TECHNICAL MEMORANDUM

2045 EXTERNAL STATION FORECAST

MARCH 2021

AKRON METROPOLITAN AREA TRANSPORTATION STUDY

161 SOUTH HIGH STREET AKRON, OHIO 44308

This report was prepared by the Akron Metropolitan Area Transportation Study (AMATS) in cooperation with the U.S. Department of Transportation, the Ohio Department of Transportation, and the Village, City and County governments of Portage and Summit Counties and Chippewa and Milton Township in Wayne County. The contents of this report reflect the views of AMATS, which is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view and policies of the Ohio and/or U.S. Department of Transportation. This report does not constitute a standard, specification or regulation.

Table of Contents

List of Figures

List of Tables

1 Introduction

The Akron Metropolitan Area Transportation Study (AMATS) is in the process of updating its Regional Transportation Plan. The future horizon year for this plan will be 2045. One of the initial steps in this process is to forecast the number of vehicle trips that will be made in the AMATS area and some crucial ends outside the AMATS region in 2045. These trips in a broad way are forecasted through AMATS Travel Demand Modeling in the trip generation step.

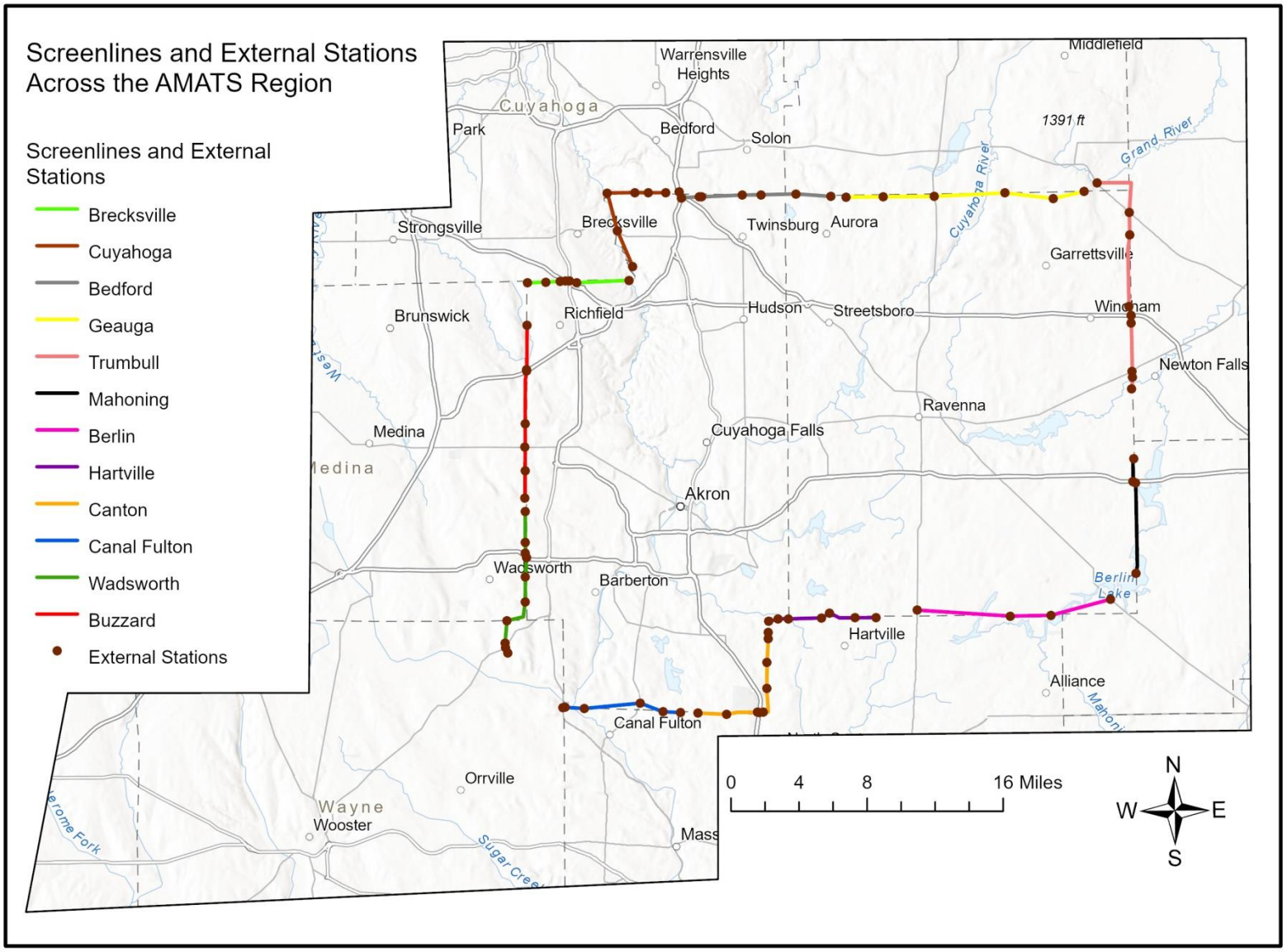
Forecasting the trips for the external stations is an essential step for the AMATS Travel demand modeling. The AMATS Travel demand model includes 83 external stations, which are shown in **Fig. 1**. An external station is located wherever a roadway represented in the regional travel demand model crosses the external boundary that separates the AMATS area from adjacent portions of Cuyahoga, Geauga, Trumbull, Mahoning, Stark, Wayne, and Medina counties.

