aerial installation is proposed on the same side of the roadway, a joint-use arrangement may be appropriate.
  3. Only one pole line will be permitted on each side of the right-of-way. However, a second pole line only to support roadway illumination may be allowed where the need for same is documented and traffic safety requirements are met.
  4. Each utility pole must be within two feet of the property/right-of-way line, with roadside face being the governing mark, unless approved otherwise for each respective pole.
  5. Placement of poles shall not interfere with the existing or future road design including placement of sidewalks.
  6. When base-mounted poles are used, the base must be flush with or below the ground. It may be necessary to restrict this type of installation to areas where the base is unusually large or where the right-of-way is restricted.
  7. All longitudinal underground utility facilities shall be placed outside of the shoulders as near to the right-of-way as possible and have a minimum cover of thirty inches with programmable electronic marker balls unless otherwise approved. Primary cable (voltages exceed 500 volts) shall have a minimum cover of thirty-six inches unless otherwise approved. Secondary cable (voltages less than 500 volts) and water lines shall have a minimum cover of thirty inches unless otherwise approved. Programmable electronic marker balls shall be placed with the utility ID.
  8. Where encasement is used or designed as a pressure vessel, the encased pipe shall have strength equal to or exceeding the carrier pipe. Where the casing is not a pressure vessel, the encased pipe shall be capable of supporting minimum external loads of 2,200 PSF at thirty-six inch depth.

9. Gas and liquid petroleum pipelines shall be designed and constructed to conform with 49 CFR, Part 192, Transportation of Natural and other Gas by Pipeline, or Part 195 Transportation of hazardous liquid by Pipeline, as applicable, latest editions.
10. When an emergency condition reasonably warrants immediate action, such as a break in a gas, cable, sewer, or water line, or where a situation occurs which may endanger the public, time may not allow the normal issuance of a Permit. In such cases, the County must be notified as soon as possible by any available means. Within 72 hours, a Right-of-Way Permit application and Maintenance of Traffic plans of the work performed must be submitted to the County. This will not be considered an after-the-fact if it is within the 72 hours.
11. Fencing that encloses public property or that indicates that public property is being used for private purposes will not be permitted to be placed in a public right-of-way.
  - a. Prior to the installation of fencing within any utility and/or drainage easement, the Permittee/owner must obtain approval from all affected utility companies or agencies. At installation of the fencing, the Permittee/owner thereby assumes total responsibility for any future maintenance, removal, or replacement thereof.
12. Mailboxes, prior to installation and placement, must meet the requirements of the United States Postal Service and all safety and other requirements specified by the County. The post for the mailbox must be a breakaway assembly.
13. No construction or maintenance of the permitted facility shall interfere with any property rights of any prior occupant without written consent of the affected party(s).
14. All materials and equipment are subject to inspection by the County.
15. During construction, all applicable safety regulations shall be observed and the County shall be relieved of all responsibility for damage or liability of damage of any nature arising from work authorized under any County Permit. Further, for the proposed work, when requested, indemnification requirements (public liability insurance, property damage insurance) shall be supplied to protect Collier County. A copy of the Certificate of Insurance shall be submitted to the Collier County Right-of-Way Permitting and Inspection Section prior to the start of construction within any County-controlled public right-of-way.
16. The Permittee, through his Contractor, is responsible for the means, methods, and procedures to be followed for construction of the permitted facilities. Warning lights, flashers, barricades, or any other safety measure must be in strict accordance with applicable FDOT Standard Index 600 series.
17. It shall be the Permittee's responsibility to locate and protect from damage all existing utilities, both aerial and underground. For landscaped roadways, location of irrigation facilities is required through the Transportation Division, Alternative Transportation Modes Department. If driveways, turnlanes, sidewalks are installed, the re-sleeving of existing irrigation lines and the sleeving of proposed irrigation lines shall be required.

B. Roadway Crossings shall be as follows:

1. General Information:

- a. Crossings under existing pavement shall normally be made using the jack and bore or directional bore method without cutting pavement. A pneumatic underground piercing tool is not an acceptable device for use under roadways.
- b. Sewer forcemain, gas, and water lines require ductile iron pipe if placed in an open-cut of a roadway, unless otherwise approved. If a PVC pipe is to be used in lieu of ductile iron pipe, the PVC pipe shall meet the design criteria for AWWA C900 Class 200 or County approved equal. The design criteria for other PVC pipe usage shall be reviewed on an individual case-by-case basis.
- c. Neither jetting (air or water) nor tunneling is allowed.

2. Jack and Bore

- a. Pipes may be jacked and bored under a roadway at a minimum depth of thirty-six inches measured from the top of the pipe to the elevation of the road edge.
- b. If mechanical boring is utilized to place the pipe, the tip of the drill head shall precede the end of the pipe by no more than two inches.
- c. All jack and bore crossing must be a continuous operation at the approved location and depth. Any deviation from any requirement will be sufficient grounds for work stoppage, plugging the pipe with concrete, and placement of the pipe at another approved location.
- d. Casing will be required for crossing under existing pavement where the carrier is of a composition that cannot be safely jacked and bored.

3. Any request for an exception to any of the foregoing requirements must be fully justified by the applicant in writing to the County.

4. All open cuts on major roadways shall be restored using flowable fill in accordance with Section VI, "Drawing Reference for Minimum Requirements", of this Handbook and/or special stipulations, if any, of the permit.

- a. Open-cutting of existing pavement will generally not be allowed, but may be considered under one or more of the following conditions, provided inspection and approval beforehand is made by the County Right-of-Way Permitting and Inspection Section:
  - (1) Subsurface obstructions including rock within thirty inches of the surface.
  - (2) High water table that cannot be adequately lowered by conventional means (i.e., well-pointing or sump pumping).
  - (3) Limited space for jack and bore pits due to right-of-way confinement.
  - (4) Conditions of roadway surface, including programmed resurfacing and rebuilding. "Programmed" shall mean scheduled on the County's 5-year Work Program and funded within two years.

- b. Where an open-cut has been permitted, replacement of backfill, base, and wearing surface shall be in accordance with Section VI, "Drawing Reference for Minimum Requirements", of this Handbook and/or special stipulations, if any, of the Permit.
  - c. Limerock for backfill shall be available on the jobsite during any open cut operation.
  - d. If the restoration is incomplete at the end of the day, the trench shall be backfilled and secured by temporary asphalt patch or steel plate. Lane closures may be allowed with County's consent.
  - e. Before a lane is open to traffic, an asphaltic patch must be provided where applicable.
  - f. Upon backfill and completion of the base, if the hot mix asphalt is not immediately placed, a temporary cold or hot mix asphaltic patch with a smooth all-weather surface may be utilized, if authorized by the County.
  - g. The Permittee assumes all maintenance/repair responsibilities and liability for the installation.
5. Directional Bore: on all collector and arterial roadways, FDOT Standard Specifications will be followed. No directional bore with less than 36" depth will be allowed under any pavement.

C. Attachments to Structures (Bridges, Culverts, etc.):

- 1. Attachments to structures in the right-of-way are discouraged, but may be considered under the following conditions:
  - a. When, in the opinion of the County, an extreme hardship will result by not attaching to the structure.
  - b. When attachment will not create a potential hazard to the public.
  - c. When the attachment will not affect the integrity of the structure as per structural analysis submitted by a Florida registered Professional Engineer paid for by the Permittee.
  - d. When the attachment will not adversely affect the aesthetics of the structure.
  - e. When the attachment will not hinder maintenance of the structure.
- 2. If attachments are permitted by the County, the following criteria must be adhered to:
  - a. All maintenance of facilities attached to structures shall be made without hazard to the public and in accordance with all applicable safety standards.
  - b. Existing clearances (overhead, lateral, and vertical) shall not be reduced.
  - c. Facilities shall be in casings so that maintenance can be accomplished from the ends of structures.



