



UPPER GREAT PLAINS TRANSPORTATION INSTITUTE
ADVANCED TRAFFIC ANALYSIS CENTER

Grand Forks Data Collection and Archival Study – Phase II

Final Report

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Grand Forks-East Grand Forks MPO

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INTRODUCTION

The Grand Forks – East Grand Forks MPO contacted ATAC with regards to extending the use of existing traffic detection cameras for traffic data collection and archival. The City of Grand Forks currently has approx. 43 intersections where Autoscope cameras are being used for traffic signal actuation purposes. More intersections within the network are being updated to have the same camera-based detection capabilities. Additional functions of these Autoscope cameras include traffic data collection.

In anticipation of these types of applications working with NDDOT, DOTSC/ATAC have developed capabilities to provide web services for databases and web-based applications to report on those databases. With these capabilities in place and the potential for other jurisdictions and the NDDOT benefiting from this type of traffic data reporting application, a database design and web-based reporting application were initiated for development with this project.

OBJECTIVES

As part of this study, a total of 31 intersections were to be set to count traffic volumes. Also, a traffic analysis tool was developed to process data collected at these intersections. The main output of this tool as required by the MPO is intersection turning movement count report. The tool can additionally, create a few more reports as discussed later in this report.

The intersections included in this phase of the study are listed in table 1. Note that intersection #20 32nd Ave S @ S Washington St was set to count traffic during Phase I of the study.

Table 1. List of intersections

#	Main Street	Cross Street
1	Gateway Drive	NB I-29 Ramps
2	Gateway Drive	N 42 nd St
3	Gateway Drive	Stanford Rd
4	Gateway Drive	N Columbia Rd
5	Gateway Drive	N 20 th St
6	Gateway Drive	N Washington St
7	Gateway Drive	State Mill Rd
8	Gateway Drive	N 3 rd St
9	N 5 th St	5 th Ave N
10	N 5 th St	University Ave
11	N 5 th St	2 nd Ave N
12	N 5 th St	1 st Ave N
13	N 5 th St	Demers Ave
14	S 5 th St	Kittson Ave
15	32 nd Ave S	S 38 th St
16	32 nd Ave S	S 34 th St
17	32 nd Ave S	S 31 st St
18	32 nd Ave S	S Columbia Rd
19	32 nd Ave S	S 20 th St
20	32 nd Ave S	S Washington St

21	N Columbia Rd	University Ave
22	S Columbia Rd	24 th Ave S
23	S Washington St	17 th Ave S
24	S Washington St	13 th Ave S
25	S Washington St	40 th Ave S
26	S Washington St	Campbell Dr
27	S Washington St	24 th Ave S
28	S Washington St	28 th Ave S
29	Demers Ave	N 4 th St
30	Demers Ave	N 3 rd St
31	N Columbia Rd	2 nd Ave N

METHODOLOGY

This study was divided into two major tasks:

- Data Collection Setup
- Data Processing and Archival

These steps involved in both of these tasks are discussed below:

DATA COLLECTION SETUP

In this task, intersections were set to collect turning movement counts. This task comprised of intersection setup, data quality audits, and camera re-calibration. Each of these steps are discussed as below.

Intersection Setup

The intersections were setup to count traffic one approach at a time. Within each approach, setup was based on factors such as geometrics and lane assignment. At any given approach, all lane groups with exclusive lanes were counted separately using corresponding detector stations. However, in case of shared lanes, movements were combined and counted together in a single detector station. For example, at the westbound approach of Gateway Dr @ Stanford Rd, the rightmost lane is shared by through and right-turning movements. Therefore, the right-turn movement has been set to be counted with the through movement and is reported to the same detector station. Table 2 provides detailed information on lane assignments and detector stations set per approach. Note that in the table, each arrow corresponds to a lane group and may represent multiple lanes. Also, each dot represents a separate detector station that counts the corresponding movement(s).

The updated detector configuration files were saved on the external drive connected to the Communications Server. It is expected that any changes to detector configuration would be based on these updated files. Also, in case a camera needs to be swapped with another one, the updated detector configuration file must be loaded on to that camera for continued data collection with minimal disruptions.

Data Quality Audits

Random data quality audits were performed and traffic volumes were collected manually in 15-minute intervals at each of the approaches. The manually collected traffic counts were then compared to data collected by cameras. Hourly traffic volumes were then compared using GEH statistic which is computed as follows:

$$GEH = \sqrt{\frac{(A - M)^2}{(A + M)/2}}$$

Where:

A = Autoscope traffic count

M = Manual traffic count

Also, peak hour factors (PHF) were compared for hourly traffic volumes. For intersection turning movement counts, PHF is computed as follows:

$$PHF = \frac{V}{4 \times V_{15}}$$

Where:

V = hourly volume

V₁₅ = volume during the peak 15 minutes of flow

Camera Re-calibration

It was found out that camera calibration at some of the approaches forced the detectors set near the edges of the view to be crooked. At other intersections, the calibration appeared to be crooked such that the calibration lines were not parallel to the direction of travel. This necessitated re-calibration at the following approaches:

- | | |
|---|--------|
| 1. S Washington St @ 17 th Ave S | SB |
| 2. S Washington St @ Campbell Dr | NB |
| 3. S Washington St @ 24 th Ave S | NB |
| 4. Gateway Dr @ State Mill Rd | NB |
| 5. N 5 th St @ University Ave | WB |
| 6. N 5 th St @ 1 st Ave N | EB, SB |
| 7. S 5 th St @ Kittson Ave | NB, WB |

In addition, calibration at the following intersections was tweaked. The tweaks included correction to cross-lane and down-lane distances.

- | | |
|---|--------|
| 1. Gateway Dr @ Stanford Rd | NB, SB |
| 2. Gateway Dr @ N Washington St | SB |
| 3. Gateway Dr @ N 3 rd St | SB |
| 4. N 5 th St @ 2 nd Ave N | NB |
| 5. N 5 th St @ 1 st Ave N | NB |
| 6. N 5 th St @ Demers Ave | EB, NB |

The improved calibration is expected to improve not only the traffic counts but also presence and passage detection and other functions of the camera.

It is recommended that, if possible, cameras at new intersections being brought online be set with a wider zoom level, especially in cases with shared lanes. This may facilitate setting all movements to count.

DATA PROCESSING AND ARCHIVAL

This task started with the setup of remote access for the Grand Forks Communications Server. The remote access setup was followed by data archival setup and software development. Each of these steps are discussed as below.

Remote Access

Remote access to the Communications Server located in Grand Forks was setup. The access was limited to 7am-7pm on weekdays. Secure Virtual Private Network (VPN) was created by the City of Grand Forks IT Department. Finally, Windows Remote Desktop Connection application was used to gain access to Autoscope related programs.

This setup worked better than that in Phase I. Previously, Log Me In was used to access the Communications Server. In addition to the secure nature of VPN and Windows Remote Desktop Application, it became very easy to transfer data between the servers. In addition, the connection was faster and incidents of the user being kicked out of the server were rare.

Data Archival Setup

An external drive connected to the Communications Server was provided for data archival purposes. Raw data downloaded from cameras is set to save directly on the external drive. For the raw data files to be automatically created once a day, it is imperative that the Data Collector program be left running in the background. The program may get terminated due to various reasons such as the server being restarted, user logoff, Autoscope Communications Server program being shut down/restarted etc. Any time the Data Collector program is interrupted, the download process needs to be restarted. This task can be accomplished by selecting all the intersections (included in this study) in Autoscope Network Browser and running the Data Collector program to restart the polling process.

A script is set to run once daily to copy newly created raw data files over to DOTSC server where they are read into a database. Two types of databases exist per intersection – Average Daily Traffic (ADT) & 15-minute.

Software Development - Traffic Analysis Tool

A comprehensive traffic analysis tool was developed in this phase of the study. Figure 1 shows a screenshot of the Graphical User Interface (GUI) of the tool. The GUI shows options available for the selected report type and also highlights the intersection on an embedded map.

A unique feature of the tool is its capability to exclude dates. Using this feature, the user may manually weed out data that is deemed bad. Once the data analysis period has been specified, the dates for which data needs to be excluded can be conveniently selected by simply clicking on the calendar. For further details and help on how to use the Traffic Analysis Tool, refer to the Traffic Analysis Tool Help Documentation.

