

# Appendix F:

## Travel Demand Model Outputs

The Piedmont Triad Regional Travel Model (PTRM) was utilized to test and develop project alternatives for the final list of fiscally-constrained preferred recommendations. The scenario model runs used the latest PTRM model (v5.1) version, adopted 2020-2029 State Transportation Improvement Program list, and the regionally adopted socioeconomic forecasts for the years 2017, 2025, 2035, and 2045. The MTP model network and associated outputs were provided to WSUAMPO upon conclusion of the 2045 MTP development process.

The financial plan preferred recommendations are included in Horizon Years that reflect their anticipated year of opening. These bands include the following years : 2025 Horizon Year (2020-2025), 2035 Horizon Year (2026-2035), and 2045 Horizon Year (2036-2045). The year 2017 is shown as a baseline, and the 2045 Existing plus Committed (“E+C”) reflects the existing roadway projects as of 2020 and those considered as Committed in the STIP (or through local authority) combined with socioeconomic levels for the year 2045.

Table 1 below displays the modeled daily VMT and VHT for WSUAMPO’s five counties for each of the model scenarios. Table 2 also displays the modeled daily VMT and VHT for WSUAMPO but instead VMT and VHT are categorized by the model network’s functional classification. Finally, Table 3 and Table 4 illustrate the anticipated VMT and VHT during the PM Period (3 PM to 6 PM) when Volume over Capacity (VoC) is estimated to exceed 0.90 (referred to as congested conditions). These tables are shown by the MPO’s counties and functional classification.

Figure 1, Figure 2, Figure 3, Figure 4, and Figure 5 display modeled roadway volumes and VoC for the 2017 baseline, each of the Horizon Years, and the 2045 E+C scenarios, for PM Peak Period Conditions (3 PM to 6 PM). Traffic flow volumes illustrated in Figures 1 through 5 are for the PM Peak Period. PM Peak Period flows are estimated to represent 27 percent of total average daily flows.

**Table 1 – Scenario Daily VMT and VHT by County**

County	Daily VMT					Daily VHT				
	2017	2025	2035	2045 E+C	2045	2017	2025	2035	2045 E+C	2045
Davidson	561,040	589,442	649,798	683,792	673,212	12,439	13,075	14,432	15,473	15,087
Davie	470,280	472,165	549,050	619,754	620,664	12,221	12,436	15,666	19,690	18,279
Forsyth	9,769,140	10,650,760	12,041,404	13,045,280	13,135,568	237,121	262,102	293,998	338,570	321,205
Stokes	637,766	660,417	686,850	716,748	717,016	15,538	16,088	16,705	17,456	17,464
Yadkin	55,639	60,959	67,609	74,606	74,606	2,226	2,438	2,704	2,984	2,984
<b>MPO Total</b>	<b>11,493,865</b>	<b>12,433,744</b>	<b>13,994,711</b>	<b>15,140,181</b>	<b>15,221,067</b>	<b>279,544</b>	<b>306,139</b>	<b>343,505</b>	<b>394,173</b>	<b>375,020</b>

