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**Date**

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**Subject**

I-94 UBOL Maple Grove to Rogers  
2040 Traffic Forecasts - DRAFT

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**HNTB Job Number**

61509

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## **Technical Memorandum**

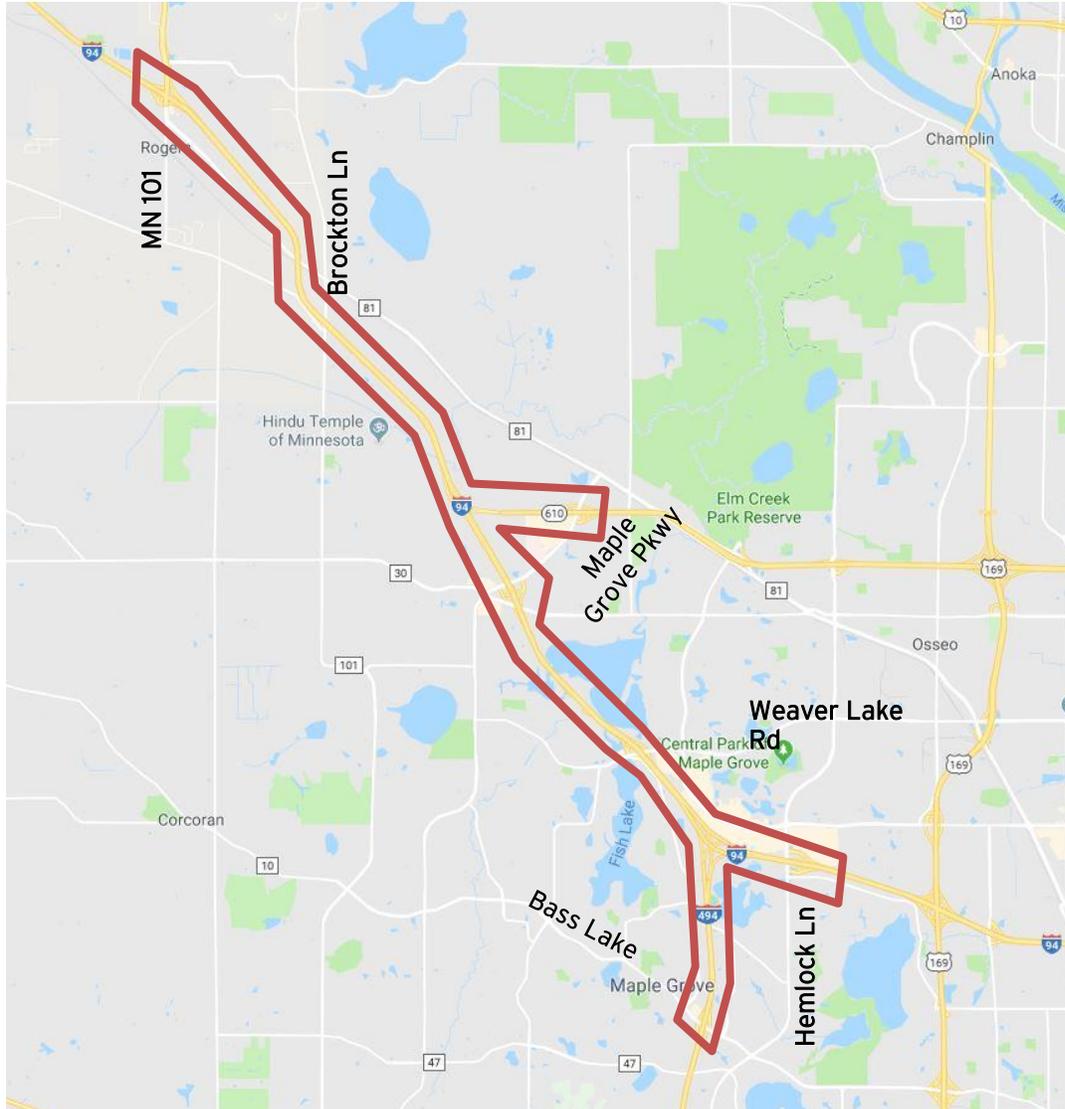
### **INTRODUCTION**

This technical memorandum documents the assumptions and methodology used to develop 2040 traffic forecasts for the I-94 Unbonded Overlay (UBOL) Maple Grove to Rogers project as well as the 2040 traffic forecasts for the different alternatives. The traffic forecasts will provide guidance in assisting the design of I-94, particularly with respect to a potential new interchange located near Brockton Lane and to assess the need for auxiliary lanes between MN 101 and MN 610. Travel demand volume results were developed for the existing year 2015 condition, future year 2040 no build, and three I-94 build alternatives for future year 2040, which include various combinations of the proposed Brockton Lane interchange and I-94 auxiliary lanes between MN 101 and MN 610. The Metropolitan Council regional travel demand model (dated June 27, 2018) was utilized for this project.

Daily and AM and PM peak hour traffic forecasts were developed for the project study area, which includes the following freeway corridors:

- I-94 from the MN 101 interchange to the Hemlock Lane interchange.
- I-494 from the I-94/I-494 interchange to the Bass Lake Road interchange.
- MN 610 from I-94 to the Maple Grove Parkway interchange.

Traffic forecasts will be subsequently used in CORSIM microsimulation software to analyze traffic operations and compare the effectiveness of the I-94 build and no build alternatives. The CORSIM microsimulation will include the I-94, I-494, and MN 610 corridors within the study area, including the ramp terminal intersections. The project study area is shown in Figure 1.

**Figure 1: Project Study Area**

## LAND USE

The socio-economic growth within the Met Council model for the four municipalities in the project study was examined. The population, household, and employment data by Traffic Analysis Zone (TAZ) were extracted from the Met Council regional travel demand model for the year 2015 existing year scenario and the year 2040 future year scenario. Table 1 shows the socio-economic total growth and percent annual growth rates by municipality, according to the travel demand model's TAZ data. Figure 2 shows the municipal boundaries, for reference.

Table 1: Met Council Model Land Use Growth (2015 to 2040) by Municipality

Municipality	Population		Households		Employment		Total Growth			Annual Growth %		
	2015	2040	2015	2040	2015	2040	Pop	HHs	Emp	Pop	HHs	Emp
Corcoran	5,713	16,676	1,971	6,743	1,199	3,164	10,963	4,772	1,965	5.0%	4.4%	4.0%
Dayton	5,169	11,301	1,799	4,742	1,191	3,026	6,132	2,943	1,835	4.0%	3.2%	3.8%
Maple Grove	65,378	89,612	24,779	33,327	33,966	50,018	24,234	8,548	16,052	1.2%	1.3%	1.6%
Rogers	10,737	15,475	3,634	5,823	9,331	13,630	4,738	2,189	4,299	1.9%	1.5%	1.5%
Total	86,997	133,064	32,183	50,635	45,687	69,838	46,067	18,452	24,151	1.8%	1.7%	1.7%

