

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, 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 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), not necessarily to scale, 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 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 pushed, it shall be stated as such on the print and indicated as to

the length, size, and depth. 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. The applicant will be held responsible, for compliance with all "Conditions of the Permit" and/or additional stipulations.
- B. The application will be processed as follows:
6. The Permittee shall submit the application to the Transportation Operations Department 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, s/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.
 7. Following review, the Permit Review Section will forward the requested Permit to the Transportation Operations Director or his designee for approval or denial.

8. Permits approved will be distributed as follows: One copy retained in the Permit Review Section's file; one copy to be used as needed; and, the original copy to the applicant.
 9. 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.
- 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 adding poles in an existing line, except in combination utility/drainage easements.**
 4. **For pole replacement, except in combination utility/drainage easements.**
 5. **When underground secondary and/or service cables are to be installed less than 300 feet, and on road crossings where conduits or casings exist under the street.**
 6. **For installing streetlights in the public right-of-way that have been requested by the Board of County Commissioners.**
- 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 County permitted facility.
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 vales 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 and landscape maintenance.

***When the construction activity impedes the traffic flow (arterial or collector), a certified Maintenance of Traffic, 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.**
 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 fee for such permit 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, current County Construction Standards, the FDOT Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets & Highways, then 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 Operations Department (TOD), Traffic Section, a 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. For existing rural roads that are planned to have future curb and gutter, placement of poles shall not interfere with the future road design.
 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 and have a minimum cover of thirty inches 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.

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 National Gas by Pipeline, or Part 195 Transportation of a 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 Permit the normal issuance of a Permit. In such cases, the County TOD should be notified as soon as possible by any available means. Within 72 hours, a right-of-way Permit application and site and Maintenance of Traffic plans of the work performed must be submitted to the County.
11. Landscaping other than sodding will be permitted in the public right-of-way if the landscaping meets the criteria in Section IV, Streetscape Improvements in Public Rights-of-Way , of this Handbook.
12. 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 removal or replacement thereof.
13. 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 should be a breakaway assembly.
14. Utilities shall use utility easements outside of the public right-of-way, unless otherwise approved in the specific instance.
15. No construction or maintenance of the permitted facility shall interfere with any property rights of any prior occupant.
16. All materials and equipment are subject to inspection by the County.
17. 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.

18. 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.
19. All County property must be restored to equal or better than its original condition to the satisfaction of the County.
20. It shall be the Permittee's responsibility to locate and protect from damage all existing utilities, both aerial and underground.
21. The Permittee shall obtain the necessary rights-of-entry for construction and maintenance if the required right-of-way for public use has not been dedicated and accepted by Collier County.

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 push) method without cutting pavement. A pneumatic underground piercing tool is an acceptable device for use under roadways in those specific areas approved by the County on a case-by-case basis.
 - 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. A minimum of four-inch pipe 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.
 - e. All voids in a casing must be sandfilled or grouted.
3. Pushing a Pipe:
- a. A maximum three-inch pipe may be pushed under a roadway if approved by the County in the specific case.
 - b. Pipe shall be pushed at a minimum depth of thirty-six inches, measured from the top of the pipe to the elevation of the road edge. Exceptions may be made for driveway crossings at the discretion of the County.
 - c. For the installation of sprinkler lines in the right-of-way, see Section IV of this Handbook.
4. Any request for an exception to any of the foregoing requirements must be fully justified by the applicant in writing to the County.
5. 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 job site during any open cut operation.

- d. If the restoration is incomplete at the end of the day, the trench shall be backfilled and made flush with the existing pavement edges.
 - 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.
6. 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. Structural analysis by a Florida registered Professional Engineer paid for by the Permittee is required to be submitted as part of the Permit application.
 - 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. Such materials include ductile iron, galvanized steel, stainless steel, fiberglass, aluminum, and/or concrete.
- 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, 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. 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.
- d. The indiscriminate cutting of trees or disfiguring of any feature of scenic value is prohibited, including the use of herbicides. Any necessary trimming or cutting of trees by Permittee in the interest of public safety or continuity of facility service shall not be considered indiscriminate where such facilities cannot bypass the obstruction without violating minimum clearance requirements.
- 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 permitted when restoration of the road is incomplete at the end of the day, but only with the approval of the County. If special approval is given 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 thereafter.
- 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.
- k. Unpaved roads must be repaired as shown on the drawings in Section IV of this Handbook.

- I. 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. All materials shall meet the requirements of Article 3, DEVELOPMENT REQUIREMENTS, of the CCULDC. Any materials not specified in the CCULDC shall be in accordance with the FDOT Standard Specifications for Road and Bridge Construction, latest edition. If the Permittee requests any substitution of materials, the County, prior to the issuance of the Permit, must approve such substitution. Substitute materials not so approved shall be removed and replaced at the direction of the County and at the sole expense of the Permittee.
- G. Permissible work hours shall be from 7:00 A.M. through 5:00 P.M. from Monday through Friday, 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 “on-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:

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 into a development is two percent of the Level of Service "C" daily volume, or whenever the highest hourly volume of the turning movement is 20 vehicles or more.
 - (2) Right turn lanes must be provided whenever the right turn volume into a development is four percent of Level of Service "C" daily volume, or whenever the highest hourly volume of the turning movement 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.
 - (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.
2. These requirements may be modified or waived by the Transportation Services Administrator when physical conditions at the site make their application impractical or when the road is to be reconstructed as part of an approved CIE. 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.

