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## CHAPTER 1

### 1.1 PURPOSE

The purpose of the Delaware Department of Transportation's (DelDOT's) *Development Coordination Manual* is to set forth the requirements of DelDOT for the planning, design, construction, and acceptance of subdivision streets and access to State-maintained roadways.

The regulations presented herein are intended to regulate and control the location, design, and operation of access points and transportation facilities maintained by DelDOT. All commercial entrances, residential entrances and State-maintained subdivision streets are to be designed and constructed in accordance with these requirements. These requirements apply to the following:

- A. New subdivisions and land developments.
- B. Lot line adjustments.
- C. Changed or expanded subdivisions and land developments.
- D. Any new access onto a State-maintained roadway.
- E. Modifications to an existing access.
- F. Assessment of the impacts of traffic.
- G. Off-site improvements.
- H. Transportation Improvement Districts (TIDs).

Entrances shall be designed to provide safe and reasonable access to the site while providing the least impact on the existing roadway system and its users. The number, spacing, type, and location of access and traffic signals have a direct and often significant effect on the capacity, speed, and safety of the highway.

Each state highway segment is assigned a functional classification as defined in Sections 1.6.1 to 1.6.8. The existing design of the highway is not required to meet the design standards of the functional classification at the time the classification is assigned. All access designs shall meet the standards set forth in this chapter for the assigned functional class of the frontage highway and/or affected segment of highway. Roadways discussed in this chapter shall be in conjunction with DelDOT's Functional Classification Maps available at [http://www.deldot.gov/information/pubs\\_forms/](http://www.deldot.gov/information/pubs_forms/).

## **1.2 LEGAL AUTHORITY**

The authority for DelDOT's *Development Coordination Manual* is set forth in the Delaware Code. Applicable sections include, but are not limited to:

- A. Title 17 – Highways, Chapter 1, Subchapter III, Section 131 - General Jurisdiction
- B. Title 17 – Highways, Chapter 1, Subchapter III, Section 141 - Regulation of Traffic; Exceptions
- C. Title 17 – Highways, Chapter 1, Subchapter III, Section 146 – Access to State-Maintained Highways
- D. Title 17 – Highways, Chapter 5, Section 508 – Dedication of New Roads for State Maintenance; Approval Required; Security
- E. Title 21 – Motor Vehicles, Chapter 41 – Rules of The Road
- F. Title 29 – State Government, Chapter 61, Section 6103 – Deposit of State Money
- G. Title 9 – Counties

## **1.3 ACCESS APPLICATION AND APPROVAL PROCESS**

This section outlines the procedures to be followed by developers and/or property owners in order to obtain approval of a commercial access or a State-maintained subdivision street, as illustrated in Figures 1.3a and 1.3b. Access applications, construction permits and procedures for residential units are outlined in Chapter 7. The estimated review time by DelDOT is based on a complete submission. Incomplete submissions will be returned to the developer for resubmission.

DelDOT reviews the Record Plan in accordance with this *Development Coordination Manual*. The initial stage fee as outlined herein shall be paid prior to review of the Record Plan. When the plan meets the requirements of DelDOT, a letter of “No Objection to Recordation” (LONOR) shall be issued to the governing land use agency.

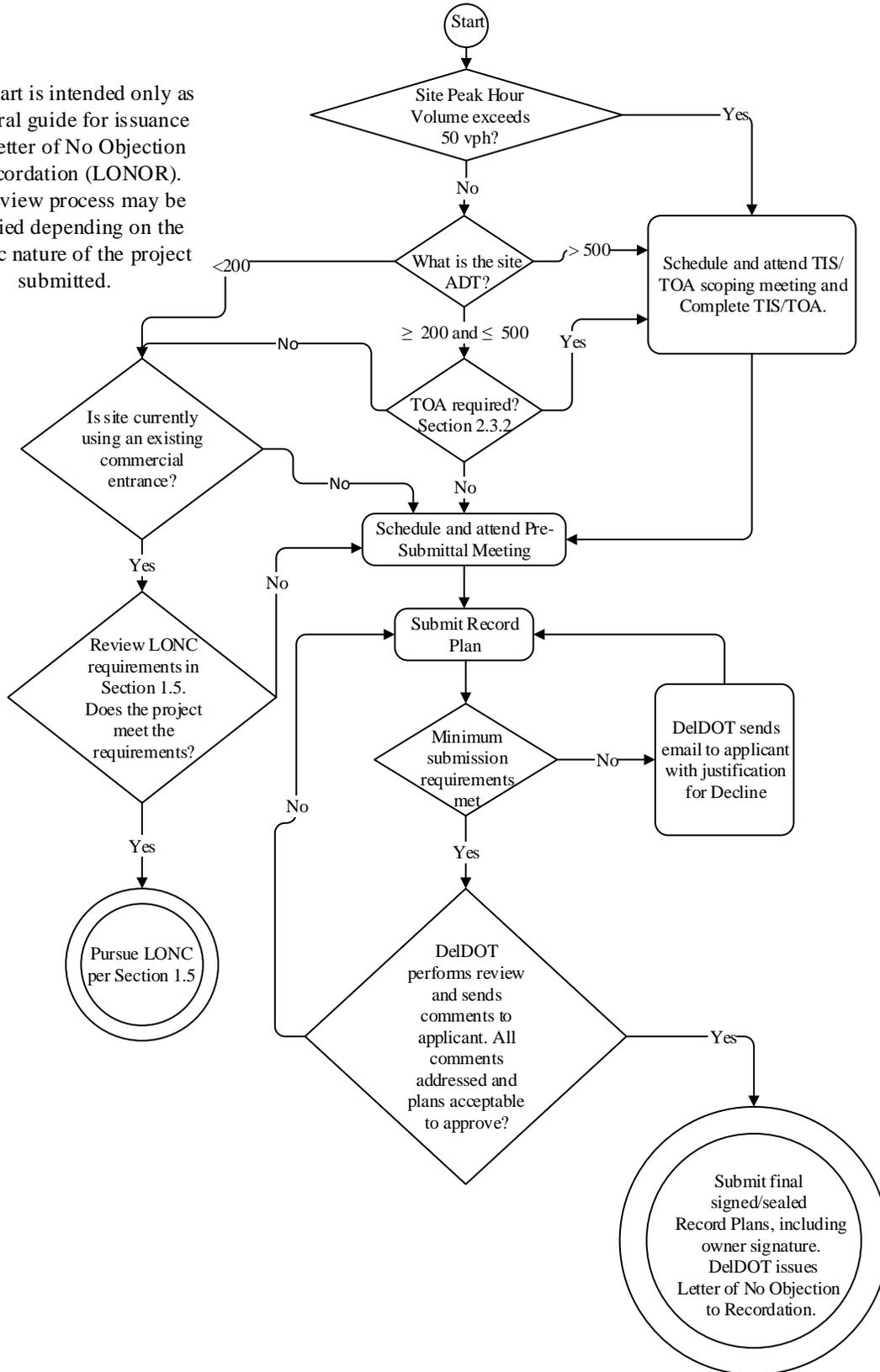
DelDOT will also review construction plans for subdivision streets and/or entrances in accordance with this *Development Coordination Manual*. Construction/Entrance plans must be signed and sealed by a land surveyor or professional engineer registered in Delaware as outlined in Chapter 4.