Table 2 – Scenario Daily VMT and VHT by Functional Classification and County

## WSUAMPO VMT AND VHT BY FUNCTIONAL CLASSIFICATION AND COUNTY

Functional Class and County	2017	2025	2035	2045 E+C	2045	2017	2025	2035	2045 E+C	2045
<b>Local Roads (total)</b>	1,077,967	1,186,809	1,249,373	1,432,005	1,370,409	33,257	37,329	41,819	53,261	49,819
Davidson	72,445	75,707	80,898	88,564	85,391	1,681	1,763	1,900	2,107	2,018
Davie	11,306	14,618	23,529	38,663	37,815	263	370	1,366	3,435	3,416
Forsyth	923,829	1,024,918	1,072,921	1,230,547	1,173,064	29,581	33,423	36,769	45,856	42,525
Stokes	70,387	71,567	72,025	74,231	74,140	1,732	1,772	1,784	1,862	1,860
Yadkin	-	-	-	-	-	-	-	-	-	-
<b>Collectors (total)</b>	2,348,587	2,478,671	2,602,193	2,866,207	2,735,582	64,532	69,334	73,572	84,327	77,841
Davidson	161,248	175,887	192,502	213,282	204,930	3,875	4,187	4,616	5,266	4,976
Davie	49,564	53,343	55,880	56,617	63,428	1,548	1,818	2,064	1,963	1,428
Forsyth	2,040,345	2,151,138	2,256,669	2,498,237	2,369,406	56,863	61,059	64,642	74,821	69,167
Stokes	97,431	98,303	97,142	98,071	97,818	2,247	2,270	2,250	2,277	2,270
Yadkin	-	-	-	-	-	-	-	-	-	-
<b>Minor Arterials (total)</b>	237,460	233,130	256,951	272,502	262,957	6,866	6,862	7,818	8,662	7,872
Davidson	25,831	27,695	30,382	32,921	32,132	531	571	627	694	667
Davie	60,467	47,293	55,327	59,580	59,269	1,728	1,470	1,901	2,131	1,874
Forsyth	132,050	138,195	150,579	158,576	149,810	4,002	4,189	4,633	5,152	4,636
Stokes	19,113	19,947	20,664	21,424	21,746	605	632	657	685	695
Yadkin	-	-	-	-	-	-	-	-	-	-
<b>Principal Arterials (total)</b>	1,724,441	1,802,913	1,942,141	2,018,492	2,027,357	41,780	43,799	46,654	51,167	48,652
Davidson	90,150	93,336	98,880	98,985	99,597	1,799	1,875	2,012	2,012	2,020
Davie	87,270	88,263	101,470	113,838	117,117	1,825	1,843	2,182	2,651	2,553
Forsyth	1,447,599	1,519,379	1,636,944	1,697,061	1,701,927	36,055	37,920	40,234	44,188	41,759
Stokes	99,423	101,934	104,847	108,608	108,717	2,101	2,160	2,225	2,316	2,319
Yadkin	-	-	-	-	-	-	-	-	-	-
<b>Other Freeways or Expressways (total)</b>	2,836,269	3,038,481	3,449,689	3,675,834	3,801,907	51,941	57,250	64,240	72,628	70,566
Davidson	164,197	168,046	196,027	196,664	198,111	2,590	2,652	3,143	3,169	3,195

## WSUAMPO VMT AND VHT BY FUNCTIONAL CLASSIFICATION AND COUNTY

Functional Class and County	2017	2025	2035	2045 E+C	2045	2017	2025	2035	2045 E+C	2045
<b>Davie</b>	-	-	-	-	-	-	-	-	-	-
<b>Forsyth</b>	2,463,357	2,649,667	3,016,087	3,226,168	3,350,628	46,159	51,212	57,437	65,544	63,454
<b>Stokes</b>	208,715	220,768	237,575	253,002	253,167	3,193	3,387	3,660	3,915	3,918
<b>Yadkin</b>	-	-	-	-	-	-	-	-	-	-
<b>Interstates (total)</b>	2,094,623	2,424,056	3,053,511	3,334,531	3,467,332	35,000	42,066	52,921	63,359	59,300
<b>Davidson</b>	-	-	-	-	-	-	-	-	-	-
<b>Davie</b>	164,347	164,596	193,231	217,713	210,019	2,580	2,550	3,040	3,516	3,343
<b>Forsyth</b>	1,930,276	2,259,461	2,860,280	3,116,818	3,257,313	32,419	39,516	49,881	59,843	55,956
<b>Stokes</b>	-	-	-	-	-	-	-	-	-	-
<b>Yadkin</b>	-	-	-	-	-	-	-	-	-	-
<b>Ramps (total)</b>	266,180	292,676	368,085	378,671	392,737	9,859	10,443	13,594	14,314	14,481
<b>Davidson</b>	3,728	3,977	4,511	4,520	4,322	226	234	269	271	262
<b>Davie</b>	5,760	3,848	5,292	6,677	6,009	614	376	540	927	583
<b>Forsyth</b>	252,231	280,185	352,800	362,012	376,954	8,888	9,695	12,621	12,953	13,473
<b>Stokes</b>	4,461	4,666	5,482	5,463	5,451	131	138	163	163	163
<b>Yadkin</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	11,493,865	12,433,744	13,994,711	15,140,181	15,221,067	279,544	306,139	343,505	394,173	375,020