The 2045 External Station Forecast determines projected traffic volumes for 2045 for all 83 external stations based on historic traffic growth trends. Moreover, the vehicles passing through these stations encompass trips with one or both ends outside the region known as external-external (E-E) trips, internal-external (I-E) trips, and external-internal (E-I) trips. External-external trips pass through the AMATS area while internal-external trips are produced inside the AMATS region, and external-internal trips are attracted to the AMATS region.

It is important to note that the AMATS model also has 837 internal traffic analysis zones which are areas of land usually separated by major roadways, railroads, or waterways. Future vehicle trips to and from each of these zones are estimated based on forecasted land use and socioeconomic data. AMATS will use the travel demand model to combine the 2045 External Station Forecast with the estimated internal trips to forecast future traffic volumes on AMATS roadways.

These future traffic volumes will be used to determine where congestion is expected to occur and to analyze future air quality. Possible projects to alleviate congestion will be evaluated and fiscally constrained to determine project recommendations within the 2045 Regional Transportation Plan, which is expected to be completed in May 2021.

Fig. 1. Screenlines and External Stations



2 Methodology

The AMATS Travel demand model includes 83 external stations, which are divided into 12 screenlines, each of which includes from four to ten external stations. The purpose of dividing the external cordon into screenlines is to group adjoining external stations together based upon similar historic traffic growth trends and geographic characteristics.

Depending upon the availability of the data linear regression analysis of different forms (Frank E. Harrell, 2001), and growth rate equations proposed by (FHWA, 2018) are used to forecast 2045 traffic volumes for the external stations. The details of the methodology are explored as follows:

2.1 Linear Regression

Essentially, the number of observations required for regression analysis to scientifically predict the values depends on the number of parameters as per (Frank E. Harrell, 2001). Therefore, it is recommended to have at least 10-20 observations per predictor. In this case, there are 14 observations available as historic traffic counts from 14 separate years between 1970 and 2019. Appendix A includes a table indicating 14 observations of historic traffic counts that occurred between 1970 and 2019.

The following two different forms of regression analysis are used for predicting the traffic counts:

2.1.1 Simple Linear Regression

For some stations and screenlines Simple Linear Regression (PARDOE, 2012; Keith, 2015) is used in the following form:

$$Y_i = \alpha + \beta X_i$$

$Y_i = Dependent\ variable$
$X_i = Indpendent\ Variable$
$\alpha = \text{Leaset square estimate of the Intercept}$
$\beta = \text{Slope or coeficient for the indpedent variable}$

Where, Y_i denotes External Station Forecast Volume as a dependent variable, and X_i denotes the year in terms of cumulative numbers as an independent variable. Mostly, the regression analysis is applied to individual stations; however, for some stations due to lack of sufficient observations, the growth rate is obtained from the regression analysis based on screenline total and consequently applied to individual stations. The forecast from this regression analysis illustrates more rapid and exponential growth.

