



Applied Research and Innovation Branch

A Comparison of Freeway and Parallel Major Arterial Corridors: A Study of Safety Patterns in the Denver Metropolitan Area

Short Elliott Hendrickson Inc.

**Report No. CDOT-2015-11
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16. Abstract Observations and initial examination of ADT and peak-hour volume data on Denver regional arterials suggests questions as to if and why they are happening, and what the implications are on corridor travel and accident patterns? This proposed research task will investigate these trends and address questions, to assist CDOT in better determining which improvements would more likely decrease accident experience while improving corridor capacity. The research will focus on a selected freeway section and corresponding regional arterials corridors. The study will address the effects of arterial traffic volume diversion patterns and the discontinuities on freeway versus arterial safety parameters. The final product of this research will be a report presenting the traffic and safety statistics and trends along a selected freeway/arterial corridor, with conclusions as to what improvements are most likely to improve safety and corridor thru-put on both.					
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MEMORANDUM

TO: David Reeves, PE, CDOT Research Engineer

FROM: Ron Hensen, PhD., PE
Joe Miyaki, EIT

DATE: December 10, 2014

RE: **A Comparison of Freeway and Parallel Major Arterial Corridors: A Study of Safety Patterns in the Denver Metropolitan Area**
SEH No. 122972 – COTHQ

Introduction

The increase of traffic volume (and corresponding density) over the past 20 years in the Denver Metropolitan area, and specifically on the southeast metro roadway network, raises the following questions:

- What is the historical growth in traffic volumes on roads in the southeast metro area over the past 20 years, and how is the past expected to affect future traffic patterns?
- Has the significant increase of freeway traffic volumes resulted in drivers diverting from C-470 to the local parallel arterial roadways?
- Can a better understanding of traffic and accident patterns assist in the selection of safety improvement projects?

This research project observes and analyzes traffic and accident history on Colorado State Highways and parallel arterial roads within a major southeast section of the Denver Metropolitan Area. The project focuses on the freeway section of C-470 between S. Santa Fe Drive and I-25 and comparisons with I-25 and the corresponding parallel east-west regional arterial corridors. The study area is illustrated in Attachment section A3 on Figure 11. For the sections studied, the average annual daily traffic (AADT) on C-470 has tripled over the last 25 years, reaching over 100,000 vehicles per day (vpd), while the volume on the southeast I-25 corridor has doubled to more than 200,000 vpd.

Problem Statement

Observations and initial examination of the traffic volume data on Denver regional arterials warrants questioning whether diversions from freeways to arterials are occurring and, if so, what the implications are on corridor travel and accident patterns. The research focused primarily on a comparison of C-470 traffic conditions with the corresponding east-west regional arterial corridors that parallel the freeway. With the presence of only a few continuous alternative arterials on which to divert from C-470, this study attempted to address the effects of such

diversions on some specific safety parameters for the freeway compared to the parallel arterial roadways in the study area.

Observations and Findings

The findings of the research have been divided into four categories: traffic volumes on state highways, traffic volumes on arterial roads, accident history on C-470, and accident history at the intersection of arterial roads.

20 Year Traffic Volumes

Traffic volumes on the major roadways in the study area are shown in Figures 1 and 2. Each graph plots the AADT on the road within the study area. Traffic volumes from the CDOT database were compared for each year from 1986 to 2012. Each road had traffic counts at multiple locations that were combined to give a representation of traffic flow throughout the study area. Figure 1 shows traffic volumes on the freeways with grade-separated access and uninterrupted flow, including C-470 and I-25. Figure 2 illustrates the corresponding traffic volumes on State Highways with signalized intersections and interrupted flow, including US 85 (S. Santa Fe Drive), SH 88 (Bellevue Avenue) and SH 177 (S. University Boulevard).

The traffic volumes are displayed on two separate graphs due to the considerable difference in traffic volume over time. From 1986 to 2012 (27 years) the average traffic on Bellevue Avenue increased from 24,000 vpd to 33,000 vpd. As a comparison, in that same time frame, the average traffic on I-25 increased from 96,000 vpd to 207,000 vpd.