The construction stage fee must be paid prior to review of the Entrance/Construction plan. Upon review and approval of the Entrance/Construction plan, DelDOT will issue an approval letter.

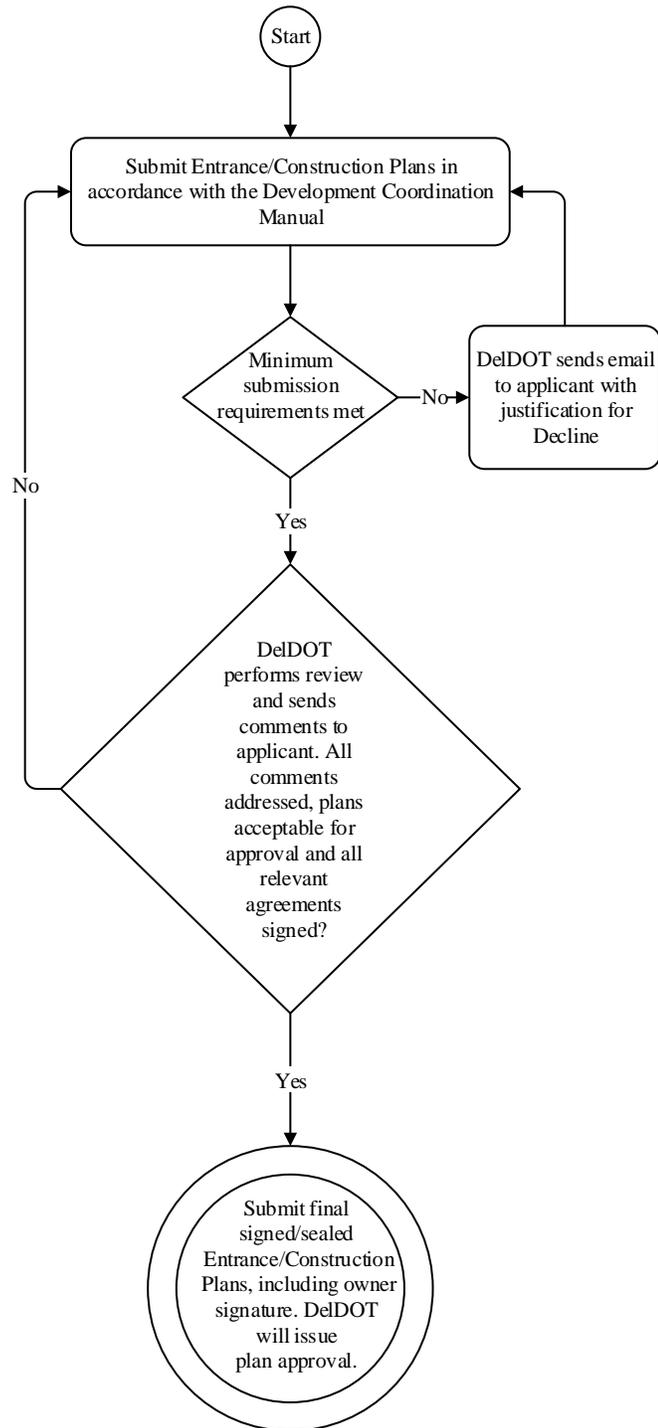
Any site being considered by DelDOT for access to a State-maintained roadway shall be evaluated to determine if it will also impact any other DelDOT programs. These programs include, but are not limited to, the Corridor Capacity Preservation Program (CCPP), the Capital Transportation Program (CTP), the Transportation Alternatives (TA) Program, the Highway Safety Improvement Program (HSIP), and the Pavement Rehabilitation Program. If a plan would have an effect on any of these programs, DelDOT will require additional reviews and additional requirements to be met.

**Figure 1.3a Record Plan Review Process for Letter of No Objection to Recordation (LONOR)**

This chart is intended only as a general guide for issuance of a Letter of No Objection to Recordation (LONOR). The review process may be modified depending on the specific nature of the project submitted.



**Figure 1.3b Review Process for Entrance/Construction Plan Approval**



## **1.4 ACCESS APPLICATION AND APPROVAL PROCESS - APPLICATION**

The application with supporting documents and plans shall be submitted to the Subdivision Engineer for review and approval. All documents shall be submitted electronically. Plans shall be in pdf format.

All fees shall be submitted in accordance with Section 1.7.

### **1.4.1 Approval of Application**

The approval of the application shall be subject to the following conditions:

- A. The application shall be properly and clearly completed. Applications found to be unsatisfactory shall be returned for correction and resubmission.
- B. The location, design, and construction of driveways and entrances shall meet the geometric requirements. Necessary provisions for drainage, pavement types and thicknesses, sight distance and other construction details shall conform to the current requirements.
- C. When access facilities cannot be provided in accordance with DelDOT's requirements due to limitations particular to the site or where the applicant refuses to comply, the access application for the intended use may be denied.

### **1.4.2 Access Application and Approval Process – Review of the Plans**

DelDOT's Record Plan requirements are outlined in Chapter 3. The applicant must gain approval of the Record Plan and receive the letter of "No Objection to Recordation" prior to obtaining entrance approval. Submission of a Record Plan and issuance of a letter of "No Objection to Recordation" is required independent of the local land use agency's requirements, except in such individual cases where DelDOT determines that the proposal does not create any transportation impacts and does not trigger entrance/access improvements that would require further review by the Department. DelDOT's letter of "No Objection to Recordation" shall be valid for a period of 5 years DelDOT's Entrance/Construction Plan approval shall be valid for a period of 3 years, and DelDOT's "Letter of No Contention" approval letter shall be valid for a period of 1 year. Once the approval expires, plans will need to be resubmitted for review with the proper fee. No extensions of the approval will be granted.

The requirements for the subdivision street and entrance plan are outlined in Chapter 4. DelDOT will review and comment on the preliminary entrance plan prior to issuance of a letter of "No Objection to Recordation" to the local land use agency.

Upon addressing all comments provided by DelDOT, the entrance/construction plans can be submitted. When DelDOT notifies the applicant that the final entrance/construction plans meet the requirements outlined in this *Development Coordination Manual*, the applicant shall submit signed and sealed plans for final approval by DelDOT.

### **1.4.3 Access Application and Approval Process – Construction**

The applicant shall submit construction documents (application, security, plans) for the work as outlined in Chapter 6. After review and approval of the security and the required construction documents, the Public Works Engineer shall issue the Notice to Proceed (NTP). No work shall be undertaken until the NTP is issued by DelDOT. For commercial sites, a Commercial Entrance Construction Permit will be issued in addition to NTP.

Upon completion of the construction to the satisfaction of DelDOT, in accordance with the terms of the Permit, DelDOT shall release the security and issue an entrance permit or begin the acceptance procedure when appropriate.