Figure 2: Municipal Boundaries

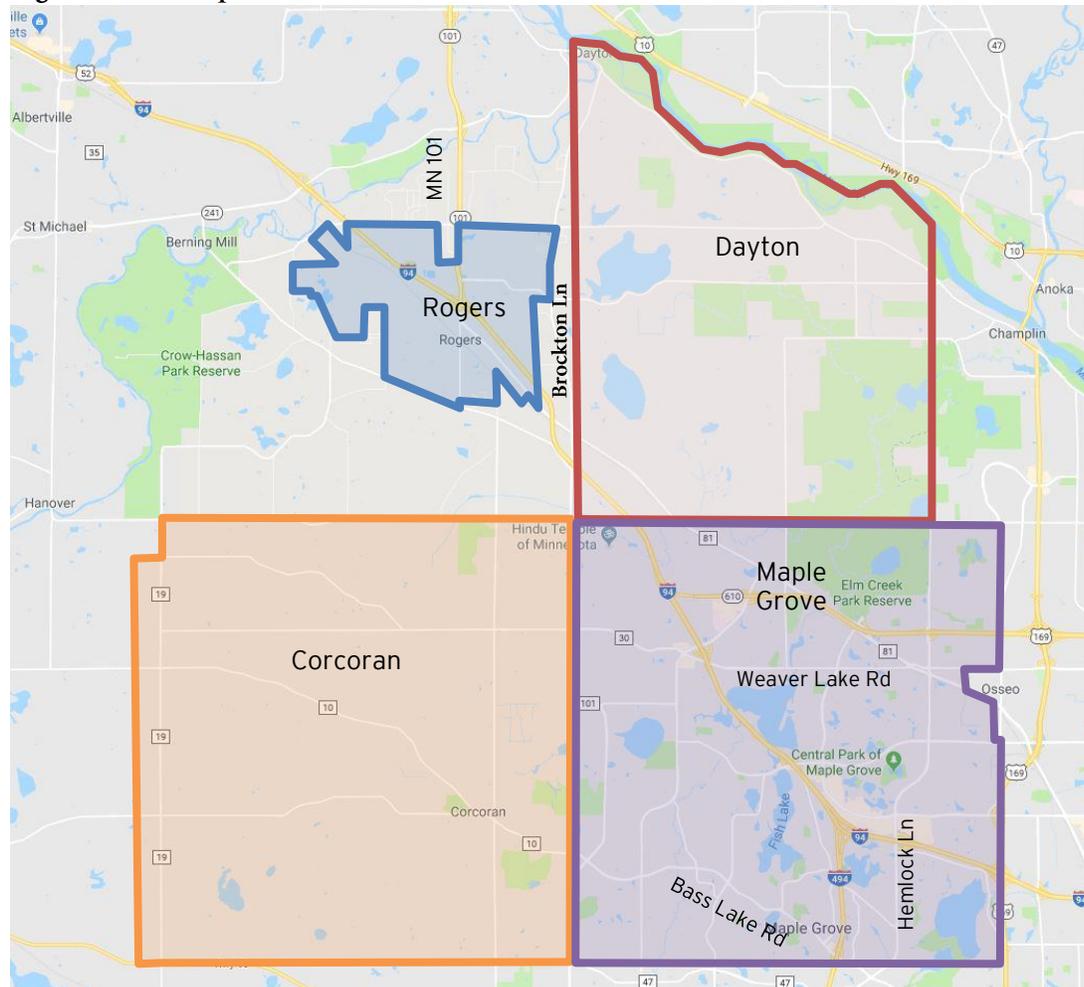


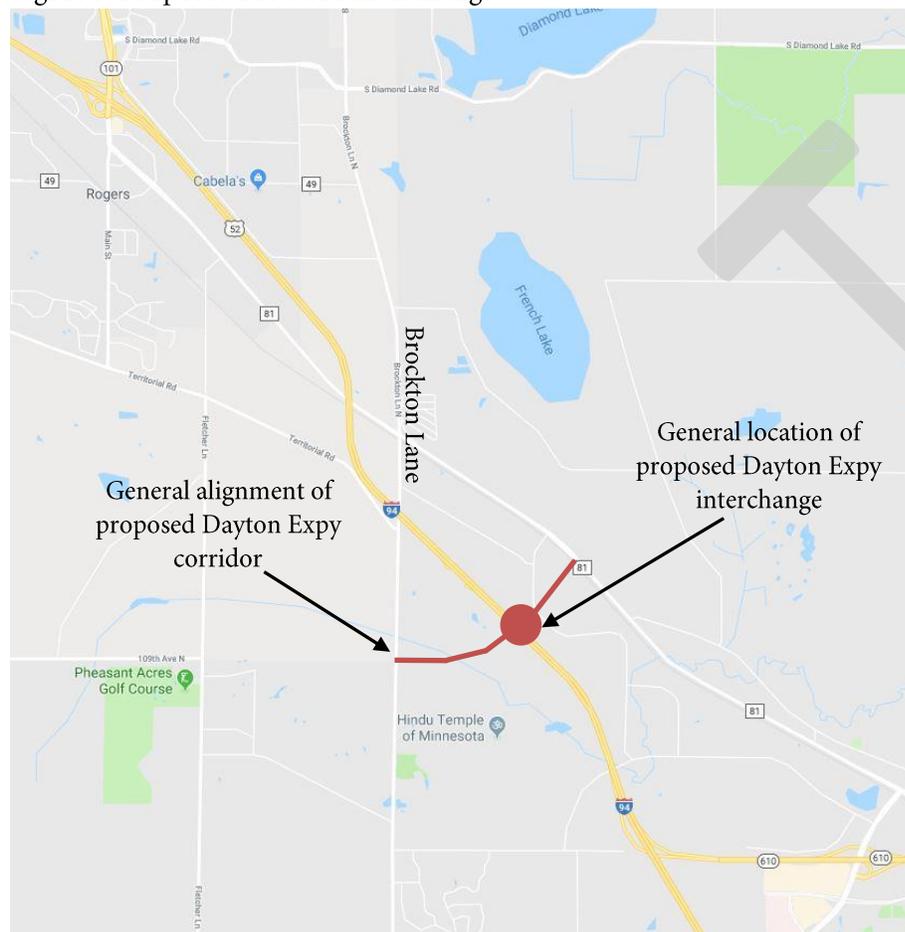
Table 1 shows that Corcoran and Dayton have the highest growth rates. Maple Grove is the largest city and is projected to have the highest magnitude of growth in population, households and employment. The four municipalities are projected to grow by a combined 46,067 people, 18,452 households, and 24,151 employees from year 2015 to 2040. Therefore, healthy growth is projected in the vicinity of I-94 in the project study area.

### BUILD ALTERNATIVES

Traffic forecasts were developed for three I-94 build alternatives. They include various combinations of the new proposed I-94 interchange near Brockton Lane and the addition of I-94 auxiliary lanes between MN 101 and MN 610. The interchange is proposed to be located at a new roadway proposed to be named

Dayton Parkway. It is proposed to access I-94 just south of where Brockton Lane crosses I-94. The proposed Brockton Interchange is proposed to be full access and Dayton Parkway is proposed to extend from Brockton Lane in the west to CSAH 81 in the east initially, and potentially extend north to North Diamond Lake Road in the future. Figure 3 below shows the approximate initial location of Dayton Parkway.

Figure 3: Proposed Brockton Interchange



The three I-94 build alternatives are described below:

1. Scenario 1 – Brockton interchange with I-94 auxiliary lanes in both directions from MN 101 to MN 610.
2. Scenario 2 – Brockton interchange with I-94 auxiliary lanes in both directions from Brockton interchange to MN 610.
3. Scenario 3 – I-94 auxiliary lanes in both directions from MN 101 to MN 610. No new interchange.

### MODEL PREPARATION

The Met Council regional travel demand model was utilized to develop traffic forecasts. A version of the activity-based model, dated June 27, 2018, was provided to HNTB Corporation. The model network was reviewed within the project study area and surrounding vicinity for accuracy. Number of lanes, functional class, speeds, and connectivity were among the attributes that were reviewed. Following the model review, a few items were updated to match field conditions:

- I-94 had an incorrect number of lanes between MN 101 and MN 241. The model had 2 lanes in each direction on I-94, it was updated to be 3 lanes in each direction.
- Gaps in connectivity were present along Brockton Lane and along North Diamond Lake Road and were fixed in the model.
  - Brockton Lane was not connected north and south of North Diamond Lake Road.
  - North Diamond Lake Road was not connected east and west of Brockton Lane.
- 105<sup>th</sup> Avenue, between Maple Grove Road and 101<sup>st</sup> Avenue, was missing. It was added to the model.
- The MN 610 interchange with I-94 was added to the 2015 model to create the base year model.
- An I-94 interchange was located at Brockton Lane in the 2040 model, this was removed for the year 2040 No Build model run.

The following changes were made to the I-94 Build Alternative models:

- The speed on 109<sup>th</sup> Avenue between Pioneer Trail and Fletcher Lane was reduced from 50 mph to 40 mph. The reduced speed is based on likely changes in facility operations due to increased land use density to accommodate expected growth.
- The speed along Territorial Road, east of MN 101 was reduced from 54 mph to 39 mph to match the input speed of Territorial Road, west of MN 101.
- Dayton Parkway is coded as a 4-lane divided arterial primary road with a 40 mph input speed.
- Regional model updates:
  - No MN 610 extension.
  - Corridors of commerce projects were added:
    - Added lanes on I-94 near St. Michael and Albertville.
    - TH 252 is updated to a freeway.
    - Improvements to TH 10.

#### Data Collection

Daily traffic counts were collected using data available from the MnDOT traffic counts website. Counts from year 2017 or 2016 were used wherever available. If recent counts were not available, counts from years 2015 or 2014 were used.

AM and PM peak hour counts along the I-94 mainline and I-94 ramps were collected from the MnDOT sensor data website. MnDOT directed use of data from September 2017 to be used for developing mainline and ramp peak hour forecasts.

Intersection peak hour volume counts were collected from the Cities and Counties. WSB conducted peak hour turning movement counts at locations where recent counts were not available. Counts were collected at each terminal ramp intersection in the project study area for use in developing future intersection peak hour turning volume forecasts.

#### **FORECAST METHODOLOGY**

The forecasting effort includes no specific additional calibration measures undertaken by HNTB beyond the validation performed by Met Council as part of the model development. The planning level traffic daily and peak hour forecasts developed are intended to answer questions on the growth rate in traffic in specific corridors and the order of magnitude related to the addition of travel lanes to a highway at a

specific location. The forecasting methodology used is based on the forecasting methodology described in NCHRP 765 and NCHRP 255 manuals related to traffic forecasting.

1. Develop Ratio Method Forecast:

The ratio method creates a future year forecast by applying the ratio of the future year model link assignment to the base year model link assignment and multiplying that by the base year daily count.

2. Develop Difference Method Forecast:

Future year link forecasts are estimated by comparing relative differences between the base year counts and base year model estimates and applying those relationships to future model link assignments.

3. Average Forecast:

This forecast was developed by averaging the results from the ratio and difference methods to reduce the extremes that may be reached by one of the individual methods.

Generally, the Average Forecast was used to develop daily volume forecasts. The Ratio and Difference method forecasts were calculated by comparing the relative percent differences and absolute differences between the future year 2040 model volume scenarios and the existing 2015 model volume and applying that change to the existing count. For the daily forecasts, two additional checks were incorporated in the forecasting process (consistent with the methodology recommended in the NCHRP 255 and NCHRP 765 traffic forecasting manuals):

- a. If the difference method forecasts result in a negative forecast and the absolute value of the difference forecast is greater than the absolute value of the ratio forecast, then only the ratio method forecast is used.
- b. If the ratio of the count to the base year model volume is greater than a factor of 1.5, then only the difference method forecast is used.

The AM and PM peak hour mainline and ramp forecasts were created by initially starting with the Average Forecast method. The relative absolute differences and percent difference between the year 2040 scenario volumes and the existing 2015 model volumes was calculated and then applied to the existing count and averaged. A minimal growth rate of 0.25% per year and 0.75% (linear growth rate) was applied for ramps and mainline forecasts, respectively. These raw mainline and ramp peak hour forecasts were then balanced along the corridor and adjustments were made for reasonableness when comparing the balanced forecasts amongst the various scenarios. These balanced ramp forecasts were then used as a basis to balance to the intersection turning volume forecasts. Additional checks included a reasonableness check of peak hour forecasts relative to the ADT projections for ramps and cross-streets for locations where daily data were available.

Furthermore, it should be noted that forecasts take into account capacity constraints. In balancing volumes and checking for reasonableness the capacity of the existing facilities was considered. For example, in developing I-94 eastbound AM peak hour volumes, there are constraints under the MN 101 bridge and at the entrance ramp from MN 101. The forecasts were adjusted to recognize these constraints while projecting I-94 eastbound volumes. Another capacity constrained consideration was along I-94 westbound during the PM peak hour, east of the Weaver Lake Road interchange. Additionally, the forecasts assumed a two-lane I-94 eastbound exit ramp to MN 610 and a single-lane I-94 westbound entrance ramp from MN 610.

Generally, a greater percent growth is forecasted on ramps to and from the west than on ramps to and from the east. It was assumed that there is more capacity on ramps to and from the west, therefore a higher percent growth was assigned. Additionally, the Brockton Interchange pulls additional traffic onto I-94, therefore Scenario 1 and Scenario 2 generally have higher volumes along I-94 in the vicinity of the Brockton Interchange.

Forecasts at the proposed Brockton Interchange were developed by starting with the travel demand model forecasts because no counts are available. The Brockton Interchange traffic forecasts were then refined by considering capacity constraints, balancing along the I-94 corridor, and by conducting select link analyses. The forecasts for the ramps at the interchange were compared to ramps at the adjacent I-94 interchanges, and the peak hour ramp forecasts were also checked for reasonableness relative to the daily forecasts.

Select link analysis was used to examine the nature of traffic that would be expected to utilize the Brockton Interchange. Select link analysis is a tool used within the travel demand model that shows where the traffic on a network link is going to and coming from. Therefore, select link analysis allows the user to see where a network link's traffic volume is drawing from – its origins and destinations. Appendix A shows a series of select link graphics relating to the Brockton Interchange. The graphics show six select link analyses maps, which include maps of each of the four Brockton Interchange ramps, a map of the combination of all four ramps, and a map of Dayton Pkwy traffic that goes through the interchange but never accesses the ramps. These select link analysis maps show that the Brockton Interchange is expected to pull traffic from a large region including points to the east along I-494, I-694, and MN 610, and points to the west along I-94 and the City of Buffalo, using 109<sup>th</sup> Avenue.