2.1.2 Logarithmic transformations

Natural Logarithmic Form of Linear Regression (Logarithmic transformations of variables) as indicated in (Samprit Chatterjee, 2006) is used in the following form:

$$\mathrm{LNY_i} = \alpha + \beta \mathrm{LNX_i}$$
$$\mathrm{Y_i} = \mathrm{e}^{(\alpha + \beta \mathrm{LNX_i})}$$

$\mathrm{LNY_i} = \text{Dependent variable}$
$\mathrm{LNX_i} = \text{Indpendent Variable}$
$\alpha = \text{Leaset square estimate of the Intercept}$
$\beta = \text{Slope or coeficient for indpedent variable}$

This form of regression is used to flatten the curve and reduced the exponential form of future growth. It is important to note that in some cases the logarithmic form has surprisingly shown high significance in the forecasted volumes. The significance of the regression analysis is checked with the following statistics and chose the best fit model for the forecast:

a. Adjusted R Square
b. P-value
c. Comparing F values with F critical values
d. t-statistics

2.2 Growth Rate Equations

For some stations due to lack of count history and required number of observation for the regression analysis the following equations suggested by (FHWA, 2018) were applied for growth rate and forecast:

$$\mathrm{G} = \frac{\mathrm{ADT_t}}{\mathrm{ADT_{t-n}}}^{\frac{1}{\mathrm{n}}} - 1$$

$$\mathrm{ADT_{t+n}} = \mathrm{ADT_t} \times (1 + \mathrm{G})^{\mathrm{n}}$$

Where,
G=Growth Rate
n= number of years between most recent and past or number of years between most recent and future for which a forecast is being made
$\mathrm{ADT_t}$= Most recent year volume (2019)
ADT_{t+n}= Forecast volume for 2045

Table 1: BRECKSVILLE SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
900	SR 176 (Broadview Rd)	4,940	6,345	1.09%	Linear Regression
901	Alger Rd	840	881	0.19%	Natural Logarithmic form of Linear Regression
902	Townsend Rd	1,090	1,260	0.60%	Natural Logarithmic form of Linear Regression
903	I-80 (Ohio Turnpike)	41,520	52,761	1.04%	Linear Regression
904	I-77	64,740	65,944	0.07%	Natural Logarithmic form of Linear Regression
905	SR 21	9,470	8,957	-0.21%	Growth Rate (Regression Analysis is insignificant)
906	Riverview Rd	*2,470*	2,610	0.22%	Natural Logarithmic form of Linear Regression
	Screenline Total	**125,070**	**138,757**	**0.42%**	

Table 2: CUYAHOGA VALLEY SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
907	W Highland Rd	2,510	3,089	0.89%	Linear Regression
908	SR 82 (W Aurora Rd)	12,290	13,119	0.26%	Natural Logarithmic form of Linear Regression
909	W Valley View Rd	8,370	9,961	0.73%	Linear Regression
910	Dunham Rd	4,330	5,433	0.98%	Linear Regression
911	Walton Rd	1,370	2,999	4.57%	Natural Logarithmic form of Linear Regression
912	SR 8	14,580	14,920	0.09%	Growth Rate (Regression Analysis is insignificant)
	Screenline Total	**43,450**	**49,521**	**0.54%**	

Table 3: BEDFORD SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
913	I-271/I-480	113,470	122,628	0.31%	Natural Logarithmic form of Linear Regression
914	N Bedford Rd	3,490	4,194	0.78%	Natural Logarithmic form of Linear Regression
915	Ravenna Rd	12,000	15,246	1.04%	Linear Regression
916	Shepard Rd	6,470	8,747	1.35%	Linear Regression
917	SR 91 (Darrow Rd)	12,160	15,184	0.96%	Natural Logarithmic form of Linear Regression
918	Liberty Rd	9,450	12,307	1.16%	Linear Regression
919	SR 43	14,330	15,441	0.30%	Natural Logarithmic form of Linear Regression
920	SR 306	11,570	12,884	0.44%	Natural Logarithmic form of Linear Regression
	Screenline Total	**182,940**	**206,631**	**0.50%**	