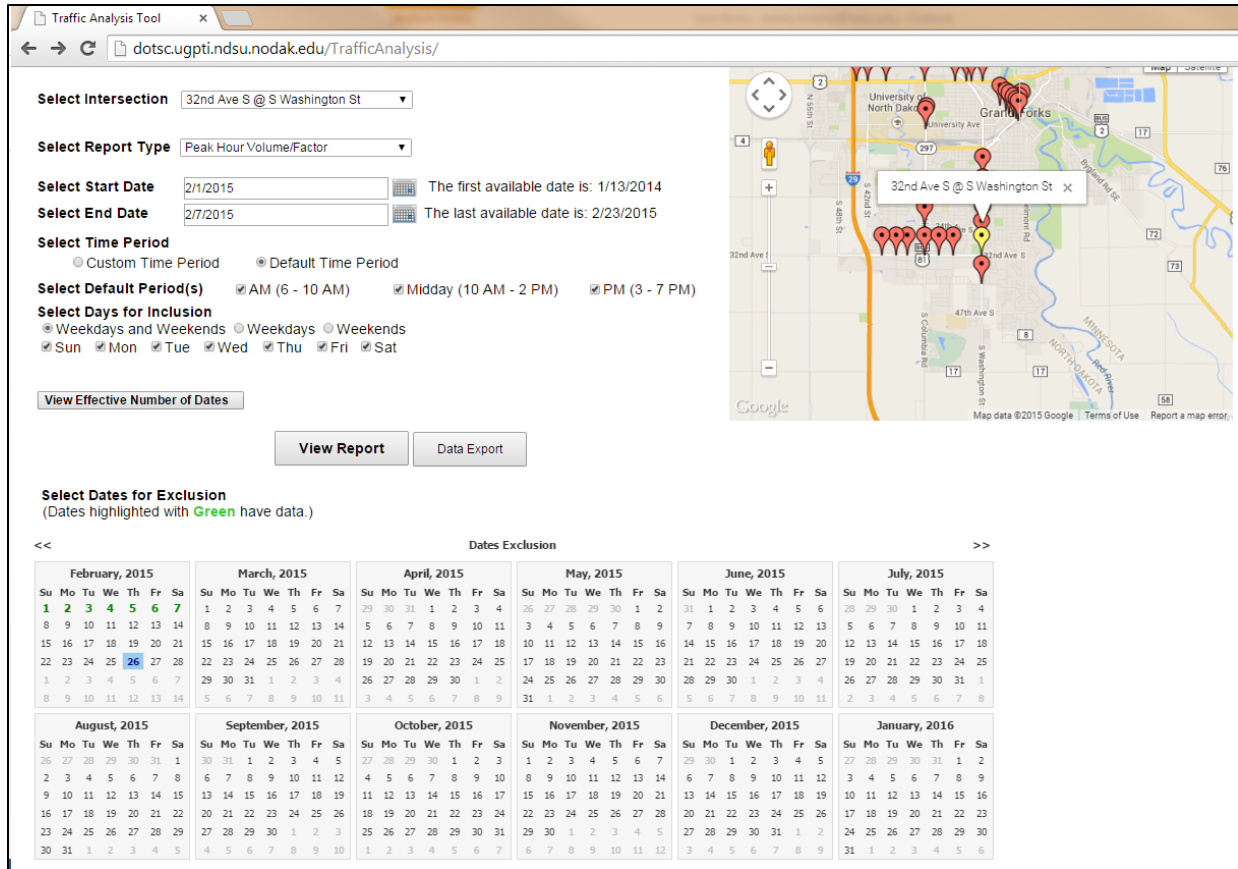


Figure 1. Sample screenshot of Traffic Analysis Tool

The traffic analysis tool uses the ADT and 15-minute databases to create the following reports:

- Graphs
 - Volume Profile
 - Monthly Seasonal Factors
 - Day-of-the-week Seasonal Factors
- Turning Movement Counts
 - Peak Hour Volume/Factor
 - AADT
 - MADT
 - ADT

These reports are briefly discussed below.

Volume Profile

The Volume Profile report analyses the 15-minute database to create a bar chart of hourly volumes for the selected intersection. This report can be created for one or multiple days. In case of multiple days, the reported traffic volumes are averaged over the selected number of days.

This report can be used to determine the beginning and end of peak periods and off-peak periods. This information is helpful in deciding implementation schedules of time-of-day plans including flash modes.

Monthly Seasonal Factors

The Monthly Seasonal Factors report analyses the ADT database to create a bar chart of monthly average daily traffic volumes and corresponding factors (in comparison to AADT) for the selected intersection. It can be created for a selected year.

This report can be used to identify locations where variation in seasonal ADT is high enough to warrant a seasonal signal timing plan. This report can also show how a combination of various seasonal factors such as school sessions, harvest seasons etc. affect ADT.

Day-of-the-week Seasonal Factors

The Day-of-the-week Seasonal Factors report analyses the ADT database to create a bar chart showing average ADT for each day of the week for a given month. Additionally, it also shows average ADT volumes by approach. This report can be created for a selected month/year.

This report can be used to identify fluctuations in ADT across the week that may be a result of changing demand or special events etc. Further, this report would help to determine locations that may require a special time-of-day plan for the weekends.

Peak Hour Volume/Factors

The Peak Hour Volume/Factors report analyses the 15-minute database to create intersection turning movement count diagram for selected peak period(s). This report can be created for a custom date range. By default, AM, Mid-day, and PM Peak periods can be analyzed. The traffic volumes reported are averaged over the selected date range.

This turning movement counts generated in this report can be directly used as an input for phasing design, signal retiming, and progression design. Reports can be generated based on information presented in the Monthly Seasonal Factors report therefore adding the ability to create seasonal time-of-day plans (e.g., September – April Weekday plan, May – August Weekday plan).

In addition to in-built capability to create AM, Mid-day, and PM Peak period reports, a custom time period may also be selected for analysis. This functionality would enable the City to create custom time-of-day plans for repetitive special events such as games etc.

AADT

The AADT report analyses the ADT database to calculate the Annual Average Daily Traffic volumes for the selected intersection. The information is provided in a turning movement count diagram format. In addition to the intersection AADT, the report also provides AADT values per approach/direction as well. This report can be created for a selected year. The traffic volumes reported are averaged over the whole year (based on days with available data).

The AADT values calculated in this report can be used for traffic safety, traffic operations, as well as transportation planning purposes. The regional travel demand model can be calibrated using the AADT reports in addition to ATR counts/short counts.

MADT

Similar to AADT, the MADT report analyses the ADT database to calculate the Monthly Average Daily Traffic volumes for the selected intersection and month. In addition to the MADT value for the intersection, the report also provides MADT values per approach/direction as well. This report can be created for a selected month/year. The reported traffic volumes are averaged over the number of days with available data within the selected month.

This report can be used to determine monthly average traffic volumes by each movement and approach at the selected intersection.

ADT

Similar to AADT and MADT, the ADT report analyses the ADT database to calculate average daily traffic for custom durations. The traffic volume information is also presented in a similar manner. This report can be created for any number of days.

The ADT report can be used to determine how certain special events may affect traffic demand and patterns.

Table 2. Intersection lane assignments and detector setup per approach

#	Main Street	Cross Street	EB			NB			SB			WB		
			L	T	R	L	T	R	L	T	R	L	T	R
1	Gateway Drive	NB I-29 Ramps	↶	↷	N/A	↷	↶	N/A	N/A	N/A	N/A	↷	↶	
2	Gateway Drive	N 42nd St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
3	Gateway Drive	Stanford Rd	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
4	Gateway Drive	N Columbia Rd	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
5	Gateway Drive	N 20th St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
6	Gateway Drive	N Washington St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
7	Gateway Drive	State Mill Rd	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
8	Gateway Drive	N 3rd St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
9	N 5th St	5th Ave N	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷		
10	N 5th St	University Ave	↷	↶	↶	↶	↷	↶	↷	↶	↷	↶	↷	
11	N 5th St	2nd Ave N	↶	N/A	↶	↶	↷	N/A	N/A	↷	N/A	N/A	N/A	
12	N 5th St	1st Ave N	↷	↶	↶	↶	↷	↶	↷	↶	↷	↶	↷	
13	N 5th St	Demers Ave	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
14	S 5th St	Kittson Ave	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷		
15	32nd Ave S	S 38th St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
16	32nd Ave S	S 34th St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
17	32nd Ave S	S 31st St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
18	32nd Ave S	S Columbia Rd	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
19	32nd Ave S	S 20th St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
20	32nd Ave S	S Washington St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
21	N Columbia Rd	University Ave	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
22	S Columbia Rd	24th Ave S	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
23	S Washington St	17th Ave S	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
24	S Washington St	13th Ave S	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
25	S Washington St	40th Ave S	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
26	S Washington St	Campbell Dr	↷	↶	↶	↶	↷	↶	↷	↶	↷	↶	↷	
27	S Washington St	24th Ave S	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
28	S Washington St	28th Ave S	↷	↶	↶	↶	↷	↶	↷	↶	↷	↶	↷	
29	Demers Ave	N 4th St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
30	Demers Ave	N 3rd St	↶	↷	↶	↶	↷	↶	↷	↶	↷	↶	↷	
31	N Columbia Rd	2nd Ave N	↷	↶	↶	↶	↷	↶	↷	↶	↷	↶	↷	

RESULTS

A sample comparison of the traffic volumes is shown in table 3. The table shows turning movement counts reported by the cameras as compared to manual counts. The traffic counts are compared by lane group per approach. As mentioned, GEH values were computed for hourly total volumes per turning movement as well as for hourly approach total volumes. A GEH of 2.0 or less is considered good and results show less than 5% of the detector stations are greater than this value. A GEH greater than 5.0 would not be considered acceptable and after calibration 100% of the detector stations were less than 5.0.

Peak hour factor values by each lane group and approach are also computed for comparison. For 80% of the PHF comparisons, the values as computed from traffic counts reported by the cameras were within 0.04 of those computed from manual traffic counts.

For detailed comparison of data from all the intersections, refer to Appendix 1.