In addition to the mainline and ramp forecasts, intersection peak hour turning movements were also developed for AM and PM peaks. These peak mainline, ramp, and turning movement forecasts serve as input to traffic operations models developed in CORSIM. The intersection peak hour turning volume forecasts also used the Average Method forecasting method. The intersection peak period turning volumes were saved in the year 2015 model and each of the year 2040 model scenarios. Again, the relative absolute differences and percent differences between the year 2040 scenarios volumes and the existing 2015 model volumes were calculated and applied to the existing count and averaged. The peak hour intersection turning volume at the ramp approaches were adjusted to equal the balanced peak hour ramp forecasts that were calculated previously. The other intersection peak hour turning volumes were then balanced through their respective corridor and adjustments were made for reasonableness when compared amongst the scenarios. The intersection peak hour turning volume forecasts will be included in the upcoming report where a CORSIM microsimulation analysis is conducted to assess and compare the peak hour traffic operations of the I-94 build scenarios.

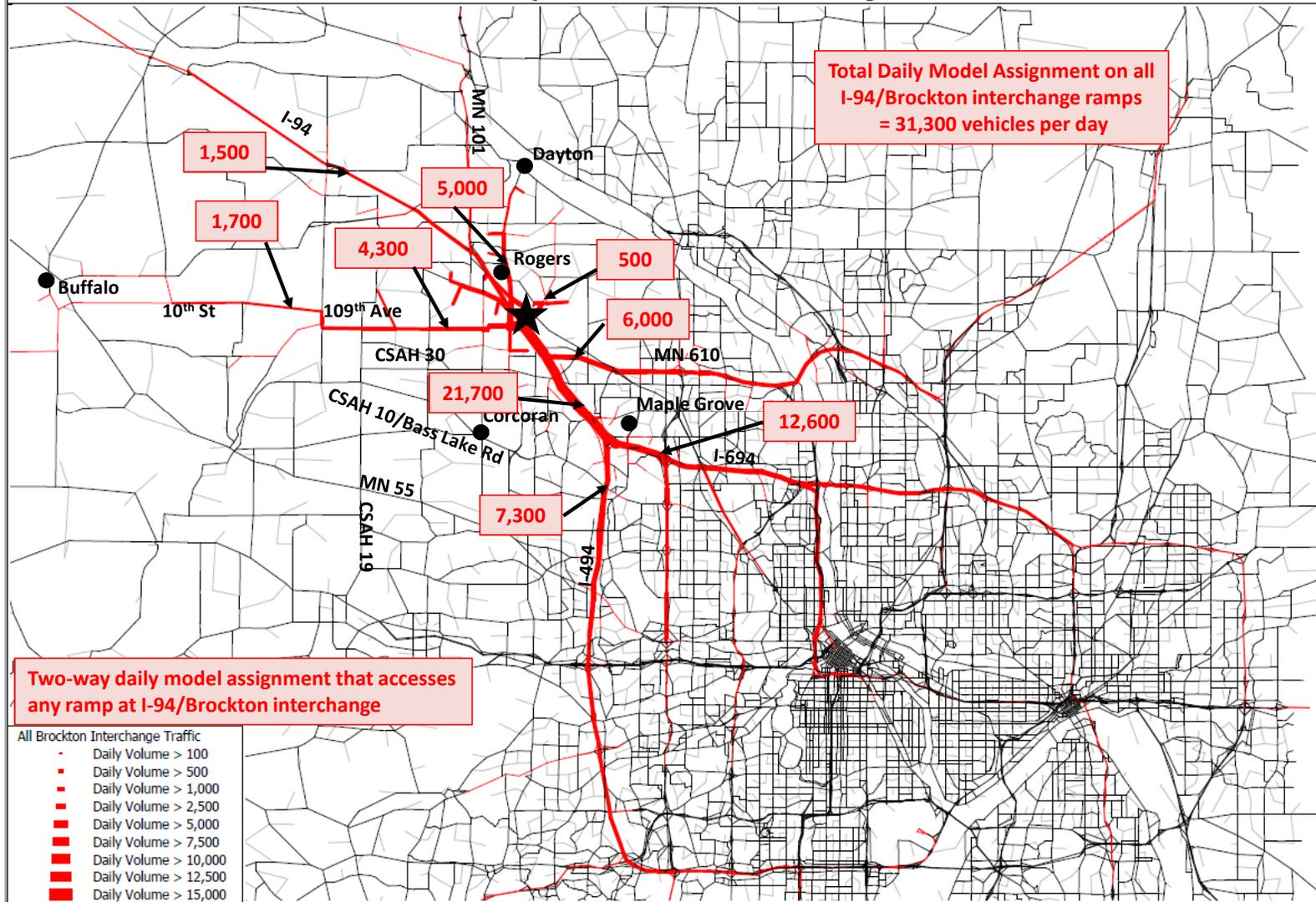
## **TRAFFIC FORECASTS**

Daily and peak hour traffic forecasts were developed for year 2040 No Build, Scenario 1, Scenario 2, and Scenario 3. Appendix B shows the daily traffic forecasts. Appendix C shows the mainline and ramp peak hour forecasts.

## **APPENDIX A**

### **Select Link Analysis – Brockton Interchange**

**I-94 - Maple Grove to Rogers Project  
 Potential I-94 Interchange at Brockton Lane  
 Select Link Analysis- All Brockton Lane Interchange Traffic**

