



COLLIN COUNTY

Engineering Department
825 N. McDonald Street
Suite 160
McKinney, Texas 75069
972-548-3727
www.collincountytx.gov

MEMO

Date: June 28, 2016
To: Commissioners Court
From: Clarence Daugherty, PE; Collin County Engineering
Subject: Results of Build-Out Travel Demand Modeling

Jacobs Engineering, in concert with Freese & Nichols, has completed the travel demand modeling for the two build-out scenarios they were directed to model. As you know in September, 2015, Freese & Nichols completed a second demographic projection of the population and employment when all of the land area is completely developed. Since that time the North Central Texas Council of Governments (NCTCOG) transportation staff and Jacobs Engineering entered those projections into NCTCOG's travel demand model so that this computer model could project the amount of traffic on the Collin County transportation network.

We chose to report the results of the modeling in an addendum to the 2014 Update of the Mobility Plan. This addendum includes any sections from the 2014 Update that were revised or updated as a result of the 2015 demographic projections and this latest modeling. Although this results in a rather lengthy addendum, it was felt that putting the revisions and updates in the context of the sections that they addressed was the only way to provide clarity for the new information. The addendum is included.

While the addendum provides narrative explanations and graphical illustrations of the results, there is a tremendous amount of information in the actual output of the model which is available to be referenced as needed. The remainder of this memo provides the Commissioners Court with the highlights of the results of modeling.

Demographic Projections:

Scenario 1 – 2,088,456 people – 1,168,448 jobs

Scenario 2 – 3,440,682 people – 1,598,020 jobs

Unconstrained Traffic Demand:

A model was run for each of the above scenarios that allowed trips to use the fastest or the shortest routes between origins and destinations regardless of the amount of traffic on that route. This just gives us an idea of the where the traffic would go if there were no restraints such as a limited number of lanes or heavy congestion. However, this can only be used as an indicator, since the "real world" case will have limitations to the actual flow. Some observations of the results of this modeling are

- The north-south movement will continue to be the major demand. This would be as a result of there still being a large number of jobs south of Collin County, even though the percentage of jobs in Collin County will increase
- Those with the highest demand: US 75 (highest), PGBT, SRT, DNT, SH 289/Preston, Outer Loop near Rockwall Co
- US 380 and FM 2478/Custer Rd also would also have high demands
- The highest demand on the Outer Loop besides just north of Rockwall Co is just east of SH 121
- Surprisingly the demand for the Outer Loop between US 75 and the Denton Co line is not very high

Constrained Traffic Projections:

This model was run on the Collin County Thoroughfare and Transit Plan that is in the 2014 Update. The number of lanes shown in this plan for thoroughfares, freeways and tollways was used, and, therefore, are the constraining factors. These factors represent the way the facilities will be built as planned today. Some observations of the results of this modeling are

- The following north-south roadways will be gridlocked (LOS F) during rush hours:
 - US 75, Dallas County line to Melissa
 - SH 121 in Melissa
 - SH 5 in McKinney south of FM 546
 - FM 982 south of Princeton
 - DNT, Dallas County line to US 380
 - All of Plano's and Frisco's north-south thoroughfares
- The following east-west roadways will be gridlocked during rush hours:
 - US 380
 - FM 3286 across Lake Lavon
 - SRT west of Alma
 - PGBT east of Independence
 - SH 78, west of FM 6
 - Parker Rd and Park Blvd in Parker and Murphy
 - FM 544/Plano Pkwy, from Wylie to US 75
- Mixed-use development along the eastern Outer Loop actually reduces demand on Outer Loop and other thoroughfares in eastern Collin County (reduces number of work trips outside of County)
- Roadways that are currently planned as six-lane thoroughfares which appear to require more than six lanes are
 - FM 1461, east of Preston
 - US 380
 - SH 289/Preston Rd
 - FM 2478/Custer Rd
 - Stacy Rd, west of Custer and east of Us 75
 - SH 78, west of FM 6
 - SH 205
 - FM 544/Plano Pkwy from Wylie to US 75
- There is a surprisingly low volume projected on the Outer Loop between US 75 and Denton County

The attached presentation will be made in Commissioners Court to more fully explain the results.