Table 4: GEAUGA SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
921	Eggleston Rd	1,450	1,506	0.15%	Growth Rate (No sufficient observations for Regression)
922	Chamberlain Rd	1,820	1,974	0.33%	Natural Logarithmic form of Linear Regression
923	SR 44	7,300	9,992	1.42%	Linear Regression
924	SR 700	2,015	2,243	0.44%	Natural Logarithmic form of Linear Regression
925	SR 88	2,055	2,355	0.53%	Growth Rate (Regression Analysis is insignificant)
926	Parkman Rd	850	937	0.52%	Natural Logarithmic form of Linear Regression
	Screenline Total	**15,490**	**19,007**	**0.87%**	

Table 5: TRUMBULL SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
927	US 422	15,376	20,431	1.10%	Growth Rate is obtained from regression analysis
928	US 422	11,970	15,905	1.10%	Growth Rate is obtained from regression analysis
929	SR 305	2,344	3,115	1.10%	Growth Rate is obtained from regression analysis
930	SR 82	2,280	3,030	1.10%	Growth Rate is obtained from regression analysis
931	I-80 (Ohio Turnpike)	37,760	38,362	0.06%	Natural Logarithmic form of Linear Regression
932	SR 303	1,760	2,339	1.10%	Growth Rate is obtained from regression analysis
933	SR 5	6,410	8,517	1.10%	Growth Rate is obtained from regression analysis
934	Holcomb Rd	880	1,169	1.10%	Growth Rate is obtained from regression analysis
935	Newton Falls Rd	850	1,129	1.10%	Growth Rate is obtained from regression analysis
	Screenline Total	**79,630**	**93,996**	**0.69%**	

Table 6: MAHONING SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
936	Mahoning Rd	425	521	0.78%	Growth Rate (because regression analysis is insignificant)
937	I-76	30,660	31,723	0.13%	Natural Logarithmic form of Linear Regression
938	Tallmadge Rd	3,140	3,484	0.40%	Growth Rate (because regression analysis is insignificant)
939	US 224	3,720	4,385	0.63%	Growth Rate (because regression analysis is insignificant)
	Screenline Total	**37,945**	**40,114**	**0.22%**	

Table 7: BERLIN SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
940	SR 14	4,240	4,839	0.54%	Natural Logarithmic form of Linear Regression which is more significant
941	SR 225	6,460	7,546	0.65%	Natural Logarithmic form of Linear Regression which is more significant
942	SR 183	4,110	5,251	1.07%	Linear Regression
943	SR 44	7,290	8,279	0.52%	Linear Regression
	Screenline Total	**22,100**	**25,915**	**0.66%**	

Table 8: HARTVILLE SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
944	Hartville Rd	1,340	1,651	0.89%	Natural Logarithmic form of Linear Regression which is more significant
945	Congress Lake Rd	970	1,256	1.13%	Natural Logarithmic form of Linear Regression which is more significant
946	SR 43	5,120	5,952	0.63%	Natural Logarithmic form of Linear Regression which is more significant
947	Mishler Rd	5,400	5,370	-0.02%	Natural Logarithmic form of Linear Regression which is more realistic
948	Portage Line Rd	2,200	3,517	2.30%	Natural Logarithmic form of Linear Regression which is more significant
949	Canton Rd	11,800	13,996	0.72%	Natural Logarithmic form of Linear Regression which is more significant
950	Sweitzer Rd	1,040	1,357	1.03%	Growth Rate (because regression analysis is insignificant)
	Screenline Total	**27,870**	**33,099**	**0.72%**	

Table 9: CANTON SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
951	SR 619	9,670	11,309	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
952	Kreighbaum Rd	1,860	2,175	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
953	Heckman Rd	3,700	4,327	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
954	Greensburg Rd	7,720	9,029	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
955	Mayfair Rd	6,740	7,883	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
956	I-77	83,591	97,762	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
957	Lauby Rd	8,105	9,479	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
958	SR 241 (Massillon Rd)	9,870	11,543	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
959	Arlington Rd	4,790	5,602	0.60%	Growth Rate is obtained from regression analysis based on screenline Total
	Screenline Total	**136,046**	**159,110**	**0.60%**	

Table 10: CANAL FULTON SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
960	Christman Rd	850	1,023	0.72%	Growth Rate is obtained from regression analysis based on screenline Total
961	S Main St	4,220	4,444	0.20%	Natural Logarithmic form of Linear Regression which is more significant
962	SR 93 (Manchester Rd)	7,040	8,539	0.82%	Linear Regression which is more realistic
963	Fulton St	*3,600*	4,334	0.72%	Growth Rate is obtained from regression analysis based on screenline Total
964	South 2nd Ave	955	1,150	0.72%	Growth Rate is obtained from regression analysis based on screenline Total
965	SR 21	15,920	19,167	0.72%	Growth Rate is obtained from regression analysis based on screenline Total
	Screenline Total	**32,585**	**38,657**	**0.72%**	