- d. Material used for casing and attachments should be such that it will require minimum maintenance.
- e. All lines carrying hazardous materials must be encased throughout the length of the structure with shutoff valves within distances specified by the County. Casings must be designed to contain the hazardous material on the structure and must be vented at each end of the structure.
- f. Any attachment shall be installed so as not to induce corrosion into the structure.
- g. Appropriate fan guards, fences, and signs shall be placed as required by the County.

D. Safety Requirements:

- 1. Unless an approved detour is provided at any open-cut crossing, a minimum of one traffic lane will be maintained during the daylight hours and two-way traffic at night. All traffic detours shall be restricted to the limits of the County right-of-way with necessary flaggers and/or marking devices. The County shall approve detours prior to Permit issuance. Detours of traffic outside of the County right-of-way will be considered only with the approval of affected local governmental agencies and any affected private interests.
- 2. Signs, flaggers, and other safety devices shall be utilized throughout the construction period in accordance with the most current FDOT Index 600 series and the County's Maintenance of Traffic Policy.

E. All Collier County Public Property shall be restored to its original condition or better, consistent with the FDOT Standard Specifications for Road Bridge Construction, latest applicable edition, and/or the Collier County Land Development Code, latest edition (Public transportation capital projects in Collier County ROW are exempt from the provisions of L.D.C.), and in a manner otherwise satisfactory to the County.

1. Restoration Guidelines:

- a. All material excavated from the County right-of-way in excess of the quantity required for backfill, shall be removed by the Permittee at his cost and expense. All unusable material shall be disposed of at the Permittee's expense and not placed within the limits of the County right-of-way unless specifically directed by the County.
- b. Anyone who performs work within the public right-of-way shall be responsible for protection of all existing vegetation and facilities not authorized to be removed in the Permit. It shall be the Permittee's responsibility to have all construction debris removed from the public right-of-way and to restore all vegetation and facilities damaged or relocated during construction.
- c. Sodding, seeding, mulching and watering operations, when required, are to begin within three weeks after completion of construction or as otherwise directed, and shall be continuously monitored and watered until growth is initiated or until sufficient local seasonal rain activity will ensure growth. All requirements regarding sodding, seeding, mulching, and watering shall be in accordance with the FDOT Standard Specifications for Road and Bridge Construction, latest edition, or as otherwise directed by the County.

- d. Any private yards or parts of the right-of-way in front of adjacent property that contain a grass mat shall be re-sodded with similar sod.
  - e. All side drains, side ditches, swales, and storm sewers will be referenced as to grade and location prior to construction, and must be maintained during construction.
  - f. Drawings are included in Section VI of this Handbook detailing proper road replacement for an open-cut. Additional paving may be required at the direction of the County.
  - g. Temporary asphaltic patches are required when restoration of the road is incomplete at the end of the day. For a temporary patch, the cut shall be properly back-filled, with compaction meeting the density requirements specified, primed, then the cold or hot mix asphaltic patch applied. At the time of final paving, the temporary cold or hot mix asphaltic patch used shall be removed and the final asphaltic overlay shall be evenly applied, as required. The temporary patch may be left in place for a maximum of 45 days.
  - h. Both field and laboratory testing, such as density testing (LBR, Proctor), on the proposed backfill material shall be conducted by a certified laboratory. All testing shall be completed and shall meet minimum density requirements on each lift prior to additional backfilling. Copies of all completed compaction test results shall be furnished to the County prior to completion of the project.
  - i. When the specified compacted limerock base is greater than six inches, the base shall be constructed in two or more equal lifts.
  - j. Limerock for backfilling must come from an FDOT-approved pit and be FDOT certified material.
  - k. Unpaved roads must be repaired as shown on the drawings in Section VI of this Handbook.
  - l. Where crossings are made through driveways or parking lots, within public right-of-way or dedicated easements, restoration shall be equal to or better than previously existing, in both material and workmanship.
- F. Permissible work hours shall be from 7:00 A.M. through 7:00 P.M. from Monday through Saturday, except for work in medians and for the construction of turn lanes or road closures. Median and turn lane construction shall be confined to “off-peak” traffic hours and “off-peak” traffic days. “Off-peak” is defined to mean the hours of 8:00 PM through 6:00 AM on weekdays and all day and night on Saturdays and Sundays. Median and turn lane construction may, when circumstances require, be permitted during “peak” hours with the approval of the Transportation Services Administrator, or his designee. Such approval, if granted, shall be considered permissive and may be rescinded for failure to abide by the conditions or restrictions contained within the Permit. Such permissive approval may also be rescinded if, in the opinion of the Transportation Services Administrator, traffic operational hazards result from construction operations.

**No lane closures will be permitted between the hours of 7:00 AM through 9:00 AM and 3:30 PM through 6:30 PM on weekdays.**

### III. TURN LANES, DRIVEWAYS, ACCESS ROADS DESIGN REQUIREMENTS

#### A. Separate Turn Lane Requirements:

All right turn lanes must be consistent with existing conditions or planned improvements if located on a collector or arterial road. For all turn lanes: 1. If existing County ROW is utilized, compensating ROW must be provided. 2. If a sidewalk must be reconstructed for a turn lane, the existing separation must be maintained; or the required clear zone, whichever is greater. Construction of required turn lane(s) must be completed prior to commencing construction on site.

#### 1. Turn lanes are required and must be constructed whenever any of the following conditions exist:

##### a. Two Lane Roadways:

- (1) Left turn lanes must be provided whenever the left turn volume is 20 vehicles or more.
- (2) Right turn lanes must be provided whenever the right turn volume is 40 vehicles or more.

##### b. Multi-lane Divided Roadways:

- (1) Median openings, other than those existing at the time of Permit application, to accommodate left turns at locations other than street intersections may be permitted only when the projected traffic volume at the proposed opening (two-way total) averages 150 vehicles per hour during the eight highest hours of a typical day. When new median openings are permitted, they shall always include left turn lanes. Turn lanes in the median that serve the public shall take precedence over turn lanes serving privately owned developments. (i.e. if a median opening/turn lane for a private development precludes the installation or lengthening of a turn lane benefiting the public, the turn lane serving the private entity may be required to be reduced or removed at the expense of the beneficiary).
- (2) Right turn lanes shall always be provided for existing multi-lane divided roadways or for roadways, which are scheduled to become multi-lane divided roadways in accordance with the Annual Update and Inventory Report of the Collier County Growth Management Plan.

##### c. Existing Conditions:

- (1) Increased radii with expanded throat depth may be approved due to pre-existing conditions constraints.

#### 2. These requirements may be modified or waived by the Transportation Services Division Administrator or his designee when physical conditions at the site make their application impractical or when the road is to be reconstructed as part of an approved CIE (Capital Improvement Element). While traffic volumes usually do not require separate turn lanes until the

specified volumes are reached, Developers shall include them with the initial project access construction. This policy will be less costly than stage construction and there will be only one period of disruption to existing traffic. Requirement may be modified at the discretion of the Transportation Administrator or his designee on a case by case basis.

3. Openings, other than those existing at the time of permit application, must meet access management policy spacing requirements. Existing openings will be reviewed on a case by case basis.

B. The following geometric restrictions for the classification of the type of property being served are hereby established as the standard. Practicality and space limitations preclude the inclusion of data to cover all design criteria. The Transportation Services Division Administrator or his designee may consider deviations to the geometric and design standards when conditions warrant.