Wind Speed vs Data Accuracy

Note that high wind speeds appear to affect count accuracy. Depending on wind speed and direction, movement in the camera may cause the detectors to over-count. It was found that wind speed over 12mph starts to affect data accuracy for certain movements at approaches perpendicular to wind direction. It was also noticed that wind speeds over 17mph had a more significant impact on accuracy. It is recommended that data from days with average wind speed between 12mph and 17mph can be used for annual and monthly averages but should be reviewed for daily volumes. Data from days/time periods with wind speed over 17mph should be considered for exclusion from analysis. The data reporting tool will include enhancements to automatically provide exclusions those dates with high wind speeds. As video based counting technology improves in the future wind related issues should improve.

CONCLUSION / NEXT STEPS

The data accuracy observed in this setup and camera output appears to fall well within acceptable ranges for accuracy. Reports created using the Traffic Analysis Tool can be used for transportation network optimization and quantitative analysis using before-and-after studies. Improved transportation networks have additional benefits that such as improved traffic safety and calmer driver behavior. Analyzed data can be further used for creating localized seasonal factors (grouped by intersection or roadway functional classes). These factors can then be used for other similar communities within North Dakota or neighboring states.

It is envisioned that further enhancements will be made to the Traffic Analysis Tool. These enhancements would include making the tool compatible with other traffic signal controller-based data collection technologies such as loops. Enhancements may further include capability to reasonably predict missing data, and automatic exclusion of data deemed to be bad. Additional reports and more capabilities to do comparison studies of multiple dates or intersections will also be considered.

It is recommended that the rest of the network in Grand Forks be set to count traffic. New signalized intersection in the area should be setup using similar technologies to maintain compatibility and count as well. ATAC will continue to work with other jurisdictions and the NDDOT to add similar traffic count locations throughout the State.

Table 3. Traffic Volume comparison between Autoscope and Manual Turning Movement Counts

#1. Gateway Drive @ NB I-29 Ramps																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min Volume	Manual	N/A	N/A	N/A	N/A	14	162	N/A	176	42	N/A	41	83	N/A	115	12	127
	Autoscope	N/A	N/A	N/A	N/A	14	175	N/A	186	46	N/A	40	86	N/A	114	11	125
15-min Volume	Manual	N/A	N/A	N/A	N/A	12	108	N/A	120	53	N/A	48	101	N/A	129	4	133
	Autoscope	N/A	N/A	N/A	N/A	11	107	N/A	118	51	N/A	46	97	N/A	127	3	130
15-min Volume	Manual	N/A	N/A	N/A	N/A	13	199	N/A	212	35	N/A	45	80	N/A	118	8	126
	Autoscope	N/A	N/A	N/A	N/A	13	193	N/A	206	40	N/A	45	85	N/A	119	7	126
15-min Volume	Manual	N/A	N/A	N/A	N/A	11	159	N/A	170	30	N/A	52	82	N/A	167	5	172
	Autoscope	N/A	N/A	N/A	N/A	11	144	N/A	155	31	N/A	56	87	N/A	160	4	164
Hourly Volume	Manual	N/A	N/A	N/A	N/A	50	628	N/A	678	160	N/A	186	346	N/A	529	29	558
	Autoscope	N/A	N/A	N/A	N/A	49	616	N/A	665	168	N/A	187	355	N/A	520	25	545
	GEH	N/A	N/A	N/A	N/A	0.1	0.5	N/A	0.5	0.6	N/A	0.1	0.5	N/A	0.4	0.8	0.6
PHF	Manual	N/A	N/A	N/A	N/A	0.89	0.79	N/A	0.80	0.75	N/A	0.89	0.86	N/A	0.79	0.60	0.81
	Autoscope	N/A	N/A	N/A	N/A	0.88	0.80	N/A	0.81	0.82	N/A	0.83	0.91	N/A	0.81	0.57	0.83

APPENDIX: DATA ACCURACY TABLES

#1. Gateway Drive @ NB I-29 Ramps																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	N/A	N/A	N/A	14	162	N/A	176	42	N/A	41	83	N/A	115	12	127
	Autoscope	N/A	N/A	N/A	N/A	14	172	N/A	186	46	N/A	40	86	N/A	114	11	125
15-min interval	Manual	N/A	N/A	N/A	N/A	12	108	N/A	120	53	N/A	48	101	N/A	129	4	133
	Autoscope	N/A	N/A	N/A	N/A	11	107	N/A	118	51	N/A	46	97	N/A	127	3	130
15-min interval	Manual	N/A	N/A	N/A	N/A	13	199	N/A	212	35	N/A	45	80	N/A	118	8	126
	Autoscope	N/A	N/A	N/A	N/A	13	193	N/A	206	40	N/A	45	85	N/A	119	7	126
15-min interval	Manual	N/A	N/A	N/A	N/A	11	159	N/A	170	30	N/A	52	82	N/A	167	5	172
	Autoscope	N/A	N/A	N/A	N/A	11	144	N/A	155	31	N/A	56	87	N/A	160	4	164
Hourly Totals	Manual	N/A	N/A	N/A	N/A	50	628	N/A	678	160	N/A	186	346	N/A	529	29	558
	Autoscope	N/A	N/A	N/A	N/A	49	616	N/A	665	168	N/A	187	355	N/A	520	25	545
	GEH	N/A	N/A	N/A	N/A	0.1	0.5	N/A	0.5	0.6	N/A	0.1	0.5	N/A	0.4	0.8	0.6
PHF	Manual	N/A	N/A	N/A	N/A	0.89	0.79	N/A	0.80	0.75	N/A	0.89	0.86	N/A	0.79	0.60	0.81
	Autoscope	N/A	N/A	N/A	N/A	0.88	0.80	N/A	0.81	0.82	N/A	0.83	0.91	N/A	0.81	0.57	0.83

#2. Gateway Drive @ N 42nd St																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	9	19	29	57	15	111	24	150	24	11	14	49	8	178	6	192
	Autoscope	9	19	26	54	15	107	21	143	26	12	15	53	8	170	9	187
15-min interval	Manual	12	10	17	39	14	137	17	168	26	10	14	50	17	189	12	218
	Autoscope	16	9	20	45	13	134	16	163	23	13	16	52	19	186	14	219
15-min interval	Manual	8	9	19	36	18	112	21	151	24	12	16	52	17	161	9	187
	Autoscope	10	10	23	43	17	115	19	151	23	13	13	49	17	158	7	182
15-min interval	Manual	1	9	15	25	16	144	17	177	29	10	22	61	13	166	4	183
	Autoscope	2	10	14	26	16	143	13	172	31	13	20	64	13	167	5	185
Hourly Totals	Manual	30	47	80	157	63	504	79	646	103	43	66	212	55	694	31	780
	Autoscope	37	48	83	168	61	499	69	629	103	51	64	218	57	681	35	773
	GEH	1.2	0.1	0.3	0.9	0.3	0.2	1.2	0.7	0.0	1.2	0.2	0.4	0.3	0.5	0.7	0.3
PHF	Manual	0.63	0.62	0.69	0.69	0.88	0.88	0.82	0.91	0.89	0.90	0.75	0.87	0.81	0.92	0.65	0.89
	Autoscope	0.58	0.63	0.80	0.78	0.90	0.87	0.82	0.91	0.83	0.98	0.80	0.85	0.75	0.92	0.63	0.88

#3. Gateway Drive @ Stanford Rd																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	3	0	6	9	N/A	145	16	161	16	0	9	25	6	183	4	193
	Autoscope	3	3	6	12	N/A	141	15	156	16	0	10	26	3	173	7	183
15-min interval	Manual	2	0	5	7	N/A	142	22	164	26	0	8	34	12	143	0	155
	Autoscope	6	2	6	14	N/A	139	21	160	27	0	7	34	10	145	0	155
15-min interval	Manual	0	1	3	4	N/A	185	16	201	18	0	9	27	9	230	9	248
	Autoscope	1	4	3	8	N/A	175	16	191	20	0	10	30	8	235	9	252
15-min interval	Manual	7	2	1	10	N/A	163	17	180	16	0	12	28	13	195	4	212
	Autoscope	6	5	1	12	N/A	163	18	181	15	1	12	28	12	199	5	216
Hourly Totals	Manual	12	3	15	30	N/A	635	71	706	76	0	38	114	40	751	17	808
	Autoscope	16	14	16	46	N/A	618	70	688	78	1	39	118	33	752	21	806
	GEH	1.1	3.8	0.3	2.6	N/A	0.7	0.1	0.7	0.2	1.4	0.2	0.4	1.2	0.0	0.9	0.1
PHF	Manual	0.43	0.38	0.63	0.75	N/A	0.86	0.81	0.88	0.73	N/A	0.79	0.84	0.77	0.82	0.47	0.81
	Autoscope	0.67	0.70	0.67	0.82	N/A	0.88	0.83	0.90	0.72	N/A	0.81	0.87	0.69	0.80	0.58	0.80