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- 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 Administrator may mitigate the geometric and design standards when conditions warrant.

1. Single Family and Duplex Residences:
 - a. Lots having frontage of 50' or less shall be permitted only one driveway access.
 - 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 Transportation Operations Department Director. In mobile home districts, the access shall be not 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 31", Section VI of this Handbook.
2. Automobile Service Stations and Drive thru Businesses:
 - a. An automobile service station or drive-through 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 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 that 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 31", 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 Director of Transportation Operations for larger driveways depending on the need for ingress and egress and right and left turn lanes at access points.
 - c. All signs and pavements 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 31", Section VI of this Handbook.
 - 4. Multi-family, Industrial and Other Commercial Property (Except Shopping and Retail Centers, Auto Service Stations, and Drive-through 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 pavements 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 31", 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 Transportation Operations

Director. 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. If a drainage culvert is required under the driveway, the type, length, and diameter shall be approved by Transportation Operations Department. 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 2:1 to 4:1, but not less than 4:1, 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.
- f. 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.
- g. 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-I.

- b. Concrete drives shall be constructed on a stabilized subgrade with a minimum of six inches of Class III Concrete having a minimum 28 day compressive strength of 3,000 psi, and which may 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 rights-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, (30' for alleys) may be considered.

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.

D. Access and Site Plan Information Required:

1. The application for the PERMIT, whether new construction or alternations, 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.
 - (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.
 - 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.
- E. At such time as the Contractor completes turn lanes or other improvements required as part of the off-site development commitments, the Contractor or Developer shall submit a guarantee bond for the work performed within the public right-of-way. **The guarantee document format is available from the Collier County Transportation Operations Department.**
- F. 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 Transportation Operations Department shall be obtained. **A separate Permit need not be obtained if the proposed installation is reviewed and approved by the Development Services Department as part of new construction plans.**
 - 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.
 - 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 every at 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 incorporated within the drainageways of Collier County within six months of initial installation unless otherwise approved by the County.
8. Fifteen-inch diameter 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 Development 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.

IV STREETScape IMPROVEMENTS IN RIGHTS-OF-WAY

A. PLANNING AND DEVELOPMENT

The landscape and irrigation plans shall be prepared by and bear the seal of a Landscape Architect who is registered in the State of Florida and has insurances in accordance with Collier County Design Professionals insurance requirements.

1. County Roadway Planning and Typical Roadway Sections

On April 22, 2003, the Collier County Board of Commissioners unanimously approved the “Collier County Landscape Beautification Master Plan and determined a level “B-C1” landscaping for future roadway beautification projects of arterial and collector roadways.

The timeline for the “Collier County Landscape Beautification Master Plan” as presented is based on Transportation Engineering and Construction Management’s five (5) year road construction work plan. The purpose of this action is to provide a level of landscaping along improved roadways and to maintain a signature streetscape appearance based on established levels of landscaping within the Community. As part of the planning process, the “Five and Ten Year Roadway Development Plan” are reviewed each year.

- a) **A base level of landscaping** was discussed at the Landscape Workshop on September 5, 2002. A base level is the ground preparation for future planting. The sequencing of road expansion and landscape base preparation prevents any duplication of base construction costs. A base level of landscaping includes: electrical and irrigation sleeving, clean median backfill with eight (8”) of landscape soil, non-mountable curbing (FDOT Type F), bahia grass, and brick pavers at the median ends. **Base level** landscaping is to be incorporated in all roadway projects. Within the engineering project team, staff landscape architects will insure that these elements are included. In areas of future landscaping, brick pavers may be incorporated instead of concrete median separators.
- b) **“Type B” landscaping**, in addition to base level and “Type A” items, St. Augustine grass is planted instead of bahia. Shrubs, flowering trees and planting beds are planted the entire length of the median. “Type B” landscaping requires 100% irrigation of the median to support the growth of St. Augustine grass or other plantings. Examples of “Type B” landscaping are Davis Blvd. (Airport-Pulling Road to County Barn Road), Collier Blvd. (Green Blvd. to Golden Gate canal), US 41 North (Pine Ridge to Vanderbilt Beach Road), and Pine Ridge Road (Airport-Pulling to US 41 N).
- c) **“Type C1”** landscaping has side road canopy trees and/or palms (Grouped or Singles) 50-100 feet apart irrigated through a bubbler irrigation system. The edges would remain planted with bahia sod.

- d) **Wet Retention Ponds:** “Type B” Retention Pond includes palms and native trees and shrubs, littoral zone planting, bahia grass, planting beds, and lighted aeration fountains. In addition, there would be an opportunity for additional site amenities and improvements such as benches and paths. A pond located at US 41 East and Catalina Street is an example of a “Type B” right-of-way retention pond.

B. DESIGN AND PERMITTING

1. Introduction

This construction standards handbook for streetscape improvements shall be followed in developing streetscape improvement plans in conjunction with the applicable documents as listed in Section “RELATED DOCUMENTS”.