Table 11: WADSWORTH SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
966	Portage St	1,880	2,566	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
967	SR 585	11,054	15,089	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
968	Doylestown Rd	1,350	1,843	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
969	Eastern Rd	4,920	6,716	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
970	Johnson Rd	2,020	2,757	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
971	Greenwich Rd	6,270	8,558	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
972	I-76	52,790	53,116	0.02%	Natural Logarithmic form of Linear Regression
973	SR 261 (Wadsworth Rd)	7,120	9,719	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
974	Reimer Rd	3,840	5,242	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
975	Minor Rd	1,940	2,648	1.20%	Growth Rate is obtained from regression analysis based on screenline Total
	Screenline Total	**93,184**	**108,253**	**0.62%**	

Table 12: BUZZARD SCREENLINE

External Station	Route	2019 (Base)	2045 Forecast	Annual Growth %	Methodology Notes
976	SR 162 (Copley Rd)	3,960	4,333	0.35%	Growth Rate is obtained from regression analysis based on screenline Total
977	Ridgewood Rd	1,750	2,313	1.24%	Linear Regression Analysis is highly significant
978	SR 18 (Medina Rd)	26,920	36,078	1.31%	Linear Regression Analysis is highly significant
979	Granger Rd	2,470	3,467	1.55%	Linear Regression Analysis is highly significant
980	I-271	33,120	38,516	0.63%	Natural Logarithmic form of Linear Regression which is highly significant
981	Everett Rd	1,550	1,696	0.35%	Growth Rate is obtained from regression analysis based on screenline Total
982	SR 303	3,930	6,046	2.07%	Natural Logarithmic form of Linear Regression which is more significant
	Screenline Total	**73,700**	**92,449**	**0.98%**	

3 Results and Conclusion

The regression analysis has shown significant ANOVA statistics for most of the external stations. The Adjusted R square, P-value, t-statistics, and F values collectively indicate a higher significant level of the proposed 2045 External Station Forecast. However, as stated earlier due to lack of historical counts, impractical high number of trips associated with particular neighborhoods the AMATS has exempted the statistical significance for some stations and depending upon the situations the AMATS either used natural logarithmic transformation of regression modeling or growth rate equations to match the realistic predictions.

Furthermore, all screenlines showed growth between 2019 and 2045. The average annual growth (averaged 2019-2045) in total traffic volume at individual screenlines ranged from a low of 0.22% along the Mahoning screenline, to a high of 0.98% along the Buzzard screenline.

The 2045 forecasted traffic counts in this memorandum are an important step in the process to produce future traffic volumes that will be used to predict future traffic congestion. Congested locations will be evaluated to form transportation alternatives for the upcoming 2045 Regional Transportation Plan.

References

1. FHWA. (2018, 8 1). *FHWA Organization*. Retrieved from https://www.fhwa.dot.gov/policyinformation/pubs/pl18027_traffic_data_pocket_guide.pdf
2. Frank E. Harrell, J. (2001). *Regression modeling strategies: With applications to linear models, logistic regression, and survival analysis.* New York: Springer.
3. Keith, T. Z. (2015). *Multiple Regression and Beyond.* New York: Taylor & Francis.
4. PARDOE, I. (2012). *Applied Regression Modeling.* New Jersey: John Wiley & Sons, Inc.
5. Samprit Chatterjee, A. S. (2006). *Regression analysis by example.* New Jersey: John Wiley & Sons, Inc.

