

# Transportation Considerations for School Site Selection

## *Items to consider*

- Where is the school district and where do the students live in relation to the site?
- What choices of modes of transportation will these students have?  
Walk/bike, parent vehicle, school bus, public transportation
- What routes (roads and pathways) will the students be taking?
- What impact will these pedestrians and vehicles have on the existing roadway system?
- What are the proposed changes to these roadways and how will these changes affect the school routes?
- What impact will future growth in the area have on school traffic and what are the cost to address these impacts?
- Are there ways that peak school traffic congestion can be adjusted to lower the impact on nearby peak hour traffic?

## ***Factors Considered in Site Review Analysis for a new School currently being considered by Municipal and School Transportation Assistance (MSTA)***

- ***Annual Average Daily Traffic (AADT)*** – is a measure of the number of vehicles traveling along a given roadway on an average day. Schools with access along roadways with high AADT can experience many problems including difficulty entering and exiting the campus, and an increased possibility of vehicle crashes. It is often easier to manage a “Reduced Speed School Zone” on lower AADT roadways. (AADT in this letter is our most recent obtained in 2002 and 2003).
- ***Security*** – a site with a perimeter that accommodates natural surveillance with limited access points to reduce possible escape routes for potential offenders is desirable.
- ***Room for Expansion*** – a campus design should provide room for future expansion for both building and transportation needs. The driveway length requirements provided by MSTA are based on conservative traffic volume averages. Variations in the student population, student transportation modes, and loading operations can affect the campus needs. Room for future expansion of parking facilities and driveway lengths should be anticipated and provided for in the selection of a school site and campus design.
- ***Connectivity to local roadway network*** – is important to the school and local commuter traffic. A school site with good connectivity will have traffic access from several local roads and not dependent on one major route. Dispersing school related traffic volumes across multiple routes will not only reduce traffic volumes and congestion throughout the local roadway network but also helps with emergency access to the school site.

School related traffic (especially buses) can access the site along minor roads without having to travel on a major, high-speed highway (Interstate or US route). Additionally, a well-connected campus may provide increased opportunities for pedestrian access to the campus, sidewalk and greenway construction must be considered.

- **Road Frontage** – This is a measure of the length of the property border with the adjacent roadway. Ideally, on a school campus, a one-way traffic pattern can be established with separate entrance and exit driveways. This reduces the number of conflict points (potential crashes) at the driveway intersections by separating entering and exiting vehicles. The *NCDOT Policy on Street and Driveway Access to North Carolina Highways* recommends 600 feet between driveways along a roadway, with 400 feet being a minimum.
- **Proximity to Residential Areas** – A campus located near residential development(s) is more likely to have students that will walk or bike to school. This promotes good health by increasing students' physical activity and helps reduce the number of vehicles on campus and nearby roadway systems.

### ***Evolving Traffic Safety Concerns***

- Request for reduced speed zones in DOT established or proposed major corridors

### ***History of Cost associated with school site improvements***

- Traffic signal \$130K
- Left turn lane on existing right-of-way \$100K, underground utilities affected \$40K, incidentals \$25K
- \$120,000 for 700 foot access road into school and upgrade traffic signal. Does not include the Left turn lanes also added to nearby intersection.
- \$50,000 for 500 foot alternate access into school
- \$150,000 for turn lane into school
- \$227,000 left turn lane built
- \$100,000 left turn lane built
- School traffic backed out onto adjacent roadway. Recommended construction of a new driveway with one-way traffic pattern. School constructed a new building on proposed site prohibiting access. A new location was identified for a new driveway but required \$150K additional cost to construct turn lanes at an existing intersection. After construction the result was considered a success.
- School System requested access along a dead end road that crossed an active railroad track. Proposed improvements to the intersection would cost over \$1M due to acquiring additional right-of-way, crossing signals and gates, and traffic signal with rail preemption. Recommendations included extending road to provide additional access. Site is still under construction.
- Elementary school was constructed along a major route with a short internal driveway. Design prohibited easy driveway extension. Recommendations included constructing a new entrance driveway from a side road and intersection improvements including traffic signal and turn lanes. Approximately 1.2M.

# School Site Selection Outline

## ***Existing School Site Selection Practice***

### ***Laws, GS 136-18 (29), (29a)***

The Department of Transportation may establish policies and adopt rules about the size, location, direction of traffic flow, and the construction of driveway connections into any street or highway which is a part of the State Highway System

All public and private entities shall, upon acquiring land for a new school or prior to beginning construction of a new school, relocating a school, or expanding an existing school, request from the Department a written evaluation and written recommendations

This General Statute does not identify a timeline for coordination with the department at a time changes could be made easily and cost effectively

### **Coordination times that would be most productive:**

During property selection

Early in conceptual design

Prior to request for driveway access permit or construction plans being adopted

### **Coordination times that would be most difficult:**

After construction has begun

After campus has opened for use and concerns have begun to adversely affect citizens and school

## ***Design Issues***

Site/driveway locations should consider road type and adjacent driveways to have minimal conflicts (speed, motorists expectations, and safety)

Encourage pedestrian and bicycle access by including these modes in the design

Parent driveway should provide adequate length to contain vehicles on campus (guidance provided by NCDOT - MSTA School Traffic Calculator)

On-campus pedestrian and traffic patterns should minimize conflicts and associated delays

Identify the student loading zone, process, and its operational efficiency

Maximize efficiency of the student loading traffic patterns by giving clear and concise directions to motorists

Incorporate expansion capabilities for possible future construction growth (permanent or temporary)

## ***Helping a School Campus SOAR***

**S**eparate pedestrians and vehicle types

**O**rganize student loading process

**A**ssign short term "Visitor" parking

**R**educe drivers options and conflicts

### ***NCDOT's Preferred Guidelines for School Coordination***

Contact NCDOT Division Engineer and/or District Engineer with proposed site(s)

Apply traffic engineering fundamentals in the campus design procedures to help reduce short term construction and possible long-term correction cost

Apply for Driveway Permit for cursory review and final approval

Reduced need for corrective measures using limited NCDOT funds available

### DEPARTMENT OF TRANSPORTATION TO EVALUATE THE LOCATIONS OF PROPOSED PUBLIC AND PRIVATE SCHOOLS TO ENHANCE TRAFFIC OPERATIONS AND SAFETY

**SECTION 27.27.** G.S.136-18 reads as rewritten:

#### **“§ 136-18. Powers of Department of Transportation.**

The said Department of Transportation shall be vested with the following powers:

...

(29) The Department of Transportation may establish policies and adopt rules about the size, location, direction of traffic flow, and the construction of driveway connections into any street or highway which is a part of the State Highway System. The Department of Transportation may require the construction and public dedication of acceleration and deceleration lanes, and traffic storage lanes and medians by others for the driveway connections into any United States route, or North Carolina route, and on any secondary road route with an average daily traffic volume of 4,000 vehicles per day or more.

(29a) To coordinate with all public and private entities planning schools to provide written recommendations and evaluations of driveway access and traffic operational and safety impacts on the State Highway system resulting from the development of the proposed sites. All public and private entities shall, upon acquiring land for a new school or prior to beginning construction of a new school, relocating a school, or expanding an existing school, request from the Department a written evaluation and written recommendations to ensure that all proposed access points comply with the criteria in the current North Carolina Department of Transportation ‘Policy on Street and Driveway Access’. The Department shall provide the written evaluation and recommendations within a reasonable time, which shall not exceed 60 days. This subdivision shall not be construed to require the public or private entities planning schools to meet the recommendations made by the Department, except those highway improvements that are required for safe ingress and egress to the State highway system.”



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