2. General Design Criteria and Standards

Streetscape development plan’s generally consisting of landscape plantings shall be drawn at an appropriate scale of one-inch (1”) equals forty-feet (40’-0”) or larger scale, include dimensions, north arrow, date and title to clearly show the plans intent for construction purposes. The construction set shall include a legend indicating graphic plant symbols, botanical and common name, quantity, native status, drought tolerance rating, plant height, spread, and spacing at maturity. The limits of clear sight lines, existing median utilities, street signage, existing trees, and encroachments shall be shown on the plans. Streetscape development plans containing large amounts of hardscape elements shall be drawn at a one-inch (1”) equals twenty-feet (20’-0”) or larger scale.

The irrigation plans shall be drawn at one-inch (1”) equals forty (40’-0”) or larger scale, indicating the location of all piping, sleeves, valves, controller, back flow preventer, rain/freeze shut-off switch, sprinkler heads and point of electrical service. Pipe sizes, strengths, sprinkler head nozzles indicating radius and pattern, specifications, water use data and other pertinent information are required to be shown.

When a project is completed the As-Built Drawings, (or Record Drawings), shall be submitted in reproducible and electronic format on a compact disk (CD) in AutoCAD format in a current or compatible release), showing all landscaping improvements and the location and depths of installed pipe and sleeving to the Collier County Transportation Department, Alternative Transportation Modes section.

a. Sight Distance at Intersections and Median Openings

Streetscape plans for major arterial or collector roadways limit-of-clear-sight-lines and areas free of sight obstructions shall comply with all the FDOT criteria and standards. Reference FDOT “Roadway and Traffic Design Standards” Standard Index 546 sheets 1 & 2, latest edition (See Appendix).

Streetscape improvement plans for County arterial or collector roadways may have the FDOT Index 546 sight distance (d) reduced by fifty (50%) percent with approval of the Collier County Transportation Department.

b. Horizontal Clear Zone

Streetscape plans horizontal clear zones shall comply with all the FDOT design criteria per the FDOT "Plans Preparation Manual", Volume I, latest edition, (See Appendix).

c. Sight Distance Triangles

Sight distance triangles at intersections of driveways and streets shall be as set forth in the Collier County Land Development Code, Section 2.4 (See Appendix)

d. Utilities

All underground and aboveground existing and proposed utilities within the Streetscape improvement areas shall be shown on the plans. All utility agencies with utilities in the Streetscape improvement areas shall be notified of the proposed improvements and provided copies for review and comments. The agency's names, address, phone number and name of a contact person shall be shown on the cover of the plans.

All plans shall have the following notification:

"Investigate Before You Excavate"

Call Sunshine State One

1-800-432-4770 Toll Free

Fl. Statue 553.851 (1979) Requires

Min. 2 days and Max. of 5 days

Notice before you excavate.

All proposed utilities shall comply with Collier County Rights-of-way ordinance requirements, the LDC, applicable FDOT "Roadway and Traffic Design Standards" Indexes, FDOT "Plans Preparation Manual" volume I & II, and the FDOT "Utilities Accommodation Manual" latest edition.

Reference: F.D.O.T. "Florida Highway Landscape Guide" Section 4, for additional information and considerations.

e. Lighting

Streetscape improvement landscaping should be coordinated with roadway lighting, pedestrian and accent lighting to assure minimum interference with the lighting distribution. Refer to FDOT "Florida Highway Landscape Guide" Section 4, for additional information and/or considerations.

If decorative street lighting fixtures are desired for arterial roadways, per RFP #02-3346- "Standardization of Decorative County Streetlights, a County approved bell-shaped dome fixture with, full cut-off, decorative mounting arm, painted pole and base shall be used. The finish of the complete fixture shall be the approved County green color and finish.

f. Wet Retention Areas and Drainage Facilities

All existing or proposed drainage structures, retention areas, detention areas and curb types must be shown on the plans.

Wet retention areas shall be designed and planted to comply with the County approved Streetscape Master Plan Type B-C1 planting requirements.

(Reference: FDOT:“Florida Highway Landscape Guide” Section 4, for additional information and requirements)

g. Maintenance of Traffic

Streetscape improvement projects shall provide maintenance of traffic plans per the requirements as set forth within this ordinance and per the Collier County Maintenance of Traffic policies.

h. Signage

Streetscape improvement project signage including project or community identification, welcome signs, decorative traffic control, information or street identification signage shall comply with: Collier County Rights-of-way ordinance; applicable FDOT “Roadway and Traffic Design Standards” Indexes; U.S. Department of Transportation Federal Highway Administration” Manual on Uniform Traffic Control Devices”; Collier County LDC requirements and regulations latest editions

i. Site Furnishings

Streetscape improvement projects incorporating site furnishings, such as pedestrian shelters, benches, trash receptacles, bike racks and raised planters shall comply with limit of clear sight distances and areas free of sight obstructions at intersections, sight distance triangles, horizontal clear zones and A.D.A. requirements. Refer to FDOT “Roadway and Traffic Design Standards” Index Series 546, “Americans with Disabilities Act of 1990”, F.D.O.T. “Plans Preparation Manual”, Volume I, Collier County LDC latest editions.