1. Single Family and Duplex Residences:

- a. Lots having frontage of less than 100' (lots with frontage 75' to 99' will be analyzed by the ROW Section Manager for possibility of granting dual drives. No lots with less than 75' front shall have more than one driveway as per Resolution 2003-411).
- b. The width of a driveway access at the right-of-way line shall be not less than ten feet or more than 24', except that a driveway access located on a street having a speed limit greater than 30 mph shall have a width of not less than 12'.
- c. No driveway access for any residential zoning district, except mobile home districts, shall be located less than 50' from an intersection as measured along the property line from the intersection of right-of-way lines to the near edge of the driveway. A minimum of 30' may be used upon approval by the ROW Permitting Section Manager or his designee. In mobile home districts, the access shall not be less than 20' from the intersection measured as above.
- d. No driveway access shall be located less than seven and one-half feet from the side lot line unless those adjacent lots are in common ownership, are to be served by a common driveway, are in a mobile home zoning district, or are on a non-conforming lot.
- e. See Standard Drawing "Sheet 2 of 26", Section VI of this Handbook.

2. Automobile Service Stations and Drive-Thru Businesses:

- a. An automobile service station or drive-thru business shall have a maximum of two one-way driveways, or one two-way driveway along any street it abuts.
- b. Driveways shall be located in accordance with the Collier County Access Management Policy as it may be amended from time to time.
- c. Driveways shall be no more than 24' in width at the right-of-way line. One-way driveways shall be spaced not less than 30' apart measured edge-to-edge of driveways excluding radii, except those driveways serving automobile service stations may be up to 30' wide. No portion of the right-of-way between driveways shall be paved except to provide for sidewalks.
- d. Alleys shall not be used as the primary ingress or egress to any property.
- e. See Standard Drawing "Sheet 3 of 26", Section VI of this Handbook.

3. Shopping Centers and Commercially Zoned Properties:
  - a. Driveways and access roads shall be located in accordance with the Collier County Access Management Policy, as it may be amended from time to time.
  - b. A single lane driveway serving a shopping or retail center shall not be less than 12' nor more than 14' in width at the right-of-way line. Two-lane driveways shall not be less than 20' feet nor more than 24' wide at the property line. When two adjacent driveways are operated as a one-way pair, these dimensions shall apply to each driveway separately. Major developments must receive approval from the Transportation Administrator or his designee for larger driveways depending on the need for ingress and egress and right and left turn lanes at access points.
  - c. All signs and pavement markings shall conform with the Manual On Uniform Traffic Control Devices, latest edition, and shall be shown on the site plan submitted with the application for a building Permit, or as otherwise required by the County.
  - d. See Standard Drawing "Sheet 4 of 26", Section VI of this Handbook.
  
4. Multi-family, Industrial and Other Commercial Property (Except Shopping and Retail Centers, Auto Service Stations, and Drive-Thru Businesses).
  - a. Driveways and other access roads shall be located in accordance with the Collier County Access Management Policy, as it may be amended from time to time.
  - b. Single lane driveways shall not be less than 12' nor more than 14' in width at the right-of-way line. Two-lane driveways shall not be less than 20' nor more than 24', excluding the drive radii, in width at the right-of-way line.
  - c. All signs and pavement markings used shall conform to the Manual On Uniform Traffic Control Devices, latest edition, and shall be shown on the site plan submitted with the application for a building Permit.
  - d. See Standard Drawing "Sheet 4 of 26", Section VI of this Handbook.

C. Minimum Design Standards:

1. Design of individual driveways shall conform to and incorporate the following features:
  - a. Driveway edges are intended to be connected flush but may be no more than  $\frac{3}{4}$ " higher in elevation at the edge of pavement of the roadway with adequate radii or taper to provide a safe turning maneuver, to avoid any hazard to through street traffic, and to contain the vehicle within the paved portion of the driveway.
  - b. Driveways shall be positioned to intersect as nearly as possible at right angles to the roadway. Driveway aprons shall be extended from the edge of pavement to the right-of-way/property line, or for a minimum of 20' from the edge of the existing pavement where the public right-of-way exceeds 60' in width subject to the approval of the ROW Permitting Manager or his designee. Swale driveways shall be paved to design grades specified by the County.

- c. Driveways, or any portion thereof, shall not be constructed within side and rear lot public easements unless permitted by the County in the specific case. **If the placement of a driveway, or portion thereof, is within a public easement, the responsibility and expense for future removal and replacement shall be the Permittee's.**
- d. All driveways are to be constructed so as not to impair proper drainage within the road right-of-way or to alter the stability of the roadway subgrade and shoulders.
- e. Installation and replacement of swale drives are discouraged and shall only be permitted with the consent of the ROW Section Manager on a case by case basis.
- f. If a drainage culvert is required under the driveway, the type, length, and diameter shall be approved by ROW Permitting and Inspection Section. The length of drainage culvert required shall be based on the driveway width at the centerline of the swale, plus a minimum of four feet on each side of the driveway for driveway shoulders and a distance based on proper slope using the driveway's centerline elevation and the culvert's invert elevation as the vertical distance to compute the required horizontal distance, unless otherwise specified.
- g. Where culverts are used, reinforced concrete pipe meeting the FDOT Standard Specifications for Road and Bridge Construction, latest edition, shall be required in all cases where there is less than 12" of cover for properties zoned for multi-family or commercial use. Such driveways shall have a minimum of a five-foot shoulder on each side and the typical 4:1 slope from the shoulder's edge to the culvert's invert, unless otherwise specified.
- h. Mitered end sections with concrete collars having a broom finish and sodded as shown in the FDOT Standard Indices shall be required for all culverts. The County may waive these requirements where unusual conditions prevail, such as due to the depth of the roadside swale and due to the distance the swale is located from the edge of pavement.

2. Types of Driveways and Specifications:

- a. Asphalt concrete drives:
  - (1) Driveways for residential use shall be constructed on a stabilized subgrade using a minimum of six inches of compacted limerock base or four inches of ABC-3 ("black base") with one and one-half inches of asphalt concrete surface course, conforming to FDOT Specifications for Type S.
  - (2) Driveways for multi-family, commercial or industrial use shall be constructed on a stabilized subgrade, using a minimum of eight inches of compacted limerock base (LBR-100) or six inches of ABC-3 ("black base") with two inches of asphalt concrete surface course conforming to FDOT for Type S.
- b. Concrete drives shall be constructed on a compacted subgrade with a minimum of six inches of Portland cement concrete having a minimum 28 day compressive strength of 3,000 psi, and which must be reinforced with welded wire fabric (6" x 6", #10/#10) or equal. The surface shall be broom finished. In cases where new concrete is placed adjacent to existing concrete, a one-half inch expansion joint is required. Where

concrete is used for a driveway in the public right-of-way, a one-half inch expansion joint is required at the right-of-way line.

- c. Loose gravel, rock, and ornamental stone are not permitted within public right-of-way.
3. In areas where roadside swales are required, the right-of-way shall be graded a minimum of three inches below the swale design finish grades to allow for the installation of sod.
4. A temporary access, when permitted, shall be utilized for a maximum of six months from the date of Permit issuance, unless otherwise approved.
5. Existing access points, which are not to be incorporated into a development, shall be totally removed and the right-of-way shall be restored prior to final approval by the County.
6. Driveways Throat Lengths, as they apply to commercial developments, shall utilize the following criteria:
  - a. Shopping Centers (up to 200,000 square feet).
    - (1) Access to project entrance roadway or out-parcels:
      - (a) On project entrance roadways that are major traffic generators (peak hour volumes of 150 VPH or more), minimum throat length = 100 feet.
      - (b) On project entrance roadways that are minor traffic generators (peak hour volumes less than 150VPH), minimum throat length = 75 feet.
    - (2) Access to project entrance roadways for parking aisles:
      - (a) On project entrance roadways that are major traffic generators (peak hour volumes of 150 VPH or more), minimum throat length = 75 feet.
      - (b) On project entrance roadways that are minor traffic generators (peak hour volumes less than 150 VPH), minimum throat length = 60 feet.

