# Traffic Impact Analysis (TIA)

A Traffic Impact Analysis (TIA) is a document that analyzes the impacts that a proposed development will have on the nearby transportation network, primarily due to increased traffic generated by the development. The TIA will identify necessary improvements to the transportation network in order to ensure that the new development does not adversely impact traffic flow and congestion. The TIA is generally performed by an engineer hired by the developer and is reviewed by the Town for approval. Any study requiring NCDOT concurrence must be prepared in accordance with the current NCDOT Congestion Management Capacity Analysis Guidelines.

The threshold for developments requiring the completion of a Traffic Impact Analysis is whether the development will generate 800 or more vehicle trips on an average weekday and requires a special use permit from the town. The following table provides guidelines for the types of developments that will generally rise above this threshold and require completion of a TIA.

Any project of a smaller size seeking a special use permit, site plan, major subdivision, or conditional zoning may be required to have a traffic analysis completed if 1) 75 percent or more of the properties being notified of the project public hearing are already developed and the property is not located within a development governed by a master plan or 2) a majority of the properties being notified of the project public hearing category than the site requesting development <u>or 3) staff or NCDOT identify potential negative impacts to nearby intersections with high crash rates, significant turning movement delays, or level of service concerns.</u>

Land Use	Size of Development
Single-family Residential	75 units
Apartments	110 units
Condominiums/Townhouses	130 units
Mobile Home Parks	150 units
General Retail	4,000 square feet
Fast Food Restaurant	2,000 square feet
Gas Station/Convenience Store	Service for 6 or more vehicles concurrently
Bank	3,000 square feet
Hotel/Motel	130 rooms
General Office	50,000 square feet

#### Estimated TIA Requirement Thresholds<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> Estimated using *ITE Trip Generation*, 7<sup>th</sup> Edition. Fitted curve equations were used where available (all except fast food restaurant, day care center, and school, which use average rates). General retail is based on the Shopping Center category since a general retail category is not available in the manual.

□ The developer/contractor must offer infrastructure to the town within 30 days of the final certificate of occupancy being issued. For phased projects, this can occur within 30 days of the final certificate of occupancy being issued within that phase. The town may not accept infrastructure still subject to construction damage and may defer any offer until construction is complete.

□ The inspection is required to review streets, sidewalks, stormwater infrastructure, and accessibility requirements. <u>Hillsborough utilities staff must participate in the inspection to verify continued</u> compliance with utility acceptance issues. Any items noted by utilities staff that impact streets, sidewalks, stormwater infrastructure or accessibility requirements must be corrected prior to acceptance of those items.

□ Town staff will inspect trees and landscaping, signage, and pavement markings for plan compliance

# 4. Before Final Acceptance of a Public Street or Sidewalk:

□ Developer must provide certification of plan compliance (Engineer must sign and seal document)

□ Developer must provide certification of ADA compliance (Engineer must sign and seal document)

 $\Box$  Developer must provide certification that all roads are constructed to NCDOT and Town of Hillsborough standards (Engineer must sign and seal document)

Developer must clean and conduct video assessment installed stormwater drainage lines/pipes located in the public right of way in accordance with the Town of Hillsborough Stormwater Video CCTV Requirements in Appendix D of the street standards.

 $\Box$  All change orders must be documented and reported to town

□ Scaled as-built drawings must be provided to the town showing all utilities and total linear footage of streets and sidewalks (hard copy and electronic copies)

□ As-built stormwater infrastructure information must be submitted electronically in accordance with the current version of The Town of Hillsborough As-Built Submittal Requirements document.

 $\Box$  Substantial completion certificate must be provided to town

 $\Box$  Inspection reports must be provided to town

 $\square$  Schedule of values for road and sidewalk construction costs must be provided to town

□ Maintenance agreements must be in place (landscaping, custom signage etc.)

 $\Box$  Compliance with checklists must be established

 $\Box$  Easements and plats must be recorded

□ A written offer of dedication (notarized) from the property owner is submitted. Once all required documentation is received, staff will place the request on the next town board agenda as a consent agenda item with a resolution documenting acceptance. Only after town board action is the infrastructure accepted by the town. Staff has no authority to accept dedications.

# 5. Warranty Period:

 $\Box$  One-year warranty period begins once the Town Board accepts streets

 $\Box$  A street infrastructure warranty inspection will occur ten months after street acceptance. A punch list of items to be repaired will be provided to the developer/owner.

The types of trees permitted are governed by the Town of Hillsborough, as well as the NCDOT (on stateowned roadways). A list of recommended and prohibited trees may be found in the Hillsborough Unified Development Ordinance Administrative Manual at

https://www.hillsboroughnc.gov/government/departments-and-divisions/planning/unifieddevelopment-ordinance.

#### **Street Lighting**

Street lighting must be provided along all new or improved streets <u>within the town limits</u>. <u>Proposed</u> <u>development outside the city limits that are not seeking annexation are not subject to these standards</u>. Lights should be provided at all intersections, and at least every 175 feet along a street. On multi-lane boulevards, lights should be provided along both sides of the street. LED fixtures are required.

#### Location and purpose

Poles must be located within the public street right of way if the town is to accept responsibly for the lights. Poles must be located so the light form the fixture predominately lights the traveld portion of the roadway. Typically, this requires placement between the roadside and sidewalk. Poles installed behind the sidewalk must be evaluated by the town prior to installation to determine if the location is adequate for future acceptance. Poles installed behind a sidewalk or otherwise oriented to not illuminate the roadway may not be accepted by the town at the time of street dedication.