3.. Plant Material Selection

The proper use and placement of plant material will provide low maintenance, aesthetically pleasing and safer rights-of-way for the public. Landscape plans shall be prepared to reflect mature plant size with regard to motorist and pedestrian visibility, proposed plant spacing and quantity, which will greatly reduce maintenance requirements.

All plant materials shall be Florida #1, or better, as defined in the most current edition of the “Grades and Standards for Nursery Plants”, Part I and Part II, as amended, published by the Florida Department of Agriculture and Consumer Services. The use of native plant materials is encouraged. As a result of a higher survival rate under irrigated conditions, container grown material is recommended for use rather than balled and burlaped plant materials. Root-bound and circular root container material is not acceptable.

Trees can be assets to the public road rights-of-way; however, the wrong tree selection and placement may result in future removal due to severe pruning for visual and vehicular clearance or interference with adjacent structures. When selecting canopy trees and palms for narrow width medians the height and spread of the plant at installation and maturity must be considered so not to create a pruning problem. (Reference: "Right Tree, Right Place for SW Florida", Florida Power & Light publication)

Trees or palms planted under overhead utility lines shall be limited in height so that at maturity or maintained height the tree or palm remains outside of a ten (10) foot separation from the high voltage power lines. Trees or palms planted adjacent to overhead utility lines shall have a mature spread that will not interfere with such utility lines. Where underground utilities exist, tree placement shall not adversely impact the utility. The trees or palms mature caliper and lower branching shall allow for clear sight visibility and unobstructed pedestrian and vehicular circulation.

Plant material considered for placement within public road rights-of-way shall meet as many of the following characteristics as practical.

- a) Native or naturalized species;
 - b) Non-brittle and deep rooting plants resistant to wind damage;
 - c) Non-poisonous/non-toxic to humans;
 - d) Naturally resistant to insects and diseases;
 - e) Palms/trees lacking an invasive and extensive root system and whose mature canopy can be maintained within the planting area and at a fifteen foot (15') minimum height over the travel lanes;
 - f) Site specific and roadway climate oriented;
 - g) Compatible with site-specific soil and moisture conditions; Free from noxious odors;
 - h) Free of nuts or fruit greater than one-half inch in diameter when planted adjacent to pathways or roadways where the fruit or nut may fall onto the pathway or roadway;
 - i) Variation in blooming seasons;
 - j) Longevity;
 - k) Low maintenance, including reduced or limited pruning;
 - l) Tolerant to high-stress urban conditions;
 - m) Drought tolerant;
 - n) Ability to adapt to a wide range of soil types and high pH.
4. Consideration shall be given to plant selection with respect to the amount of water applied or received (i.e.; reclaimed non-potable water may require a minimum number of gallons to be used annually. Plants chosen for this type of water source must be compatible.)

a. Plant Material Placement

Plant placement shall ensure motorist, pedestrian and maintenance personnel safety. Motorists and pedestrians must be provided with an unobstructed window of visibility at intersections, turn lanes, median crossovers, and pedestrian crosswalks.

Streetscape improvement project median plantings should not place maintenance personnel in any greater danger by locating plant material in

plant beds too close to the back edge of curb. Median plantings upon maturity, or at the maintained limit of planting beds shall have a minimum one to two foot (1'-2') area of mulch maintained between the back edge of curb and plant material. A thirty-six inch (36") planting setback, from the center of the plant to the edge of the mulch area is required for all shrubs and ground cover plantings.

Trees or palms planted near overhead utility lines shall be limited in height. The type and placement of trees or palms near overhead utility shall comply with the governing utility agency's requirements. Refer to Collier County L.D.C. and Florida Power & Light "Right Tree Right Place" publication latest editions. Trees or palms planted adjacent to overhead utility lines shall have a mature spread that will not interfere with the utility lines. Where underground utilities exist, tree placement shall not adversely impact the utility.

b. Xeriscape Principals and Drought Tolerance

The seven principles of Xeriscape™ are appropriate planning and design, use of soil amendments, efficient irrigation, practical turf areas, use of drought tolerant plants, use of mulches, and appropriate maintenance. Reference the Florida water management districts water conservation publications and Collier County L.D.C. latest editions.

c. Cold Tolerance

Plant palette selection shall generally comply with the Collier County Roadway Plant Material Cold Tolerance Map and the "Collier County Native Plant List" as well as "Roadway Plant Materials" (See Appendix).

d. Recommended Roadway Plant Materials List

Plantings on the list may not necessarily be approved for all Streetscape improvement projects. Pedestrian and motorist safety and visibility will govern plant selection. Reference: "Recommended Roadway Plant Materials" (See Appendix), for plant material selection.

e. Turf Grasses and Sod Placement

Turf grasses use the most water and require the most maintenance. Turf shall be located only in areas where it will provide functional benefits. Turf shall not be considered for use within medians sixteen feet (16') or less in width measured from back of curb to back of curb. Turf may be considered or used as follows:

1. On non-curbed medians to create a continuous thirty-six inch (36") border around the median.
2. In interconnected rather than isolated areas for maintenance mowing.
3. Turf placement under canopy tree groupings shall be selectively evaluated.
4. St. Augustine "Floritam" or other cultivars is recommended in all irrigated turf areas.
5. Bahia grass shall be used on all non-irrigated landscape installations.