Appendix A

Table 13: Historic Traffic Counts of External Stations

External Station	Route	1970	1974	1976	1980	1983	1987	1990	1995	2000	2004	2009	2014	2016	2019 (Base)
900	SR 176 (Broadview Rd)	1,862	2,080	2,550	2,750	3,300	4,200	4,350	3,800	3,590	4,300	4,620	4,360	4,410	4,940
901	Alger Rd	530	530	580	1,090	750	1,070	1,000	1,000	810	480	700	800	780	840
902	Townsend Rd	230	230	460	400	600	910	1,000	1,000	890	880	850	800	880	1,090
903	I-80 (Ohio Turnpike)	25,100	24,830	27,600	25,400	25,500	28,650	30,400	35,058	35,680	38,910	38,235	39,370	42,850	41,520
904	I-77	11,849	10,270	16,160	16,550	18,700	27,400	28,300	39,100	45,960	53,950	49,310	53,110	58,930	64,740
905	SR 21	10,519	12,060	13,740	12,100	12,800	13,260	15,700	17,950	16,610	19,680	17,880	14,310	10,310	9,470
906	Riverview Rd	760	760	1,100	1,270	1,300	810	1,500	2,250	2,160	2,140	2,260	2,260	2,360	2,470
907	W Highland Rd	NA	NA	NA	1,060	1,100	1,250	1,750	2,000	2,540	2,240	1,910	1,800	1,980	2,510
908	SR 82 (W Aurora Rd)	NA	NA	NA	7,980	8,600	9,900	10,500	11,800	10,730	13,150	13,610	10,680	11,066	12,290
909	W Valley View Rd	6,580	6,580	6,500	6,220	6,200	6,250	7,150	7,750	10,490	7,730	8,760	7,835	7,810	8,370
910	Dunham Rd	2,500	2,500	3,300	3,120	2,500	2,700	3,400	3,700	3,830	4,950	3,730	3,895	4,290	4,330
911	Walton Rd	290	290	1,520	1,880	1,000	1,750	1,650	1,650	2,920	2,620	2,310	2,250	1,370	1,370
912	SR 8	13,960	15,040	15,140	14,080	11,930	16,100	13,610	13,550	15,570	17,420	13,780	13,860	19,250	14,580
913	I-271/I-480	45,700	41,670	49,030	54,750	51,040	69,400	82,470	92,400	101,760	113,160	108,190	107,250	114,100	113,470
914	N Bedford Rd	2,151	2,150	1,430	2,830	2,750	2,950	3,150	3,800	4,100	4,170	3,210	3,920	3,920	3,490
915	Ravenna Rd	8,419	8,410	8,355	8,580	7,750	8,400	10,250	11,300	12,770	13,130	12,140	11,410	11,410	12,000
916	Shepard Rd	1,820	1,820	2,700	2,160	3,550	3,400	3,750	3,750	5,610	5,800	4,860	4,600	6,610	6,470
917	SR 91 (Darrow Rd)	4,630	5,370	6,500	7,600	6,850	8,560	13,800	12,250	16,030	16,050	14,540	11,460	12,160	12,160
918	Liberty Rd	1,379	1,380	2,250	3,150	3,300	1,050	4,000	4,400	5,540	6,900	6,000	5,680	9,270	9,450
919	SR 43	9,830	7,180	7,930	11,270	10,700	11,240	11,950	13,200	14,260	13,510	15,850	14,540	14,540	14,330
920	SR 306	4,181	3,220	4,100	5,440	4,850	5,720	8,600	9,500	11,490	11,900	9,580	11,600	11,600	11,570
921	Eggleston Rd	NA	NA	NA	NA	NA	NA	NA	1,400	1,300	1,490	1,270	1,400	1,490	1,450
922	Chamberlain Rd	419	420	490	530	500	270	1,100	1,500	1,720	2,110	1,510	1,990	1,680	1,820
923	SR 44	2,131	2,540	2,900	3,030	3,250	4,700	4,850	5,650	5,960	6,550	6,950	5,890	6,211	7,300
924	SR 700	1,160	1,420	1,510	1,280	1,600	1,700	2,350	1,850	2,090	1,970	2,000	1,970	2,120	2,015
925	SR 88	1,589	2,080	2,200	2,080	2,650	3,550	3,800	1,850	2,110	2,370	1,710	1,650	2,100	2,055
926	Parkman Rd	240	240	240	250	250	200	750	750	780	960	790	800	800	850
927	US 422	NA	NA	NA	NA	NA	NA	NA	9,200	11,920	12,380	9,590	10,130	10,780	15,376
928	US 422	2,800	3,270	3,140	3,200	3,640	3,600	5,200	7,580	13,370	11,610	12,330	9,420	10,910	11,970
929	SR 305	1,009	1,130	1,300	1,320	1,400	2,400	2,400	2,800	1,960	2,430	1,480	1,590	2,290	2,344
930	SR 82	1,889	2,080	2,200	2,100	2,100	3,250	2,850	2,550	2,730	2,790	2,300	1,910	2,320	2,280
931	I-80 (Ohio Turnpike)	19,300	18,840	20,750	21,300	22,500	26,300	28,950	31,468	33,500	33,600	33,680	35,950	37,760	37,760