Currently wattage choices are 50 & 70 watts and are generally most appropriate in residential and commercial settings respectively. In all situations, 3000 kelvin color temperature is the town standard. The town and developer will cooperatively make the wattage choice before installation to best suit everyone's purposes. Developers will be responsible for the cost of operating this lighting—the Town will take over the operating costs for lighting on public streets upon final street acceptance. The Town will only take on operating costs (electricity) of lights that use standard cobra flat lens design provided by the electric utility; operating costs (electricity) and special pole fees of any other style of street lighting (including the Traditional or Sanibel designs shown below) will be the ongoing responsibility of the developer, property owner, or homeowners' association (as applicable). The following three designs are recommended for use as street lights in the Town.

#### Standard fixture

The micro roadway LED fixture, type II, 50-watt, 3000 K is the town's standard road fixture. Installation with underground service on a wood pole is preferred. Applicants may upgrade the pole to style A, provided they arrange to pay all the full additional cost with the electric provider prior to acceptance by the town.

Applicants may also select another fixture type, provided they arrange to pay all the full additional cost with the electric provider prior to acceptance by the town OR they clearly inform buyers within the development that the town will not accept dedication of the fixtures and full responsibility for lighting will remain a responsibility of the property owners association.

## <u>Process</u>

Duke Energy is the primary electric provider in the town's jurisdiction although some areas are served by Piedmont Electric. While only Duke Energy is referred to in the following paragraphs, the same process is required if Piedmont Electric is the provider.

Duke Energy will design and install street lighting upon request. During project review, applicants should discuss lighting with public works staff so the town can support the preparation of a design by Duke. The applicant is responsible to begin this process in adequate time to have a design ready for their construction drawing review. Once the design (layout and fixture selection) has been approved by the town during construction drawing review phase, the applicant will enter into a private three-year Outdoor Lighting agreement with Duke Energy, consistent with town requirements. Hillsborough requires the applicant to pay Duke Energy up front any additional costs above those for standard street lights on standard wooden poles. A fully signed copy of the lighting agreement must be returned to the town so staff can release the work order for construction by Duke Energy.

At the end of the three-year term for the OL contract, the developer will need to submit a request to the town to take over the monthly operation cost of the street lighting. This should generally coincide with street dedication. If funding is available, the town will enter into a public lighting (PL) service agreement with Duke Energy to take over the monthly operation costs of the public street lighting. If this occurs, the applicant's and property owners association's responsibility for the public street lighting will end at that time.

If this process is not followed or the town does not accept the lights for some reason, the applicant and/or the property owner association will remain responsible for public street lighting until it is accepted by the town.



Cobra Flat Lens



- Traditional



Sanibel LED

#### Signage & Street Naming

All signs placed along streets must conform to the requirements of the Manual on Uniform Traffic Control Devices (MUTCD), which can be found at <u>http://mutcd.fhwa.dot.gov/</u>. Customized signs that differ from the standard street signs used within the Town of Hillsborough are permitted, but must conform to MUTCD requirements, which can also be found in <u>Appendix C</u>. The developer, property

# Appendix D – Stormwater Video CCTV Requirements

# General Requirements

Prior to acceptance of any development with public storm drainage infrastructure, the utility contractor shall arrange a camera inspection of all public storm drainage lines with a 3rd party camera service and then coordinate the results with the Public Works Manager. Any discrepancies found in violation of these Specifications shall be repaired to the satisfaction of the Public Works Manager prior to acceptance by the Town of Hillsborough (Town).

When inspection indicates possible excessive deflection in CPP, CSP, or CAP, the contractor shall complete a deflection test by mandrel using a rigid device approved by the Public Works Manager. The mandrel size shall be clearly labeled and shall be sized so as to provide a diameter of at least 95% of the inside pipe diameter. If deflection exceeds 5%, the pipe shall be evaluated to determine what corrective measures are required.

## Video Assessment and Cleaning

As a final measure required for acceptance the contractor/developer shall clean and televise all newly installed public stormwater drainage lines. Standards to be followed include:

- a) Clean/televise stormwater drainage lines installed from the upstream to downstream manhole/catch basin with no reverse setups or cutaways.
- b) Throughout shooting, the camera shall be panned and tilted for a complete view of the line.
- c) Lighting shall be adequate to view the entire storm drain line from beginning to end. Lighting for the camera shall be sufficient to yield a clear picture of the entire periphery of the pipe.
- d) The camera shall be advanced at a uniform rate not to exceed 20 feet per minute that allows a full and thorough inspection of the new storm drain line.
- e) The camera shall be a color, pan and tilt camera capable of producing a five-hundred-line resolution picture. The picture quality shall be acceptable and sufficient to allow a complete inspection with no lapses in coverage.
- f) The length of the storm drain line shall be measured and recorded on the video screen. The distance counter shall be calibrated before shooting the inspection video.
- g) The contractor/developer shall clean the storm drain lines ahead of video inspection with a high-velocity water jet. All construction debris shall be collected in the downstream manhole and shall not be released into the storm drain system.
- h) The Town shall be present throughout the cleaning and televising of the storm drain lines to verify that the video work complies with the Specifications. The camera operator shall stop, reverse, pan, and tilt the camera to view any area of interest during the inspection as directed from the Town. The video inspection shall take place within 2-hours of cleaning operations as witnessed by the Town.

- i) It is recommended that site grading and all utilities be installed and complete prior to final inspection to ensure that damages to the storm drain lines do not occur. Damages found after final inspection would requiring re-inspection by the Town.
- j) The video inspection shall be submitted to the Town on a CD/DVD and formatted with software compatible and readable by the Town. The Town shall not be responsible for purchasing additional software necessary to view the CD/DVD.
- k) Prior to submitting the CD/DVD to the Town, the contractor/developer shall label the CD/DVD with the following information:
  - Name of the Project/Development.
  - Name and contact information of responsible party.
  - Date of televising.
  - Manhole identification as shown on the design plans.