Sod placement in ditches and swales:

1. A "Permit to Perform Work and/or Maintenance in Public Rights-of-way" must be applied for by the responsible property owner or his authorized agent.
2. A drawing shall be submitted showing at a minimum the following distances from:
 - a. Centerline of closest travel way to the property line and/or right-of-way line.
 - b. Edge of pavement to swale invert.
 - c. Edge of pavement to property line and/or right-of-way line.
 - d. Location and width of driveway / access way and distance to side property line.
 - e. Lot, block, and unit number, as well as street name and number.

The sod shall be placed to the proper grade and cross-section to ensure the flow of water in the swale or ditch. In excavating for the placement of sod, a minimum three-inch (3") undercut is to be provided. It is the responsibility of the permittee to ensure an adequate undercut to maintain water flow.

It shall be the abutting property owner's responsibility to maintain the sodded ditch or swale area to ensure the invert is kept open and unobstructed, unless otherwise stipulated by the County.

If the placement of sod is associated with and is approved as part of a building permit, the entire swale shall be undercut to allow for the top of the sod to be placed at the design elevation, and the sod shall be installed, unless otherwise approved, prior to the Development Services Department signing the Building Department's "Master Control Card".

f. Prohibited Plant Species

The following types of plant species shall not be permitted (LDC section 2.4):

1. Cactus
2. Agave American (commonly known as Century plant)
3. Yucca aloifolia (commonly known as Spanish Bayonet)
4. Ficus spp. (unless otherwise approved)
5. Cupaniopsis anacardiopsis (commonly known as Carrotwood);or Prohibited species and prohibited exotic species per the Collier County L.D.C. latest edition.

g. Restricted or Unsuitable Use Plants (Plants not recommended for use unless approval is granted by the County)

The following plant species are considered restricted or unsuitable for use within the rights-of-way due to increased maintenance, visibility concerns or other environmental concerns.

1. *Bucida buceras* (commonly known as Black Olive)
2. *Chorisia speciosa* (commonly known as Foss Silk Tree)
3. *Coccoloba uvifera* - shrub form within limit of clear sight zones, (commonly known as Seagrape)
4. *Conocarpus erectus* - shrub form (commonly known as Green Buttonwood)
6. *Eriobotrya japonica* (commonly known as Loquat); or
7. *Parkinsonia aculeata* (commonly known as Jerusalem Thorn)
7. *Pongamia pinnata* (commonly known as Pongam); or
7. *Tabebuia caraiba* (commonly known as Silver Trumpet Tree)
8. *Acoelorrhaphe wrightii*, within limit of clear sight zones, (commonly known as Paurotis Palm)
9. *Phoenix reclinata* (commonly known as Senegal Date Palm)
10. *Calliandra* spp. (commonly known as Powerpuff)
11. *Chrysobalanus icaco* (commonly known as Cocoplum)
12. *Crinum* spp. (commonly known as Crinum Lilly)
13. *Elaeagnus pungens* (commonly known as Silverthorn)
14. *Erythrina herbacea* (commonly known as Coral Bean)
15. *Euphorbia* spp. (commonly known as Crown of Thorn)
16. *Hibiscus rosa-sinensis* (commonly known as Hibiscus Rose of China)
17. *Nerium oleander* (commonly known as Oleander)
18. *Philodendron selloum*, within limit of clear sight zones, (commonly known as Philodendron large split leaf)
19. *Pittosporum tobira* 'Variegata' (commonly known as Variegated Pittosporum);
20. *Stachytarpheta jamaicensis* (commonly known as Blue Porterweed);
21. *Zamia furfuracea*, within limit of clear sight zones, (commonly known as Cardboard Plant)
22. *Catharanthus roseus* (commonly known as Periwinkle)
23. *Juniperus conferta* (commonly known as Shore Juniper)
24. *Lantana* spp. (commonly known as Lantana)
25. *Liriope muscari* 'Variegated' (commonly known as Aztec Grass)
26. *Rumohra adiantiformis* (commonly known as Leather Leaf Fern)
27. *Ipomoea pes-caprae* (commonly known as Railroad Vine)
28. *Tecomaria capensis* (commonly known as Cape Honeysuckle)

h. Existing Landscaping or Vegetation

Streetscape improvement projects are encouraged to utilize existing landscaping or vegetation within the roadway rights-of-way whenever possible as long as it complies with the visibility, safety and general requirements as set forth within these standards.

i. Soils/Amendments/Planting Products

Soils within public road rights-of-way areas are usually of poor quality and do not have an acceptable pH due to roadway construction debris. Limerock and other roadway construction debris shall be removed so as not to restrict root growth, limit percolation or reduce the efficiency of the irrigation system. As much of the poor quality materials as practical shall be removed and replaced with an acceptable topsoil having a proper pH range of 5.5 to 6.5.