\*\*Note, functional classifications will not add up to total due to exclusion of centroid connectors

Table 3 - Scenario PM Period VMT and VHT Under Congested Conditions by County

County	VMT Under Congested PM Conditions (Max VoC >.90)					VHT Under Congested PM Conditions (Max VoC >.90)				
	2017	2025	2035	2045 E+C	2045	2017	2025	2035	2045 E+C	2045
Davidson	1,915	1,958	2,075	2,385	1,992	56	61	72	74	67
Davie	16,721	16,382	23,801	43,288	23,942	982	1,054	1,941	3,369	1,987
Forsyth	210,560	383,414	417,366	756,042	374,226	8,951	14,214	16,665	32,899	17,797
Stokes	-	-	-	-	-	-	-	-	-	-
Yadkin	-	-	-	-	-	-	-	-	-	-
<b>PM Period Total</b>	<b>229,195</b>	<b>401,753</b>	<b>443,241</b>	<b>801,714</b>	<b>400,160</b>	<b>9,990</b>	<b>15,329</b>	<b>18,678</b>	<b>36,342</b>	<b>19,851</b>
<b>% of Total</b>	<b>7.52%</b>	<b>12.18%</b>	<b>12.09%</b>	<b>19.36%</b>	<b>9.68%</b>	<b>12.60%</b>	<b>17.53%</b>	<b>19.19%</b>	<b>30.28%</b>	<b>18.09%</b>

Table 4 - Scenario PM Period VMT and VHT Under Congested Conditions by Functional Classification

<b>WSUAMPO PM PERFORMANCE UNDER CONGESTED CONDITIONS (MAX VOC &gt; .90) BY FUNCTIONAL CLASSIFICATION</b>										
Functional Class	PM VMT					PM VHT				
	2017	2025	2035	2045 E+C	2045	2017	2025	2035	2045 E+C	2045
<b>Local Roads</b>	18,781	24,794	42,456	64,410	54,106	1,398	1,833	3,384	6,429	5,382
<b>Collectors</b>	50,654	69,534	74,474	124,320	88,629	2,439	3,386	3,829	6,414	4,262
<b>Minor Arterials</b>	9,304	9,560	13,350	19,355	13,656	487	534	795	1,118	682
<b>Principal Arterials</b>	59,309	68,377	67,852	109,746	74,327	2,562	2,864	2,855	4,808	2,915
<b>Other Freeways or Expressways</b>	72,055	107,439	92,193	205,109	99,292	2,149	3,298	3,147	7,543	3,620
<b>Interstates</b>	13,985	115,354	141,120	265,918	58,183	337	2,741	3,541	8,447	1,738
<b>Ramps</b>	5,108	6,695	11,796	12,855	11,968	618	673	1,126	1,583	1,251
<b>WS - Total</b>	<b>229,195</b>	<b>401,753</b>	<b>443,241</b>	<b>801,714</b>	<b>400,160</b>	<b>9,990</b>	<b>15,329</b>	<b>18,678</b>	<b>36,342</b>	<b>19,851</b>