NOTE: On shopping centers that are greater than 200,000 square feet, a traffic impact analysis shall be prepared by the Permittee to determine all throat lengths.
  - b. Other Commercial Developments:
    - (1) For access to project entrance roadways for out-parcels, use the same criteria contained herein for shopping centers.
    - (2) For the access to project entrance roadways for parking aisles, a minimum throat length of 50' shall be required (on a case by case review, ROW Permitting Manager or designee could revise the length to 30'). A deviation may be approved at the discretion of the Transportation Administrator or his designee on a case by case basis for dead end roadways, low volume roadways, or due to existing condition constraints.

c. General Criteria for Throat Distances:

- (1) The throat distance shall be measured from the nearest edge of pavement on the arterial/collector roadway (either existing or proposed pavement) to the nearest edge of pavement of the access roadway.
- (2) All of the foregoing criteria are predicated on having adequate storage and taper lengths for both right- and left-turn lanes on the arterial/collector roadway. Said storage and taper lengths shall be obtained using FDOT, AASHTO, FHWA, and CCULDC criteria.
- (3) Gated entries: (a) Gated residential developments must retain 100' minimum throat depth from the right-of-way line to the face of the gate. A turn around must be provided prior to gate that allows sufficient turning radius to allow fire and EMS to safely turn around. This requirement may be modified at the discretion of the Transportation Administrator or his designee on a case by case basis for pre-existing conditions and when it can be demonstrated that it will not jeopardize the health, safety and welfare of the traveling public. (b) Security gates servicing industrial and commercial uses shall provide a minimum of 30' of throat depth or additional throat depth as needed to provide sufficient stacking so that the entering vehicle can completely exit the right-of-way before unlocking the gate.

D. Access and Site Plan Information Required:

1. The application for the PERMIT, whether new construction or alterations, shall contain the following information:
  - a. Owner's name, mailing address, and telephone number.
  - b. Legal description of lot or tract.
  - c. Site plan indicating:
    - (1) Lot dimensions.
    - (2) Location of all proposed driveways or access points with respect to lot lines, the nearest existing adjacent access points both directions from the proposed access, and all median openings within ½ mile each direction from the proposed access points.
    - (3) County roadway name, existing width of pavement and existing right-of-way dimensions. Include location of driveways with respect to edge of pavement, swale location, and curb and gutter, if applicable.
    - (4) Other existing physical features and characteristics (signs, lights etc.).
  - d. Proposed driveway geometrics including width of driveway at the right-of-way line and size of radii or turnout intersecting roadway.
  - e. Type of pavement being used – asphaltic concrete, Portland cement concrete, etc.



- f. A copy of the most recent survey; or note if a survey has been completed on the lot or tract and if the corner survey pins are still intact. The lot or tract numbers shall be posted at the job site at front property corners, and on the side property corners if the lot or tract is a corner lot.
- g. In cases where driveways will utilize a State Road right-of-way, an approved FDOT Connection Permit, or Notice of Intent to Issue a Connection Permit, must be submitted with the site plan.
- h. Site distance triangle included in all submittals, based on F.D.O.T. design standards.

E. The following procedure shall be followed for the installation of drainage culvert within the public right-of-way:

- 1. Prior to the installation of any type of drainage culvert within the public right-of-way, an approved "Permit to Perform Work and/or Maintenance in Public Right-of-Way" from the ROW Permitting Section shall be obtained.
- 2. The required culvert length, type, size, and other pertinent information including mitered end sections, concrete collars, and sod shall be shown on the approved permit.
- 3. The culvert grades shall be set in accordance with the approved plan and may be later modified by staff (with the ROW Permitting Section Manager's consent) if required by practical field conditions.
- 4. The Permittee or Contractor shall place the culvert to the specified elevations and shall re-grade or re-shape the swale and road shoulders that were disturbed or damaged during construction to comply with the plan's stipulations and/or "Conditions of Permit."
- 5. Unless otherwise approved, a clean-out or inlet must be constructed at every common property lot line, or in accordance with FDOT requirements, whichever is less. An inlet, clean-out, or junction box shall also be required at any change of culvert size, culvert type, change of flow direction or any union of two or more culverts. The minimum inlet, clean-out, or junction box size is 24" by 36", inside dimension. Each such inlet, clean-out, or junction box shall have a cast iron grate by United States Foundry (No. 6210) or equivalent.
- 6. If the swales, drainage culverts and inlets are not installed correctly, final approval will be withheld until corrected. No Certificate of Occupancy may be issued until such final approval is granted.
- 7. Temporary culverts must be installed within the drainageways of Collier County if construction has commenced and the approved permanent culvert is not already in place.
- 8. Fifteen inch diameter (unless extenuating circumstances exist as determined by the ROW Permitting Section Manager or designee) is the minimum size allowable for use where a culvert is to be connected to the County drainage system, or where a culvert is placed within the public right-of-way.

9. In cases where the culvert is associated with a driveway and is approved as part of a Building Permit, an inspection shall be made and work shall be approved prior to the Community Development and Environmental Services Department signing the Building Department's "Master Control Card" to ensure that all public property has been restored to a condition satisfactory to the County.

F. In situations where the following conditions exist, the Transportation Administrator or his designee may approve a deviation or accept alternative mitigation as identified in the current TIS Guidelines and Procedures resolution:

1. Negative impacts to the Health, Safety, or Public welfare are not expected to result from the proposed deviations; and
2. The site is located at or near the end of a dead end roadway or has very little opposing traffic, is considered a local road with low volume, and where a roadway improvement or extension is not identified in the Long Range Transportation Plan; and
3. Where existing conditions on a previously developed site would cause a significant hardship on the site.

#### IV. MISCELLANEOUS CONSTRUCTION

##### A. Sidewalk/Bikepath/Pathway Construction:

1. Sidewalk/bikepath/pathway requirements are enumerated in the CCULDC 6.06.02, as amended.
2. Where authorized, asphalt sidewalks/bikepaths or access paths shall be constructed to specifications established by the County, but shall be no less than six inches of compacted limerock base over a stabilized subgrade, primed and surfaced with a minimum of one and one half inches of Type S asphalt concrete.
3. The Transportation Services Administrator, or his designee, may allow materials other than asphalt and concrete for the construction of sidewalks subject to review and approval of the substitute material and understanding the owner shall be responsible for maintenance. Such alternate construction materials may include, but are not limited to, concrete pavers, brick, and similar materials. In no case, however, shall ceramic or marble tile or "Bowmanite" be permitted.
4. Public Safety considerations:
  - a. The Contractor shall provide a safe walkway for pedestrians around all work areas.
  - b. Barricades or other barriers shall be used to prevent any possibility of injury to the public caused by the Contractor's work.
  - c. Walking areas around the work areas shall be kept clean of sand, stones, and any other material that could cause pedestrians to slip, fall, trip or otherwise injure them.
  - d. Work areas left overnight shall be barricaded with flashing warning lights and appropriate signs.
  - e. Collier County shall not be responsible for the means, methods or materials related to jobsite safety. Any such safety requirements are the sole responsibility of the Permittee.

##### B. Listed below are delineation devices and pavement markers acceptable for use in public right-of-way.

1. Delineation devices have the following general requirements and shall be in accordance with the FDOT and MUTCD Standards:
  - a. Reflectorized.
  - b. White/red, or amber in color; blue for location of fire hydrants.
  - c. A maximum of five-eighths inch in height, measured from the wearing surface of the road.
2. Types of delineation devices are as follows:
  - a. DISKS, measuring four inches in diameter and five-eighths inch in height.