## **1.5 PROCESS FOR LETTER OF NO CONTENTION REQUESTS**

This section defines the process as it relates to existing commercial uses/projects that are seeking an approval to use an existing entrance facility. Project eligibility is at DelDOT's discretion. Waivers for any of the conditions set forth in section 1.5.1 shall require written approval from the Assistant Director of Planning. If a parcel is covered under an existing Transportation Improvement District (TID), the site is still governed under that TID Agreement.

### **1.5.1 Eligibility of a Project**

- A. The existing business must not have been vacant for three or more years.
- B. The project scope can include site alterations, building expansions, construction or placement of new structures. If a site is to be leveled, i.e. all existing trip generating buildings are demolished; the project shall follow the application and approval process outlined in Section 1.4.
- C. The proposed site must either; generate a reduced amount of vehicular traffic or generate a net increase in vehicular traffic (less than 500 Average Daily Trips (ADT) or 50 vehicle peak hour [vph]) and must not be required to perform a Traffic Impact Study (TIS) or a Traffic Operational Analysis (TOA). DelDOT may require a TOA for any project that generates a total of 200 or more ADT.
- D. If a Capital Transportation Program (CTP) Project is occurring contiguous to the parcel/project then the application and approval process outlined in Section 1.4 may be required.
- E. If a project generates a total site ADT of 200 ADT or greater (including existing and proposed trips), proper Right-of-Way (ROW) dedication must be confirmed to exist or be provided via recorded plan or a deed, along a Major Collector or greater roadway functional classification (i.e. Major Collector, Minor Arterial, Principal Arterial or Freeway/Expressways).
- F. If turn-lanes are not present at the entrance and are required, then the application and approval process outlined in Section 1.4 shall be required. If turn lanes are present at the existing entrance, the Subdivision Engineer may at their discretion allow the project to proceed in the LONC/PEC Process.
- G. If a project generates a total site ADT between 200 and 1,999 and is located within Investment Level I or Investment Level II Areas as defined by the State Strategies for Policies and Spending maps, the applicant will be required to pay the Shared-Use Path (SUP)/Sidewalk fee in-lieu of construction. If the applicant chooses to construct the pedestrian facilities they will have to follow the application and approval process outlined in Section 1.4.
- H. Projects that generate a total site ADT of 2,000 or greater (regardless of Investment Level Area designation) must provide proof of existing pedestrian facilities or they will be required to follow the application and approval process outlined in Section 1.4 and construct any Department identified pedestrian facilities/upgrades.

## **1.5.2 Application and Approval Process**

- A. All requests should be received through our online portal PDCA (<http://pdca.deldot.gov/>) or through the Subdivision Mailbox ([Subdivision@delaware.gov](mailto:Subdivision@delaware.gov)).
- B. All applicants will be required to complete and submit a Permit Application (available online at <http://devcoord.deldot.gov> > Forms) with site traffic / trip generation information (average number of daily: vehicles using entrance, customers, and employees). The applicant is encouraged to submit a site plan, trip generation diagram, Auxiliary Lane sheets and documents relating to ROW. Construction in the ROW will require engineered plans at the Department's discretion. Additional information allows the Department to effectively process the application and to help avoid delays.
- C. DelDOT will check safety issues such as: reviewing a minimum of 3 years of crash history data at the entrance location, adequacy of existing pedestrian facilities, the physical condition of the existing entrance and any other deficient elements within the ROW along the site frontage.
- D. For projects that generate over 200 ADT (including existing and proposed trips), any existing pedestrian facilities that are determined to be not adequate must be brought up to the current standards by the applicant.
- E. DelDOT will review the project for its eligibility per the LONC requirements and determine any deficiencies per the review outlined in item C. Depending on the scope of work needed to correct any identified deficiencies, the project may be processed under the LONC/PEC process or the application and approval process outlined in Section 1.4. This determination will be made at the discretion of the Subdivision Engineer. DelDOT will make the determination if the LONC/PEC process is appropriate and if any fee payments are required within 15 business days. If more time or information is needed to process the Application, DelDOT personnel will notify the Applicant with an expected response date or request that information.

## **1.6 ACCESS**

### **1.6.1 Location of Entrances**

Entrances shall be located where the highway alignment and profile are favorable, where there are no sharp curves, steep grades or other factors that would limit sight lines, in order to provide the appropriate sight distance, in accordance with Section 5.4, Sight Distance. Refer to Figure 1.5.1 for guidance on entrance spacing. When feasible and practical, two adjacent commercial properties should use a common ingress and egress from the public highway. The first property owner should establish and record a cross access easement regarding the location and design of such ingress and egress subject to the review and approval of DelDOT.

Access locations and allowable movements shall be determined at DelDOT's discretion including but not limited to; granting an access to a State-maintained roadway, requiring design and operational modifications, restricting one or more turning movements or denying the access. For individual residential access requirements, refer to Chapter 7.

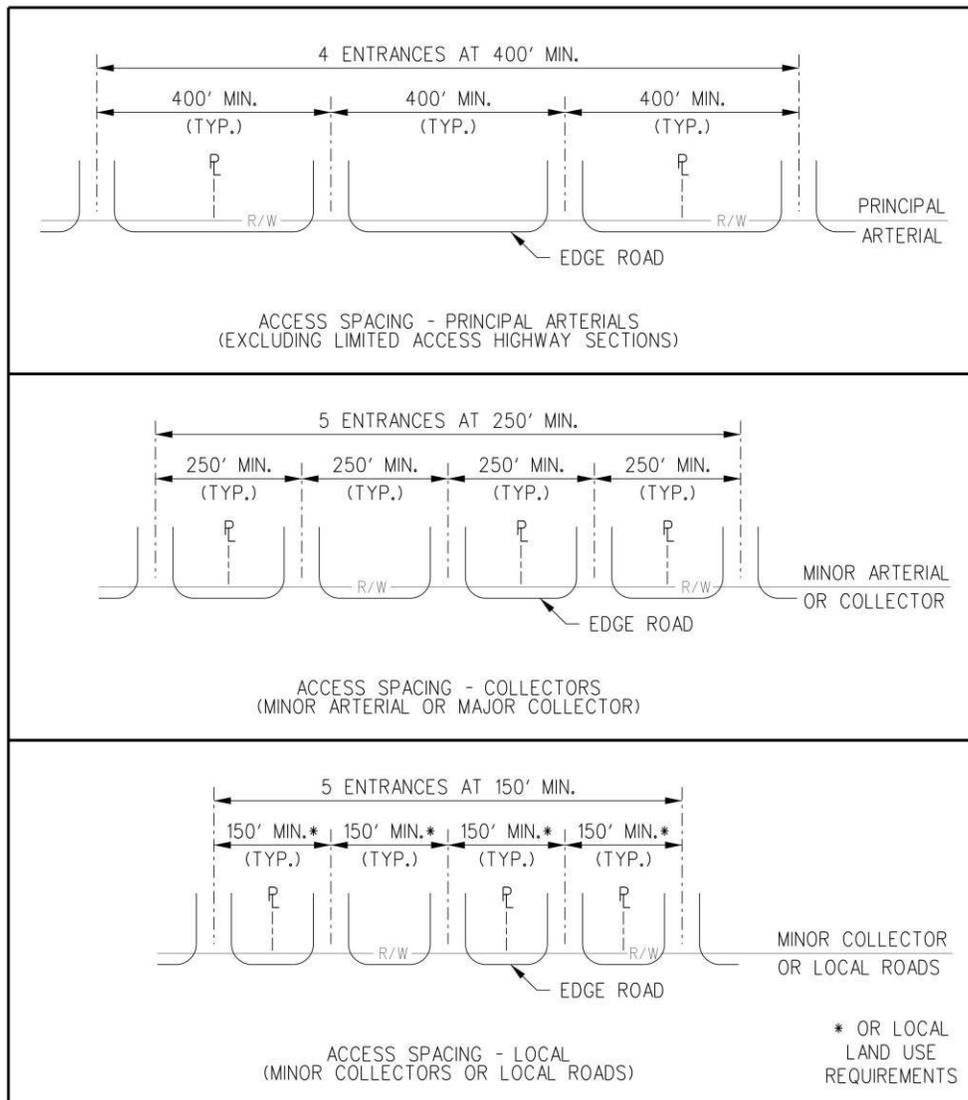
Considerations for the placement of entrances should include evaluation of sight distance, location of adjacent entrances, length of auxiliary lanes, distance from intersecting streets, adjacent street queue lengths and the adjacent street speed limit. Where feasible, entrances shall not be located within 40 feet of an intersection radius, within queues of adjacent intersections or on acceleration and deceleration lanes. The applicant may be required to provide analysis to document how a proposed access point will satisfy the requirements of this manual. See Chapter 2 for additional information on Traffic Operational Analyses and