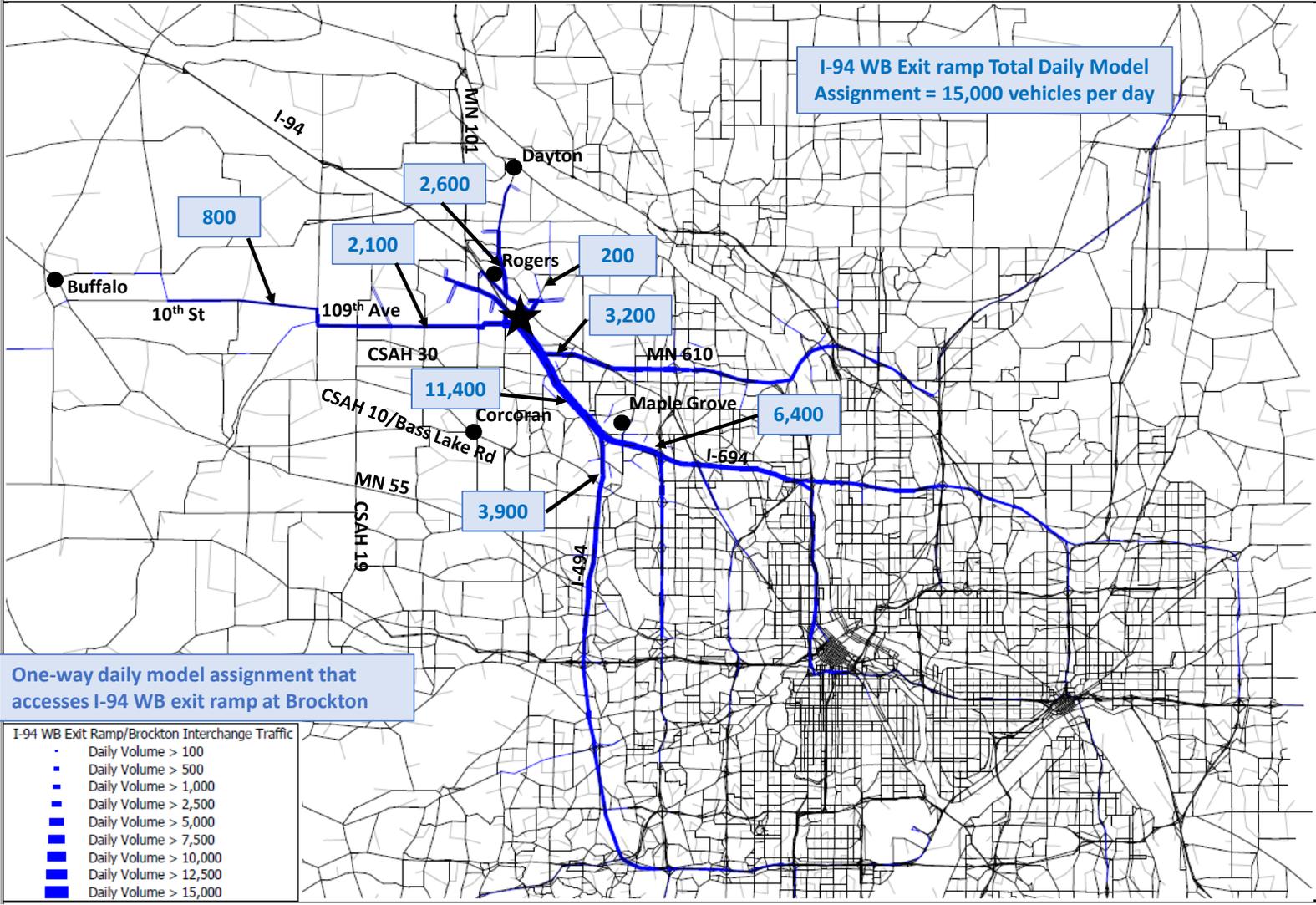


**Total Daily Model Assignment on all I-94/Brockton interchange ramps = 31,300 vehicles per day**

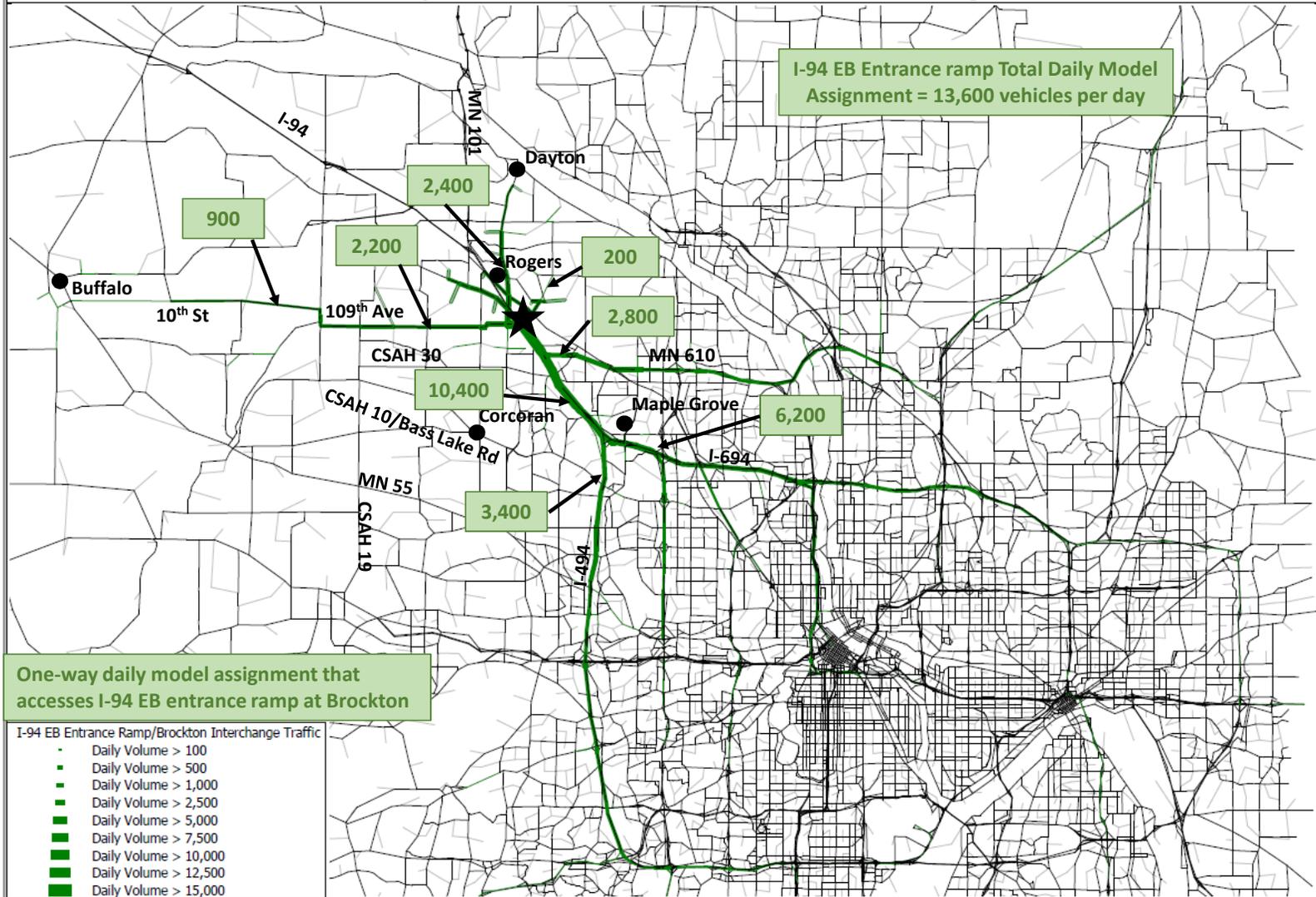
**Two-way daily model assignment that accesses any ramp at I-94/Brockton interchange**

- All Brockton Interchange Traffic**
- Daily Volume > 100
  - Daily Volume > 500
  - Daily Volume > 1,000
  - Daily Volume > 2,500
  - Daily Volume > 5,000
  - Daily Volume > 7,500
  - Daily Volume > 10,000
  - Daily Volume > 12,500
  - Daily Volume > 15,000

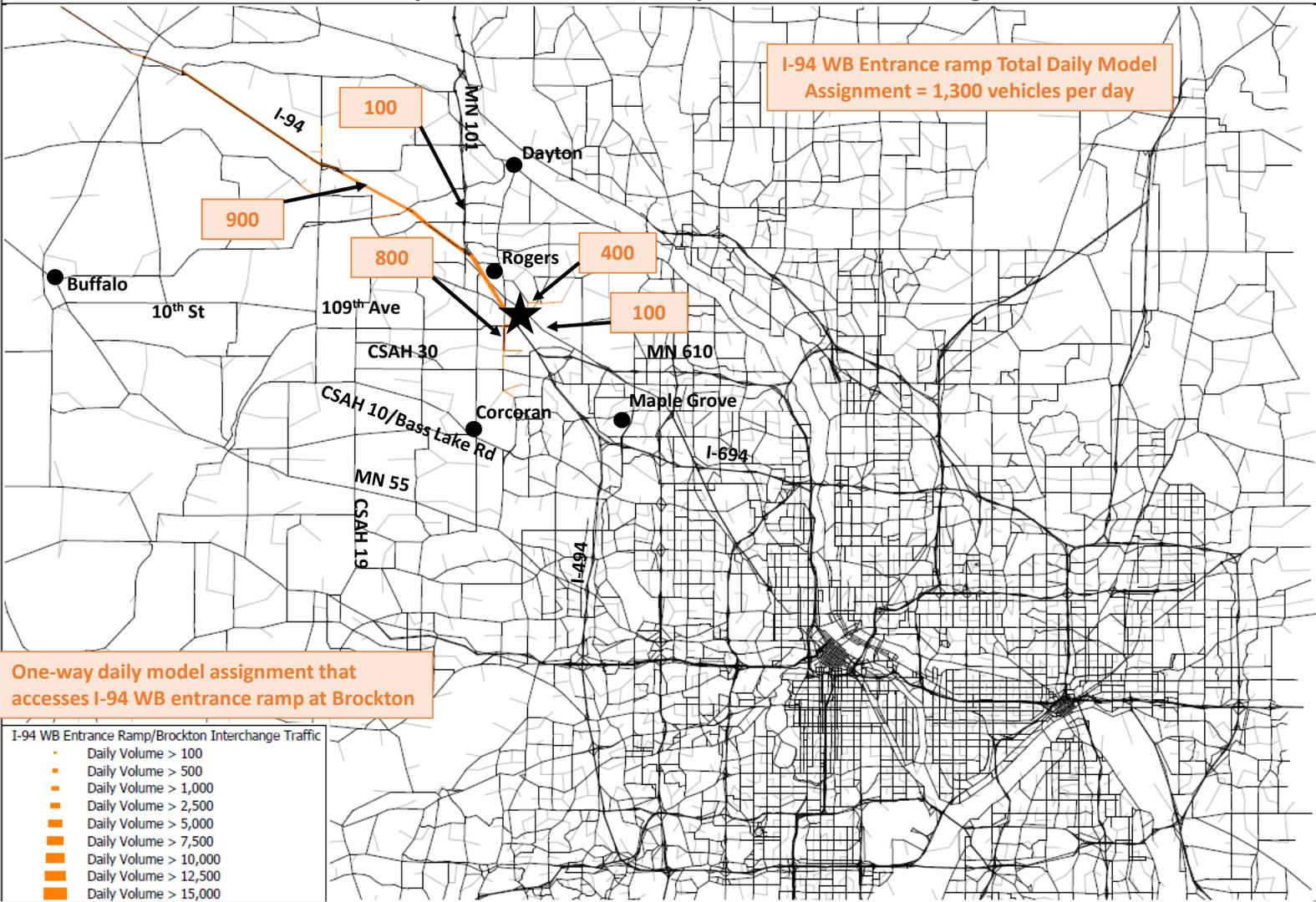
**I-94 - Maple Grove to Rogers Project  
 Potential I-94 Interchange at Brockton Lane  
 Select Link Analysis- I-94 WB Exit Ramp/Brockton Lane Interchange Traffic**



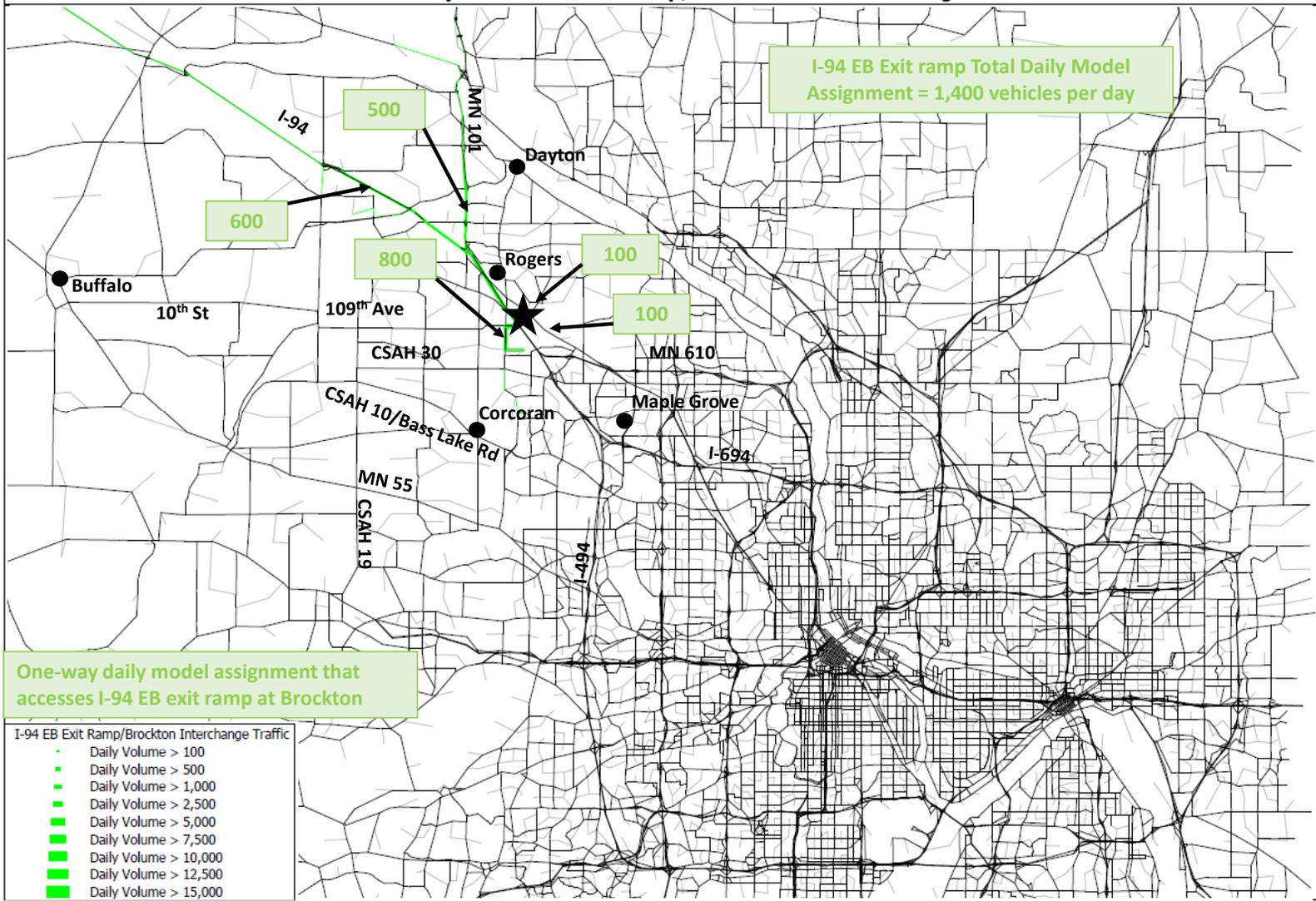
**I-94 - Maple Grove to Rogers Project  
 Potential I-94 Interchange at Brockton Lane  
 Select Link Analysis- I-94 EB Entrance Ramp/Brockton Lane Interchange Traffic**



**I-94 - Maple Grove to Rogers Project  
 Potential I-94 Interchange at Brockton Lane  
 Select Link Analysis- I-94 WB Entrance Ramp/Brockton Lane Interchange Traffic**