#4. Gateway Drive @ N Columbia Rd																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	13	16	N/A	29	N/A	135	29	164	27	14	23	64	53	242	23	318
	Autoscope	14	16	N/A	30	N/A	128	27	155	28	14	23	65	52	235	28	315
15-min interval	Manual	7	32	N/A	39	N/A	142	35	177	27	11	22	60	34	218	19	271
	Autoscope	8	30	N/A	38	N/A	144	31	175	31	11	22	64	31	210	18	259
15-min interval	Manual	10	29	N/A	39	N/A	167	24	191	31	16	18	65	32	211	12	255
	Autoscope	6	30	N/A	36	N/A	169	22	191	35	16	20	71	28	196	17	241
15-min interval	Manual	14	35	N/A	49	N/A	166	30	196	30	10	23	63	24	167	20	211
	Autoscope	12	30	N/A	42	N/A	162	23	185	30	10	24	64	24	161	23	208
Hourly Totals	Manual	44	112	N/A	156	N/A	610	118	728	115	51	86	252	143	838	74	1055
	Autoscope	40	106	N/A	146	N/A	603	103	706	124	51	89	264	135	802	86	1023
	GEH	0.6	0.6	N/A	0.8	N/A	0.3	1.4	0.8	0.8	0.0	0.3	0.7	0.7	1.3	1.3	1.0
PHF	Manual	0.79	0.80	N/A	0.80	N/A	0.91	0.84	0.93	0.93	0.80	0.93	0.97	0.67	0.87	0.80	0.83
	Autoscope	0.71	0.88	N/A	0.87	N/A	0.89	0.83	0.92	0.89	0.80	0.93	0.93	0.65	0.85	0.77	0.81

#5. Gateway Drive @ N 20th St																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	N/A	N/A	N/A	N/A	158	29	187	9	0	23	32	N/A	125	0	125
	Autoscope	N/A	N/A	N/A	N/A	N/A	155	34	189	8	-	21	29	N/A	127	2	129
15-min interval	Manual	N/A	N/A	N/A	N/A	N/A	191	22	213	7	0	11	18	N/A	183	0	183
	Autoscope	N/A	N/A	N/A	N/A	N/A	182	27	209	7	-	8	15	N/A	183	4	187
15-min interval	Manual	N/A	N/A	N/A	N/A	N/A	186	19	205	8	0	17	25	N/A	155	0	155
	Autoscope	N/A	N/A	N/A	N/A	N/A	184	18	202	5	-	16	21	N/A	158	1	159
15-min interval	Manual	N/A	N/A	N/A	N/A	N/A	192	11	203	8	0	18	26	N/A	174	0	174
	Autoscope	N/A	N/A	N/A	N/A	N/A	189	14	203	9	-	17	26	N/A	174	5	179
Hourly Totals	Manual	N/A	N/A	N/A	N/A	N/A	727	81	808	32	0	69	101	N/A	637	0	637
	Autoscope	N/A	N/A	N/A	N/A	N/A	710	93	803	29	-	62	91	N/A	642	12	654
	GEH	N/A	N/A	N/A	N/A	N/A	0.6	1.3	0.2	0.5	0.0	0.9	1.0	N/A	0.2	4.9	0.7
PHF	Manual	N/A	N/A	N/A	N/A	N/A	0.95	0.70	0.95	0.89	N/A	0.75	0.79	N/A	0.87	N/A	0.87
	Autoscope	N/A	N/A	N/A	N/A	N/A	0.94	0.68	0.96	0.81	N/A	0.74	0.78	N/A	0.88	0.60	0.87

#6. Gateway Dr @ N Washington St

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	24	47	25	96	34	129	38	201	47	46	35	128	35	116	9	160
	Autoscope	24	50	26	100	30	134	44	208	51	54	34	139	39	109	12	160
15-min interval	Manual	46	65	27	138	25	119	34	178	59	47	41	147	36	111	16	163
	Autoscope	41	67	26	134	27	124	35	186	59	53	46	158	37	107	16	160
15-min interval	Manual	27	56	20	103	30	136	32	198	48	25	33	106	37	118	19	174
	Autoscope	24	60	20	104	28	135	37	200	55	28	33	116	38	119	19	176
15-min interval	Manual	35	60	29	124	27	130	34	191	37	48	37	122	37	131	17	185
	Autoscope	33	64	23	120	23	131	30	184	42	49	40	131	29	128	18	175
Hourly Totals	Manual	132	228	101	461	116	514	138	768	191	166	146	503	145	476	61	682
	Autoscope	122	241	95	458	108	524	146	778	207	184	153	544	143	463	65	671
	GEH	0.9	0.8	0.6	0.1	0.8	0.4	0.7	0.4	1.1	1.4	0.6	1.8	0.2	0.6	0.5	0.4
PHF	Manual	0.72	0.88	0.87	0.84	0.85	0.94	0.91	0.96	0.81	0.86	0.89	0.86	0.98	0.91	0.80	0.92
	Autoscope	0.74	0.90	0.91	0.85	0.90	0.97	0.83	0.94	0.88	0.85	0.83	0.86	0.92	0.90	0.86	0.95

#7. Gateway Dr @ State Mill Rd (N 5th St)

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	35	25	14	74	N/A	153	10	163	N/A	15	18	33	88	80	19	187
	Autoscope	39	22	17	78	N/A	149	10	159	N/A	21	19	40	88	81	16	185
15-min interval	Manual	37	32	23	92	N/A	162	6	168	N/A	14	23	37	96	79	21	196
	Autoscope	44	32	27	103	N/A	162	6	168	N/A	12	25	37	99	83	20	202
15-min interval	Manual	30	12	8	50	N/A	151	11	162	N/A	9	17	26	120	71	24	215
	Autoscope	31	18	14	63	N/A	156	11	167	N/A	9	18	27	118	70	22	210
15-min interval	Manual	23	8	13	44	N/A	153	6	159	N/A	16	25	41	101	96	31	228
	Autoscope	41	14	14	69	N/A	158	7	165	N/A	17	25	42	100	98	32	230
Hourly Totals	Manual	125	77	58	260	N/A	619	33	652	N/A	54	83	137	405	326	95	826
	Autoscope	155	86	72	313	N/A	625	34	659	N/A	59	87	146	405	332	90	827
	GEH	2.5	1.0	1.7	3.1	N/A	0.2	0.2	0.3	N/A	0.7	0.4	0.8	0.0	0.3	0.5	0.0
PHF	Manual	0.84	0.60	0.63	0.71	N/A	0.96	0.75	0.97	N/A	0.84	0.83	0.84	0.84	0.85	0.77	0.91
	Autoscope	0.88	0.67	0.67	0.76	N/A	0.96	0.77	0.98	N/A	0.70	0.87	0.87	0.86	0.85	0.70	0.90

#8. Gateway Dr @ N 3rd St

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	5	6	11	N/A	169	5	174	N/A	1	N/A	1	N/A	195	3	198
	Autoscope	N/A	2	8	10	N/A	159	6	165	N/A	1	N/A	1	N/A	192	4	196
15-min interval	Manual	N/A	10	4	14	N/A	185	7	192	N/A	5	N/A	5	N/A	194	2	196
	Autoscope	N/A	10	5	15	N/A	170	5	175	N/A	5	N/A	5	N/A	197	4	201
15-min interval	Manual	N/A	8	9	17	N/A	172	6	178	N/A	6	N/A	6	N/A	233	4	237
	Autoscope	N/A	5	11	16	N/A	159	8	167	N/A	8	N/A	8	N/A	238	4	242
15-min interval	Manual	N/A	7	10	17	N/A	172	5	177	N/A	5	N/A	5	N/A	270	3	273
	Autoscope	N/A	4	9	13	N/A	165	3	168	N/A	5	N/A	5	N/A	276	3	279
Hourly Totals	Manual	N/A	30	29	59	N/A	698	23	721	N/A	17	N/A	17	N/A	892	12	904
	Autoscope	N/A	21	33	54	N/A	653	22	675	N/A	19	N/A	19	N/A	903	15	918
	GEH	N/A	1.8	0.7	0.7	N/A	1.7	0.2	1.7	N/A	0.5	N/A	0.5	N/A	0.4	0.8	0.5
PHF	Manual	N/A	0.75	0.73	0.87	N/A	0.94	0.82	0.94	N/A	0.71	N/A	0.71	N/A	0.83	0.75	0.83
	Autoscope	N/A	0.53	0.75	0.84	N/A	0.96	0.69	0.96	N/A	0.59	N/A	0.59	N/A	0.82	0.94	0.82

#9. N 5th St @ 5th Ave N

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	4	48	N/A	52	N/A	1	N/A	1	N/A	53	N/A	53	2	4	N/A	6
	Autoscope	3	48	N/A	51	N/A	1	N/A	1	N/A	50	N/A	50	4	4	N/A	8
15-min interval	Manual	2	54	N/A	56	N/A	1	N/A	1	N/A	46	N/A	46	4	2	N/A	6
	Autoscope	2	53	N/A	55	N/A	1	N/A	1	N/A	40	N/A	40	4	2	N/A	6
15-min interval	Manual	4	41	N/A	45	N/A	1	N/A	1	N/A	37	N/A	37	5	2	N/A	7
	Autoscope	3	42	N/A	45	N/A	1	N/A	1	N/A	36	N/A	36	6	1	N/A	7
15-min interval	Manual	4	48	N/A	52	N/A	6	N/A	6	N/A	59	N/A	59	3	4	N/A	7
	Autoscope	3	46	N/A	49	N/A	8	N/A	8	N/A	55	N/A	55	3	4	N/A	7
Hourly Totals	Manual	14	191	N/A	205	N/A	9	N/A	9	N/A	195	N/A	195	14	12	N/A	26
	Autoscope	11	189	N/A	200	N/A	11	N/A	11	N/A	181	N/A	181	17	11	N/A	28
	GEH	0.8	0.1	N/A	0.4	N/A	0.6	N/A	0.6	N/A	1.0	N/A	1.0	0.8	0.3	N/A	0.4
PHF	Manual	0.88	0.88	N/A	0.92	N/A	0.38	N/A	0.38	N/A	0.83	N/A	0.83	0.70	0.75	N/A	0.93
	Autoscope	0.92	0.89	N/A	0.91	N/A	0.34	N/A	0.34	N/A	0.82	N/A	0.82	0.71	0.69	N/A	0.88