Figure 1 - 2017 Baseline PM Period Volume and VoC

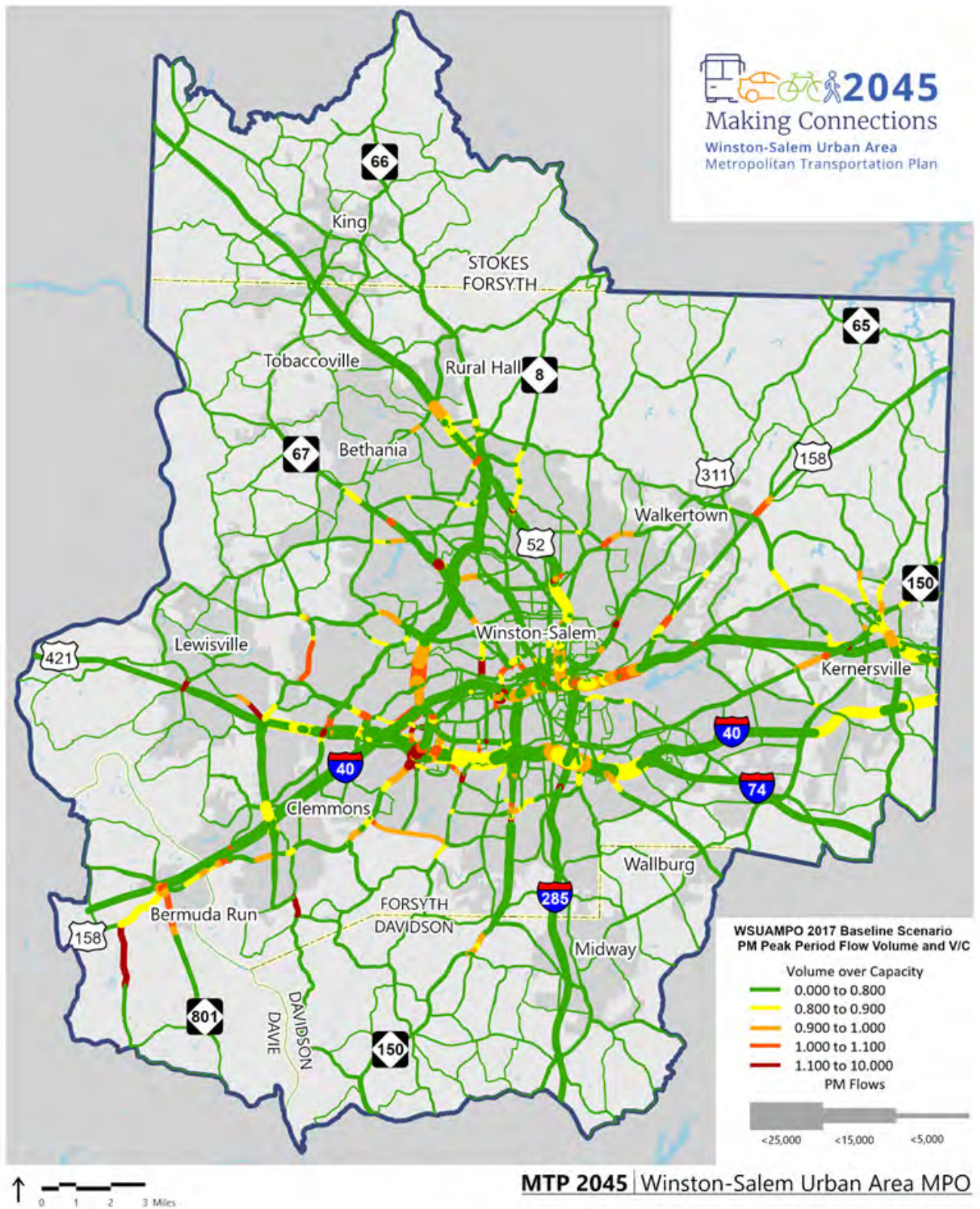