Traffic Impact Studies.

Site circulation should be designed to allow vehicles to easily enter the site without blocking entrances or parking spaces, and without impacting traffic control phasing. The design vehicle shall be able to perform all necessary maneuvers within the site to enter and exit the roadway safely. Backing of delivery vehicles and trucks into or out of a site entrance will not be permitted.

Both Major and Minor Subdivisions should be designed to ensure that lot layouts allow for safe and practical driveway locations. Driveway locations should also be accounted for in the configuration of residual lands of subdivisions.

***Figure 1.5.1 Spacing of Driveways and Entrances***



### **1.6.2 Deeded Access Rights**

Along some sections of State-maintained roadway, access rights have been obtained by DelDOT in the form of a recorded deed (e.g., Denial of Access, conservation easement, etc.). Where access is controlled by deed, there is no right of direct access through the deeded section. The property owner so affected may inquire with DelDOT about changes or purchase of any deeded access rights. The purchasing or revising of access rights by deed is regulated under 17 Del. C. §137(b). Where access is not restricted by deed, an entrance permit consistent with the requirements of the Development Coordination Manual is still required for the construction and use of a driveway.

### **1.6.3 Signalized Access Requirements**

Traffic signals and their installation are guided by the *Delaware Manual on Uniform Traffic Control Devices* (DE MUTCD) and subject to approval by the DelDOT Traffic Section.

- A. When a signal is proposed, a signal justification study is required. The study shall be completed and signed by a Delaware registered professional engineer using the following standards:
  - 1. Highway signal progression bandwidth and efficiency analysis including current and anticipated future signalized intersections
  - 2. An optimum signal cycle as determined by DelDOT
  - 3. Actual speeds as determined by a spot speed study
  - 4. Highway bandwidth with the proposed traffic signal should be no less than the optimized existing bandwidth without the proposed traffic signal.
  - 5. The green time allowed for the cross street shall be no less than the time necessary to accommodate pedestrian movements
  
- B. The signal justification study shall also provide the following information:
  - 1. Notation of all existing access, possible future access locations for at least one mile in each direction, and all potential roadway and signal improvements
  - 2. Current and future roadway travel speed, travel time, and delay time
  - 3. Traffic generation rate estimates
  - 4. Information, data and reference sources
  - 5. An evaluation of the level of service for all geometric elements
  - 6. Accurate and understandable diagrams
  - 7. All assumptions and adjustment factors
  - 8. An analysis of all reasonable alternatives including a no build alternative
  - 9. A safety analysis including conflict points and movements
  - 10. A conceptual design showing all geometric elements and approximate dimensions with detailed analysis of any elements below code standards

Additional information and additional analysis based upon other factors and standards may be required if determined to be necessary for a complete evaluation.

Any access that would not meet the highway bandwidth requirements above, (if a traffic signal were installed), shall not be signalized and shall be limited to right turns.

#### **1.6.4 Limited Access Highways (Interstate Or Freeways / Expressways) – Design Requirements**

All opposing traffic movements shall be separated by physical constraints such as grade separations and median separators. Access, consisting of directional ramps, shall be suitably spaced and designed to provide the minimum differential between the speed of the through traffic stream and the speed of the merging or diverging vehicles. Location and design of access shall be determined on an individual basis by DelDOT. Each access allowed to a limited access highway must receive the specific approval of the Chief Engineer and the FHWA. Access to interstate highways must comply with federal regulations. Temporary access may be allowed during official emergencies or where directly related to a freeway construction project.

#### **1.6.5 Arterials – Design Requirements**

Private direct access may only be permitted on an arterial if there is no other reasonable access from a lower classification roadway, and if the access rights have not been previously purchased by the State.

All private direct access permitted shall be limited to right turns only unless a left turn movement can be designed that, in the opinion of DelDOT, meets all safety requirements.

For commercial or major residential subdivisions, no additional access rights shall accrue upon the splitting or dividing of existing parcels or contiguous parcels under the same ownership or control. All access to the newly created properties shall be provided internally from a single access. Any new access determined by the permit application shall be consistent with the requirements of the *Development Coordination Manual*.

All access provided to arterials shall be done so with the understanding that if the highway is reconstructed to a limited access highway, alternative access may be provided by a service road or other means.

#### **1.6.6 Collectors – Design Requirements**

The design of all collector roadways should be capable of achieving a posted speed limit of 35 to 45 MPH on urbanized signalized segments and preferably 50 MPH in rural areas. A speed limit of 35 to 45 MPH in urbanized areas is acceptable where posted and there is little or no possibility of achieving higher speeds. If municipalities allow lesser speed limits, and there is little or no possibility of achieving higher speeds, a 25 MPH speed limit will be acceptable.

For commercial or major residential subdivisions, no additional access rights shall accrue upon the splitting or dividing of existing parcels or contiguous parcels under the same ownership or control. All access to the newly created properties should be provided internally from a single access. Any new access determined by the permit application shall be consistent with the requirements of the *Development Coordination Manual*.

#### **1.6.7 Local Roads – Design Requirements**

The design of all local roads should be capable of achieving a posted speed limit of 30 to 50 MPH. The posted speed limit shall be used to meet the requirements of access to State-maintained roadways unless an approved plan or study shows improvements to the highway require a higher speed limit be used.

One access may be allowed from a State-maintained roadway to an individual parcel or to contiguous parcels under the same ownership or control where such access will not compromise the safety and operation of the roadway. Additional access may be provided in certain circumstances (see Section 7.2.3.1).