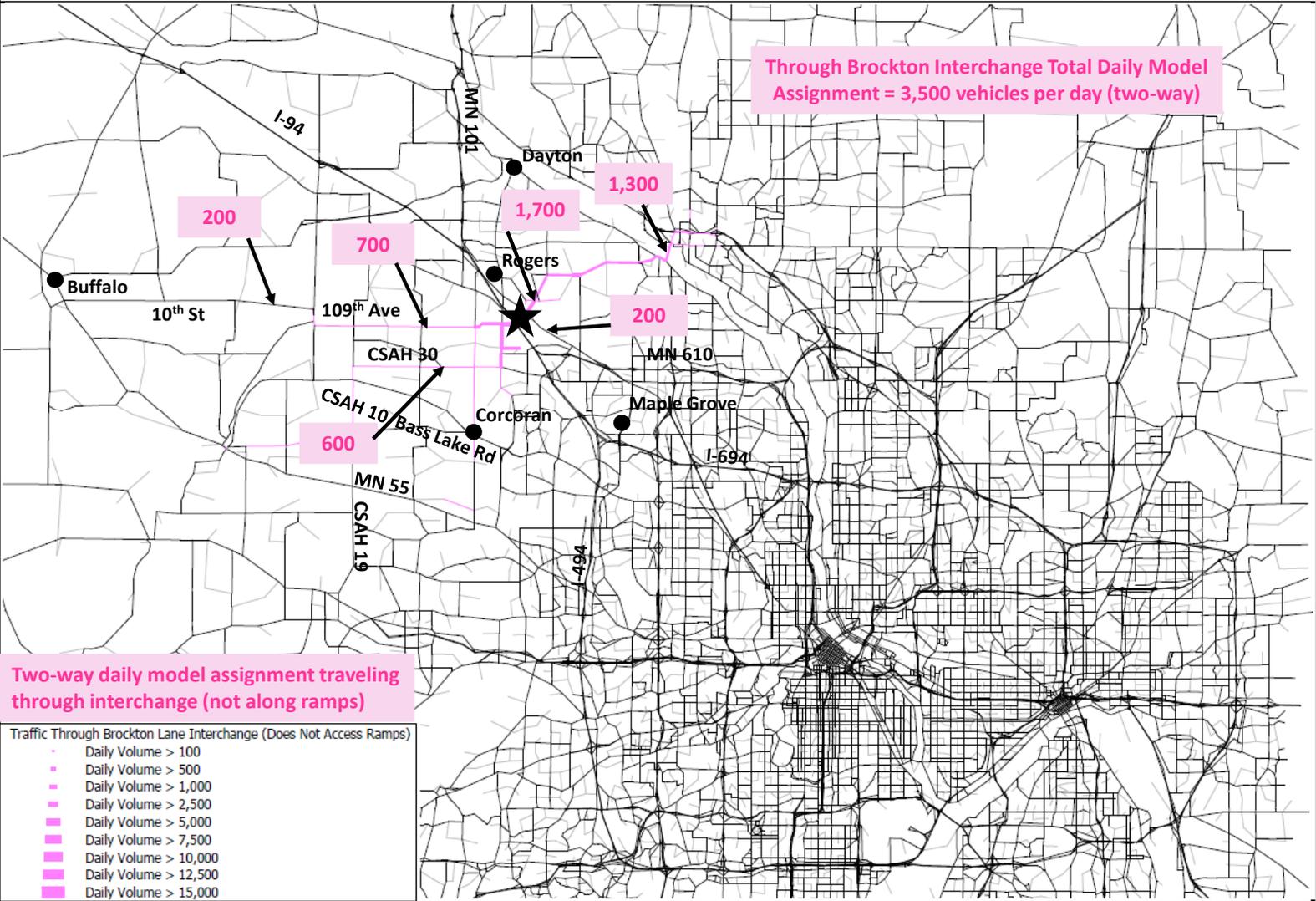


**I-94 - Maple Grove to Rogers Project  
 Potential I-94 Interchange at Brockton Lane  
 Select Link Analysis- I-94 EB Exit Ramp/Brockton Lane Interchange Traffic**



**I-94 - Maple Grove to Rogers Project  
 Potential I-94 Interchange at Brockton Lane  
 Select Link Analysis- Traffic Through Brockton Lane Interchange (Does Not Access Ramps)**

**Through Brockton Interchange Total Daily Model Assignment = 3,500 vehicles per day (two-way)**



## **APPENDIX B**

### **Daily Traffic Forecasts**

Comparison of Traffic Counts, Future 2040 No Build and Future 2040 Build Forecasts  
(Average Annual Daily Traffic)

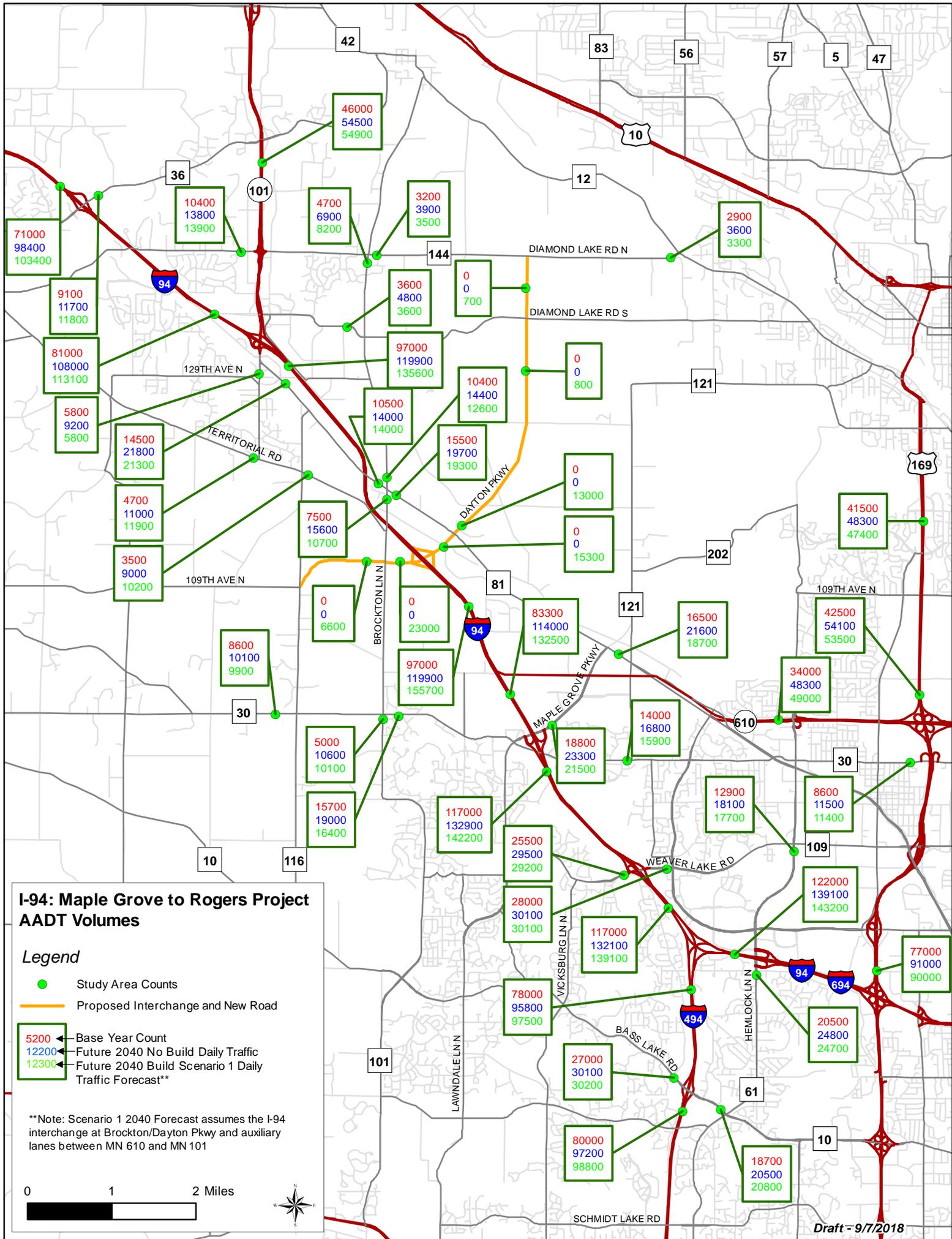
Corridor	Location	Base Year Count	2040 NB Daily Forecast	Scenario 1 Daily Forecast	Scenario 2 Daily Forecast	Scenario 3 Daily Forecast
I-94	West of Hwy 241 (45th St)	71,000	98,400	103,400	102,900	98,900
I-94	East of Hwy 241 (45th St)	81,000	108,000	113,100	112,500	108,700
I-94	East of Hwy 101	97,000	119,900	135,600	121,500	130,500
I-94	East of Brockton/Dayton Pkwy	97,000	119,900	155,700	149,500	130,500
I-94	South of TH 610	83,300	114,000	132,500	132,500	115,000
I-94	South of Maple Grove Pkwy	117,000	132,900	142,200	141,300	134,100
I-94	South of Weaver Lake Rd (MN 109)	117,000	132,100	139,100	138,500	132,800
I-94	East of I-494	122,000	139,100	143,200	142,800	139,700
I-494	South of I-94	78,000	95,800	97,500	97,300	96,400
I-494	South of Bass Lake Rd	80,000	97,200	98,800	98,600	97,400
Hwy 241 (45th St)	South of I-94	22,200	23,600	23,800	23,800	23,700
Hwy 241 (45th St)	North of I-94	9,100	11,700	11,800	11,800	11,700
N Diamond Lake Rd	West of Hwy 101	10,400	13,800	13,900	13,800	13,900
N Diamond Lake Rd	East of Hwy 101	11,100	11,900	11,100	11,100	11,900
N Diamond Lake Rd	West of Brockton Ln	5,300	5,500	5,800	6,000	5,400
N Diamond Lake Rd	East of Brockton Ln	3,200	3,900	3,500	3,500	4,000
N Diamond Lake Rd	West of Dayton River Rd	2,900	3,600	3,300	3,300	3,600
S Diamond Lake Rd	West of Hwy 101	3,550	4,800	3,600	3,600	4,800
Hwy 101	North of Territorial Rd	4,950	7,200	5,000	5,000	7,300
Hwy 101	N of Church Ave / S of Industrial Rd	5,800	9,200	5,800	5,800	9,400
Hwy 101	S of I-94	31,000	42,500	35,700	36,200	42,200
Hwy 101	N of I-94	42,000	50,200	50,400	49,700	50,300
Hwy 101	North of S Diamond Lake Rd	44,000	54,000	53,200	52,600	54,400
Hwy 101	North of N Diamond Lake Rd / 147th St	46,000	54,500	54,900	54,400	54,800
Territorial Blvd	East of Hwy 241	6,500	8,800	8,800	8,800	8,800
Territorial Blvd	West of 141st Ave	6,700	9,300	9,400	9,400	9,300
Territorial Blvd	West of Hwy 150	4,650	11,000	11,900	12,100	11,000
Territorial Blvd	East of Hwy 150	7,000	10,000	9,000	9,300	9,600
Territorial Blvd	East of Fletcher Ln	3,500	9,000	10,200	10,400	8,700
Brockton Ln	S of N Diamond Lake Road	4,650	6,900	8,200	8,200	6,900
Brockton Ln	N of Hwy 81	10,400	14,400	12,600	12,700	14,300
Brockton Ln	S of Hwy 81	7,500	15,600	10,700	10,800	15,100
Brockton Ln	S of Hwy 30	5,000	10,600	10,100	10,100	10,400
109th Ave	West of Fletcher Ln		4,554	5,900	6,100	
Dayton Pkwy	West of Brockton Ln		-	6,600	7,000	
Dayton Pkwy	West of I-94		-	23,000	23,000	
Dayton Pkwy	East of I-94		-	15,300	15,400	
Dayton Pkwy	East of Hwy 81		-	13,000	12,900	
Dayton Pkwy	South of South Diamond Lake Road		-	800	800	
Dayton Pkwy	South of North Diamond Lake Road		-	700	700	
Hwy 81	East of Hwy 101 / Rogers Memorial Dr	14,500	21,800	21,300	22,200	21,200
Hwy 81	W of Brockton Ln	10,500	14,000	14,000	14,700	13,500
Hwy 81	E of Brockton Ln	15,500	19,700	19,300	19,800	19,000
Hwy 81	E of Maple Grove Pkwy	16,500	21,600	18,700	18,700	21,300
Hwy 81	N of Hwy 30	10,200	14,300	10,800	10,700	14,100
Hwy 81	W of Hwy 101	13,600	18,500	14,800	14,800	18,100
Hwy 81	E of Hwy 101	12,700	15,100	12,700	12,700	14,900
Hwy 81	N of US 169	14,800	18,000	16,100	16,000	17,900
Hwy 610	West of Zachary Lane	34,000	48,300	49,000	49,600	49,000
Hwy 610	East of Jefferson Hwy	40,500	57,000	57,400	58,000	57,500
Hwy 610	East of US 169	65,000	80,500	81,300	81,900	80,400
Maple Grove Pkwy	West of I-94	29,000	37,400	33,800	33,600	37,600
Maple Grove Pkwy	East of I-94	18,800	23,300	21,500	21,600	23,900
Maple Grove Pkwy	South of Hwy 610	18,800	23,300	21,400	21,300	23,600
Maple Grove Pkwy	South of Hwy 81	7,900	13,700	11,400	11,200	13,600
County Road 30	West of CR 116	8,600	10,100	9,900	9,900	9,900
County Road 30	East of Brockton Lane	15,700	19,000	16,400	16,300	18,700
County Road 30	Under I-94	14,900	18,100	17,300	17,300	17,800
County Road 30	West of Fernbrook Ln	14,000	16,800	15,900	15,900	16,400
County Road 30	West of Rice Lake Rd	15,600	19,000	17,800	17,800	18,600
County Road 30	West of Hwy 130	15,800	18,700	17,500	17,600	18,300
County Road 30	West of 94th Ave	9,200	11,400	11,100	11,100	11,300
County Road 30	West of Zachary/East of Hwy 81	6,900	8,000	7,900	7,900	8,000
County Road 30	East of Zachary Ln	6,600	7,900	7,800	7,800	7,800
County Road 30	West of US 169	8,600	11,500	11,400	11,500	11,600
County Road 30	East of US 169	7,600	11,400	11,400	11,500	11,600
Weaver Lake Rd	West of I-94 Interchange	25,500	29,500	29,200	29,500	29,200
Weaver Lake Rd	At I-94 Interchange / East of Fish Lake	31,000	33,700	33,400	33,500	33,600
Weaver Lake Rd	East of I-94 Interchange	39,000	40,700	40,700	40,800	40,500
Weaver Lake Rd	West of Elm Creek Blvd	28,000	30,100	30,100	30,300	29,900
Weaver Lake Rd	East of Elm Creek Blvd	15,700	17,000	17,000	17,200	16,900
Weaver Lake Rd	West of Zachary Ln	14,900	17,300	17,400	17,300	17,400
Weaver Lake Rd	West of Jefferson Hwy	12,600	16,600	16,700	16,700	16,800
Weaver Lake Rd	West of Hwy 81	14,000	18,100	18,100	18,300	18,200
Weaver Lake Rd	West of US 169/ East of Hwy 81	19,900	21,200	20,900	20,800	21,300
Weaver Lake Rd	West of Sumter Ave/ East of US 169	20,500	21,600	21,700	21,700	21,700
Hemlock Ln	South of I-94/I-694	20,500	24,800	24,700	24,800	24,600
Hemlock Ln	North of I-94/I-694	35,500	42,000	42,000	42,200	41,900
Hemlock Ln	North of Hwy 130	18,000	23,200	22,800	22,900	23,000
Hemlock Ln	South of Co Hwy 109	12,900	18,100	17,700	17,900	18,000
Zachary Ln	South of 89th Ave	14,500	16,400	16,200	16,300	16,400
Zachary Ln	South of Hwy 81	14,900	17,000	16,700	16,700	16,900
Zachary Ln	South of 93rd Ave	13,800	13,800	13,800	13,800	13,800
Zachary Ln	South of 96th Ave	13,600	13,900	14,200	14,100	13,900
US 169	South of I-94/I-694	88,000	95,600	96,000	96,200	96,100
US 169	North of I-94/I-694	77,000	91,000	90,000	90,600	91,100
US 169	North of Hwy 130	75,000	84,700	83,700	84,100	84,900
US 169	South of Hwy 610	62,000	68,700	68,100	68,100	68,700
US 169	North of Hwy 610	42,500	54,100	53,500	53,500	54,300
US 169	South of 117th Ave	41,500	48,300	47,400	47,500	48,400
US 169	South of Dean Ave E/ W River Rd	45,000	50,500	49,700	49,800	50,500
Bass Lake Rd	West of I-94 / East of 63rd Ave	27,000	30,100	30,200	30,200	30,400
Bass Lake Rd	East of I-94 / West of Hwy 61	18,700	20,500	20,800	20,900	20,600