#10. N 5th St @ University Ave																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	4	22	N/A	26	N/A	19	N/A	19	N/A	28	9	37	N/A	27	N/A	27
	Autoscope	3	19	N/A	22	N/A	20	N/A	20	N/A	35	12	47	N/A	25	N/A	25
15-min interval	Manual	6	29	N/A	35	N/A	54	N/A	54	N/A	25	11	36	N/A	22	N/A	22
	Autoscope	4	28	N/A	32	N/A	54	N/A	54	N/A	29	12	41	N/A	19	N/A	19
15-min interval	Manual	3	21	N/A	24	N/A	39	N/A	39	N/A	40	18	58	N/A	30	N/A	30
	Autoscope	4	21	N/A	25	N/A	37	N/A	37	N/A	42	15	57	N/A	29	N/A	29
15-min interval	Manual	3	23	N/A	26	N/A	23	N/A	23	N/A	46	15	61	N/A	16	N/A	16
	Autoscope	3	24	N/A	27	N/A	25	N/A	25	N/A	46	18	64	N/A	14	N/A	14
Hourly Totals	Manual	16	95	N/A	111	N/A	135	N/A	135	N/A	139	53	192	N/A	95	N/A	95
	Autoscope	14	92	N/A	106	N/A	136	N/A	136	N/A	152	57	209	N/A	87	N/A	87
	GEH	0.5	0.3	N/A	0.5	N/A	0.1	N/A	0.1	N/A	1.1	0.5	1.2	N/A	0.8	N/A	0.8
PHF	Manual	0.67	0.82	N/A	0.79	N/A	0.63	N/A	0.63	N/A	0.76	0.74	0.79	N/A	0.79	N/A	0.79
	Autoscope	0.88	0.82	N/A	0.83	N/A	0.63	N/A	0.63	N/A	0.83	0.79	0.82	N/A	0.75	N/A	0.75

#11. N 5th St @ 2nd Ave N

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	51	N/A	51	N/A	N/A	N/A	N/A	N/A	45	5	50	5	N/A	1	6
	Autoscope	N/A	47	N/A	47	N/A	N/A	N/A	N/A	N/A	46	5	51	5	N/A	1	6
15-min interval	Manual	N/A	62	N/A	62	N/A	N/A	N/A	N/A	N/A	45	11	56	13	N/A	1	14
	Autoscope	N/A	57	N/A	57	N/A	N/A	N/A	N/A	N/A	45	13	58	14	N/A	1	15
15-min interval	Manual	N/A	57	N/A	57	N/A	N/A	N/A	N/A	N/A	50	15	65	8	N/A	2	10
	Autoscope	N/A	57	N/A	57	N/A	N/A	N/A	N/A	N/A	49	18	67	8	N/A	2	10
15-min interval	Manual	N/A	41	N/A	41	N/A	N/A	N/A	N/A	N/A	53	7	60	8	N/A	0	8
	Autoscope	N/A	41	N/A	41	N/A	N/A	N/A	N/A	N/A	53	6	59	8	N/A	1	9
Hourly Totals	Manual	N/A	211	N/A	211	N/A	N/A	N/A	N/A	N/A	193	38	231	34	N/A	4	38
	Autoscope	N/A	202	N/A	202	N/A	N/A	N/A	N/A	N/A	193	42	235	35	N/A	5	40
	GEH	N/A	0.6	N/A	0.6	N/A	N/A	N/A	N/A	N/A	0.0	0.6	0.3	0.2	N/A	0.5	0.3
PHF	Manual	N/A	0.85	N/A	0.85	N/A	N/A	N/A	N/A	N/A	0.91	0.63	0.89	0.65	N/A	0.50	0.68
	Autoscope	N/A	0.89	N/A	0.89	N/A	N/A	N/A	N/A	N/A	0.91	0.58	0.88	0.63	N/A	0.63	0.67

#12. N 5th St @ 1st Ave N

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	61	4	65	N/A	15	N/A	15	0	44	0	44	N/A	11	N/A	11
	Autoscope	N/A	61	6	67	N/A	14	N/A	14	0	41	1	42	N/A	9	N/A	9
15-min interval	Manual	N/A	59	5	64	N/A	8	N/A	8	3	42	3	48	N/A	12	N/A	12
	Autoscope	N/A	60	8	68	N/A	8	N/A	8	3	42	5	50	N/A	7	N/A	7
15-min interval	Manual	N/A	46	1	47	N/A	17	N/A	17	2	51	2	55	N/A	18	N/A	18
	Autoscope	N/A	46	3	49	N/A	14	N/A	14	3	51	2	56	N/A	17	N/A	17
15-min interval	Manual	N/A	53	3	56	N/A	7	N/A	7	4	59	2	65	N/A	7	N/A	7
	Autoscope	N/A	53	4	57	N/A	5	N/A	5	4	59	5	68	N/A	5	N/A	5
Hourly Totals	Manual	N/A	219	13	232	N/A	47	N/A	47	9	196	7	212	N/A	48	N/A	48
	Autoscope	N/A	220	21	241	N/A	41	N/A	41	10	193	13	216	N/A	38	N/A	38
	GEH	N/A	0.1	1.9	0.6	N/A	0.9	N/A	0.9	0.3	0.2	1.9	0.3	N/A	1.5	N/A	1.5
PHF	Manual	N/A	0.90	0.65	0.89	N/A	0.69	N/A	0.69	0.56	0.83	0.58	0.82	N/A	0.67	N/A	0.67
	Autoscope	N/A	0.90	0.66	0.89	N/A	0.73	N/A	0.73	0.63	0.82	0.65	0.79	N/A	0.56	N/A	0.56

#13. N 5th St @ Demers Ave

Volume/ Factor	Source	Southbound				Westbound				Northbound (min. speed = 5 mph)				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	7	36	8	51	8	123	10	141	6	32	8	46	8	110	5	123
	Autoscope	8	38	9	55	9	119	17	145	6	34	8	48	10	110	6	126
15-min interval	Manual	18	52	7	77	13	98	12	123	10	34	7	51	11	144	8	163
	Autoscope	26	56	6	88	11	98	12	121	11	35	7	53	12	146	8	166
15-min interval	Manual	12	29	11	52	7	101	10	118	10	24	12	46	11	124	14	149
	Autoscope	16	34	13	63	11	101	10	122	10	28	11	49	11	125	19	155
15-min interval	Manual	9	46	12	67	8	122	4	134	9	20	18	47	13	124	8	145
	Autoscope	9	44	15	68	12	122	4	138	12	25	19	56	14	122	10	146
Hourly Totals	Manual	46	163	38	247	36	444	36	516	35	110	45	190	43	502	35	580
	Autoscope	59	172	43	274	43	440	43	526	39	122	45	206	47	503	43	593
	GEH	1.8	0.7	0.8	1.7	1.1	0.2	1.1	0.4	0.7	1.1	0.0	1.1	0.6	0.0	1.3	0.5
PHF	Manual	0.64	0.78	0.79	0.80	0.69	0.90	0.75	0.91	0.88	0.81	0.63	0.93	0.83	0.87	0.63	0.89
	Autoscope	0.57	0.77	0.72	0.78	0.90	0.90	0.63	0.91	0.81	0.87	0.59	0.92	0.84	0.86	0.57	0.89

#14. S 5th St @ Kittson Ave																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	2	45	8	55	N/A	21	N/A	21	4	41	N/A	45	6	8	N/A	14
	Autoscope	1	45	6	52	N/A	20	N/A	20	5	41	N/A	46	5	9	N/A	14
15-min interval	Manual	1	47	11	59	N/A	12	N/A	12	2	31	N/A	33	5	5	N/A	10
	Autoscope	1	47	11	59	N/A	10	N/A	10	3	31	N/A	34	5	5	N/A	10
15-min interval	Manual	0	48	10	58	N/A	16	N/A	16	6	47	N/A	53	8	3	N/A	11
	Autoscope	0	49	11	60	N/A	15	N/A	15	5	47	N/A	52	8	4	N/A	12
15-min interval	Manual	2	55	10	67	N/A	9	N/A	9	3	52	N/A	55	12	1	N/A	13
	Autoscope	2	56	10	68	N/A	9	N/A	9	3	51	N/A	54	10	2	N/A	12
Hourly Totals	Manual	5	195	39	239	N/A	58	N/A	58	15	171	N/A	186	31	17	N/A	48
	Autoscope	4	197	38	239	N/A	54	N/A	54	16	170	N/A	186	28	20	N/A	48
	GEH	0.5	0.1	0.2	0.0	N/A	0.5	N/A	0.5	0.3	0.1	N/A	0.0	0.6	0.7	N/A	0.0
PHF	Manual	0.63	0.89	0.89	0.89	N/A	0.69	N/A	0.69	0.63	0.82	N/A	0.85	0.65	0.53	N/A	0.86
	Autoscope	0.50	0.88	0.86	0.88	N/A	0.68	N/A	0.68	0.80	0.83	N/A	0.86	0.70	0.56	N/A	0.86

