

TRANSPORTATION CONCEPTS

LAND USE/TRANSPORTATION CONNECTION

The way in which land is zoned and used impacts the Winston-Salem Urban Area MPO's transportation system. Land use and transportation system elements (streets, transit, sidewalks, greenways, etc.) should be coordinated to ensure that the proposed land use will not overwhelm existing transportation system elements; that the proposed transportation system element will not be over/under-built to serve the existing and anticipated future land use; and that the nature of the roadway (or other transportation element) does not create adverse situations or drive undesirable land use changes. Because of their interdependency, it is important to coordinate transportation and land use planning, both in long-term, comprehensive plans and in day-to-day decision making.

One method planners are now using to better integrate transportation and land use is called Context Sensitive Solutions (CSS). CSS is an approach to transportation decision-making and design that considers the communities and land uses which streets, roads, and highways pass through. Context Sensitive Solutions must be flexible so that infrastructure fits into the natural and human environment—the context. CSS seeks to balance the need to move vehicles efficiently and safely with other desirable outcomes. A key aspect of the CSS approach is meaningful involvement of stakeholders, with a focus on collaboration and consensus.

MULTI-MODAL TRANSPORTATION

Continued increase in travel demand, congestion and fuel prices make it apparent that simply building more roads will not solve our transportation problems. Recognizing the need to expand transportation choices, comprehensive transportation plans are now multi-modal plans, providing options for motorist, transit riders, bicyclists, and pedestrians.

The Thoroughfare Plan has recently been replaced with the Comprehensive Transportation Plan (summarized above) which includes recommendations for not just for streets and highways as were included in the Thoroughfare Plan, but also for public transportation, rail, and bicycle and pedestrian facilities. The Winston-Salem MPO's Long Range Transportation Plan (also summarized above) takes a multi-modal approach to transportation planning and facility investment by including plans for roads, transit, bike and pedestrian facilities, and freight movement.

There is now a growing recognition that roads should function not just to move cars, but to serve all users. "Complete Streets" are roads designed and operated to enable safe, attractive, and comfortable access and travel for all users, including pedestrians, bicyclists, transit users, and motorists. Local jurisdictions, including the City of Charlotte, have adopted Complete Streets policies and developed implementation strategies, including street design guidelines.

In 2009, the NC Board of Transportation adopted a Complete Streets Policy to affirm and implement their commitment to "providing an efficient multi-modal transportation network in North Carolina such that the access, mobility, and safety needs of motorists, transit users,

bicyclists, and pedestrians of all ages and abilities are safely accommodated.” NCDOT staff is working with an Advisory Committee and a consultant engineering firm to develop tools, such as design guidelines and staff training programs, to implement the Complete Streets Policy. NCDOT’s efforts will impact the design of State-funded roads in North Carolina and could serve as a model for local street design and complete streets initiatives.

TRANSPORTATION SAFETY IMPROVEMENTS

Certain transportation safety improvements may be recommended based on the types of accidents that occur, the speed at which vehicles are traveling, or the volume of traffic that is present. Safety improvements may include, but shall not be limited to, pedestrian signals, crosswalks and sidewalks, turn lanes, road widening, traffic calming measures, stops signs, signals, medians, etc.

TRAFFIC CALMING

Traffic calming is essentially a process of slowing or diverting traffic to enhance safety for neighborhoods. Traffic calming measures are becoming increasingly popular as an alternative to using expensive, high-tech safety equipment. Methods of traffic calming include street designs with more curvature, steeper grades and narrower widths, traffic circles and roundabouts, on-street parking, chicanes, etc.

INTELLIGENT TRANSPORTATION SYSTEM (ITS)

Intelligent Transportation System (ITS) is the term used to describe the technology and devices used to coordinate traffic flow improvements, accidents/debris detection, parking, public transit, traveler information, traffic safety, toll collection, public safety, etc. The most notable local example of ITS is the use of changeable message signs on I-40, US 52, Business 40, US 421, etc. These signs can be used to notify motorists of upcoming congestion and/or other problems. By providing real-time information and possible alternative routes, motorists may have a chance to avoid the conflict, thus saving time, aiding traffic flow, and possibly improving air quality.