External Station	Route	1970	1974	1976	1980	1983	1987	1990	1995	2000	2004	2009	2014	2016	2019 (Base)
932	SR 303	1,950	2,120	2,970	2,370	2,250	3,200	2,550	2,550	2,590	2,220	1,800	1,810	1,670	1,760
933	SR 5	3,732	4,320	3,870	4,840	5,100	5,400	6,100	6,100	6,820	6,430	5,890	6,240	6,410	6,410
934	Holcomb Rd	710	710	1,050	1,450	300	1,150	1,500	1,500	1,370	600	940	1,010	810	880
935	Newton Falls Rd	951	950	850	570	1,150	950	1,250	1,050	370	840	650	800	850	850
936	Mahoning Rd	290	290	220	320	250	400	650	550	340	720	240	680	370	425
937	I-76	15,720	17,570	15,900	17,460	15,600	17,300	23,650	21,350	30,020	31,130	30,580	33,980	29,890	30,660
938	Tallmadge Rd	2,581	2,580	3,130	3,310	3,300	3,550	3,550	2,300	3,530	2,710	2,480	3,270	3,040	3,140
939	US 224	2,728	2,740	3,160	3,840	4,300	6,150	4,550	5,720	4,250	5,350	3,330	3,630	4,550	3,720
940	SR 14	2,120	2,270	2,330	2,230	3,250	3,800	4,260	6,090	3,670	4,270	3,940	3,770	4,070	4,240
941	SR 225	2,430	2,770	3,580	4,170	3,900	5,400	5,450	5,730	7,680	5,820	6,190	5,660	6,560	6,460
942	SR 183	2,219	1,650	1,940	2,850	3,450	2,800	3,200	3,810	3,800	3,940	3,800	3,410	3,810	4,110
943	SR 44	4,070	5,060	5,200	4,500	5,000	5,900	6,150	5,370	6,350	6,280	5,990	6,900	6,460	7,290
944	Hartville Rd	250	260	470	660	900	800	1,700	1,100	1,110	880	740	1,400	1,400	1,340
945	Congress Lake Rd	430	430	660	820	1,700	800	1,200	1,150	1,050	780	830	1,100	1,100	970
946	SR 43	3,400	4,400	4,840	4,520	4,800	4,800	6,300	4,900	5,430	5,340	5,180	5,950	5,760	5,120
947	Mishler Rd	990	990	970	1,050	1,650	2,000	2,350	2,350	3,960	4,600	4,070	5,000	5,000	5,400
948	Portage Line Rd	750	750	850	1,110	1,050	2,450	2,450	3,100	3,070	4,060	2,090	2,700	2,500	2,200
949	Canton Rd	7,500	9,400	9,620	10,720	11,400	13,050	13,250	15,100	12,300	11,040	12,140	13,700	11,800	11,800
950	Sweitzer Rd	630	630	830	1,420	2,400	450	1,300	1,300	1,250	1,120	320	1,100	1,300	1,040
951	SR 619	6,169	5,790	8,070	9,440	8,050	10,200	11,650	11,050	11,650	11,230	11,970	13,000	10,490	9,670
952	Kreighbaum Rd	900	900	900	1,090	1,000	1,000	1,200	1,100	1,410	1,750	1,550	1,700	2,200	1,860
953	Heckman Rd	NA	NA	NA	NA	NA	NA	NA	2,400	3,080	4,060	3,150	4,000	4,000	3,700
954	Greensburg Rd	4,832	4,830	4,490	3,870	4,400	5,550	5,800	7,000	8,370	9,100	8,730	7,910	6,590	7,720
955	Mayfair Rd	NA	NA	NA	NA	1,850	2,450	3,250	6,250	7,730	9,500	7,310	6,920	6,000	6,740
956	I-77	24,950	27,350	34,290	33,060	36,150	42,000	51,100	60,250	61,720	69,950	71,430	57,860	49,210	83,591
957	Lauby Rd	NA	NA	NA	NA	NA	8,950	9,300	13,900	14,310	15,000	8,440	8,000	8,800	8,105
958	SR 241 (Massillon Rd)	4,800	9,900	5,990	5,760	6,200	7,150	8,600	8,540	7,810	9,190	8,720	9,680	11,110	9,870
959	Arlington Rd	1,150	1,150	1,490	1,880	2,150	2,550	3,450	3,750	3,630	4,240	3,890	3,600	4,500	4,790
960	Christman Rd	420	420	620	750	850	1,050	1,850	1,100	1,050	1,070	940	1,000	850	850
961	S Main St	1,890	1,900	2,240	2,600	2,400	3,000	3,150	2,900	3,510	4,570	3,980	4,000	4,200	4,220
962	SR 93 (Manchester Rd)	5,190	5,300	6,090	5,550	6,400	6,800	7,550	7,400	7,170	7,300	6,250	7,690	7,200	7,040
963	Fulton St	1,558	1,500	2,180	2,700	600	2,650	2,350	2,350	2,290	2,280	1,780	2,300	3,600	3,600
964	South 2nd Ave	742	760	380	870	870	1,100	1,150	1,150	360	400	270	500	400	955
965	SR 21	NA	NA	NA	NA	NA	NA	8,860	10,850	13,410	13,890	12,180	13,270	14,670	15,920
966	Portage St	NA	NA	NA	NA	NA	NA	2,050	2,050	1,840	1,890	1,440	1,790	1,880	1,880
967	SR 585	NA	NA	NA	NA	NA	7,870	9,100	9,250	9,230	8,920	10,340	10,120	10,570	11,054
968	Doylestown Rd	NA	NA	NA	NA	NA	NA	1,150	1,000	1,380	1,310	1,300	1,300	1,350	1,350