- b. WEDGES, having a minimum size of four inches square and five-eighths inch in height. These wedges may:
  - (1) Be fully reflectorized.
  - (2) Have a plain top and reflectorized base.
  - (3) Have a plain top with reflective elements sealed into the surface facing the traffic.
- 3. Permanent reflective, pressure sensitive Pavement Tape, Traffic Paint, Thermoplastic Striping, and other pavement marking shall conform to AASHTO M249, latest revision, and FDOT Traffic Operations Standards (Index Series 17000).
- 4. Raised Reflective Pavement Markers shall be installed in accordance with FDOT Traffic Operations Standards (Index No. 17352).
- 5. To use any of the above devices in a public right-of-way, a permit request form is required, accompanied by two drawings of the proposed work, indicating size, type, and exact locations of the devices in the roadway.

C. Underground Utility Accommodations:

- 1. The following drawings shall be submitted for review prior to the issuance of a Permit. This submission shall be in conjunction with a Permit application.
  - a. Cover sheet with a location or vicinity map.
  - b. A Site Utility Master Plan that shall indicate the overall site development and all proposed utility improvements with references to the appropriate plan and profile sheets. If phasing to the project is proposed, phases must be indicated on this drawing. The locations of all existing utilities, physical features and characteristics (signs, lights etc.) on-site and immediately adjacent, shall be shown on this document.
  - c. Plan and Profile Sheets shall indicate the horizontal and vertical location of all proposed water and sewer improvements including other proposed or existing facilities and conflicts in the same general location. Special profile sheets shall be required when unique situations or complex conflicts occur that cannot be clearly detailed on standard plan and profile forms. Profiles must be positioned on the sheet directly below the plan sections they are illustrating with exact alignment of stationing from plan to profile.
- 2. All proposed utilities shall lie within the roadway right-of-way or within dedicated utility easements. Where utility improvements are proposed to be completed in conjunction with highway improvements and/or plans have been prepared showing future highway improvements, the location of the underground utilities shall take into account these future highway improvements. The intent of this requirement is to eliminate the need for unnecessary relocation of the underground utilities when future highway improvements are to be constructed.
- 3. All underground utilities shall be located as close as possible to the edge of the existing right-of-way and, where applicable, shall be located within dedicated utility easements adjacent to and outside of the roadway right-of-way. Excavation will generally not be allowed within eight feet of the edge of pavement.

4. Underground installations parallel to the roadway shall be a minimum of 36" below the pavement grade line or 30" below existing unpaved ground. Where parallel facilities are placed within a drainage swale or ditch, clearance shall be measured from the swale or ditch finish grade rather than the roadway grade.
5. Crossings under existing pavement shall be made without cutting the pavement. Locations that are unsuitable or undesirable for pipeline crossings are to be avoided. These include locations such as:
  - a. Deep cuts near footings of bridges and retaining walls.
  - b. Across at-grade intersections.
  - c. At cross-drains where flow of water, drift or stream bed may be obstructed.
  - d. In wet or rocky terrain where economic constraints preclude minimum burial.

Open-cutting of existing driveway connections (if paved) will be permitted, provided that the owners are notified and the existing pavement is restored in accordance with this Handbook. In any analysis of a request for open cutting, primary consideration will be given to the safety and convenience of the public. The applicant must provide written justification for approval of open cutting.

6. Casings shall be used for the crossings of underground utilities. Casings will be required for crossings jacked under existing pavement where the carrier is of a composition such that it cannot be jacked. Casings shall extend from toe of slope to toe of slope.
7. Restoration of the right-of-way shall be as follows:
  - a. Existing sidewalks and driveways removed, disturbed or destroyed by construction shall be replaced or repaired in kind. The finished work shall be equal or better in all respects to the original.
  - b. The Permittee, at his expense, shall replace all trees and shrubbery damaged or disturbed during construction. If the existing vegetation is improved landscaping, plans are to be prepared by a Florida registered landscape architect to address the removal, relocation and restoration as part of the permitting approval process. The Permittee is responsible for the restoration of the landscape improvements and reimbursements to Collier County. Any private plantings removed during construction shall be replaced. The Permittee, at his own expense, shall remove all debris. Any yard or portion of the right-of-way fronting private property with grass will be restored with like sod. Seeding and mulching operations are to begin within three weeks after the utility is installed, except in cases of front and back slopes, which should be done as soon after shaping as possible. The Permittee shall maintain the portion of the right-of-way affected by the installation until acceptable vegetation is established per the Collier County Landscape and Irrigation Specifications for Beautification Improvements within the public Right-of-Way.

- c. The Contractor shall replace pavement or roadway surfaces cut or damaged, in equal or better condition than the original, including: stabilization, base course, surface course, curb and gutter, etc. Where existing pavement is to be removed, the pavement shall be mechanically saw-cut prior to trench excavation, leaving a uniform and straight edge parallel to the utility with minimum disturbance to the remaining adjacent surface. The Permittee shall hold the width of this cut to a minimum. At each open-cut crossing, the backfill material shall be placed and compacted per Exhibit "E" of the FDOT Utility Accommodation Guide. This requirement holds for embankment, subgrade, and base. The Permittee, if qualified, or a certified laboratory, under the supervision of the Permittee's consultant, shall make the density determinations. A copy of all density test reports shall be furnished to the Transportation Services Division. Immediately following the specified backfilling and compaction, a temporary sand seal coat surface shall be applied to the cut areas. This temporary surfacing shall provide a smooth, all-weather traffic surface on the existing roadway, and shall be maintained until final restoration. Temporary surfacing shall remain for a minimum of ten days to assure stability of the backfill under normal traffic conditions. Following this period and prior to 15 days after application, the temporary surface shall be removed and the final roadway surface restoration accomplished. To accomplish the final roadway surface restoration, the temporary surface shall be removed and the existing adjacent pavement mechanically sawed straight and clean to the stipulated dimensions. Following the above operation, the Contractor shall proceed immediately with final pavement restoration in accordance with the requirements set forth by the applicable FDOT Utility Accommodation Guide, (Exhibit "E"), "Replacement of Flexible Pavement for permitted Pavement Cut". Excavated material in excess of the quantity required for backfill and considered usable by the Transportation Services Division shall be hauled by the Permittee at his cost and expense from the trench excavation and stock-piled in areas as directed by the Transportation Services Division. Excess excavated material considered unusable by the Transportation Services Division shall be disposed of at the Permittee's expense, unless otherwise directed. Any excavated material contaminated with hazardous waste or pollutants shall be disposed of at the Permittee's sole expense. In order to facilitate an acceptable construction site, debris and waste materials shall be removed from the site daily and the Permittee shall allow only the minimum length of trench to be open overnight.

8. All underground utility operations located within County-owned or controlled right-of-way shall have identified on the construction plans that maintenance of traffic will comply with the applicable MUTCD Sections and with the FDOT Index 600 criteria or their successors in function. In cases where detailed Maintenance of Traffic (MOT) plans are required (to be determined at the discretion of the County), the Permittee will submit an MOT Plan for that project, signed and sealed by a Professional Engineer registered in the State of Florida. At all open-cut crossings, a minimum of one-way traffic shall be maintained during daylight hours and two-way traffic shall be maintained at night. All traffic detours should be restricted to the limits of the right-of-way with the necessary flaggers and marking devices at the sole expense of the Permittee. Each person supervising the selection, placement, and maintenance of traffic control devices and utility work zones shall be formally trained and/or experienced in traffic control. The Permittee shall provide each job location with a responsible person in charge of traffic through the area covered by the Permit, who shall be qualified by appropriate training and/or experience. Upon notification of deficiencies in the traffic control plan or other matters involving traffic safety, the Permittee shall immediately make improvements as directed by the Transportation Services Division. Should the Transportation Services Division deem conditions to be such that imminent danger is present, all work shall cease immediately and the Permittee shall undertake immediate corrective action?
  