Suitable existing site soil may be amended to improve its pH, water and nutrient-holding capabilities. Existing soils will require rotor tilling, reverse type rotors preferred, to a minimum depth of twelve inches (12") to loosen compacted soil and mix the amendments into the soil. Applications of non-selective herbicides shall be required prior to rotor tilling and after tilling to kill and control existing weeds and grasses prior to plantings.

As part of future road-widening projects, eight inches (8") of specified fill material (landscape soil) is to be placed within the medians. (See Appendix for specification)

j. Fertilization

Fertilization specifications, fertilizer analysis and rates for soil amendment, installation and annual applications shall be shown in the construction plans and/or maintenance specifications.

k. Root Guard Protection

Root guard protection systems for large canopy trees and palms shall be used and specified on construction plans where concerns exist for potential root damage to roadways, curbing, sidewalks, bike lanes or utility facilities.

l. Mulches

Mulch shall be used around all individual plants or within plant beds. (Reference: Collier County L.D.C. Section 2.4 for additional mulch requirements.)

There are numerous forms and grades of organic mulch. Large wood chip mulches shall not be used. A minimum four-inch (4") fluffed depth of shredded, Grade "A" certified mulch product is recommended. A three-inch (3") layer should be maintained to insure optimum results.

Non-organic type mulches shall have prior approval by Collier County. Landscape-type gravel installed with drainage filter cloth/fabric may be considered for limited use. No gravel shall be greater than one half inch (1/2") in diameter. The use of gravel or stones increases radiant heat and has the potential to be dispersed onto the surface of the roadway, thus contributing to increased vehicular stopping distances.

Non-organic mulches may not be used within ten feet (10') of the edge of pavement of non-curbed landscape areas. When non-organic mulches are used adjacent to curbing, the finished elevation of the mulch shall be three inches (3") below the top of curb.

When non-organic mulch is used adjacent to turf or organic mulch areas, it shall be installed with a plastic or metal edging material. All non-organic mulches shall be installed at a minimum three-inch (3") depth. Crushed non-organic mulches such as washed shell may be used without drainage cloth.

5. Curbing

Prior to the landscaping of any medians, the median area shall be surrounded with a continuous concrete six-inch (6") raised curb unless the horizontal clearance setback requirements are met between the plantings and edge of pavement. The Collier County Transportation Department may only set this requirement aside. (Reference: F.D.O.T. "Roadway and Traffic Design Standards" Index 300 for curbing types.)

6. Grading

Finished grades shall be established prior to planting with consideration given for additional soil generated by the planting process. The finished grade at the back of curbing prior to placing mulch shall be four inches (4") and three inches (3") for turf, below the top of curb. The remaining area grades shall be determined based upon site conditions. Finished grades, which incorporate undulating mounds and/or retention areas, are encouraged for run-off control, water storage and aesthetic purposes. All mounding shall comply with visibility standards and requirements.

7. Decorative Concrete Pavers

Paver installations for sidewalks, pathways, roadway medians and roadway crosswalks shall have six inches (6") of compacted limerock aggregate base and one to one and a half inches of leveling sand. The limerock base shall be compacted to a 98 percent density and compaction test performed at each separate paver installation location. Paver edges shall match the elevation of any adjacent pavement or curbing. Roadway crosswalk paver installations shall have all sides border with concrete curbing or by eighteen-inch (18") by twelve-inch (12") steel reinforced concrete bands/grade beams.

Paver installation colors and patterns shall be specified on the construction plans and will be approved by the County prior to construction plan approval and permitting.

8. Community Gateway Entrances and Corridors

Collier County has identified certain major arterial roadway corridors and major arterial roadway intersections to receive the designation as a Community Gateway into Collier County.

Community Gateways will serve as the main entry points and corridors to Collier County's improved Streetscape roadway system. Community Gateway intersections will extend the same one mile limit as the LDC major intersection activity centers designation does along the roadways from the intersections. Community Gateway corridors will encompass multiple mile portions or entire roadway corridors based upon the designation beginning and ending.

Seven Community Gateways are identified as follows:

1. Marco Island East Trail Gateway
2. I-75/CR951 Gateway
3. I-75/Pine Ridge Gateway
4. I-75/Golden Gate Parkway Gateway
5. North Trail Gateway
6. I-75/Immokalee Road Gateway
7. Livingston Road Gateway

Community Gateway streetscape improvements should be developed around a uniform theme incorporated into the landscaping, hardscape elements and site furnishings throughout the Gateway streetscape improvement areas.

Community Gateways as they are designated indicates more important level of attention and should also have a higher level of streetscape improvements. The minimum streetscape improvements within a Community Gateway shall comply with the Collier County Landscape Beautification Master Plan roadway median Type "B", side of road Type "C1" and Wet retention Ponds Type "B" landscape planting requirements.

9. . Irrigation Design and Systems

The source of irrigation water, such as reclaimed, well or potable, will affect landscape plant selection and irrigation system design. Recommended water sources for landscape irrigation purposes in order are: (1) Reclaimed or reused non-potable water (required when available), (2) Potable water, (3) Well and pump system.