### **1.6.8 Service Roads – Design Requirements**

One direct access may be allowed from a service road to an individual parcel or to contiguous parcels under the same ownership or control where such access will not be detrimental to the safety and operation of the service road.

Additional access may be allowed when DelDOT determines that the following conditions are met:

- A. There will not be any significant safety or operational problems created by the additional access
- B. Additional access would not cause a hardship to an adjacent property

## **1.7 REVIEW FEES**

Review fees (as applicable) will be assessed for all development proposals at the following stages:

- Traffic Impact Study Review (*pending review and approval of the General Assembly*).
- The Initial Stage.
- The Construction Stage.

The following applies to determining and collecting fees to cover the costs of administering the review of a typical land development proposal.

- A. Traffic Impact Study Review: A Fee of \$5000 is collected when an applicant requests confirmation of the Scope of Work for the study.
- B. Initial Stage: Fees are collected at the time of submission of the record plan for DelDOT’s review. The fee associated with this stage offsets a portion of the costs associated with plan review activities before final plan approval by the local land use agency. An “Initial Stage Fee Calculation Form”, available online at <http://devcoord.deldot.gov> > Forms, or digital equivalent must be submitted with the fee, which is calculated as follows:
  - 1. Minor residential subdivision: \$100\*.
  - 2. Major State-maintained, residential subdivision: \$400 plus \$10 per lot.
  - 3. Non-residential development: \$500 plus \$20 per lot or \$500 plus \$20 per 1,000 square feet of gross floor area, whichever is greater.
  - 4. Mixed use development: calculated for each land use separately and added together.
  - 5. Residential, Non-State maintained development: \$520.

\*If all or a portion of the property subject to this fee is re-subdivided within 10 years of the payment of this fee, that subdivision shall be treated for fee purposes as if planned for 5 lots or more.

- C. Construction Stage: Fees are collected at the time of submission of the construction plans for DelDOT’s review. The fee associated with this review offsets a portion of the costs incurred by DelDOT for the technical review of subdivision street plans and highway access plans. A “Construction Stage Fee Calculation Form” available online at <http://devcoord.deldot.gov> > Forms, or digital equivalent must be submitted with the fee, which is calculated as follows:

1. Minor residential subdivision: No fee required.
2. Major residential, State-maintained subdivision: 125% of the Initial Stage Fee for a major residential subdivision as identified in Item 2 of the form.
3. Non-residential development: 150% of the Initial Stage Fee for non-residential development as identified in Item 2 of the form.
4. Residential, non-State maintained: 125% of the Initial Stage Fee for non-residential development as identified in Item 2 of the form.

All fees shall be paid using the methods described in the Fee Forms (available at <http://devcoord.deldot.gov>) and in accordance with DelDOT's current policies. Payments submitted to DelDOT must be accompanied by the appropriate fee calculation form (or the digital equivalent), which can be found on DelDOT's website under Development Coordination at the following link: <http://devcoord.deldot.gov>.

If DelDOT determines that a check or money order is the necessary form of payment for a particular project related fee, the check or money order shall be payable to the Delaware Department of Transportation. Checks or money orders that are requested by DelDOT must be dated within 90 days of the date submitted, must include the applicable fee forms and shall be mailed to DelDOT at the following address:

Attention: Controller  
DelDOT  
P.O. Box 778  
Dover, DE 19903

A copy of the payment and appropriate fee form or digital equivalent shall be uploaded to DelDOT's Subdivision Section along with the submittal package using the methods described in the Fee Forms (available at <http://devcoord.deldot.gov>) and in accordance with DelDOT's current policies.

### **1.7.1 Review Fees - Fee Administration**

DelDOT will not accept a record plan or construction plan submission without a respective fee calculation form and payment. Should any payment received be deemed insufficient, one of the following two options is available at the discretion of DelDOT:

- A. Funds will be accepted and deposited in accordance with DelDOT's current policies. DelDOT shall notify the applicant that no action on the submission will take place until the balance of required fees is received.
- B. All documents subject to review by the Subdivision Engineer will be returned to the applicant or processed as a declined submission. Documents can be resubmitted with correct fees at a later date.

## **1.8 DEFINITIONS**

**AASHTO** – American Association of State Highway and Transportation Officials.

**Acceleration Lane** – A speed-change lane, including tapered areas, for the purpose of enabling a vehicle entering a roadway to increase its speed to a rate at which it can more safely merge with through traffic.

**Access** – Any point of ingress or egress such as a driveway, street, road, or highway that connects to the general street system.

**Accessway** – A connection other than a sidewalk or walkway that provides bicycle and pedestrian passage between streets, between a street and a destination, or connecting to an existing or proposed trail.

**Alley** – A privately maintained street which provides secondary access typically along the rear lot line of adjoining properties. Alleys are intended to accommodate access to parcels and service delivery, such as trash collection and utility service.

**Angle of Intersection** – The angle that is formed by the intersecting streets' centerlines. Where the angle of intersection departs significantly (more than approximately 20 degrees) from right angles, the intersection is referred to as a *skewed intersection*.

**Applicant** – An individual or firm seeking approval from DelDOT.

**Applicant's Engineer** – An engineer licensed in Delaware and retained by the applicant to perform engineering services associated with their expertise.

**Approach Leg** – The intersection leg used by traffic approaching an intersection.

**Approval (DelDOT)** – General conformity with current DelDOT regulations, standard specifications, and standard details.

**Approved Study Area** – The study area approved for analysis by DelDOT in the Traffic Impact Study or Traffic Operational Analysis Scope of Work Letter.

**Area-Wide Study** – A study performed, generally in lieu of an individual TIS, for a designated area to determine the area-wide impacts of proposed developments within the specified study area that encompasses more than one possible development project.

**Auxiliary Lane** – A lane striped for use as an acceleration lane, deceleration lane, right-turn lane, or left-turn lane, but not for through traffic use.

**Average Daily Traffic (ADT)** – The total volume of two-way traffic during a given time period in whole days greater than one day and less than one year, divided by the number of days in that time period.

**Boulevard Street** – A street which typically functions as a collector street which involves a landscaped median of varying width which divides opposing travel lanes by green space.

**Bypass Lane** – A paved area to permit through traffic to bypass left-turning vehicles stopped on the travel lane.

**Capacity** – The number of vehicles that can traverse a point or section of a lane or roadway during a set time period under prevailing roadway, traffic, and control conditions.

**Commercial Entrance** – An entrance to or exit from a non-residential site or non-State maintained street.

**Committed Developments** – Developments that are recorded or largely approved by the local jurisdiction but which have not yet been constructed.

**Community Facilities** – Public destinations of significance to a community including, but not limited to, schools, libraries, parks, senior and recreational centers, as well as other neighborhood facilities, such as pools and tot lots.

**Connectivity** – A measure of how efficiently a transportation network provides access between destinations. It is measured using a Connectivity Ratio.

**Connectivity Ratio** - The ratio of links (street segments) to nodes (intersections and cul-de-sac heads). It is determined by dividing the number of street segments (street sections between intersections and/or cul-de-sac ends) by the number of intersections and cul-de-sac ends. For purposes of this calculation, proposed street intersections with existing roads and stub roads for future access to vacant developable lands shall count as 0.5 intersections.