9. General Requirements:
  - a. All affected side drains, side ditches and storm sewers will be identified on the plans and referenced as to grade and location.
  - b. Shoring will be required to conform with then applicable OSHA requirements, where necessary to protect employees, to protect existing pavement, and/or to protect other existing facilities. The responsibility for the means, methods and materials used for any excavation and/or shoring operation shall be the sole responsibility of the Permittee. Collier County assumes no responsibility for the Permittee's or his Contractor's failure to comply with all local, State and Federal safety requirements.
  - c. The Permittee will indicate to staff where the Transportation Services Division's signs and reflectors will interfere with the proposed construction. These signs and reflectors will be moved or relocated by Transportation Services Division personnel. The Transportation Services Division, at the expense of the Permittee, will replace any signs or reflectors damaged, destroyed, removed or relocated.
  - d. Manholes shall be outside of traveled lanes wherever possible. The manhole ring, cover, and pad must support traffic for the area where it is being constructed and must always be set flush with the existing grade.
  - e. Abandoned underground lines shall be shown on the plans and shall be identified as to whether they will be removed or abandoned. If they are to be abandoned, they must be grouted or sand filled by the Permittee.
  - f. Underground utilities less than 30' from the edge of the pavement, excluding those considered not in traffic areas of curb and gutter sections, must be designed to carry traffic. Those located in non-traffic areas of curb and gutter sections and those located greater than 30' from the edge of pavement must be designed to support Transportation Services Division maintenance equipment.

- g. All new or replaced underground facilities within the public right-of-way shall be provided with a permanent indicating device capable of being detected from the surface.
- h. All County property shall be restored to its original condition or better at the sole expense of the Permittee.
- i. The Permittee shall warrant to the County all work within County right-of-way for one year from the date of the County's formal acknowledgment of the completion of the project.



## V. APPENDICES

**APPENDIX A  
PERMIT APPLICATION AND CONDITIONS**

# Right-of-Way Application

TRANSPORTATION SERVICES DIVISION  
ROW PERMITTING & INSPECTION

2885 SOUTH HORSESHOE DRIVE, NAPLES, FLORIDA 34104

Telephone Number: 252-5767 Inspection Telephone Number 252-2417 <http://www.colliergov.net/transadmin/transoperations/row/index.htm>

CALL     MAIL

**FILL IN ALL APPLICABLE INFORMATION**

PSP# \_\_\_\_\_ SDP/AR# \_\_\_\_\_ RIGHT-OF-WAY PERMIT # \_\_\_\_\_  
 PROJECT NAME \_\_\_\_\_ BUILDING PERMIT # \_\_\_\_\_

**Check Right-of-Way Type**

RESIDENTIAL	FEES	APPLICATION CHECKLIST
<input type="checkbox"/> Driveway	\$200	<input type="checkbox"/> Copy of house survey with A sketch for the request <input type="checkbox"/> Application fee <input type="checkbox"/> Details for request (location, size, etc.)
<input type="checkbox"/> Renewal/Modification (Unexpired Permit)	\$100	
<input type="checkbox"/> Jack-and-Bore/Directional Bore	\$500	
<input type="checkbox"/> Sprinkler Head	\$50	
<input type="checkbox"/> Open-Cut	\$2,000	
<input type="checkbox"/> Miscellaneous Events	\$200	
<input type="checkbox"/> Other		

COMMERCIAL	SMALL DEVELOPMENT	LARGE DEVELOPMENT
<input type="checkbox"/> Construction (Driveway)	\$1,000▼/\$2,000▲	\$2,000▼/\$4,000▲
<input type="checkbox"/> Renewal/Modification (Unexpired Permit)	\$500	\$1,000
<input type="checkbox"/> Jack-and-Bore/Directional Bore	\$1,000	\$2,000
<input type="checkbox"/> Sprinkler Head	\$200	\$400
<input type="checkbox"/> Turn-lane/Median	\$1,500	\$3,000
<input type="checkbox"/> Open-Cut	\$4,000	\$6,000
<input type="checkbox"/> Work in the ROW without Lane Closures	\$50▼/\$100▲	\$100▼/\$200▲
<input type="checkbox"/> Work in the ROW with Lane Closures	See Exhibit "A"	▼-JUN.-NOV. ▲-DEC.-MAY.
<input type="checkbox"/> PSC Regulated Franchise Utility	\$100 + \$50 per day Inspection Fee	

**COMMERCIAL ONLY:** \_\_\_\_\_ FEE PAID \_\_\_\_\_  
 Please submit 2 sets of signed and sealed plans \_\_\_\_\_ Est. Number of Days in ROW (if applicable) \_\_\_\_\_

**PLEASE PRINT**

Today's Date \_\_\_\_\_ Total Amount Paid \_\_\_\_\_  
 Make checks payable to: Board of County Commissioners Receipt # \_\_\_\_\_

Approval is hereby requested by (Owner Name) \_\_\_\_\_  
 For the purpose of \_\_\_\_\_  
 At/on (project street Address) \_\_\_\_\_

Lot No. \_\_\_\_\_ Block \_\_\_\_\_ Unit \_\_\_\_\_ Tract \_\_\_\_\_ Portion of Tract N \_\_\_\_\_ E \_\_\_\_\_ S \_\_\_\_\_ W \_\_\_\_\_  
 Subdivision \_\_\_\_\_ Sec. \_\_\_\_\_ ; Twp. \_\_\_\_\_ ; Rge. \_\_\_\_\_ E. \_\_\_\_\_

Folio No. \_\_\_\_\_

Property Name _____ Owner's Contact Name _____ Info. Mailing Add. _____ City/State/Zip _____ Telephone _____	Contractor/ Name _____ Agent Contact Name _____ information Mailing Add. _____ City/State/Zip _____ Telephone _____
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- Notes:
1. Work shall be performed in accordance with approved plan, Conditions of Permit appearing on reverse side, stipulations specified as part of this permit and in accordance with Collier County Ordinance #03-37 and the "Public Right-of-Way Construction Standards Handbook," latest edition.
  2. Applicant declares that prior to filing this application he has ascertained the location of all existing utilities, both aerial and underground. Any changes to any utility shall be the responsibility of the Permittee for all cost.
  3. This permit is contingent upon Permittee obtaining necessary rights of entry for construction and maintenance where required right-of-way for public use has not been dedicated and accepted by Collier County.
  4. If the application is made by any person or firm other than the owner of the property involved, a written consent from the property owner shall be required prior to processing of the application.
  5. Transportation Services Division approval does not exempt the permittee from gaining approval from any State, Federal or Local Agencies having jurisdiction over the proposed work.
  6. I have read the Collier County Right-of-Way Permit Notes and Conditions and agree to conduct all work in accordance with the County Ordinance #03-37, as amended and all applicable all County and State, codes and laws, as amended. Under penalties of perjury, I declare that I have read the forgoing permit application and that facts stated in it are true.