AVERAGE DAILY TRAFFIC VS. CAPACITY

Average Daily Traffic (ADT) is a traffic count number that represents the average number of vehicular trips on a road. ADT maps are produced by NCDOT and are sometimes supplemented by counts conducted by the LPA. Road capacity is the amount of traffic that a road was designed to handle under its current configuration and still function above a Level of Service (LOS) of E (see information on LOS on the next page). By examining the ADT of a road versus its capacity, transportation planners can determine if existing roads can handle proposed new development and when/if the road should be widened/improved.

FUNCTIONAL CLASSIFICATION

Roads are given a functional classification based on their usage, capacity and speed. Generally, the classification will help determine such things as the road’s width, the type of construction materials used, the design speed of the road, the right-of-way width, whether or

not an adjacent piece of property may have access to the road, and if so, how many access points it may have. The generalized functional classifications are:

Controlled Access Highways: These roads have strict controls on allowing direct access to them. Access is limited to interchanges with major cross streets. Controlled access highways are designed to move people, both inter- and intra-regionally. Local examples of controlled access highways include Interstate 40, US 421, US 52, and US 311 Freeway.

Thoroughfares: These roads are wide and carry a large volume of traffic. People use thoroughfares to get from one side of town to another. Driveway access is controlled through the driveway permitting process – generally, commercial, office and institutional uses will be able to access the thoroughfare. Most residential properties will be discouraged from having direct access to thoroughfares. Local examples of thoroughfares include Silas Creek Parkway (NC 67), Peters Creek Parkway (NC 150), University Parkway, South Stratford Road (US 158), Lewisville-Clemmons Road, etc.

Collectors: These roads connect the thoroughfares to the local, neighborhood-level streets. They carry moderate traffic and do allow direct access to them. Local examples include Konnoak Drive, Kirklees Road, London Lane, etc.

Locals: Local roads are within neighborhoods. They carry minimal traffic and are designed for slower speeds and volumes.

Generally, roads will fall within one of these basic functional classifications. Sometimes the classifications are further subdivided (major and minor thoroughfares, for example) in order to provide a more detailed description of each road. The Federal Functional Classification System and NCDOT's required Comprehensive Transportation Plan use similar, but slightly different, nomenclature for classifying roads.

LEVEL OF SERVICE (LOS)

Roads can be described by Level of Service (LOS). LOS is a qualitative standard that refers to the traffic conditions on a road and how easily traffic flows on/through the road. The six (6) levels are listed below:

Level of Service A: This level indicated free flowing traffic with virtually no disturbance from other vehicles. Traffic volume is almost non-existent.

Level of Service B: Vehicles can maneuver easily without having to reduce speed or to make other adjustments on a regular basis. Traffic volume is low.

Level of Service C: The traffic flow is smooth. However, drivers experience regular interference from other vehicles. Traffic volume is moderate.

Level of Service D: The traffic flow is smooth. However, movement and speed are significantly impeded. Traffic volume is high.

Level of Service E: The road is congested with irregular traffic flow. The traffic volume is either near or at the road's capacity.

Level of Service F: The road is heavily congested with stop-and-go traffic. Traffic volume is over capacity.

AIR QUALITY CONFORMITY

Conformity is a way to ensure that Federal funding and approval are given to those transportation activities that are consistent with air quality goals. All MPO's that are located in non-attainment or maintenance areas for air quality must have LRTPs that are found to be in conformity with the North Carolina State Implementation Plan (SIP) for achieving air quality standards. Further, the local MTIP must be consistent with the conforming LRTP (and thus the SIP). Specifically, the LRTP and the MTIP must result in estimated emissions consistent with those allowed in the SIP.

In MPO's, the TAC must formally make a conformity determination on its LRTP and the MTIP prior to submitting them to FHWA for an independent review and conformity determination. Conformity determinations must be made at least every four (4) years, or as changes are made to the LRTP, the MTIP, or projects. Other events, such as revisions to the SIP that establish or revise a transportation-related emissions budget, or add or delete transportation control measures (TCM), may also trigger new conformity determinations.