**Connector Streets** – A continuous suburban development street or combination of streets beginning and ending on the state-numbered road system, having a high volume of through traffic.

**Construction Entrance** – A temporary access for the ingress and egress of construction vehicles.

**Corner Clearance** – The distance along the edge of the traveled way from the closest edge of pavement of the intersecting roadway to the closest edge of pavement of the nearest access connection.

**Corridor Capacity Preservation Program (CCPP)** – A Program established in accordance with Title 17, Section 145 of the Delaware Code to reduce the need for expansion, and maintain the regional importance, of four designated corridors (SR 1 from Dover AFB south to Five Points; US 13 from Route 10 to MD state line; US113 from southern limits of Milford to MD state line; Route 48 from Hercules Road to Route 41).

**Crossover** – An opening in a median on a divided highway provided for crossing and turning traffic.

**Cul-de-Sac Street** – A subdivision street with a single point of access which terminates at a circular, paved turn-around. Also referred to as a “dead-end street”.

**Deceleration Lane** – A speed change lane, including tapered areas, for the purpose of enabling a vehicle that is exiting a roadway to leave the travel lanes and slow to a safe exit.

**Delaware MUTCD** – Delaware Manual on Uniform Traffic Control Devices.

**DelDOT** – The Delaware Department of Transportation.

**Departure Leg** – The intersection leg used by traffic leaving an intersection.

**Development Coordination Section** – The unit within DelDOT’s Division of Planning charged with the responsibility for reviewing subdivision and site plans, traffic impact studies, CCPP and development proposals.

**Divided Highway** – A highway with a median designed to separate traffic moving in opposite directions.

**Drainage Structure** – An inlet box, pipe, box culvert, or other similar conduit installed for the purpose of draining the flow of surface water.

**Driveway** – An access that is not a public street, road, or highway.

**Field Entrance** – A limited use driveway for the occasional/infrequent use by equipment used for the purpose of cultivating, planting, and harvesting or maintenance of agricultural land.

**Frontage** – The length along the state right-of-way of a single property tract. This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway.

**Functional Area (Intersection)** – The area of an intersection necessary to provide all appropriate auxiliary lanes. The functional boundary includes more than just the physical area of the intersection.

**Functional Classification** – A classification system that defines the purposes and hierarchy of all streets and highways within a network (classification system maps can be found on DelDOT's website).

**FWOP (Future Without Project)** – In a TIS, denotes the anticipated future traffic condition at a location without the addition of traffic generated by the proposed project.

**FWP (Future With Project)** – In a TIS, denotes the anticipated future traffic condition at a location after the addition of traffic generated by the proposed project.

**Gradient or Grade** – The rate or percent change in slope, either ascending or descending from or along the highway.

**Gross Floor Area** – The sum of the total horizontal areas of every floor of every building on a lot. The measurement of gross floor area shall be computed by applying the following criteria:

- A. The horizontal square footage is measured from the face of all exterior walls.
- B. Enclosed storage, mechanical areas, mezzanines and similar structures shall be included as gross floor area wherever at least seven feet are provided between the finished floor and the ceiling.

No deduction shall apply for horizontal areas void of actual floor space, for example, elevator shafts and stairwells.

**High Density Development** – Development that will result in a minimum of 50 employees per acre, or 9 residences per acre.

**Higher Level Roads** – Streets classified as one of the following: major collectors, minor and major arterials, freeways, and interstates.

**Higher Order Streets** – A term used as a relevant comparison between subdivision streets to refer to all streets which are classified above the street being described.

**Highway** – A general term for denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

**Industrial Street** – A Street in an area for manufacturing or industrial use as defined by the local land use agency's zoning code which is located in an unincorporated community and meets the following requirements:

- A. The aggregate internal street system contains a minimum of 500 linear feet of road surfacing.
- B. The internal street system connects to existing or proposed State-maintained roadways.

**Infrastructure** – In transportation planning, all the relevant elements of the environment in which a transportation system operates, including, but not limited to, bridges, drainage, lighting, pathways, pavement, railways, roadways, sidewalks, traffic control and monitoring equipment and systems, transit facilities, transit systems, utility installations and utility systems.

**Interchange** – A facility that grade separates intersecting roadways and provides directional ramps for access movements between the roadways. The structure and the ramps are considered part of the interchange.

**Interconnectivity** – Physical connections of roadways and sidewalks between two or more independent developments or residential subdivisions.

**Intersection** – For the purposes of this manual, the intersection encompasses not only the area of pavement jointly used by the intersecting streets, but also those segments of the intersecting streets affected by the design. Thus, those segments of streets adjacent to the intersection for which the cross-section or grade has been modified from its typical design are considered part of the intersection.

**Intersection Legs** – Segments of roadway connecting to the intersection.

**Intra-connectivity** – Physical connections of streets and sidewalks within a single development or residential subdivision.

**Lane** – The portion of a roadway for the movement of a single line of vehicles which does not include the gutter or shoulder of the roadway.

**Level of Service (LOS)** – A measure of traffic flow and congestion. As defined in the Highway Capacity Manual, it is a qualitative measure describing operational conditions within a traffic stream; generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. LOS is measured on a scale from “A” to “F”.

**Limited Access Highway** – Highways, streets or roadways to which owners or occupants of abutting lands and other persons have no legal right of access to or from the same, except at such points and in such manner as may be determined by the public authority having jurisdiction over such highway, street or roadway.

**Linkages** – Roadways, sidewalks, access-ways and walkways that connect between adjacent development parcels and subdivisions.

**Local Land Use Agency** – The County or municipality that is responsible for reviewing and approving the applicant’s subdivision or land development plan.

**Local Road** – All roadways under DelDOT jurisdiction that provide direct access to land and links to the higher classification routes. Local roads have the lowest volumes of traffic and short trip lengths. These do not include subdivision streets.

**Local Roadway Network** – Those roadways comprising all roadway classifications designated as major collector or lower level (including minor collector, commercial collector, commercial access street, subdivision street, loop street, boulevard street, cul-de-sac, service road and alley).

**Local Transportation Circulation Plan** – A plan providing proposed locations for future roadways designated as minor collector or higher level, within a particular geographic area, that has been approved by DelDOT and the County or local jurisdiction to which it pertains.

**Loop Street** – A subdivision street with one or two points of access on a collector street or other higher order street.

**Lot** – A bounded area of land portrayed on a recorded or unrecorded plan, which usually also shows nearby streets and other physical features, as well as other lots and parcels. The lots delimited by plans are a basis of separate legally established parcels, usually for houses or other buildings. The resulting parcels may contain more than one lot, especially where lots are small. Occasionally, lots are delimited to transfer land from one parcel to another. Since parcels and lots are related, the terms are often used interchangeably.

**Major Access** – The point at which a privately maintained road, street, driveway or other entrance, carrying more than 500 vehicles trips per day or more than 50 vehicle trips for any hour, intersects a publicly maintained road or street.

