

APPENDIX "I"
Levels of Service Standards (LOS)

Several transportation engineering firms that were referenced in the CMP report have computed the determination of Level of Service Standards for SC 46. There is both a LOS for intersections (signalize and nonsignalized) and the rural and urban sections of the roadway. The capacity of SC 46 to 'flow' traffic is both a quantitative and qualitative measurement of the roadway's operational conditions. For uninterrupted conditions, LOS are assessed using quantitative measures, which describe operational conditions within a traffic stream, and qualitative measures, such as individual motorist and/or passenger perception of those conditions.

As noted in Chapter III, "A level of service definition considers factors in equations that measure traffic conditions such as speed and travel time, traffic volume, freedom to maneuver, traffic interruptions, comfort, convenience and safety. These rating can become the forecast for future roadway conditions, given the current roadway characteristics. Physical improvements to SC 46, such as the turnabout, signalized intersection, turn lanes etc will effect the LOS."

"LOS are rated A through F, best to worst, based on the models in the AASTHO Highway Capacity Manual.1 (1985, revised 1994). This is the "Bible", yet South Carolina DOT may define a LOS for all state roadways that would further take into consideration the "qualitative" measurements. In addition, there is another publication which was sponsored by AASHTO and the Transportation Research Board (Fed) has gained acceptance, particularly for rural and nonsignalized intersections. It was published by the National Cooperative Highway Research Program (NCHRP) and can be read online...but I would strongly advise you to pass this link along for their information and not curl up with the book....very dry reading unless you love transportation models." <http://www.nap.edu/catalog/6340.html#toc>

Bluffton should first rely on Beaufort County and SC. DOT for the most proper definition given the actual computation that will be required to determine Capacity. Furthermore, SC DOT and/or Beaufort County will have the language for LOS A-F, which appropriate for that particular roadway segment of SC 46.

Appendix "I"

Level of Service Standards

However, if one only desires a general descriptive definition, the following level of service (LOS) definitions may be used to describe transportation during uninterrupted flow conditions:

LOS A: Describes free flow conditions, with low volumes and high speeds. Freedom to select desired speeds and to maneuver with the traffic systems is extremely high. The general level of comfort and convenience provided to the motorist, passenger or pedestrian is excellent.

LOS B: Is in the range of stable flow but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver with the traffic stream from LOS A.

LOS C: Still in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.

LOS D: Represents high-density, but stable flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.

LOS E: Represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.

LOS F: Describes forced or breakdown flow. These conditions usually result from queues of vehicles backing up from a restriction downstream. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. It marks the point

where arrival flow exceeds discharge flow. Levels of service for non-signalized intersections are based on a volume to capacity ratio and the resultant periods of delay. Projections take into account land uses in the area surrounding an intersection and how that traffic may affect the level of service of the intersection in the future. Levels of service in non-signalized intersections are expressed in terms of the average total delay per vehicle in seconds as show below in Table 3-4.

Table 3-4
Level of Service Definitions for Non-Signalized Intersections

LEVEL OF SERVICE: AVERAGE TOTAL DELAY
A < 5 Seconds
B > 5 and < 10 Seconds
C > 10 and < 20 Seconds
D > 20 and < 30 Seconds
E > 30 and < 45 Seconds
F > 45 Seconds