#15. 32nd Ave S @ S 38th St																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	24	64	63	151	47	118	23	188	32	37	43	112	33	114	32	179
	Autoscope	20	66	65	151	45	116	23	184	30	37	50	117	33	117	26	176
15-min interval	Manual	31	43	46	120	38	102	20	160	37	50	40	127	42	119	23	184
	Autoscope	28	43	48	119	37	105	17	159	27	47	44	118	41	134	24	199
15-min interval	Manual	31	34	42	107	45	124	15	184	37	51	37	125	38	152	33	223
	Autoscope	27	34	43	104	48	123	14	185	34	50	42	126	34	147	30	211
15-min interval	Manual	28	43	36	107	51	141	21	213	33	48	47	128	50	197	36	283
	Autoscope	26	42	40	108	46	142	15	203	26	47	51	124	54	193	32	279
Hourly Totals	Manual	114	184	187	485	181	485	79	745	139	186	167	492	163	582	124	869
	Autoscope	101	185	196	482	176	486	69	731	117	181	187	485	162	591	112	865
	GEH	1.3	0.1	0.7	0.1	0.4	0.0	1.2	0.5	1.9	0.4	1.5	0.3	0.1	0.4	1.1	0.1
PHF	Manual	0.92	0.72	0.74	0.80	0.89	0.86	0.86	0.87	0.94	0.91	0.89	0.96	0.82	0.74	0.86	0.77
	Autoscope	0.90	0.70	0.75	0.80	0.92	0.86	0.75	0.90	0.86	0.91	0.92	0.96	0.75	0.77	0.88	0.78

#16. 32nd Ave @ 34th St

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	34	28	62	32	115	52	199	48	26	24	98	33	165	18	216
	Autoscope	N/A	42	33	75	37	116	51	204	42	28	27	97	33	163	17	213
15-min interval	Manual	N/A	26	27	53	35	89	36	160	35	24	17	76	36	158	19	213
	Autoscope	N/A	25	32	57	36	90	39	165	33	25	19	77	39	157	20	216
15-min interval	Manual	N/A	20	16	36	48	110	46	204	33	24	11	68	23	153	22	198
	Autoscope	N/A	20	17	37	53	109	47	209	29	24	10	63	26	153	23	202
15-min interval	Manual	N/A	25	30	55	30	132	59	221	41	22	9	72	23	145	16	184
	Autoscope	N/A	30	29	59	39	129	59	227	41	22	9	72	24	147	14	185
Hourly Totals	Manual	N/A	105	101	206	145	446	193	784	157	96	61	314	115	621	75	811
	Autoscope	N/A	117	111	228	165	444	196	805	145	99	65	309	122	620	74	816
	GEH	N/A	1.1	1.0	1.5	1.6	0.1	0.2	0.7	1.0	0.3	0.5	0.3	0.6	0.0	0.1	0.2
PHF	Manual	N/A	0.77	0.84	0.83	0.76	0.84	0.82	0.89	0.82	0.92	0.64	0.80	0.80	0.94	0.85	0.94
	Autoscope	N/A	0.70	0.84	0.76	0.78	0.86	0.83	0.89	0.86	0.88	0.60	0.80	0.78	0.95	0.80	0.94

#17. 32nd Ave @ 31st St																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	24	12	11	47	12	170	23	205	26	6	18	50	20	198	59	277
	Autoscope	21	11	9	41	10	172	22	204	27	6	17	50	22	201	59	282
15-min interval	Manual	30	21	6	57	11	180	33	224	33	10	20	63	8	250	24	282
	Autoscope	27	23	6	56	11	180	36	227	35	9	16	60	7	248	24	279
15-min interval	Manual	27	13	12	52	8	213	30	251	33	14	19	66	10	227	18	255
	Autoscope	26	13	11	50	13	213	34	260	33	16	17	66	12	222	20	254
15-min interval	Manual	33	14	11	58	8	226	27	261	35	11	21	67	20	286	29	335
	Autoscope	31	12	11	54	10	224	33	267	29	12	19	60	19	283	34	336
Hourly Totals	Manual	114	60	40	214	39	789	113	941	127	41	78	246	58	961	130	1149
	Autoscope	105	59	37	201	44	789	125	958	124	43	69	236	60	954	137	1151
	GEH	0.9	0.1	0.5	0.9	0.8	0.0	1.1	0.6	0.3	0.3	1.0	0.6	0.3	0.2	0.6	0.1
PHF	Manual	0.86	0.71	0.83	0.92	0.81	0.87	0.86	0.90	0.91	0.73	0.93	0.92	0.73	0.84	0.55	0.86
	Autoscope	0.85	0.64	0.84	0.90	0.85	0.88	0.87	0.90	0.89	0.67	0.91	0.89	0.68	0.84	0.58	0.86

#18. 32nd Ave S @ S Columbia Rd																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	66	79	43	188	31	159	40	230	20	59	35	114	47	166	60	273
	Autoscope	62	81	40	183	32	154	37	223	19	58	24	101	42	154	55	251
15-min interval	Manual	89	103	46	238	41	157	32	230	16	65	29	110	42	117	65	224
	Autoscope	68	102	40	210	53	154	30	237	11	61	25	97	42	114	66	222
15-min interval	Manual	87	90	60	237	29	165	29	223	14	56	31	101	35	133	50	218
	Autoscope	79	87	54	220	29	161	34	224	14	58	27	99	34	138	44	216
15-min interval	Manual	91	111	55	257	34	144	31	209	18	63	24	105	42	134	72	248
	Autoscope	89	100	47	236	37	142	32	211	21	67	30	118	47	129	74	250
Hourly Totals	Manual	333	383	204	920	135	625	132	892	68	243	119	430	166	550	247	963
	Autoscope	298	370	181	849	151	611	133	895	65	244	106	415	165	535	239	939
	GEH	2.0	0.7	1.7	2.4	1.3	0.6	0.1	0.1	0.4	0.1	1.2	0.7	0.1	0.6	0.5	0.8
PHF	Manual	0.91	0.86	0.85	0.89	0.82	0.95	0.83	0.97	0.85	0.93	0.85	0.94	0.88	0.83	0.86	0.88
	Autoscope	0.84	0.91	0.84	0.90	0.71	0.95	0.90	0.94	0.77	0.91	0.88	0.88	0.88	0.87	0.81	0.94

#19. 32nd Ave @ 20th St

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	36	33	14	83	N/A	157	16	173	28	41	16	85	N/A	78	10	88
	Autoscope	31	35	15	81	N/A	150	21	171	30	44	21	95	N/A	76	12	88
15-min interval	Manual	47	38	9	94	N/A	182	23	205	29	48	14	91	N/A	75	12	87
	Autoscope	44	40	8	92	N/A	177	25	202	31	51	13	95	N/A	76	12	88
15-min interval	Manual	36	34	22	92	N/A	165	22	187	28	44	17	89	N/A	77	15	92
	Autoscope	34	36	19	89	N/A	164	20	184	27	44	26	97	N/A	78	17	95
15-min interval	Manual	39	49	19	107	N/A	178	22	200	24	47	20	91	N/A	91	15	106
	Autoscope	33	49	18	100	N/A	181	24	205	22	50	23	95	N/A	91	15	106
Hourly Totals	Manual	158	154	64	376	N/A	682	83	765	109	180	67	356	N/A	321	52	373
	Autoscope	142	160	60	362	N/A	672	90	762	110	189	83	382	N/A	321	56	377
	GEH	1.3	0.5	0.5	0.7	N/A	0.4	0.8	0.1	0.1	0.7	1.8	1.4	N/A	0.0	0.5	0.2
PHF	Manual	0.84	0.79	0.73	0.88	N/A	0.94	0.90	0.93	0.94	0.94	0.84	0.98	N/A	0.88	0.87	0.88
	Autoscope	0.81	0.82	0.79	0.91	N/A	0.93	0.90	0.93	0.89	0.93	0.80	0.98	N/A	0.88	0.82	0.89

#20. 32nd Ave at Washington St																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	77	81	18	176	11	22	1	34	1	78	38	117	55	37	47	139
	Autoscope	79	81	19	179	10	18	2	30	2	74	26	102	51	37	36	124
15-min interval	Manual	74	66	4	144	13	35	3	51	8	71	36	115	36	29	85	150
	Autoscope	70	66	4	140	5	18	4	27	9	70	23	102	30	29	73	132
15-min interval	Manual	77	96	6	179	16	33	4	53	4	73	36	113	44	29	68	141
	Autoscope	86	94	6	186	8	31	4	43	6	76	29	111	41	33	50	124
15-min interval	Manual	69	69	5	143	15	45	3	63	0	96	44	140	43	40	88	171
	Autoscope	67	71	6	144	8	31	2	41	0	72	40	112	42	43	75	160
Hourly Totals	Manual	297	312	33	642	55	135	11	201	13	318	154	485	178	135	288	601
	Autoscope	302	312	35	649	31	98	12	141	17	292	118	427	164	142	234	540
	GEH	0.3	0.0	0.3	0.3	3.7	3.4	0.3	4.6	1.0	1.5	3.1	2.7	1.1	0.6	3.3	2.6
PHF	Manual	0.96	0.81	0.46	0.90	0.86	0.75	0.69	0.80	0.41	0.83	0.88	0.87	0.81	0.84	0.82	0.88
	Autoscope	0.88	0.83	0.46	0.87	0.78	0.79	0.75	0.82	0.47	0.96	0.74	0.95	0.80	0.83	0.78	0.84