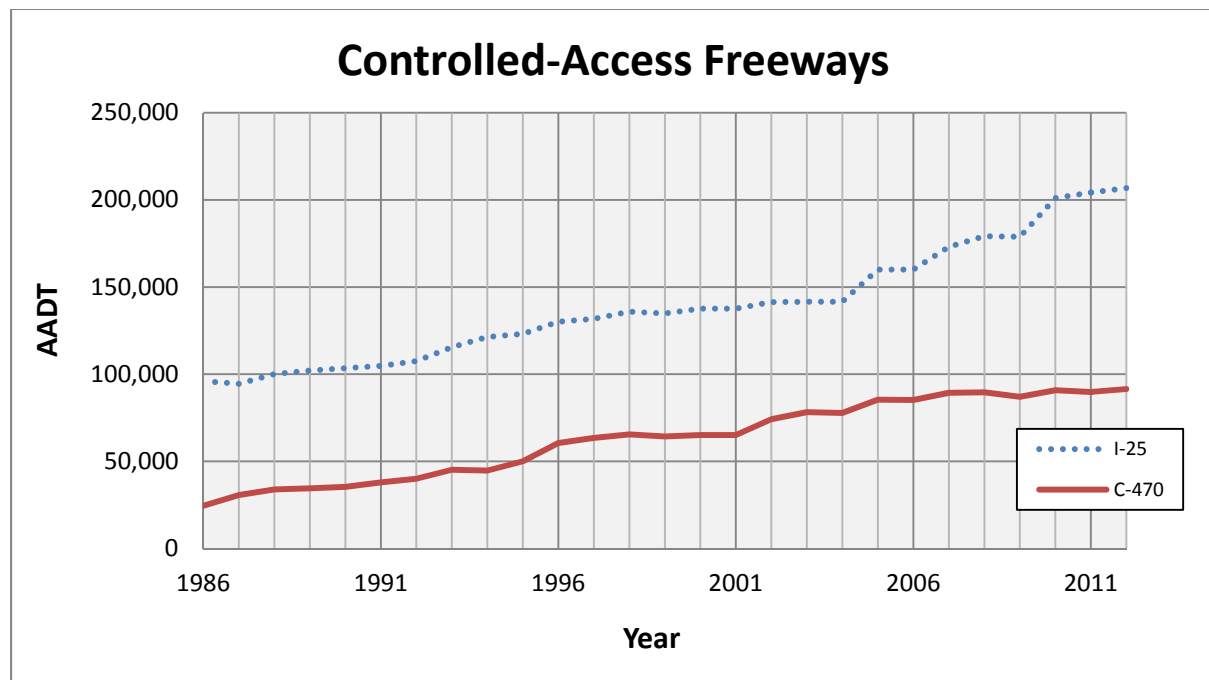


Figure 1. Average Traffic Volumes on Roads with Uninterrupted Flow (grade-separated)
On I-25 (C-470 to Hampden)
On C-470 (S. Santa Fe Drive to I-25)

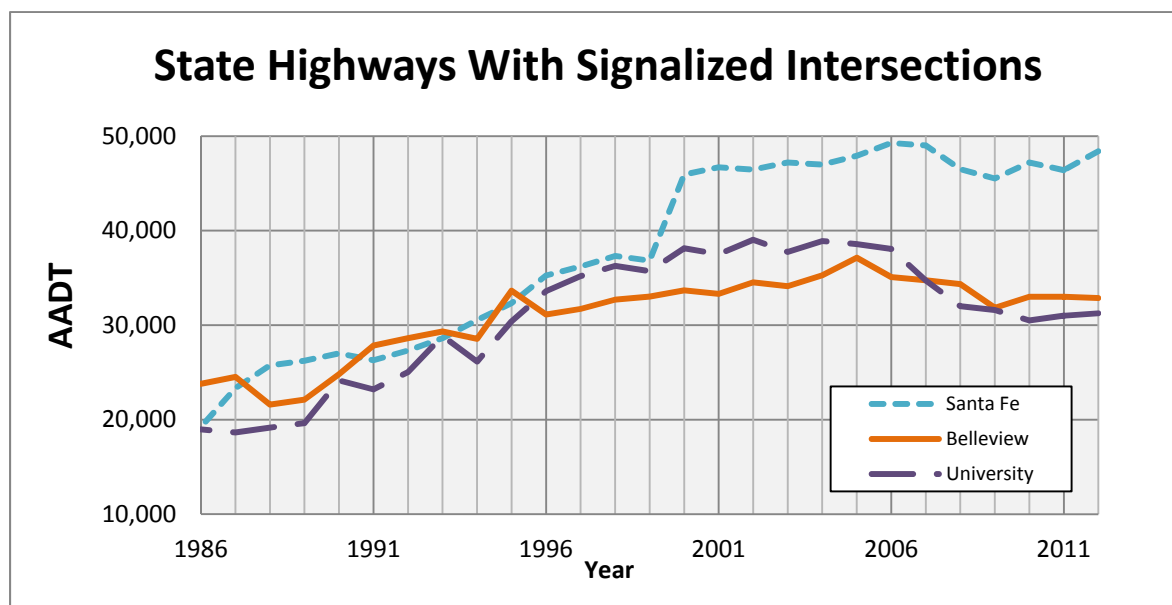


Figure 2. Average Traffic Volumes on Roads with Interrupted Flow (signalized intersections)
 On S. Santa Fe Drive (C-470 to Belleview Avenue)
 On Belleview Avenue (I-25 to S. Santa Fe Drive)
 On S. University Boulevard (C-470 to Belleview Avenue)

