2045 MTP

Alternatives Analysis – Congestion Maps (V/C maps)

Understanding Congestion Maps

The Performance Measures provide a general indicator of the overall transportation system. On the other hand, the Congestion Maps show the forecasted level of service on specific road segments based on the daily traffic volume and capacity. These maps are sometimes called "V/C" maps (V over C maps) because the level of service, or existence of congestion, is derived by dividing the traffic volume by the traffic capacity of the road segment. For example, a volume of 9,000 vehicles on a road that is capable of carrying 10,000 vehicles will produce a V/C of 0.9. A V/C of 1.0 is equal to a Level of Service (LOS) of "E", which can be described as:

> Limit of acceptable delay, unstable flow, poor signal progression, traffic near roadway capacity, frequent cycle failures.

These congestion maps show the daily values. Thus, it should be noted that the V/C ratio for the morning or afternoon peak period and hour is likely to be higher and therefore more congested than the daily values.

Although the term traffic congestion is subjective in that it means different levels of delay to different people, it can be said that any road segment approaching a V/C of 1.0, which is indicated on the maps with a **yellow color**, experiences some delays. A V/C greater than 1.0, which is indicated on the maps by the **orange color**, means frequent delays for the motorist and when the V/C exceeds a value of 1.2, the **red color**, most motorists experience what might be termed unacceptable travel delays.

The Triangle Regional Model (the travel demand model for the Triangle Region) uses travel behavior data for the Triangle Region, future transportation system networks, and future population and employment data, to forecast the volume and capacity values needed to produce these maps. The forecasts are for the year 2045. Each congestion map represents one of the Alternatives, which are comprised of a specific mobility investment, or set of highway, transit and other transportation facilities, and a specific development foundation, or set of land uses.

Review and comparison of the congestion maps for the various Alternatives will show how well a particular Alternative addresses travel demand on the key roadway segments and corridors in the MPO planning area.

Of particular importance is the comparison of any one Alternative with the **E+C map** (Existing plus Committed), which can be considered a benchmark. The E+C map uses a

transportation network with the current roadways and transit services plus any others that have been committed to being implemented, and the Socioeconomic Data (i.e., population and employment) for the year 2045. This map shows the level of service to be experienced if no additional roadways improvements or transit services are implemented, and thus helps to answer the question, "When we make our next transportation investment decision, where do we need to focus our investment?" Furthermore, by comparing the E+C Congestion Map with the other Alternatives, you can see how well the transportation investments in that Alternative address the congestion in the E+C.

You can find the E+C congestion maps on the following MPO Web page:
www.bit.ly/DCHC-MTP-Deficiency

The 2013 congestion map is provided, as well, to give an additional benchmark. The 2013 basically represents currents conditions because it is based on the current transportation network and socioeconomic data.