Figure 2 - 2025 Horizon Year PM Period Volume and VoC

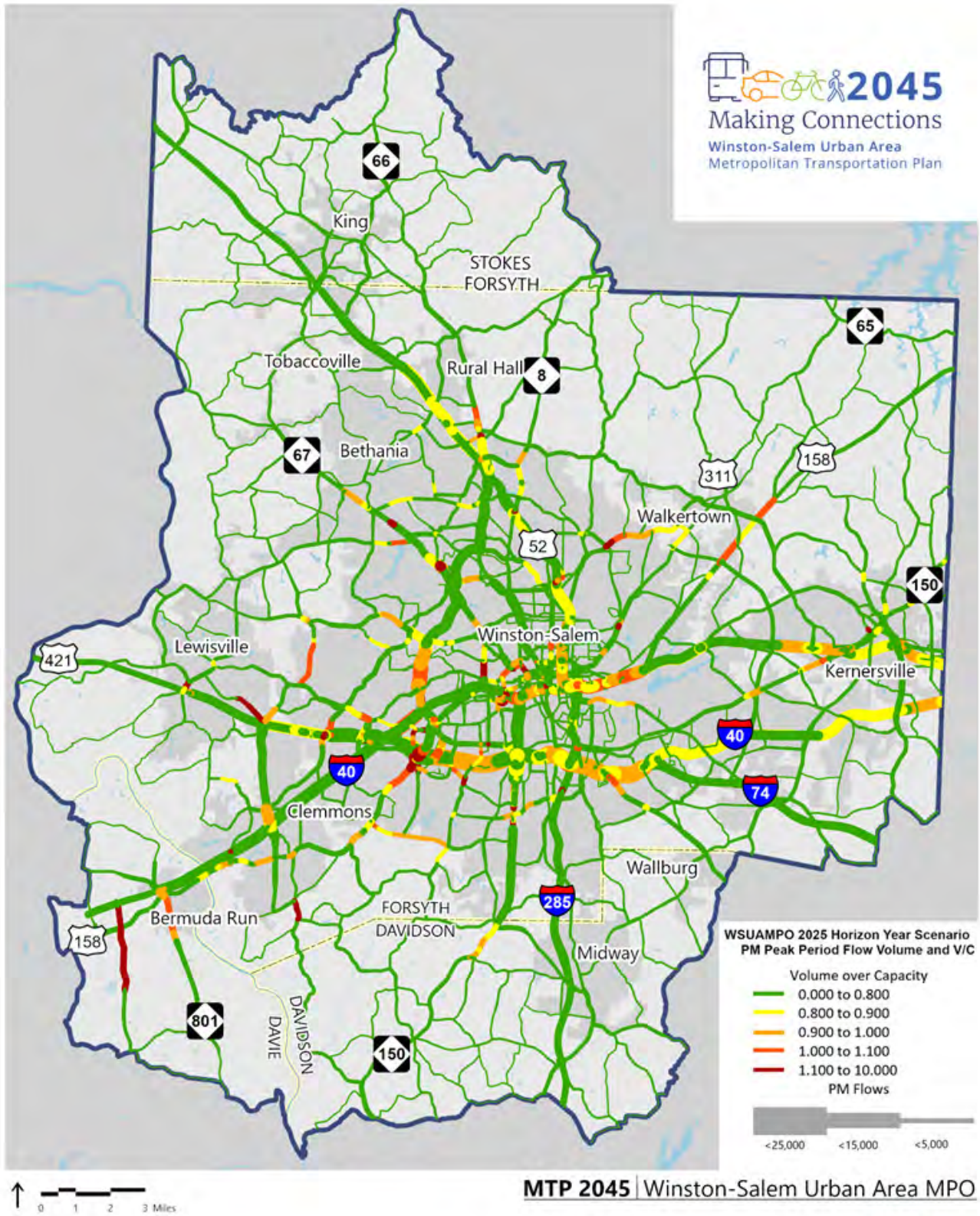


Figure 3 - 2035 Horizon