An observation of year-by-year traffic patterns tends to reflect the economic climate of the Metro area. On **County Line Road** the highest volumes are near Quebec Street and Yosemite Street, with large fluctuations in traffic counts at multiple locations. East of S. University Boulevard, traffic counts range from 29,000 vpd in 2005, down to 12,000 vpd in 2008, and back up to 31,000 vpd in 2012. East of Yosemite Street, the counts vary from 27,000 vpd in 2004, to 19,000 vpd in 2005, to 29,000 vpd in 2007. On both **Arapahoe Road** and **Dry Creek Road**, total traffic over each length of road in the study area fluctuated without a prevailing pattern between the year 2000 and 2012.

The traffic counts identified for east-west arterial roads have been included in the Appendix section A3, Figures 12 through 14, at the end of this memo. In summary, the counts show that cumulatively the combined east-west volumes have increased from 105,000 vpd in 1990 to 175,000 vpd in 2012, almost twice that of C-470.

The corresponding traffic on the north-south arterials show similar patterns. On sections of **Yosemite Street** there has been a decrease in cars from the year 2000 to 2012. One of the most significant is observed between Dry Creek Road and County Line Road, where traffic reduced from 21,000 vpd to 12,000 vpd. Multiple sources (City of Centennial, DRCOG, and Arapahoe County) confirmed this reduction over the 12 year period. On **Quebec Street**, the greatest increase in traffic has been north of County Line Road in the amount of 900 cars per day per year. The greatest decrease in traffic has been south of Arapahoe Road. On **Holly Street** there has been an overall decrease in traffic for the different road segments. North of Arapahoe Road, the greatest decrease has occurred between the year 2001 and 2008. Appendix section A2 includes traffic volumes for the north-south oriented arterials in the area.

20 Year Accident Patterns

The accident history was obtained and the accident patterns evaluated for mainline accidents on C-470 for total accidents on the mainline C-470 and for intersection accidents resulting in both injuries and fatalities.

Mainline Accidents with Injuries

Accidents are categorized based on the injury level. Injury level refers to the severity of an injury resulting from a crash. The various breakdowns of levels are as follows:

- Injury Level 0: A person records no physical injury. Also referred to as Property Damage Only (PDO).
- Injury Level 1: A person has a minor injury such as cuts or bruises.
- Injury Level 2: A person has a severe injury that is not traumatic.
- Injury Level 3: A person has a traumatic injury.
- Injury Level 4: A fatality is recorded.

Figure 3 shows the number of accidents with an injury level of 2 or more severe on the mainline of C-470. If, in an accident, one person had an injury level of 2 or worse, then the accident is recorded on this graph. The filter for injury level 2 or worse helps to separate serious accidents from minor accidents (fender benders). Separating severe injuries helps to better understand the safety patterns of the study area.

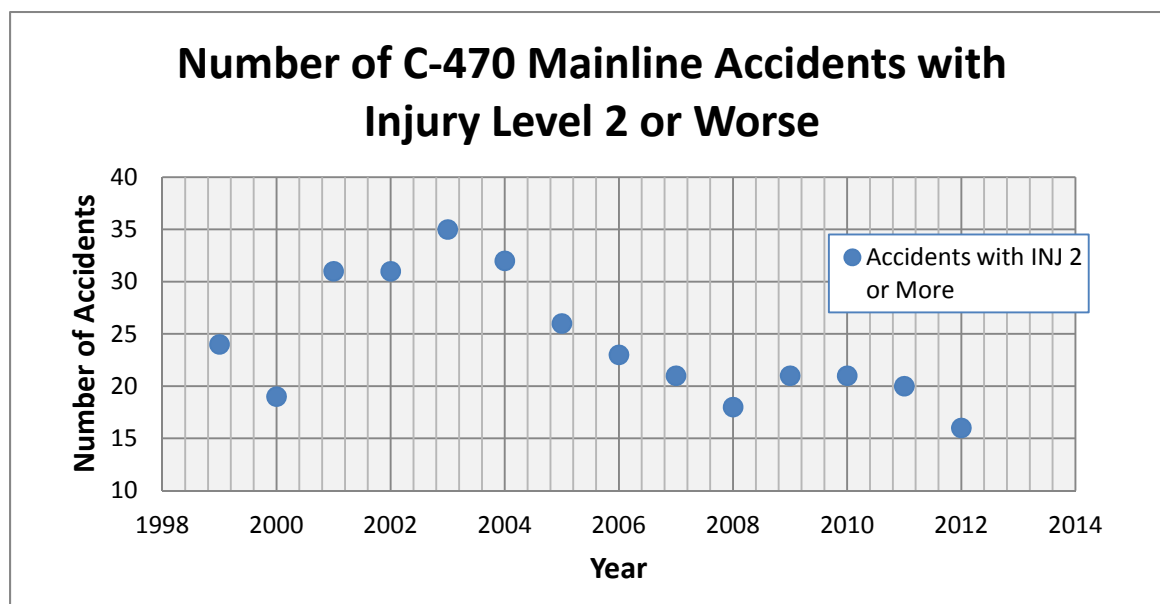


Figure 3. Number of C-470 Mainline Accidents (in the study area) with Injury Level 2 or Worse. From 1999 to 2012.