Note:

Scenario 1 2040 Forecast assumes the I-94 interchange at Brockton/Dayton Pkwy and auxiliary lanes between MN 610 and MN 101

Scenario 2 2040 Forecasts assume the I-94 interchange at Brockton/Dayton Pkwy and auxiliary lanes between MN 610 and the interchange at Brockton/Dayton Pkwy

Scenario 3 2040 Forecasts assume that the I-94 interchange at Brockton/Dayton Pkwy is not built, but include an auxiliary lane in both directions between MN 610 and MN 101



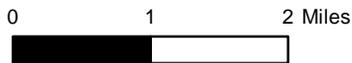
### I-94: Maple Grove to Rogers Project AADT Volumes

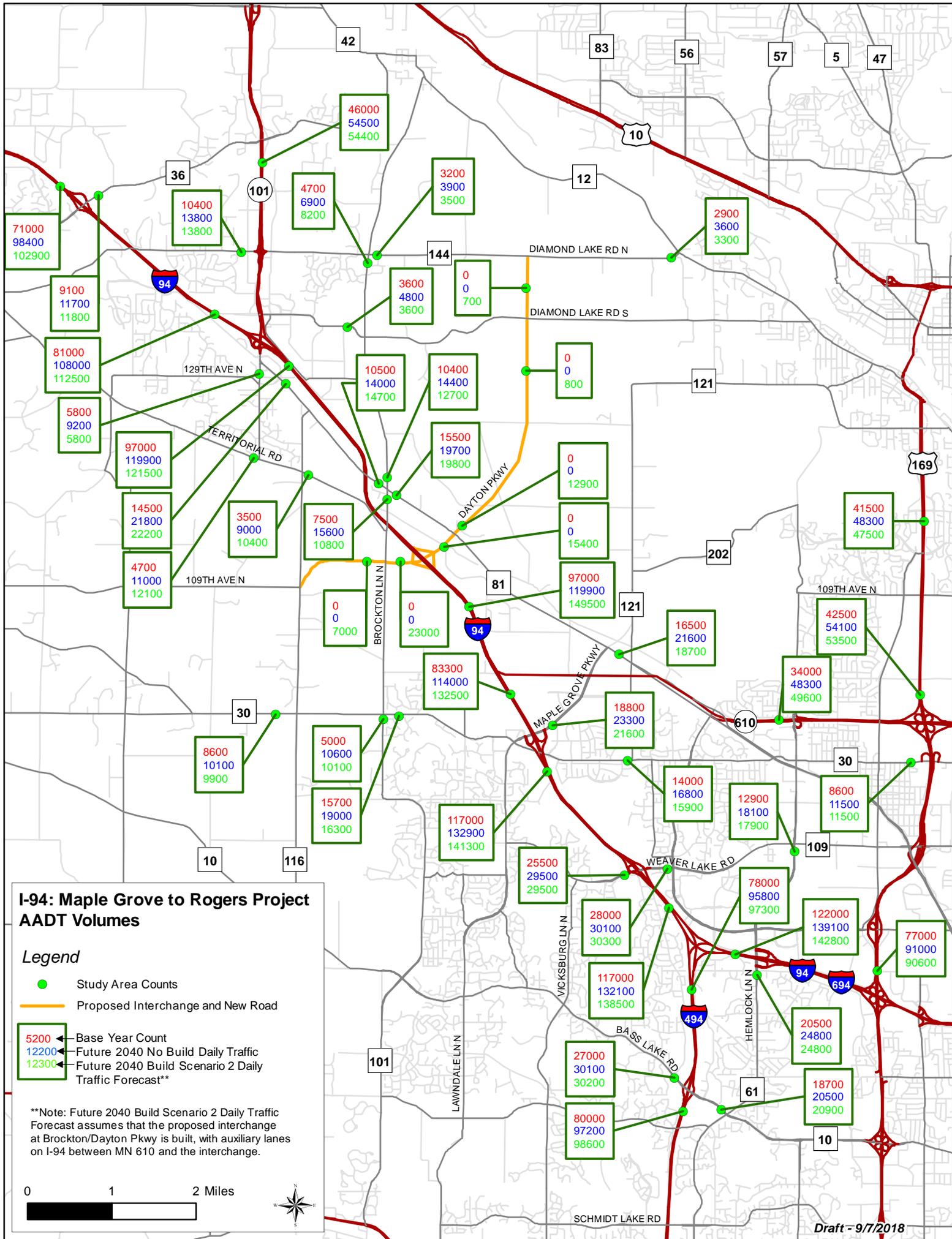
#### Legend

- Study Area Counts
- Proposed Interchange and New Road

5200	← Base Year Count
12200	← Future 2040 No Build Daily Traffic
12300	← Future 2040 Build Scenario 1 Daily Traffic Forecast**