External Station	Route	1970	1974	1976	1980	1983	1987	1990	1995	2000	2004	2009	2014	2016	2019 (Base)
969	Eastern Rd	NA	NA	NA	NA	NA	NA	3,550	3,150	3,570	3,590	3,720	3,800	4,920	4,920
970	Johnson Rd	2,230	2,230	1,710	1,540	1,300	1,450	1,650	1,650	1,680	1,930	2,000	2,300	2,160	2,020
971	Greenwich Rd	4,721	4,710	5,700	7,000	5,860	6,350	5,450	5,150	6,040	6,430	6,020	4,520	6,270	6,270
972	I-76	22,150	23,040	22,480	26,140	26,360	29,450	37,200	34,500	43,110	46,520	48,950	47,020	59,040	52,790
973	SR 261 (Wadsworth Rd)	4,159	4,920	4,690	6,360	6,600	6,000	6,850	6,850	6,850	7,190	7,080	7,240	7,860	7,120
974	Reimer Rd	870	870	920	1,200	1,300	1,850	1,400	2,000	2,230	3,280	3,360	3,270	3,460	3,840
975	Minor Rd	590	590	470	570	800	900	800	1,400	1,510	1,950	1,630	2,450	2,600	1,940
976	SR 162 (Copley Rd)	NA	NA	NA	NA	NA	NA	2,100	2,000	2,820	2,780	2,680	2,270	2,240	3,960
977	Ridgewood Rd	530	530	590	620	600	800	700	1,200	1,210	1,460	1,220	1,350	1,680	1,750
978	SR 18 (Medina Rd)	10,900	13,000	12,200	14,400	14,800	18,300	18,600	22,300	27,400	24,970	21,000	24,540	25,460	26,920
979	Granger Rd	840	840	950	1,120	1,050	1,350	1,350	1,350	2,140	1,910	2,120	2,510	2,330	2,470
980	I-271	5,460	8,700	12,410	14,570	16,500	16,250	20,800	22,340	27,390	29,470	29,740	25,890	32,070	33,120
981	Everett Rd	460	460	500	680	550	1,150	650	650	920	420	930	400	1,450	1,550
982	SR 303	2,320	2,630	2,880	3,440	3,880	5,300	4,400	5,850	5,730	5,630	5,370	3,930	6,350	3,930