Year PM Period Volume and VoC

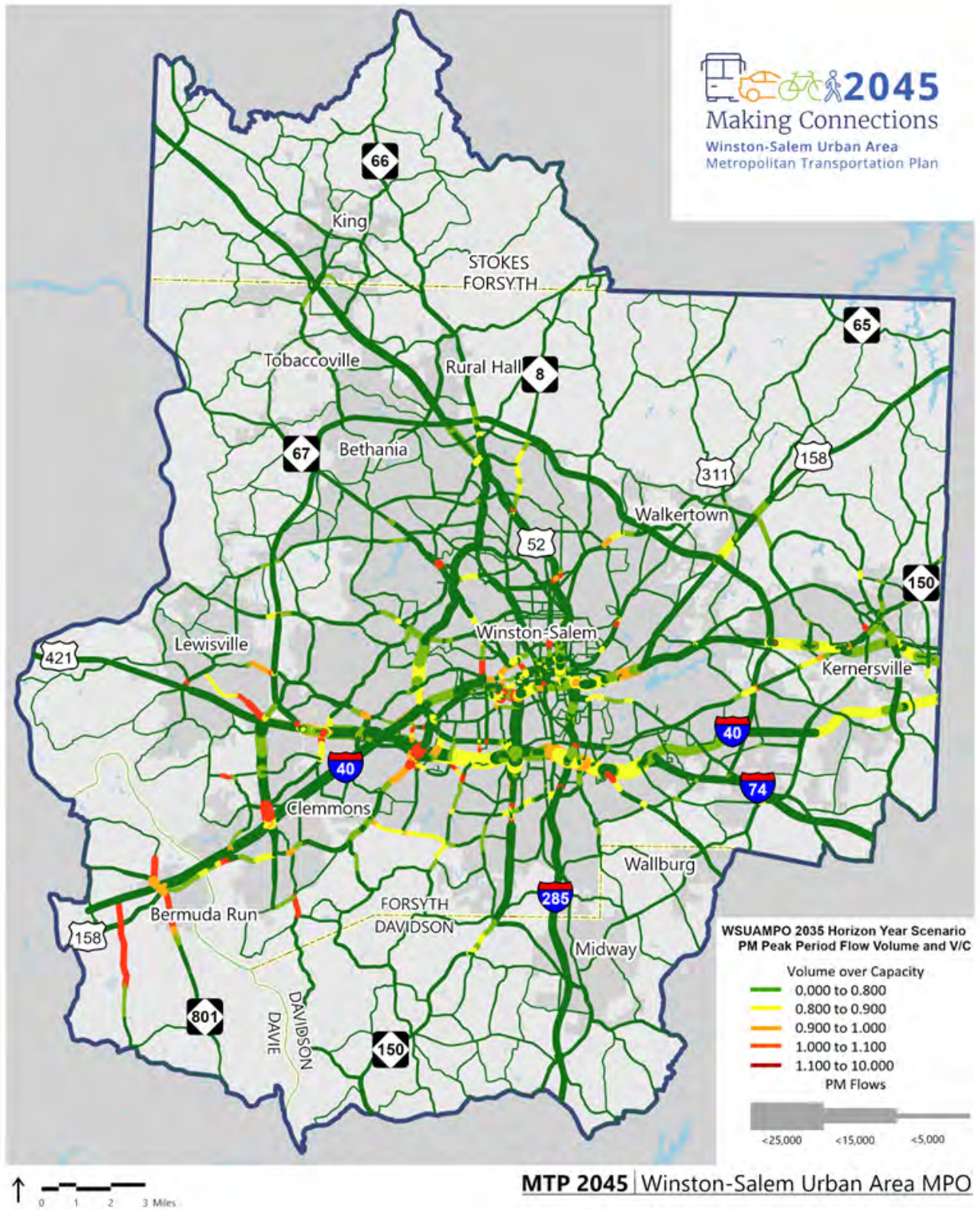




Figure 4 - 2045 E+C PM Period Volume and VoC