\*\*Note: Scenario 1 2040 Forecast assumes the I-94 interchange at Brockton/Dayton Pkwy and auxiliary lanes between MN 610 and MN 101





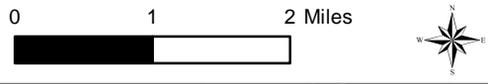
### I-94: Maple Grove to Rogers Project AADT Volumes

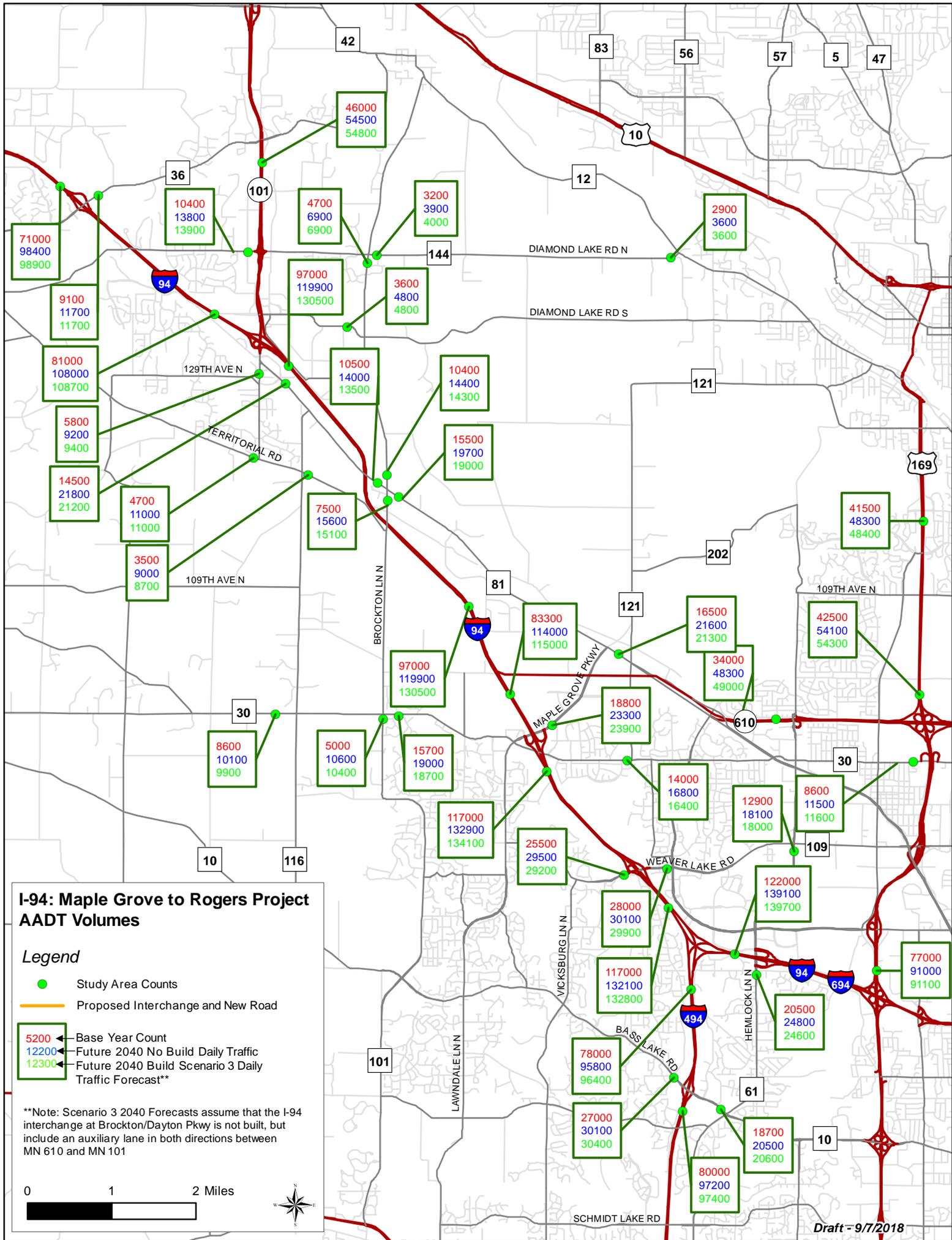
**Legend**

- Study Area Counts
- Proposed Interchange and New Road

5200	← Base Year Count
12200	← Future 2040 No Build Daily Traffic
12300	← Future 2040 Build Scenario 2 Daily Traffic Forecast**

\*\*Note: Future 2040 Build Scenario 2 Daily Traffic Forecast assumes that the proposed interchange at Brockton/Dayton Pkwy is built, with auxiliary lanes on I-94 between MN 610 and the interchange.





