Appendix B: Base Year & Future Year Traffic Forecasts Memo

Appendix B details traffic forecasting methodology and results used for future year traffic analysis and microsimulation model development.

Memo

Date:	Friday, January 28, 2022
Project:	Interstate Operations Analysis & Plan for Future Improvements
To:	Metro COG
From:	HDR
Subject:	Base Year & Future Year Traffic Forecasts

This memo details the development of base year (2021) and future year (2045) ADTs for the Interstate Operations Analysis and Plan for Future Improvements.

Traffic Count Data

Traffic data were collected from the following sources:

- Miovision Counts
- MetroCOG Interstate Counts
- NDDOT Interstate Counts
- Automatic Traffic Recorder Counts
- StreetLight Data

Socioeconomic Data Updates

The study team worked with Metro COG to establish updated socioeconomic (SE) data for the 2045. Recent SE data updates from Metro COG were formatted for import into the CUBE Travel Demand Model (TDM) for future year model runs.

Travel Demand Model Updates

The study team worked closely with ATAC to error check future year LRTP TDM runs. Intersection control inconsistencies in the LRTP model resulted in atypical future year interstate routing during the assignment phase. This resulted in imbalances on the interstate system and at various service and system interchange ramps.

The study team removed the intersection control from the base year and future year models to minimize potential errors that may impact future forecasts. Forecasts that were developed for this memo used this approach.

Future Year Forecast Methodology

The following steps were used to grow base year (2021) ADTs to the 2045.

- Base Year (2015) and Future Year (2045) LRTP TDM daily flows were pulled from CUBE model runs
  - With updated SE data and removed intersection control
- Daily Flows were balanced on freeway and ramp segments
- Absolute daily model growth was calculated within the study area
- 24 years of the absolute model growth was applied to the base year (2021) ADTs
  - This accounted for 6 years of SE data growth difference between the TDM (2015) and traffic data collection (2021)

Note that two future year models were developed:

A. The LRTP model with potential new interchanges on I-29 at 64th Avenue S and 76th Avenue S.
B. The LRTP model with the potential new interchange on I-29 at 64th Avenue S removed.

Option B was used to develop future year ADTs at this point in the study. Note that this study will help determine the need for one or more new interchanges between 52nd Avenue S and 100th Avenue S.

Results

Base year (2021) and future year (2045) ADTs are shown in the **Appendix**. As shown in **Figure A.2** majority of the interstate model growth is concentrated along I-29 between the potential new interchange at 76th Avenue S and Main Avenue. This aligns with a majority of the SE data growth south of I-94 and west of I-29. This growth was also reflected at the Tri-Level interchange ramps to/from the south including a 90% growth on the system interchanges ramps between I-29 (to the south) and I-94 (to the east).

Appendix

Included in the Appendix

- Base Year (2021) and Future Year (2045) ADTs at:
  - Service Interchange Ramps
  - System Interchange Ramps
  - Interstate Mainline
  - Arterial Cross Streets (at Service Interchanges)
- Existing Interstate Lane Configuration

Figures included in the Appendix:

- Figure A.1. I-94 ADTs
- Figure A.2. I-29 ADTs
- Figure A.3. I-29 / I-94 System Interchange ADTs

Figure A.1. I-94 ADTs

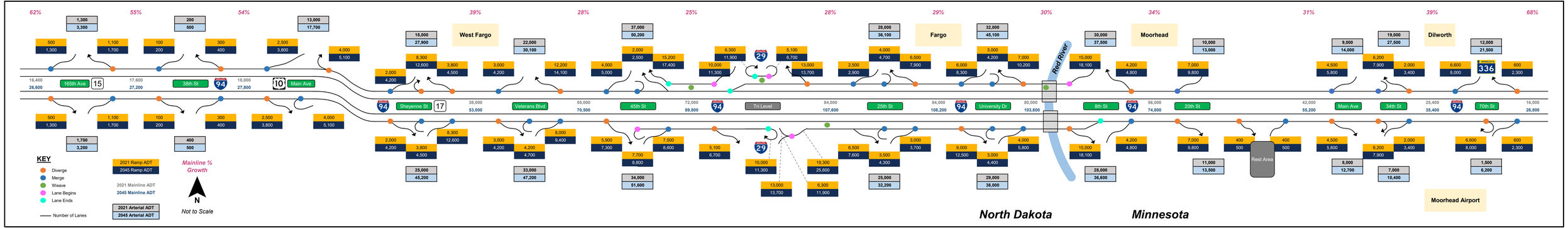

Figure A.2. I-29 ADTs

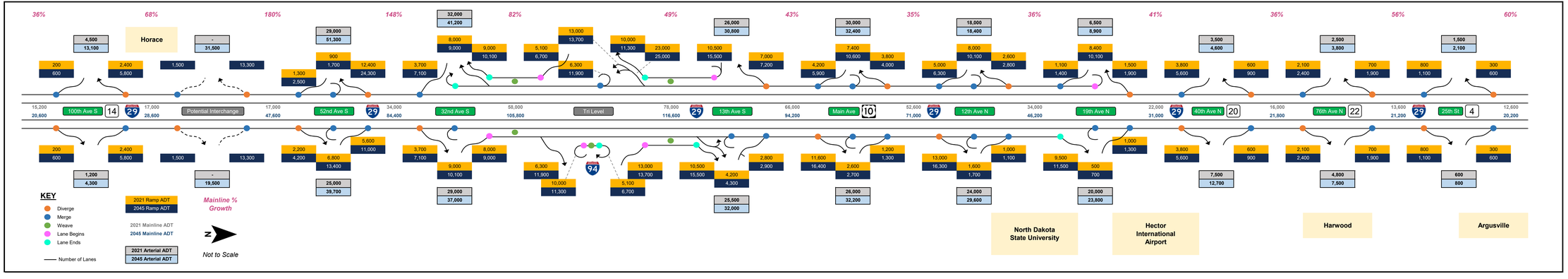

Figure A.3. I-29 / I-94 System Interchange ADTs