#21. N Columbia Rd @ University Ave

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	61	3	64	6	7	11	24	10	40	6	56	12	11	1	24
	Autoscope	N/A	58	4	62	6	6	7	19	11	43	5	59	17	11	1	29
15-min interval	Manual	N/A	65	4	69	4	12	19	35	9	36	8	53	5	10	2	17
	Autoscope	N/A	63	4	67	4	12	16	32	8	36	8	52	7	11	1	19
15-min interval	Manual	N/A	65	5	70	15	12	13	40	14	44	7	65	2	7	1	10
	Autoscope	N/A	70	5	75	19	12	14	45	14	47	11	72	2	7	2	11
15-min interval	Manual	N/A	62	4	66	10	18	17	45	12	61	6	79	5	6	1	12
	Autoscope	N/A	68	2	70	8	18	22	48	12	64	7	83	4	6	1	11
Hourly Totals	Manual	N/A	253	16	269	35	49	60	144	45	181	27	253	24	34	5	63
	Autoscope	N/A	259	15	274	37	48	59	144	45	190	31	266	30	35	5	70
	GEH	N/A	0.4	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.7	0.7	0.8	1.2	0.2	0.0	0.9
PHF	Manual	N/A	0.97	0.80	0.96	0.58	0.68	0.79	0.80	0.80	0.74	0.84	0.80	0.50	0.77	0.63	0.66
	Autoscope	N/A	0.93	0.75	0.91	0.49	0.67	0.67	0.75	0.80	0.74	0.70	0.80	0.44	0.80	0.63	0.60

#22. S Columbia Rd @ 24th Ave S																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	34	189	30	253	8	24	26	58	22	140	12	174	N/A	63	21	84
	Autoscope	34	197	27	258	5	29	27	61	30	149	14	193	N/A	50	22	72
15-min interval	Manual	41	192	19	252	11	20	26	57	14	155	9	178	N/A	83	21	104
	Autoscope	39	187	18	244	9	22	26	57	14	162	12	188	N/A	74	25	99
15-min interval	Manual	35	207	14	256	6	31	29	66	16	180	19	215	N/A	74	24	98
	Autoscope	34	210	13	257	4	36	30	70	15	180	19	214	N/A	71	25	96
15-min interval	Manual	45	175	30	250	16	21	18	55	20	166	12	198	N/A	73	20	93
	Autoscope	43	173	25	241	12	22	18	52	21	168	17	206	N/A	76	23	99
Hourly Totals	Manual	155	763	93	1011	41	96	99	236	72	641	52	765	N/A	293	86	379
	Autoscope	150	767	83	1000	30	109	101	240	80	659	62	801	N/A	271	95	366
	GEH	0.4	0.1	1.1	0.3	1.8	1.3	0.2	0.3	0.9	0.7	1.3	1.3	N/A	1.3	0.9	0.7
PHF	Manual	0.86	0.92	0.78	0.99	0.64	0.77	0.85	0.89	0.82	0.89	0.68	0.89	N/A	0.88	0.90	0.91
	Autoscope	0.87	0.91	0.77	0.97	0.63	0.76	0.84	0.86	0.67	0.92	0.82	0.94	N/A	0.89	0.95	0.92

#23. S Washington St @ 17th Ave S

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	38	187	7	232	14	26	11	51	14	107	11	132	17	19	26	62
	Autoscope	34	185	6	225	13	28	13	54	16	113	11	140	20	19	23	62
15-min interval	Manual	29	157	19	205	20	19	13	52	16	148	7	171	12	27	19	58
	Autoscope	25	162	18	205	16	18	12	46	18	151	9	178	14	28	21	63
15-min interval	Manual	30	185	13	228	13	11	7	31	9	125	9	143	9	28	24	61
	Autoscope	28	183	13	224	8	12	8	28	14	129	7	150	10	31	22	63
15-min interval	Manual	30	174	13	217	8	15	7	30	13	173	10	196	13	30	25	68
	Autoscope	30	172	20	222	6	15	8	29	14	181	9	204	16	32	22	70
Hourly Totals	Manual	127	703	52	882	55	71	38	164	52	553	37	642	51	104	94	249
	Autoscope	117	702	57	876	43	73	41	157	62	574	36	672	60	110	88	258
	GEH	0.9	0.0	0.7	0.2	1.7	0.2	0.5	0.6	1.3	0.9	0.2	1.2	1.2	0.6	0.6	0.6
PHF	Manual	0.84	0.94	0.68	0.95	0.69	0.68	0.73	0.79	0.81	0.80	0.84	0.82	0.75	0.87	0.90	0.92
	Autoscope	0.86	0.95	0.71	0.97	0.67	0.65	0.79	0.73	0.86	0.79	0.82	0.82	0.75	0.86	0.96	0.92

#24. S Washington St @ 13th Ave S

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	193	11	204	7	9	16	32	N/A	146	5	151	14	10	8	32
	Autoscope	N/A	207	12	219	6	9	18	33	N/A	147	5	152	15	8	9	32
15-min interval	Manual	N/A	177	8	185	4	10	13	27	N/A	151	4	155	9	5	10	24
	Autoscope	N/A	179	11	190	3	10	14	27	N/A	153	4	157	9	6	9	24
15-min interval	Manual	N/A	206	14	220	10	16	8	34	N/A	177	6	183	10	7	9	26
	Autoscope	N/A	213	17	230	9	17	8	34	N/A	174	10	184	10	7	10	27
15-min interval	Manual	N/A	206	21	227	8	8	19	35	N/A	130	9	139	8	13	1	22
	Autoscope	N/A	208	29	237	12	10	22	44	N/A	128	12	140	7	15	1	23
Hourly Totals	Manual	N/A	782	54	836	29	43	56	128	N/A	604	24	628	41	35	28	104
	Autoscope	N/A	807	69	876	30	46	62	138	N/A	602	31	633	41	36	29	106
	GEH	N/A	0.9	1.9	1.4	0.2	0.4	0.8	0.9	N/A	0.1	1.3	0.2	0.0	0.2	0.2	0.2
PHF	Manual	N/A	0.95	0.64	0.92	0.73	0.67	0.74	0.91	N/A	0.85	0.67	0.86	0.73	0.67	0.70	0.81
	Autoscope	N/A	0.95	0.59	0.92	0.63	0.68	0.70	0.78	N/A	0.86	0.65	0.86	0.68	0.60	0.73	0.83

#25. S Washington @ 40th Ave S

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	79	14	93	7	6	3	16	N/A	97	19	116	14	13	5	32
	Autoscope	N/A	75	14	89	6	8	3	17	N/A	105	19	124	12	15	6	33
15-min interval	Manual	N/A	95	14	109	10	15	0	25	N/A	61	16	77	15	11	4	30
	Autoscope	N/A	96	14	110	7	18	0	25	N/A	65	16	81	10	10	6	26
15-min interval	Manual	N/A	94	12	106	9	10	2	21	N/A	65	8	73	11	18	10	39
	Autoscope	N/A	95	14	109	10	13	3	26	N/A	68	6	74	11	17	14	42
15-min interval	Manual	N/A	92	7	99	7	8	1	16	N/A	92	11	103	20	14	6	40
	Autoscope	N/A	90	8	98	6	8	0	14	N/A	97	11	108	18	15	10	43
Hourly Totals	Manual	N/A	360	47	407	33	39	6	78	N/A	315	54	369	60	56	25	141
	Autoscope	N/A	356	50	406	29	47	6	82	N/A	335	52	387	51	57	36	144
	GEH	N/A	0.2	0.4	0.0	0.7	1.2	0.0	0.4	N/A	1.1	0.3	0.9	1.2	0.1	2.0	0.3
PHF	Manual	N/A	0.95	0.84	0.93	0.83	0.65	0.50	0.78	N/A	0.81	0.71	0.80	0.75	0.78	0.63	0.88
	Autoscope	N/A	0.93	0.89	0.92	0.73	0.65	0.50	0.79	N/A	0.80	0.68	0.78	0.71	0.84	0.64	0.84