**Major Residential Subdivision** – A subdivision of six or more residential lots.

**Major Street** – Typically, the intersecting street with greater traffic volume, larger cross-section, and higher functional class.

**Median** – The portion of a divided highway separating the traveled ways for traffic in opposing directions. A median may be traversable or non-traversable.

**Median Left-Turn Lane** – A speed change lane within the median to accommodate left-turning vehicles.

**Minor Residential Subdivision** – A subdivision of five or fewer residential lots.

**Minor Street** – Typically, the intersecting street likely to have less traffic volume, smaller cross-section and lower functional classification than the major street.

**Mixed Use Development** – Development that consists of two or more land uses within the same building lot or area.

**Multi-modal Access** – Ability of pedestrians, bicyclists and transit vehicles to enter, exit or use a transportation facility.

**Nationally Accepted Standards (NAS)** – includes references to guidelines and design standards that have been researched, compiled, published and maintained through the efforts of nationally recognized professional organizations and publications, which typically encompass the efforts of societies or associations within the fields of engineering or civil design.

**Natural Area or Feature** – May include steep slopes, upland natural areas, wetlands, or other bodies of water.

**Neighborhood Commercial District** – Commercial districts that serve to provide goods and services to the surrounding neighborhoods, generally consisting of older buildings with unique architectural style.

**Net Dwelling Unit Density** – The computation of dwelling unit density that excludes land area dedicated to the public use or for use as open space.

**Off-site Improvements** – Road improvements for the benefit of safety and/or capacity, that are beyond the limits of the site entrance and frontage.

**Parcel** – A uniquely described piece of land whose boundaries are established by legal instrument such as recorded deed, court order or a recorded plot which is recognized as a separate legal entity for the purposes of transfer of title.

**PCPHGPL** – Passenger cars per hour of green time per lane.

**Pedestrian Refuge Areas** – Areas protected by curb, landscaping or some other similar device so as to provide shelter for pedestrians traveling across vehicle travel lanes.

**Physical Constraint** – Limitation on development or access created by topographical features on the development parcel, or adjacent parcels, e.g., spacing of existing adjoining streets, freeways, railroads or other physical structures.

**Potentially Developable or Redevelopable Land** – Land that is not restricted from development by virtue of factors such as farm land preservation, wetlands or other environmental constraints, parkland, etc.

**Pre-Submittal Meeting** – A meeting held with DelDOT and representatives of the developer prior to plan submittal to discuss proposed development.

**Public Works Engineer** – The DelDOT individual assigned to issue permits and supervise construction.

**Record Plan (Approved)** –

- A. A complete plan which defines property lines, proposed street and other improvements, and easements.
- B. A plan of private streets to be dedicated to public use.

**Residential Access** – An entrance serving a private, single-family, residential unit from an abutting State-maintained roadway.

**Residential Site** – A private, single-family, residential lot.

**Right of Way** – A general term denoting land, property, or interest therein; usually in a strip, acquired for, or devoted to, transportation purposes.

**Roadway** – The portion of a highway, including the travel-ways and shoulders.

**Roundabout** – A circular intersection with yield-control at entry, permitting a vehicle on the circulatory roadway to proceed, and with deflection of the approaching vehicle counter-clockwise around a central island.

**Scoping Meeting** – A meeting requested by an applicant to discuss the requirements and study area of a Traffic Impact Study or Traffic Operational Analysis.

**Service Road** – A subdivision street adjacent and generally parallel to a limited access arterial roadway or highway intended to provide access to properties adjoining or that are in close proximity to the limited access arterial roadway or highway.

**Shared Access** – A single connection serving two or more adjoining lots or parcels.

**Shared-Use Path** – A bikeway physically separated from motor vehicle traffic by an open space or barrier and either within a highway right-of-way or easement, or within an independent right-of-way. Shared-use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non- motorized users. Most shared use paths are designed for two-way travel.

**Shoulder Area** – The portion of roadway adjacent to the travel-way for accommodating stopped vehicles, bicycles and pedestrians where there is no sidewalk, and providing lateral support to the base and wearing courses.

**Sidewalks** – Paved pedestrian pathways installed along roadways and streets, or within easements on private property.

**Sight Distance** – The distance visible to the driver of a passenger vehicle measured along the normal travel path of a roadway from one point to another point at a specified height above the roadway.

**Site Plan** – The plan sheet(s) signed by a licensed engineer or surveyor that depict the existing and proposed condition of a development site to scale, showing all pertinent information required by DelDOT and the local land use authority to receive the necessary planning or zoning board approvals.

**Skewed Intersection** – An intersection where the angle of intersection departs significantly (more than approximately 20 degrees) from right angles.

**State-maintained Roadway** – The entire width between the right-of-way of a publicly maintained roadway when any part thereof is open to the use of the public for purposes of multi-modal travel or the entire width of every roadway declared to be a public highway by any law of this state. It includes bridges, culverts, sluices, drains, ditches, waterways, embankments, walls, trees, shrubs, fences, etc.

**Stopping Sight Distance (SSD)** – The distance required by a driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the roadway becomes visible. It includes the distance traveled during driver perception and reaction times, and the vehicle braking distance.

**Storage Length** – Additional lane length added to an auxiliary lane, to store the maximum number of vehicles anticipated to accumulate in the lane, during a peak volume period. It prevents stored vehicles from interfering with the function of the deceleration lane or the through travel lanes.

**Strip Development** – See Minor Residential Subdivision.

**Stub Street** – Temporary dead end street for future connectivity with the adjacent property.

**Subdivision** – The division or re-division of a lot, or a parcel of land, by any means (including a plan or a description of metes and bounds) into two or more lots, tracts, parcels, or other divisions of land for the purpose of, whether immediate or future, lease, transfer of ownership, or building development. The division or allocation of land for the opening, widening, or extension of any street, or other public facilities.

**Subdivision Manual** – Development Coordination Manual.

**Subdivision Street** – A street, within a community or industrial park, categorized into three levels as follows:

- A. **Type I** – Subdivision streets with less than 500 ADT.
- B. **Type II** – Subdivision streets with between 501 to 3000 ADT.
- C. **Type III** – Subdivision streets with more than 3000 ADT.

**Suburban Community** – Any unincorporated community within the state of Delaware:

- A. Containing at least 5 separate and distinct property owners; provided, that each parcel of land, condominium or other individually owned unit of a multiunit building shall be deemed to have no more than 1 owner for the purposes of this subchapter;
- B. That are individually owned parcels of land whose streets in the aggregate equal a minimum of 500 linear feet of road surface or condominiums or other types of individually owned units of multiunit buildings whose streets in the aggregate equal a minimum of 300 linear feet of road surface; and
- C. Which, in the opinion of the local governing authority and DelDOT, is so situated as to form a unit which is reasonably and economically capable of being improved by the laying, repairing or completion of streets, signs, sidewalks and installation of surface drainage and storm sewers.

In addition to the above, such unincorporated communities within this State must be:

- D. Located on a highway which is part of the state highway system or will be connected to the state highway system when the projects provided for are complete and which street shall be either maintained by the DelDOT upon completion pursuant to the requirements of Title 17 of the Delaware Code and DelDOT's *Development Coordination Manual*; or
- E. Built pursuant to county rules and regulations requiring design and building standards and a means or mechanism to provide for the perpetual maintenance of such suburban community streets as provided herein.