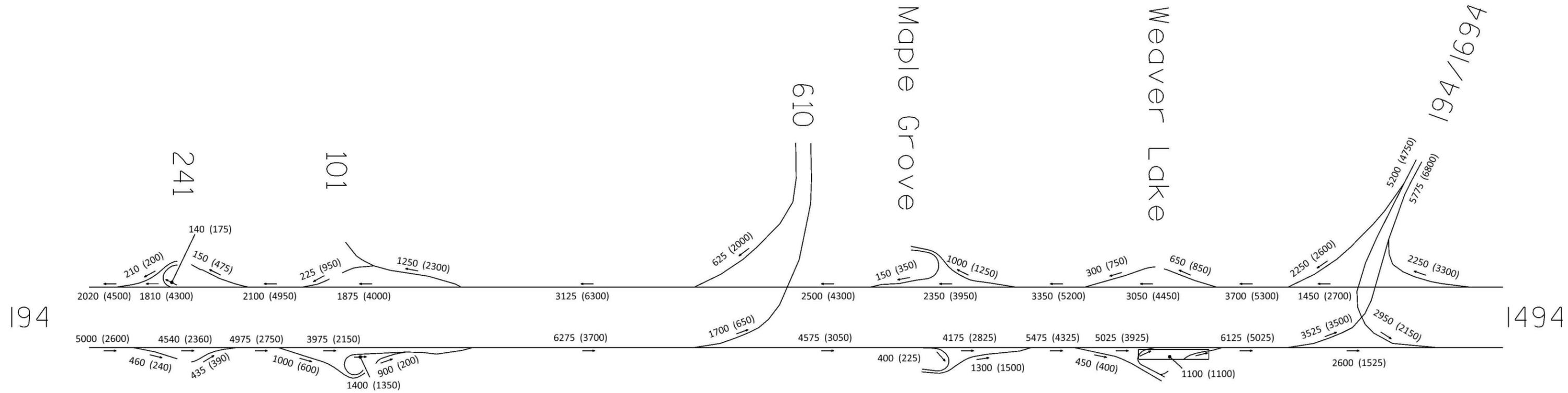
## **APPENDIX C**

### **Peak Hour Traffic Forecasts**

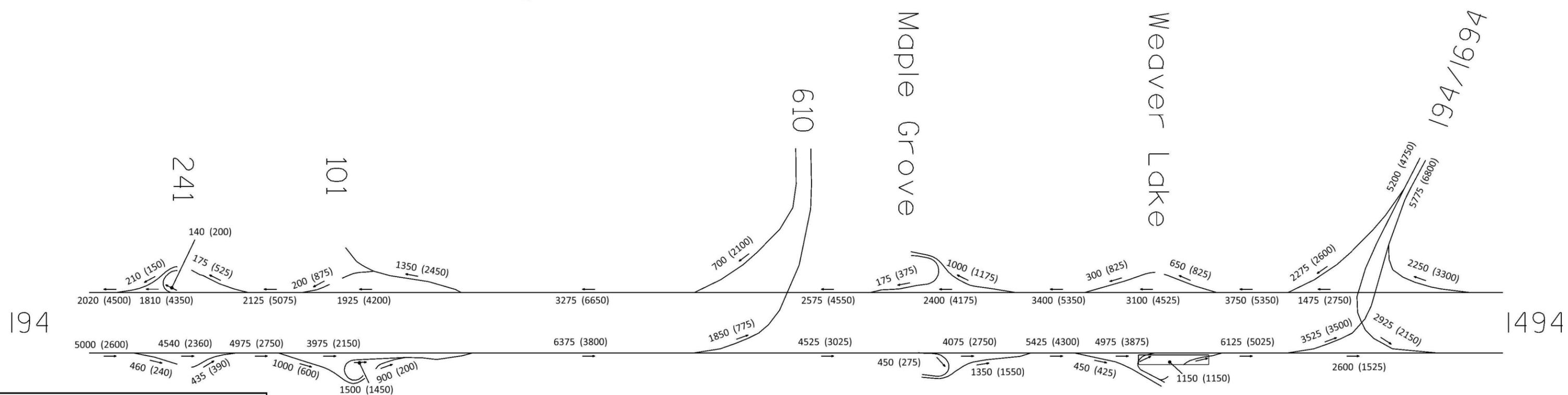
Peak Hour Forecast

Location	AM Balanced				PM Balanced			
	2040 AM NB	2040 AM Sc1	2040 AM Sc2	2040 AM Sc3	2040 PM NB	2040 PM Sc1	2040 PM Sc2	2040 PM Sc3
EB I-94 Mainline	5,000	5,000	5,000	5,000	2,600	2,600	2,600	2,600
TH 241 Ext	460	460	460	460	240	240	240	240
EB ML: TH 241 Ext-TH 241 Ent	4,540	4,540	4,540	4,540	2,360	2,360	2,360	2,360
TH 241 Ent	435	435	435	435	390	390	390	390
EB ML: TH 241 Ent-TH 101 Ext	4,975	4,975	4,975	4,975	2,750	2,750	2,750	2,750
TH 101 Ext	1,000	800	875	1,000	600	450	500	600
EB ML: TH 101 Ext-TH 101 SB Loop Ent	3,975	4,175	4,100	3,975	2,150	2,300	2,250	2,150
TH 101 SB Loop Ent	1,400	1,525	1,450	1,500	1,350	1,250	1,150	1,450
TH 101 NB Ramp Ent	900	800	750	900	200	150	150	200
EB ML: TH 101 NB Ramp Ent-Dayton Pkwy Ext	6,275	6,500	6,300	6,375	3,700	3,700	3,550	3,800
Dayton Pkwy Ext		300	300			200	200	
EB ML: Dayton Pkwy Ext-Dayton Pkwy Ent	6,275	6,200	6,000	6,375	3,700	3,500	3,350	3,800
Dayton Pkwy Ent		1,200	1,400			900	900	
EB ML: Dayton Pkwy Ent-EB TH 610 Ext	6,275	7,400	7,400	6,375	3,700	4,400	4,250	3,800
EB TH 610 Ext	1,700	2,300	2,200	1,850	650	800	725	775
EB ML: EB TH 610 Ext-Maple Grove Pkwy Ext	4,575	5,100	5,200	4,525	3,050	3,600	3,525	3,025
Maple Grove Pkwy Ext	400	600	600	450	225	375	375	275
EB ML: Maple Grove Pkwy Ext-Maple Grove Pkwy Ent	4,175	4,500	4,600	4,075	2,825	3,225	3,150	2,750
Maple Grove Pkwy Ent	1,300	1,125	1,175	1,350	1,500	1,325	1,350	1,550
EB ML: Maple Grove Pkwy Ent-Weaver Lake Rd Ext	5,475	5,625	5,775	5,425	4,325	4,550	4,500	4,300
Weaver Lake Rd Ext	450	425	475	450	400	475	450	425
EB ML: Weaver Lake Rd Ext-Weaver Lake Rd Ent	5,025	5,200	5,300	4,975	3,925	4,075	4,050	3,875
Weaver Lake Rd Ent	1,100	1,000	975	1,150	1,100	950	975	1,150
EB ML: Weaver Lake Rd Ent-SB I-494 Ext	6,125	6,200	6,275	6,125	5,025	5,025	5,025	5,025
SB I-494 Ext	2,600	2,650	2,650	2,600	1,525	1,525	1,525	1,525
EB ML: SB I-494 Ext-NB I-494 Ent	3,525	3,550	3,625	3,525	3,500	3,500	3,500	3,500
NB I-494 Ent	2,250	2,225	2,225	2,250	3,300	3,300	3,300	3,300
EB ML: NB I-494 Ent-Hemlock Ln Ext	5,775	5,775	5,850	5,775	6,800	6,800	6,800	6,800
Hemlock Ln Ext	800	800	825	800	1,825	1,825	1,825	1,825
EB ML: Hemlock Ln Ext-Hemlock Ln Ent	4,975	4,975	5,025	4,975	4,975	4,975	4,975	4,975
Hemlock Ln Ent	825	825	800	825	1,075	1,075	1,075	1,075
EB ML: Hemlock Ln Ent-SB TH 169 Ext	5,800	5,800	5,825	5,800	6,050	6,050	6,050	6,050
SB TH 169 Ext	900	900	925	900	650	650	650	650
EB ML: SB TH 169 Ext-	4,900	4,900	4,900	4,900	5,400	5,400	5,400	5,400
WB I-94 Mainline	3950	3950	3950	3950	4850	4850	4850	4850
SB TH 169 Ent	1650	1650	1650	1650	500	500	500	500
WB ML: SB TH 169 Ent-Hemlock Ln Ext	5600	5600	5600	5600	5350	5350	5350	5350
Hemlock Ln Ext	1050	1050	1050	1050	1300	1300	1300	1300
WB ML: Hemlock Ln Ext-Hemlock Ln Ent	4550	4550	4550	4550	4050	4050	4050	4050
Hemlock Ln Ent	650	700	675	650	700	725	725	700
WB ML: Hemlock Ln Ent-SB I-494 Ext	5200	5250	5225	5200	4750	4775	4775	4750
SB I-494 Ext	2950	2900	2900	2925	2150	2150	2150	2150
WB ML: SB I-494 Ext-NB I-494 Ent	2250	2350	2325	2275	2600	2625	2625	2600
NB I-494 Ent	1450	1475	1475	1475	2700	2925	2875	2750
WB ML: NB I-494 Ent-Weaver Lake Rd Ext	3700	3825	3800	3750	5300	5550	5500	5350
Weaver Lake Rd Ext	650	650	650	650	850	800	800	825
WB ML: Weaver Lake Rd Ext-Weaver Lake Rd Ent	3050	3175	3150	3100	4450	4750	4700	4525
Weaver Lake Rd Ent	300	325	325	300	750	850	850	825
WB ML: Weaver Lake Rd Ent-Maple Grove Parkway Ext	3350	3500	3475	3400	5200	5600	5550	5350
Maple Grove Parkway Ext	1000	900	925	1000	1250	1075	1050	1175
WB ML: Maple Grove Parkway Ext-Maple Grove Parkway Ent	2350	2600	2550	2400	3950	4525	4500	4175
Maple Grove Parkway Ent	150	200	175	175	350	475	575	375
WB ML: Maple Grove Parkway Ent-WB TH 610 Ent	2500	2800	2725	2575	4300	5000	5075	4550
WB TH 610 Ent	625	850	800	700	2000	2375	2325	2100
WB ML: WB TH 610 Ent-Dayton Pkwy Ext	3125	3650	3525	3275	6300	7375	7400	6650
Dayton Pkwy Ext		700	700			1400	1600	
WB ML: Dayton Pkwy Ext-Dayton Pkwy Ent	3125	2950	2825	3275	6300	5975	5800	6650
Dayton Pkwy Ent		100	100			350	350	
WB ML: Dayton Pkwy Ent-TH 101 Ext	3125	3050	2925	3275	6300	6325	6150	6650
TH 101 Ext	1250	1250	1125	1350	2300	2275	2225	2450
WB ML: TH 101 Ext-TH 101 Ent	1875	1800	1800	1925	4000	4050	3925	4200
TH 101 Ent	225	300	300	200	950	900	925	875
WB ML: TH 101 Ent-TH 241 Existing Ext	2100	2100	2100	2125	4950	4950	4850	5075
TH 241 Existing Ext	150	150	150	175	475	475	425	525
TH 241 Loop (Future) Ext	140	140	140	140	175	150	125	200
WB ML: TH 241 Loop (Future) Ext-TH 241 Ent	1810	1810	1810	1810	4300	4325	4300	4350
TH 241 Ent	210	210	210	210	200	175	200	150
WB ML: TH 241 Ent-EOP	2020	2020	2020	2020	4500	4500	4500	4500

2040 NoBuild



Scenario 3 (EB & WB Auxiliary Lane Btwn 610 & 101)

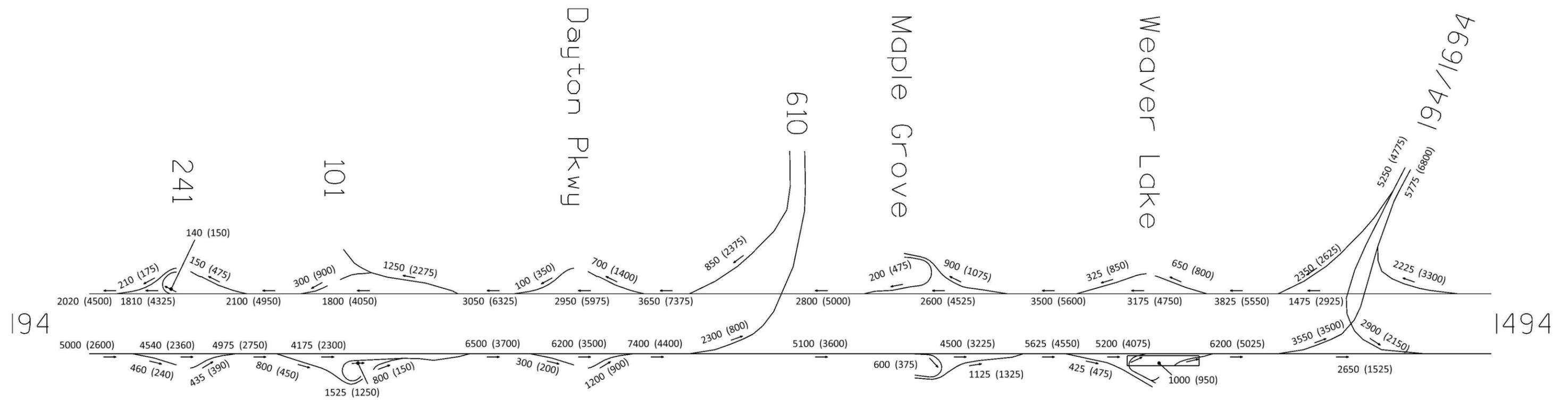


**LEGEND**

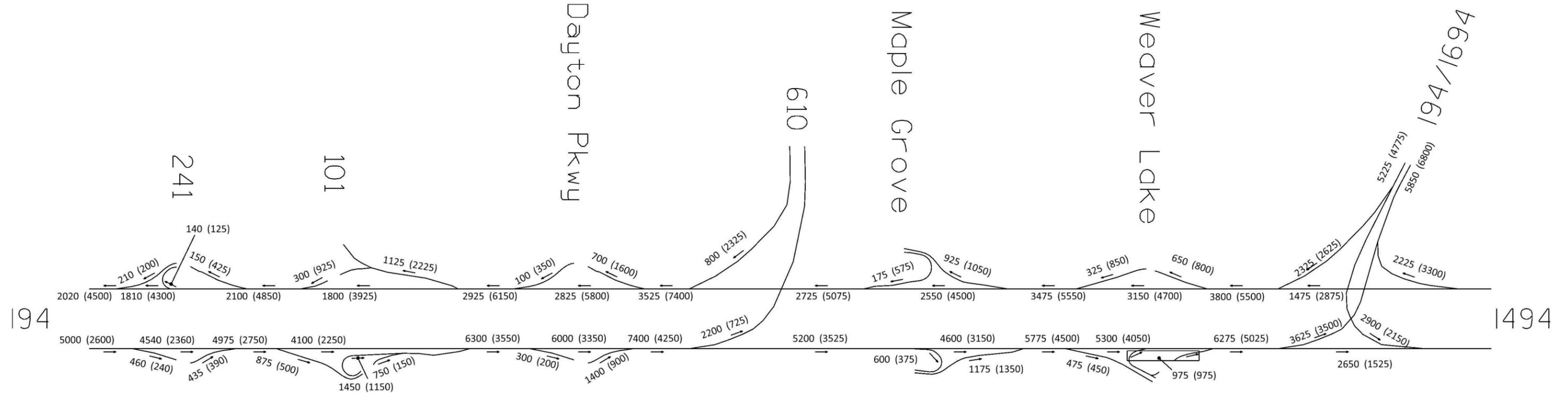
- TRAFFIC FLOW DIRECTION
- I-94 MAINLINE
- AM (PM) PEAK HOUR TRAFFIC VOLUMES

SP2780-97 I-94 UBOL	
BALANCED RAMP AND MAINLINE VOLUMES	
Forecast Volumes	
PLATE 2 OF 3	
SEPT 2018	NOT TO SCALE

# Scenario 1 (Auxiliary Lane Btwn 610 & 101)



# Scenario 2 (Auxiliary Lane Btwn 610 & Dayton Pkwy)



## LEGEND

- TRAFFIC FLOW DIRECTION
- I-94 MAINLINE
- AM (PM) PEAK HOUR TRAFFIC VOLUMES

SP2780-97 I-94 UBOL	
BALANCED RAMP AND MAINLINE VOLUMES	
Forecast Volumes	
PLATE 3 OF 3	
SEPT 2018	NOT TO SCALE