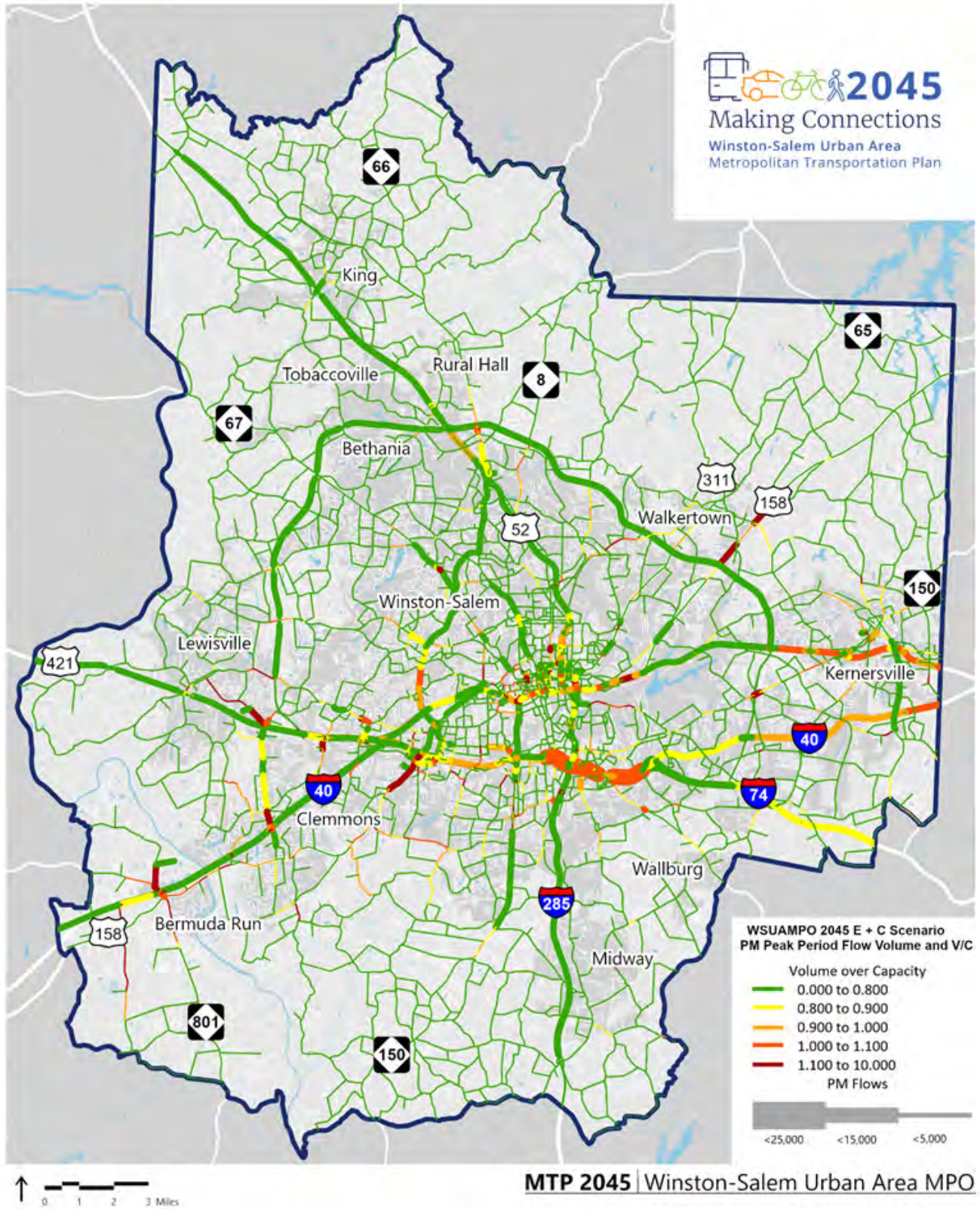


Figure 5 - 2045 Horizon Year PM Period Volume and VoC