3 X \_\_\_\_\_ AUTHORIZED SIGNATURE

## CONDITIONS OF PERMIT

1. This permit must be kept on the work site and be available upon request or prominently displayed.
2. Permits are required for all work performed in any right-of-way or easements provided for public use in the unincorporated area of Collier County and in those public right-of-way or easements, which are maintained by Collier County, but lie within municipal boundaries.
3. When permitted facilities are placed within a public right-of-way or easement, the installation is for permissive use only and placing of facilities shall not operate to create or vest any property right in the associated right-of-way or easement to the permittee. Furthermore, the permittee shall be responsible for maintenance of such facilities until they are removed, unless otherwise specified.
4. All materials and equipment, including Maintenance of Traffic (MOT) and equipment placement, shall be subject to inspection by the Engineering Services Department or Transportation Services Division.
5. Requests for pre-inspections shall be made 72 hours prior to commencing work requiring inspection.
6. No lane closures will be permitted between the hours of 7:00 – 9:00 A. M. and 3:30 – 6:30 P.M.
7. Prior to construction, the Contractor/Permittee shall submit a Maintenance of Traffic plan (MOT) for any construction project involving work or activity that may affect traffic on any County street, roadway or bikepath/sidewalk. The MOT must be signed by either a Professional Engineer or person certified by the International Municipal Signal Association (IMSA) if affecting Arterial or Collector Roadways, unless waived by the Transportation Road Maintenance Department. The driveway fill and driveway culvert including soil erosion/sedimentation control measures must be installed prior to the start of any earth moving construction activity with drainage plans, culvert size, soil erosion/sedimentation controls, elevation offset, and ditch slope designed and certified by a licensed engineer for all commercial projects.
8. During construction the Contractor/Permittee shall comply with the "State of Florida Manual of Traffic Control and Safe Practices for Street and Highway Construction, Maintenance, and Utility Operations" and with the "Manual On Uniform Traffic Control Devices" and with all other governing safety regulations and shall maintain the approved site drainage plan and soil erosion/sedimentation control plan.
9. The Permittee shall hold the County harmless and the County shall be relieved of all responsibility for any damage or liability of any nature arising from work authorized and performed under this permit.
10. All crossings of existing pavement shall be made by jacking and boring at a minimum depth of thirty-six inches (36"), unless otherwise authorized by the Engineering Services Department or the Transportation Services Division for good cause shown.
11. All overhead installations must meet a minimum four foot separation to communication lines (both vertically and horizontally), minimum seven foot separation to guys (both vertically and horizontally) and minimum ten foot separation to neutrals (both vertically and horizontally), and meet and/or exceed all other OSHA requirements as may be determined by OSHA clearance requirements and/or formulas relevant to overhead lines clearances and/or separations requirements (both vertically and horizontally), and all underground crossings shall be placed at a minimum depth of thirty-six inches (36") below the pavement and/or a minimum depth of twenty-four inches (24") below the designed roadside ditch or swale invert. Primary cable (voltage exceeding 500 volts) shall have minimum thirty-six inch (36") cover. Secondary cable (voltages less than 500 volts) shall have a minimum thirty-inch (30") cover. Exception may be made by authority of the Engineering Services Department or the Transportation Services Division for good cause shown.
12. Two prints of the proposed work covering details of this installation shall be made a part of this permit. If additional plans are required, they shall become a part of this permit.
13. Following completion of all permitted work, grassing and/or seeding shall be required for any disturbed right-of-way.
14. All property disturbed by work authorized by this permit must be restored to better than, or equal to, its original condition, and to the satisfaction of the County.
15. Whenever deemed necessary by the County for the construction, repair, maintenance, improvement, alteration or relocation of applicable right-of-way or easement and when so notified by the County, any or all poles, wires, pipes, culverts, cables, sod, landscaping, driveways, sprinklers, or other facilities and appurtenances authorized shall be removed from said right-of-way or easement, or reset or relocated thereon as required, to be installed by this Permit, and at the expense of the permittee, his successor, or assign.
16. When the permittee, or his successor, or assign is notified of a need for construction, repair, maintenance, improvement, alteration of or relocation within the right-of-way or easement and no action is taken by the responsible party within the time frame specified by the County, the County shall cause the permitted work to be altered, relocated, or removed, with the total expense being borne solely by the permittee or the responsible party.
17. Permits shall generally be in a form approved by the Board of County Commissioners and shall include the time of commencement, the number of days the job is expected to take, and the approximate date of completion. The permit will expire ninety (90) days after the designated completion date, unless authorized in the specific instance for a longer or shorter period. If the work has not been completed by the expiration date, there will be a renewal fee, set by Resolution, payable upon extending the expiration date for an additional ninety (90) days.
18. All correspondence regarding construction procedures will be through the permittee, or his authorized agent or consultant, and not through any contractor or subcontractor.
19. If there are any lane closures or work that will impede normal traffic flow. The permit holders are obligated to inform the road alert coordinator at 239-252-8192 and the ROW Permit Section at 239-252-5767, three working days prior to construction.
20. Collier County Traffic Operations Department Inspection Staff shall be notified in writing either via form letter (To: Collier County Traffic Operations, At: 2885 Horseshoe Drive South, Naples FL 34104) or e-mail (TrafficOps@colliergov.net) a minimum of 72 Hours prior to the commencement of jobs that include overhead or underground work that will be conducted as part of construction or maintenance projects within Collier County or State road right-of-way within Collier County and 12 hours prior to any and all daily work to be performed throughout the entire length of construction or maintenance projects. Any rescheduling of work shall be provided in writing. All underground facilities must be located prior to construction.
21. Prior to acceptance by the County (including issuance of Certificate of Occupancy), the ROW Permitting Section shall be notified by mailing or delivering a request for a final inspection to the, ROW Permitting Section, 2885 South Horseshoe Drive, Naples, Florida 34104, or by phone, 239-252-2417, upon completion of authorized work. All as built surveys shall be submitted in GIS format following Collier County Transportation Services Division Standard for Design and As-Built Electronic Drawings (APPENDIX B) in addition to signed and sealed copies of the as-built survey.

**APPENDIX B**  
**COLLIER COUNTY TRANSPORTATION SERVICES DIVISION STANDARD FOR DESIGN**  
**AND AS-BUILT ELECTRONIC DRAWINGS**

**PURPOSE:** To establish standards for electronic design drawings and as-built drawings for capital improvements within County road rights-of-ways that allow efficient migration of the data to the County's geographic information system (GIS).

**INTRODUCTION:** Microstation and AutoCAD are the accepted software for electronic drawings for design and as-built drawings because they offer statewide or national standards, including layering of information. The intent of the layering standard is to promote consistency between drawings, and maximize the reusability of drawing data. The effective use of layering standards also facilitates the efficient transfer of data to shared graphical information for display, editing and plotting purposes. Layer/Level naming conventions must be followed for approval.

**1: Standards Information:**

**\* For Microstation:**

Refer to the Florida Department of Transportation (FDOT) standards for Microstation standards at:  
<http://www.dot.state.fl.us/ecso/downloads/publications/CriteriaHandBook/>

**\* For AutoCAD:**

Refer to the **National Cad Standards** (NCS) for AutoCAD files standards at:  
<http://www.nationalcadstandard.org/about.php> for latest edition and layering guidelines.

**2: Requirements:**

The deliverable must follow Map Projection, Horizontal and Vertical Datum requirements as below.

**\* Map Projection:**

All projects, independent of approval date, must be submitted in the correct coordinate system - State Plane, Florida East FIPS 0901, US feet, geographic coordinate system GCS North American 1983.

If any as-built is submitted in a different coordinate system, or no coordinate system, it will be rejected and deemed as an unapproved project by the Transportation Services Division. It will require further manipulation to meet the standards required for as-built electronic files before reaching approval and signed off status by the Transportation Services Division.

**\* Horizontal Datum:** State Plane, Florida East FIPS 0901, US Feet, geographic coordinate system GCS North American 1983.

**\* Vertical Datum:** North American Vertical Datum – NAVD 88.

**\* Survey Accuracy:**

All survey data shall be done according to the Minimum Technical Standards as stated in 61G17-6 of the Florida Administrative Code pursuant to Chapter 472 of the Florida Statutes. For as-built surveys of underground utilities, an accuracy of 0.25 feet (three inches) both vertically and horizontally is required at location points which shall be no more than 100 feet apart along installed utility lines except where field conditions limit the frequency of points that can be reasonably located and at all junctions and changes in direction.