10. The following shall be considered in the design and permitting phase:

- a. A meeting shall be held with the Transportation Department Alternative Transportation Modes Section prior to planning and design to review the controller options and requirements.
- b. Turf and plant bed areas shall be zoned separately when practical. High water demand landscape areas shall be zoned separately from a low water demand landscape areas. Plant beds shall be designed so that they contain plants with similar water requirements.
- c. Quick coupler valves shall be located three hundred feet (300') maximum on center in the medians and other isolated areas for watering-in new or replacement plant materials. Quick coupler keys shall be provided to the Collier County Transportation Department.
- d. A pressure-reducing back-flow preventer is required on all potable water sources. The backflow preventer shall conform to the latest installation detail and requirements set forth by the utility company servicing the site or as provided by Collier County, if the contractor is required to install the backflow preventer.
- e. Manual gate shut-off valves shall be installed on pressurized mainlines to isolate individual zone control valves to facilitate maintenance repairs.
- f. Approved sprinkler head protective devices maybe placed around all pop-up sprinkler heads within planting and turf areas.
- g. Electrical services shall be mounted on an approved concrete pedestal with breaker box, lightening arrestor, grounding rod and other electrical connections or components required. All electric work shall meet National, State, County Electric Codes.
- h. Valves shall be wired from the controller in consecutive order. Zone or valve schedules shall be provided on the plans and posted inside the controller door.
- i. The irrigation system shall be designed to prevent water from being applied onto or over impervious surfaces (i.e.; roadways, sidewalks, etc.).
- j. Pressure reducing valves and sprinkler heads shall be used to reduce fogging caused by high water pressure. The use of low trajectory spray nozzles is encouraged to reduce the effect of wind on the spray stream.
- k. Low volume irrigation systems may be considered to control and limit over spray on adjacent pavement areas.

- l. A rain/freeze shut-off sensor with a bypass switch shall be installed to interrupt watering cycles when watering is unnecessary due to sufficient rainfall or freezing weather.
- m. Deep-watering practices are encouraged to promote deep root growth.
- n. All non-potable water irrigation systems shall be specified on the plans and designated in the field with pantone purple 522C color-coding for reused water. Items to be color-coded shall be mainlines, submains, sprinkler heads and all valve or meter boxes. The site shall also be properly signed in accordance with County ordinances and State Statutes.
- o. Mainline drains or the ability to provide flushing of the irrigation main is required.
- p. All valve wiring shall be placed within Schedule 40 PVC pipe or conduit.
- q. All mainlines shall be installed with continuous metallic tape marked with the designation of the type of water source being used, (i.e.; "Reclaimed Water") for future identification and locating purposes.
- r. Reference: Collier County L.D.C. for additional requirements.
- s. Reference: FDOT "Utility Accommodations Manual"

11. Irrigation Placement in ditches and swales:

The responsible property owner or his authorized agent must apply for a "Permit to Perform Work and/or Maintenance in Public Rights-of-way". A drawing shall be submitted showing at a minimum the following information:

A. Distances from:

- 1. Centerline of closest travel way to the property line and/or right-of-way line.
- 2. Edge of pavement to centerline of proposed installation.
- 3. Property lines and feeder lines.
- 4. Edge of pavement to ditch or swale centerline.
- 5. Ditch or swale centerline to proposed installation.
- 6. Edge of pavement to property line or right-of-way line.
- 7. Proposed installation to sidewalks, pathways, and bike lanes if applicable.
- 8. Width and location of driveway/access way and distance to side property line.
- 9. Size and depth of the proposed irrigation lines and placement of sprinkler heads and valves.
- 10. Lot, block and unit number, as well as street names and number.
- 11. All existing utilities and services.

B. Specifications:

- 1. Sprinkler heads shall be placed no closer than twenty-four inches (24") to the center line of the ditch or swale and a minimum of six feet (6') from the edge of pavement of uncurbed minor roadways; a minimum of eight feet (8') from arterial or collector roadways; and a minimum of six inches (6") from sidewalks/pathways.
- 2. Piping shall be pushed, not jetted, under a sidewalk/pathway at a minimum depth of six inches (6") measured from the bottom of the sidewalk/pathway.
- 3. Piping shall be pushed, not jetted, under a sidewalk/pathway at a minimum depth of six inches (6") measured from the bottom of the sidewalk/pathway.

4. Piping under commercial or public driveways/access ways shall be bored at a minimum depth of twenty-four inches (24") measured from the bottom of the roadway base material.
5. Piping under private driveways/access ways shall be bored at a minimum depth of twenty-four inches (24") measured from the bottom of the pavement surface material.
6. Drawings shall show all work to be performed by the permittee in the rights-of-way.
7. The irrigation system shall minimize the over spray from the sprinkler heads onto roadways and sidewalks, pathways and bike lanes.
8. The permittee shall maintain the irrigation system. Failure to maintain the system in a manner satisfactory to the County shall cause for removal of the system at the permittee's sole expense, after written notice to the permittee.
9. Whenever necessary for construction, repair, maintenance, improvements, alterations or relocation of public right-of-way or roadway as determined by the County, the permittee shall have the irrigation system removed from the right-of-way or reset or relocated thereon at the expense of the permittee/abutting property owner. The County will give the property owner written notice of such proposed work, and shall allow two (2) weeks for the property owner to secure resetting, removal or relocation of its facilities.