#26. S Washington @ Campbell Dr

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	4	132	3	139	0	1	N/A	1	N/A	104	7	111	5	2	N/A	7
	Autoscope	4	131	4	139	0	1	N/A	1	N/A	112	7	119	4	2	N/A	6
15-min interval	Manual	4	129	3	136	3	0	N/A	3	N/A	113	1	114	2	2	N/A	4
	Autoscope	4	131	3	138	2	1	N/A	3	N/A	119	1	120	1	2	N/A	3
15-min interval	Manual	5	147	1	153	1	0	N/A	1	N/A	134	3	137	1	8	N/A	9
	Autoscope	5	148	1	154	1	0	N/A	1	N/A	146	3	149	1	8	N/A	9
15-min interval	Manual	7	130	3	140	0	1	N/A	1	N/A	145	4	149	4	4	N/A	8
	Autoscope	6	129	4	139	0	1	N/A	1	N/A	146	4	150	7	4	N/A	11
Hourly Totals	Manual	20	538	10	568	4	2	N/A	6	N/A	496	15	511	12	16	N/A	28
	Autoscope	19	539	12	570	3	3	N/A	6	N/A	523	15	538	13	16	N/A	29
	GEH	0.2	0.0	0.6	0.1	0.5	0.6	N/A	0.0	N/A	1.2	0.0	1.2	0.3	0.0	N/A	0.2
PHF	Manual	0.71	0.91	0.83	0.93	0.33	0.50	N/A	0.50	N/A	0.86	0.54	0.86	0.60	0.50	N/A	0.78
	Autoscope	0.79	0.91	0.75	0.93	0.38	0.75	N/A	0.50	N/A	0.90	0.54	0.90	0.46	0.50	N/A	0.66

#27. S Washington @ 24th Ave S																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	19	156	14	189	9	23	8	40	4	87	9	100	6	20	18	44
	Autoscope	17	154	16	187	9	26	8	43	4	82	8	94	3	20	22	45
15-min interval	Manual	23	138	18	179	15	13	2	30	2	90	5	97	7	23	21	51
	Autoscope	18	139	25	182	14	16	3	33	2	87	5	94	5	23	21	49
15-min interval	Manual	28	170	21	219	11	13	10	34	6	91	7	104	6	21	24	51
	Autoscope	33	173	23	229	12	13	9	34	6	91	7	104	6	22	25	53
15-min interval	Manual	43	204	23	270	17	28	12	57	11	111	10	132	9	12	22	43
	Autoscope	50	203	29	282	20	31	8	59	11	107	6	124	5	12	27	44
Hourly Totals	Manual	113	668	76	857	52	77	32	161	23	379	31	433	28	76	85	189
	Autoscope	118	669	93	880	55	86	28	169	23	367	26	416	19	77	95	191
	GEH	0.5	0.0	1.8	0.8	0.4	1.0	0.7	0.6	0.0	0.6	0.9	0.8	1.9	0.1	1.1	0.1
PHF	Manual	0.66	0.82	0.83	0.79	0.76	0.69	0.67	0.71	0.52	0.85	0.78	0.82	0.78	0.83	0.89	0.93
	Autoscope	0.59	0.82	0.80	0.78	0.69	0.69	0.78	0.72	0.52	0.86	0.81	0.84	0.79	0.84	0.88	0.90

#28. S Washington @ 28th Ave S

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	13	94	4	111	6	11	N/A	17	3	90	11	104	6	11	N/A	17
	Autoscope	11	93	5	109	9	13	N/A	22	3	90	11	104	7	14	N/A	21
15-min interval	Manual	12	78	3	93	4	5	N/A	9	2	82	7	91	2	9	N/A	11
	Autoscope	13	82	3	98	5	5	N/A	10	2	79	7	88	1	9	N/A	10
15-min interval	Manual	11	96	4	111	7	13	N/A	20	4	96	9	109	4	15	N/A	19
	Autoscope	13	95	4	112	12	9	N/A	21	1	96	7	104	4	18	N/A	22
15-min interval	Manual	12	120	1	133	3	3	N/A	6	1	103	3	107	11	8	N/A	19
	Autoscope	15	100	1	116	3	5	N/A	8	0	106	2	108	9	7	N/A	16
Hourly Totals	Manual	48	388	12	448	20	32	N/A	52	10	371	30	411	23	43	N/A	66
	Autoscope	52	370	13	435	29	32	N/A	61	6	371	27	404	21	48	N/A	69
	GEH	0.6	0.9	0.3	0.6	1.8	0.0	N/A	1.2	1.4	0.0	0.6	0.3	0.4	0.7	N/A	0.4
PHF	Manual	0.92	0.81	0.75	0.84	0.71	0.62	N/A	0.65	0.63	0.90	0.68	0.94	0.52	0.72	N/A	0.87
	Autoscope	0.87	0.93	0.65	0.94	0.60	0.62	N/A	0.69	0.50	0.88	0.61	0.94	0.58	0.67	N/A	0.78

#29. Demers @ N 4th St.

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	9	16	6	31	3	121	5	129	12	10	16	38	5	116	4	125
	Autoscope	10	16	6	32	1	125	5	131	13	10	14	37	1	114	5	120
15-min interval	Manual	8	8	6	22	7	119	1	127	4	16	9	29	8	150	9	167
	Autoscope	10	8	6	24	3	119	1	123	2	17	9	28	6	149	9	164
15-min interval	Manual	9	14	4	27	1	124	3	128	6	11	11	28	5	142	4	151
	Autoscope	11	16	4	31	2	123	3	128	4	11	14	29	6	142	5	153
15-min interval	Manual	12	11	4	27	3	141	9	153	3	12	9	24	6	126	3	135
	Autoscope	12	11	3	26	2	142	10	154	3	13	11	27	7	124	5	136
Hourly Totals	Manual	38	49	20	107	14	505	18	537	25	49	45	119	24	534	20	578
	Autoscope	43	51	19	113	8	509	19	536	22	51	48	121	20	529	24	573
	GEH	0.8	0.3	0.2	0.6	1.8	0.2	0.2	0.0	0.6	0.3	0.4	0.2	0.9	0.2	0.9	0.2
PHF	Manual	0.79	0.77	0.83	0.86	0.50	0.90	0.50	0.88	0.52	0.77	0.70	0.78	0.75	0.89	0.56	0.87
	Autoscope	0.90	0.80	0.79	0.88	0.67	0.90	0.48	0.87	0.42	0.75	0.86	0.82	0.71	0.89	0.67	0.87

#30. Demers Ave @ N 3rd St

Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	6	8	9	23	12	103	10	125	19	10	17	46	2	101	7	110
	Autoscope	6	9	13	28	13	104	10	127	21	11	18	50	5	101	12	118
15-min interval	Manual	11	9	12	32	10	105	6	121	16	12	9	37	5	91	7	103
	Autoscope	7	10	16	33	10	104	5	119	16	14	10	40	5	91	9	105
15-min interval	Manual	17	12	10	39	9	109	10	128	19	12	6	37	7	96	8	111
	Autoscope	19	12	11	42	8	107	10	125	15	15	6	36	5	94	10	109
15-min interval	Manual	12	8	12	32	6	114	5	125	16	10	9	35	7	117	14	138
	Autoscope	12	8	14	34	7	115	4	126	14	9	9	32	6	115	16	137
Hourly Totals	Manual	46	37	43	126	37	431	31	499	70	44	41	155	21	405	36	462
	Autoscope	44	39	54	137	38	430	29	497	66	49	43	158	21	401	47	469
	GEH	0.3	0.3	1.6	1.0	0.2	0.0	0.4	0.1	0.5	0.7	0.3	0.2	0.0	0.2	1.7	0.3
PHF	Manual	0.68	0.77	0.90	0.81	0.77	0.95	0.78	0.97	0.92	0.92	0.60	0.84	0.75	0.87	0.64	0.84
	Autoscope	0.58	0.81	0.84	0.82	0.73	0.93	0.73	0.98	0.79	0.82	0.60	0.79	0.88	0.87	0.73	0.86

#31. N Columbia Rd @ 2nd Ave N																	
Volume/ Factor	Source	Southbound				Westbound				Northbound				Eastbound			
		Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
15-min interval	Manual	N/A	93	4	97	9	15	N/A	24	N/A	85	11	96	14	12	N/A	26
	Autoscope	N/A	98	9	107	6	17	N/A	23	N/A	88	8	96	18	13	N/A	31
15-min interval	Manual	N/A	103	2	105	6	17	N/A	23	N/A	107	9	116	16	22	N/A	38
	Autoscope	N/A	104	2	106	4	19	N/A	23	N/A	110	10	120	15	16	N/A	31
15-min interval	Manual	N/A	115	5	120	6	25	N/A	31	N/A	160	34	194	9	11	N/A	20
	Autoscope	N/A	117	5	122	5	27	N/A	32	N/A	168	36	204	11	14	N/A	25
15-min interval	Manual	N/A	171	3	174	25	36	N/A	61	N/A	134	24	158	8	12	N/A	20
	Autoscope	N/A	178	6	184	19	41	N/A	60	N/A	142	29	171	8	16	N/A	24
Hourly Totals	Manual	N/A	482	14	496	46	93	N/A	139	N/A	486	78	564	47	57	N/A	104
	Autoscope	N/A	497	22	519	34	104	N/A	138	N/A	508	83	591	52	59	N/A	111
	GEH	N/A	0.7	1.9	1.0	1.9	1.1	N/A	0.1	N/A	1.0	0.6	1.1	0.7	0.3	N/A	0.7
PHF	Manual	N/A	0.70	0.70	0.71	0.46	0.65	N/A	0.57	N/A	0.76	0.57	0.73	0.73	0.65	N/A	0.68
	Autoscope	N/A	0.70	0.61	0.71	0.45	0.63	N/A	0.58	N/A	0.76	0.58	0.72	0.72	0.92	N/A	0.90