**\* Map Accuracy:**

Collier County GIS has adopted USGS National Map Accuracy Standards for mapping / GIS products. The contractor must adhere to NMAS for all mapping work as referenced at this link:  
<http://rockyweb.cr.usgs.gov/nmpstds/nmas.html>

**\* Data Development Applications:**

Accepted software applications:  
Microstation V8

AutoCAD Land Development 2004 (or higher) or AutoCAD Civil 3D 2007 (or higher).

**\* Data Delivery Media:**

**Acceptable delivery media:**

CD (Compact Disk)

DVD (Digital Video Disk)

**Unacceptable delivery media:** Floppy disks and Zip disks. If data is submitted using floppy or zip disks, they will be returned as incomplete project submittals.

### **3: Drawing Composition:**

- \* AutoCAD files/ Microstation files delivered to Collier County Transportation Services Division shall contain only one drawing and one title block per file.
- \* All AutoCAD / Microstation drawings shall be purged of empty, unused, or non-essential drawing data prior to submittal to Collier County Transportation Services Division. This includes all unused layers/level, linetypes, blocks, fonts and entities.
- \* AutoCAD / Microstation drawings shall not contain any frozen layers / levels. All unused entities on frozen layers/levels should be erased, and the empty layers /levels purged.
- \* AutoCAD / Microstation drawings shall not contain multiple overlaid lines or lines with multiple segments unless the overlaid lines or adjacent line segments are assigned to different layers.
- \* Survey data shall be included in the AutoCAD/ Microstation drawings and placed on the appropriate layers. (Survey points must use the \_ PNEZD comma delimited format).
- \* Survey reference points and benchmark data must be clearly labeled with their coordinate values on the plan set.

### **4: Entity Properties:**

To ensure the integrity of the original drawing when viewing or printing, it is essential that AutoCAD / Microstation entities are created following these standards:

- \* Entity colors shall be defined by layer / level, not by entity.
- \* Blocks shall be defined (created) on layer / level 0 (zero).
- \* All attributes shall be defined on layer / level 0 (zero).

### **5: Model Space (for Auto CAD) / Design Models (for Microstation) and Paper Space (for Auto CAD) /Sheet Models (for Microstation) Usage:**

These guidelines are suggested for using Model Space / Design Models and Paper Space /Sheet Models effectively:

- \* Place title blocks, schedules and general notes at full-scale in Paper Space / Sheet Models whenever possible.
- \* Label scaled viewports with the appropriate scale in Model Space / Design Models.
- \* Do not place or draw model-related blocks, tags and objects in Paper Space / Sheet Models.
- \* Draw all Model Space / Design Models objects at full scale.
- \* Scale objects using Paper Space / Sheet Models viewports – zoom viewports to the appropriate scale.

### **6: External References – XREF's:**

External References (XREF's) contained in AutoCAD drawings created outside of Collier County Transportation Services Division can result in content discrepancies in the delivered drawing set. In some cases XREF's may be permissible; however this arrangement must be worked out in advance with Collier County Transportation Services Division. To ensure the integrity of the drawing set, and minimize potential problems:

- \* AutoCAD drawings submitted to Collier County Transportation Services Division shall not contain any XREF's.
- \* XREF's shall **not** be "bound" to drawings prior to delivery.
- \* If drawings contain XREF's, they should be inserted as blocks prior to submittal to Collier County Transportation Services Division. Layers contained in XREF's inserted as blocks shall conform to Collier County Transportation Services Division standards.

### **7: AutoCAD Drawing Support Files:**

Drawings created using non-standard AutoCAD fonts, linetypes, and hatch patterns can result in content discrepancies in the delivered drawing set. To ensure the integrity of the drawing set, and minimize potential problems:

- \* Only native AutoCAD or AutoCAD Land Desktop fonts, linetypes, and hatch patterns or the CAD Symbolology provided by the National CAD Standards are allowed.
- \* Custom fonts, linetypes, and hatch patterns, including those provided by 3rd party software, shall not be used.
- \* Only these TrueType fonts shall be used: Arial, Courier New, Times New Roman.
- \* Postscript fonts shall not be used

## 8: File Transmittal:

The content of electronic drawings provided by the contractor must match the delivered original hard copy set as closely as possible, if not exactly. To ensure the integrity of the electronic drawing set upon delivery to Collier County Transportation Services Division:

- \* Ensure the drawings adhere to the guidelines presented in this document. Review the procedures for preparing drawings for submittal as detailed in the preceding paragraphs.
- \* Include a hard copy index containing filenames and sheet numbers for each submittal. This ensures the completeness of the drawing set and assists in archival procedures.
- \* Include a transmittal sheet with all submittals indicating Collier County Transportation Services Division project number, Collier County Transportation Services Division project name (if applicable) and complete listing of all materials submitted.
- \* Include AutoCAD .PC2, .PCP or .CTB plot configuration.
- \* Include all field survey data as indicated in Drawing Composition, Section 3 above.
- \* Submit hard copies of original contractor “red line” plans and specifications.
- \* All hard copies of civil and site plan must be sealed and signed by a Licensed Surveyor or Professional Engineer and clearly marked, such as “90% Design”, “As-built” etc.

## 9: The following documentation shall be delivered to Collier County Transportation Services Division at the following project milestones:

- \* Design - Schematic/Preliminary/Working Drawings Collier County Transportation Services Division requires a complete set of Review Documents in AutoCAD on CD-ROM, in DWG format for AutoCAD / DGN format for Microstation and in PDF hard copy format for review of conformance to these CAD Standards by Collier County Transportation Services Division. During the preliminary and design phases of the project, Collier County Transportation Services Division staff that review the design may use the DWG format, DGN format and PDF format to provide design/conceptual comments/questions.
- \* Pre-Construction CAD drawing files in DWG format for AutoCAD/ DGN format for Microstation, as well as specifications in electronic (PDF) shall be submitted to the Collier County Transportation Services Division Project Manager on CD-ROM
- \* Record Drawings contractors shall submit, on CD-ROM and hardcopy format, approved As-Built Documents to Collier County Transportation Services Division at the capital project acceptance meeting. The CD-ROM shall contain the as-built information on the project and is to include DWG format for AutoCAD / DGN format for Microstation and PDF formats of the drawings in accordance with the Collier County Transportation Services Division CAD Standards, as well as electronic (PDF) specifications.

## 10: Digital File Index:

Each project, when submitted, must be accompanied by a project file index. The index can be submitted in Word, Excel or WordPerfect formats. Each index should contain the following –

1. Organization/company name.
2. A contact name and position.
3. Street address.
4. City.
5. State or province.
6. Postal/Zip code.
7. Country.
8. Phone number.
9. Fax number.
10. Email address.
11. Technician’s entry end date of the data/design.

**APPENDIX C**  
**DRAWING REFERENCE FOR MINIMUM REQUIREMENTS**

This Section of this Handbook contains detailed drawings depicting typical Collier County standards.

Where no drawing is included for a specific detail, the most current edition of the FDOT Roadway and Traffic Design Standards shall apply. If there is no standard available in this reference, a sketch of the proposed detail shall be submitted by the applicant for a Permit. The Collier County Transportation Services Division shall review the sketch and either Approve, Approve with Modifications, or Reject the proposed detail. If rejected, the applicant may re-submit a revised proposal for additional review. No construction shall be permitted which does not conform to the enclosed reference drawings, the FDOT Standards, or approved special details. Penalties for failure to conform to these requirements are enumerated elsewhere in this Handbook.