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### FUTURE TRAFFIC LEVELS: WHERE DOES IT COME FROM?

The amount of new land development and the location of that development, known as the development concept, drives our traffic growth projections for the 2008 to 2035 planning time frame. As documented in Newsletter Issue #4 “2008 to 2035 Development”, by 2035 we are anticipating a 40% growth in housing and employment for the Bismarck – Mandan region; the number of households is projected to grow from 37,300 today to 52,900 in 2035 and employment is projected to grow from 52,100 jobs today to 73,300 jobs in 2035. More details on the development concept can be found in Newsletter #4, at the project website at:

[bis-manplan2009.com/PDFs/futuredevelopnewsltr4.pdf](http://bis-manplan2009.com/PDFs/futuredevelopnewsltr4.pdf)

### THE BISMARCK – MANDAN TRAVEL MODEL

The 2035 assumptions for regional housing and employment growth are a primary input into the computer model used to forecast future traffic levels. The Bismarck-Mandan MPO area travel model is a computer application that can evaluate/simulate traffic volumes and patterns representative of a unique land use plan and roadway network. The travel model can provide us two general ways to look at the land use – roadway network interaction:

- Estimate traffic volumes associated with a specific level and type of land development. This type of model application provides an understanding of the potential traffic impacts associated with a land development scenario.
- Estimate the effects of improvements to the roadway network. Through changing the input roadway characteristics, the travel model allows us to test alternative transportation system changes (new roads / adding lanes / new interchanges). The model allows us to assess the negative impacts of congestion, such as traffic avoiding arterial bottlenecks by diverting through neighborhoods.

### 2035 TRAFFIC FORECASTS

The development concept discussed in Newsletter #4 and a future roadway network scenario referred to as the “existing-plus-committed” (E+C) network are the baseline inputs for the 2035 future traffic forecasts. The E+C network is the current roadway system with all of the 2009 to 2012 Transportation Improvement Program (TIP) projects in place. The TIP projects included were those that significantly increased roadway capacity or changed roadway connectivity:

- Century Avenue – Hamilton St to Centennial Rd 4-Lane Widening.
- Centennial Road - Trenton Ave to Jericho Ave 5-Lane Widening.
- Extend / upgrade Divide Ave from Volk St to Bismarck Expressway.
- Extend Division Street from 8th Ave NE to Mandan Ave.
- Added turn lanes to US 83 north of 57th Avenue.

Table 1 documents the existing and forecasted regional daily levels of travel for the study area. As shown in the table:

- Total daily trips made in the metropolitan area are projected to increase by 42 percent by 2035.
- Daily vehicle miles of travel (VMT) are projected to increase by 60 percent by 2035.
- Daily vehicle hours of travel (VHT) are projected to increase by 77 percent by 2035.

As shown in Table 1, VMT and VHT are projected to grow more than trip generation, indicating that average trip lengths and times are forecasted to increase over the planning horizon. This is not a surprise as most of the new development added by 2035 is anticipated to be on the current urban periphery. The fact that VHT grows more than VMT indicates that congestion will increase by 2035 if no improvements are made to the highway network beyond those included in the current 2009 – 2012 TIP.

A full documentation of future 2035 traffic forecasts and forecasted 2035 traffic operations is provided in “2035 Baseline Traffic Forecasts and Operations” memo located at the project website at:

[bis-manplan2009.com/PDFs/2035Traffic.pdf](http://bis-manplan2009.com/PDFs/2035Traffic.pdf)

### ADDRESSING CURRENT AND FUTURE NEEDS - FIRST ITERATION

Addressing current and future transportation system needs is the purpose of the alternatives analysis process, which is currently underway.

The issues and deficiencies addressed by this process include:

- Safety Issues
- Network Continuity Gaps
- Travel Quality Evaluations

The alternatives analysis incorporates both quantitative and qualitative approaches to reviewing a wide range of roadway, transit and bicycle / pedestrian concepts, projects and programs, and is guided by the locally-developed Plan goals and objectives. The Plan goals and objectives are documented in Newsletter #2, available at the project website at:

[bis-manplan2009.com/PDFs/revisedgoalsobj.pdf](http://bis-manplan2009.com/PDFs/revisedgoalsobj.pdf)

The alternatives analysis includes two primary levels of evaluation.

- The recently-completed **first level**, has narrowed the list of potential alternatives by removing those concepts that do not reasonably reflect the transportation goals or do not have local support.
- The **second level** alternatives analysis phase, which has been initiated, evaluates the remaining alternatives maintained through the first level screening, with additional detailed assessments relative to the established goals and objectives.

The results of the first level alternatives analysis are documented in the memorandum “First Level Alternatives Screening Results” located at the project website at:

[bis-manplan2009.com/PDFs/Alternatives1.pdf](http://bis-manplan2009.com/PDFs/Alternatives1.pdf)

**Table 1. Bismarck-Mandan Regional Travel Demand Summary, 2007 and 2035**

	2007	2035	Change	2007 to 2035 Change
Trip Generation	732,000	1,038,000	306,000	42%
VMT	1,460,000	2,330,000	870,000	60%
VHT	39,100	69,100	30,000	77%