12. Permitting

The responsible property owner or his authorized agent must apply for a "Permit to Perform Work and/or Maintenance in Public Rights-of-way".

Landscaping Permit Within the public rights-of-way: A private owner, Developer or civic or homeowners' association desiring to landscape within a public right-of-way shall submit a landscape and irrigation construction documents prepared by a licensed landscape architect for County review. The Permit application shall include three (3) sets of detailed plans indicating the existing right-of-way facilities and the type and location of the proposed plantings, location of electrical and irrigation systems(s). After acceptance of the landscape and irrigation plans, a landscape agreement shall be prepared by the contracting parties and approved by the County attorney's office. (See Appendix for example) The purpose of the landscape agreement is to ensure that the Permittee, or his successors or assign, shall be responsible to maintain such material and irrigation system until removed or unless otherwise specified.

C. MAINTENANCE

Maintenance is the most important aspect of a streetscape improvement project and will determine the project's immediate and long-term success.

Reference: Sample 90-Day Maintenance Specifications and Annual Maintenance specifications attached.

VI. MISCELLANEOUS CONSTRUCTION

A. Sidewalk/Bikepath Construction:

1. Sidewalk and bike lane construction are enumerated in the CCLDC Sections 3.2.8.3.17 and 3.2.8.4.14.
2. The developer must construct sidewalks and bike lanes where applicable. For all districts, sidewalks and bike lanes must be constructed contiguous to public and private roadways, which are adjacent to and/or internal to the site, in conformance with the criteria described below. (Sections 3.2.8.3.17 and 3.2.8.4.14 of the CCLDC)
 - a. Bike lanes must be provided on both sides of collector and arterial streets.
 - b. Sidewalks six feet in width, must be provided on both sides of collector and arterial streets.
 - c. Sidewalks five feet in width, must be provided on both sides of local streets.
 - d. For multi-family site development and site improvement projects, districts RT, RMF-6, RMF-12, and RMF_16 and all multi-family residential components of PUD districts; sidewalks, five feet in width, must be provided on both sides of local streets with a dedicated public right-of-way or roadway easement. Where there is no public right-of-way or roadway easement, sidewalks must be connect on-site residential building(s) to a sidewalk within a public roadway or, if no sidewalk exists, to the right-of-way line in accordance with Code standards contained herein. Should a two-directional shared use path be utilized, the minimum paved width must be 10 feet.
 - e. All sidewalks and bike lanes along public and private roadways must be constructed in accordance with design specifications identified in section 3.2.8.4.14 and division 2.8 of the Collier County Land Development Code.
 - f. Developments providing interconnections to existing and future developments pursuant to the density rating system section of the Collier County growth management plan's future land use element, must include sufficient right-of-way to accommodate the roadway, sidewalks, and bike lanes, where required. Bike lanes and sidewalks must be constructed concurrently with the roadway interconnection.
 - g. Where planned right-of-way improvements by the County Transportation Division scheduled in the capital improvements program (CIP) would cause the removal of any sidewalks or bike lanes the developer, in lieu of construction of the required sidewalks and bike lanes, must provide funds for the cost of sidewalk and bike lane construction as defined by the Schedule of Development of Review and Building Permit Fees into a pathway fund, for future construction of required sidewalks and bike lanes, by the county. The time frame for this funding option is two years from the date of issuance of the first building permit to the date that the road construction is required to be bid.

3. Sidewalks. All sidewalks shall be constructed of Portland cement concrete, or paver brick, in conformance with the standard right-of-way cross sections contained in Land Development Code appendix B in locations illustrated on an approved site development plan.

a. Concrete sidewalks shall be four-inch-thick, Portland cement concrete with a 28-day compressive strength of 3,000 psi. Expansion joints shall be one-half-inch preformed bituminous conforming to the latest edition of ASTM. Contraction joints shall be saw-cut joints with longitudinal spacing equal to the width of the walk. The saw cut depth shall equal or exceed one-fourth the concrete thickness. All workmanship materials, methods of placement, curing, forms, foundation, finishing, etc. shall be in conformance to the latest edition of FDOT Standard Specifications for Road and Bridge Construction, section 522. Paver brick, sidewalks, or paver brick accents in sidewalks, must be installed over a four inch thick, compacted limerock base.

b. All bike lanes shall be designed, constructed, and signed in accordance with the most current "Florida Bicycle Facilities Design Standards and Guidelines" requirements.

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 rights-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, 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.
6. Open cutting of existing pavement and existing driveway connections, generally are not allowed, but may be considered under certain conditions, such as:
 - a. Documented subsurface obstructions.
 - b. Limited space for jacking.
 - c. High water table.
 - d. A road improvement project is funded in the County's 5-year Transportation Work Program and reasonably expected to be under construction within two years from the date of Permit issuance.
 - e. Substandard roadway surface where rebuilding or reconstruction is planned and funded in the County's 5-year Transportation Work Program within two years of Permit issuance.
 - f. Alternatives to the open cutting are unreasonably costly to the public.

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.

7. Casings shall be used for the crossings of underground utilities where the carrier conduit is of insufficient strength due to composition and/or depth of cover. 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.
8. 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. 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.
 - 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.

9. 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.
10. 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.

VI. 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.