**Traffic Divider** – A median type formation used to separate entering and exiting traffic.

**Traffic Generator** – An establishment or facility which produces and attracts traffic that did not previously exist and which causes that traffic to leave and enter the adjacent roadway. Traffic generation shall be expressed in terms of Average Daily Traffic (ADT). Each vehicle using the facility is to be counted twice (in and out).

**Traffic Impact Study (TIS)** – A study conducted during the development approval process to determine the impacts that traffic generated by the proposed development will have on the surrounding street network and the improvements needed to the transportation system in order to mitigate those impacts.

**Traffic Island** – A defined area between traffic lanes for control of vehicle movements or for pedestrian refuge.

**Traffic Operational Analysis (TOA)** – An evaluation, or series of evaluations, conducted during the review of subdivision, land development and entrance plans primarily intended to determine site entrance location and movements to be allowed at the site entrance. These evaluations may include: Queuing

Analysis, Highway Capacity Manual Analysis, and Crash Analysis.

**Transportation Improvement District (TID)** – A geographic area defined for the purpose of securing required improvements to transportation facilities in that area.

**Travel Demand Management (TDM)** – A strategy, or a set of strategies, proposed by an applicant to mitigate the traffic impacts of a project by reducing the number of single occupied vehicles traveling to the site during the peak hour. TDM strategies can include such things as car and van pools, flex and staggered employee hours, transit or shuttle service.

**Travel Demand Model** – A set of computer based tools comprising of software, existing and projected land uses, demographics, roadway and street data commonly used by Departments of Transportation and Metropolitan Planning Organizations to estimate future travel patterns, analyze potential improvements, and support Federally-required travel-related air quality studies. As referred to in this regulation, the term specifically refers to the ‘Peninsula Travel Model’ operated and maintained by DelDOT Planning.

**Turning Roadway** - A short segment of roadway for a right turn, delineated by channelizing islands. Turning roadways are used where right-turn volumes are very high, or where skewed intersections would otherwise create a very large pavement area.

**Walkways** – Pathways within commercial development sites that can range in size from a minimum 5 foot width to accommodate pedestrians, to a maximum 12 foot width to accommodate pedestrians and bicyclists.

## **1.9 REFERENCES AND SOURCE MATERIALS**

This Manual includes references to guidelines and design standards that have been researched, compiled, published and maintained through the efforts of nationally recognized professional organizations and publications. Any direct references to or insertion of specific portions of such guidelines or standards may generally be considered as minimum criteria or standards within the authority of this Manual. Any general references to such guidelines or standards in their entirety may generally be considered as guidance materials, (to be considered during design and construction), within the context of this Manual. The Department may exercise engineering judgement in some cases and rely on standards and criteria, (for transportation elements, streets and highways under its jurisdiction), that differ from the minimum criteria presented within this Manual or within the external guidelines and design standards referenced by this Manual.

Department standards, criteria, and manuals should be taken into consideration when planning for the design, drafting and submission of projects that abut or have an impact on the local transportation system, state highway system or the national highway system. **Users of this Manual are cautioned that the strict application of exact numerical values, conditions or use information taken from portions of the text may not be appropriate for all circumstances.** Individual references to design values or concepts should not be used out of context or without supporting engineering judgment.

### **1.9.1 References and Source Materials - National**

The following guidelines and design standards (which are made available in their entirety through nationally recognized professional organizations and publications) are incorporated by reference, except as modified within this Manual. In the event that conflicts may exist between incorporated references and

this Manual, the *Development Coordination Manual* controls.

AASHTO's "*Guide for the Development of Bicycle Facilities*", 4th Edition (2012)

AASHTO's "*A Policy on Geometric Design of Highways and Streets*", 7th Edition (2018), commonly referred to as "**the Green Book**"

AASHTO's "*LRFD (Load and Resistance Factor Design) Bridge Design Specifications*", 6th Edition (with 2013 Interim Revisions)

AASHTO's "*Roadside Design Guide*", 4th Edition (2011)

AASHTO's "*Manual for Assessing Safety Hardware (MASH)*", 1st Edition (2009)

American Concrete Pipe Association (ACPA)'s "*Concrete Pipe And Box Culvert Installation Manual*", (2007)

ACPA's "*Concrete Pipe Design Manual*", (2009)

Institute of Transportation Engineers (ITE)'s "*Trip Generation Manual*", 10<sup>th</sup> Edition (2017)

McTrans' "*Highway Capacity Software (HCS7)*", (2017)

Transportation Research Board (TRB)'s "*Highway Capacity Manual (HCM)*", 6th edition (2016)

TRB's "*NCHRP (National Cooperative Highway Research Program) Report 350 - Recommended Procedures for the Safety Performance Evaluation of Highway Features*", (1993)

### **1.9.2 References and Source Materials – State of Delaware**

The following guidelines, design standards and/or independent manuals (which are made available in their entirety through their authoring Agencies and/or Departments of the State of Delaware) are incorporated by reference, except as modified within this Manual. In the event that conflicts may exist between incorporated references and this Manual, the *Development Coordination Manual* controls.

DelDOT's "*Pedestrian Accessibility Standards for Facilities in the Public Right-of-way*" (2018 as amended)

DelDOT's "*Road Design Manual*" (2011 as amended)

DelDOT's "*Standard Construction Details*" (2017 as amended)

DelDOT's "*Standard Specifications for Road and Bridge Construction*" (2016 as amended)

DelDOT's "*Bridge Design Manual*" (2017 as amended)

DelDOT's "*Traffic Design Manual*" (2015 as amended)

DelDOT's "*Traffic Calming Manual*" (2012 as amended)

### **1.9.3 References and Source Materials – Regulations**

Regulations that are adopted through the Federal or State of Delaware Register of Regulations shall be taken into consideration in each aspect of planning, design or construction, where such Regulations may

have independent jurisdiction over applicable elements irrespective of any consideration in this Manual. The omission of explicit references to any such applicable State or Federal Regulation from this Manual shall not have the effect of sheltering the design professional from the separate and/or additional responsibilities that such Regulations may create. In the event that conflicts may exist between State or Federal Regulation and this Manual, the more restrictive criteria should be used, while meeting the intent of the controlling Regulation. All Regulations shall be considered in their entirety, inclusive of any amendments, in their most current version.

The following is not an exhaustive list, but includes some of the more commonly referenced Regulations:

Delaware version of the **“Federal Manual on Uniform Traffic Control Devices (DE-MUTCD)** (2011 as amended or current version)

**Delaware Code, Section 2308: Development Related Improvements Requiring New Rights-of-way** (2006)

**U.S. DOT Federal Transit Administration (ADA) American with Disabilities Act** (2006 - Federal Register, Vol. 71, No. 209 as amended or current version)

**U.S. DOJ American with Disabilities Act (ADA) Standards for Accessible Design** (2010 - Federal Register Vol. 75, No.178 as amended or current version)