The number of mainline C-470 accidents with a severe injury has generally decreased over time, as illustrated by Figure 3. This is most likely due to the higher volumes of traffic on C-470. Once the volumes approach the capacity of the roadway, the result is inevitably an increase in

congestion. The congested freeway forces cars to travel slower, resulting in less severe crashes due to the lower differential speeds between the conflicting vehicles.

Figure 4 shows that C-470 east of University Boulevard has the highest number of crashes with a severe injury. The primary accidents have occurred in the open areas, which is indicative of unexpected queue formations. Drivers entering this segment could be traveling at high speeds and driving into the unexpected queue. Peak hour speed management could help to improve safety during peak hours.

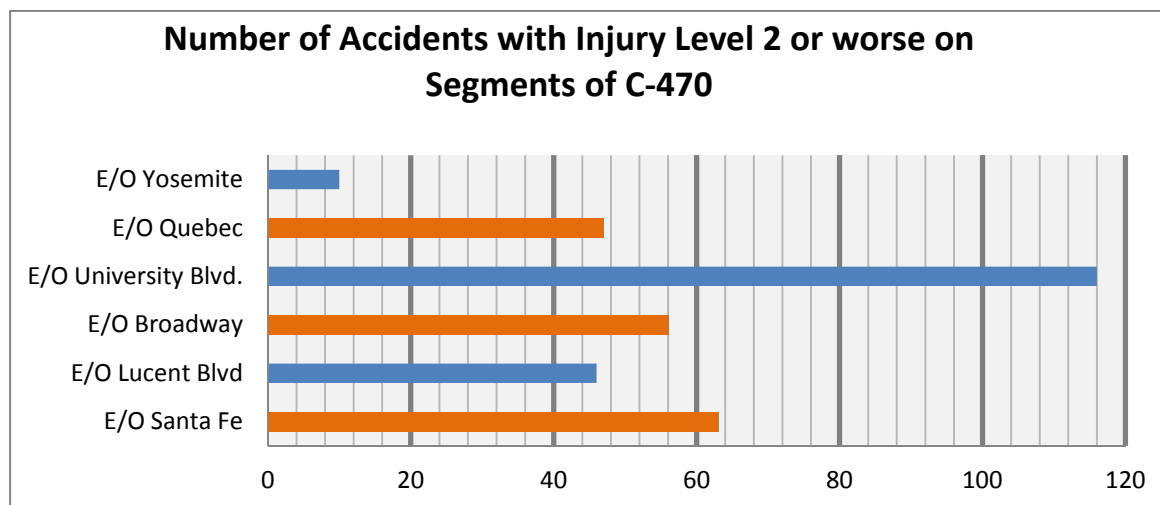


Figure 4. C-470 Mainline Accidents Separated by Segment. Totaled from 1999 to 2012.

Total Accidents on Mainline

Previous projects at CDOT have utilized a proven safety performance technique (SPF) to analyze accident patterns. A SPF for a roadway typical of the configuration of C-470 has been developed by CDOT based on data from similar roadways between years 1993 and 2002 and is illustrated in Figure 5. The shaded area in Figure 6 represents the accident history between years 1993 and 2012 for the section of C-470 in the study area. This graph also shows how C-470 compared to other urban 4-lane divided freeways. Typically, C-470 had an average or below average accident rate based on the volume of traffic. This performance could be as a result of such characteristics along C-470 as the long stopping site distances, the presence of only controlled access, and the provision of shoulders on the left and right side of the road. Also, as discussed previously, larger traffic volumes do not always lead to higher accident rates as a road can be so congested that cars drive slower and decrease their risk of colliding with one another.

The equation below shows an example calculation of the accidents per mile per year (APMPY) for C-470 between S. Santa Fe Drive and Lucent Boulevard, with a length of segment of 1.5 miles. In 2011, CDOT recorded 6 accidents with a severe injury or fatality for this segment of road. As a result, the APMPY is calculated to be:

$$APMPY = \frac{\# \text{ Accidents}}{\text{Miles of Road Segment} \times \text{Year}} = \frac{6 \text{ Accidents}}{1.5 \text{ Miles} \times 1 \text{ Year}} = 4$$

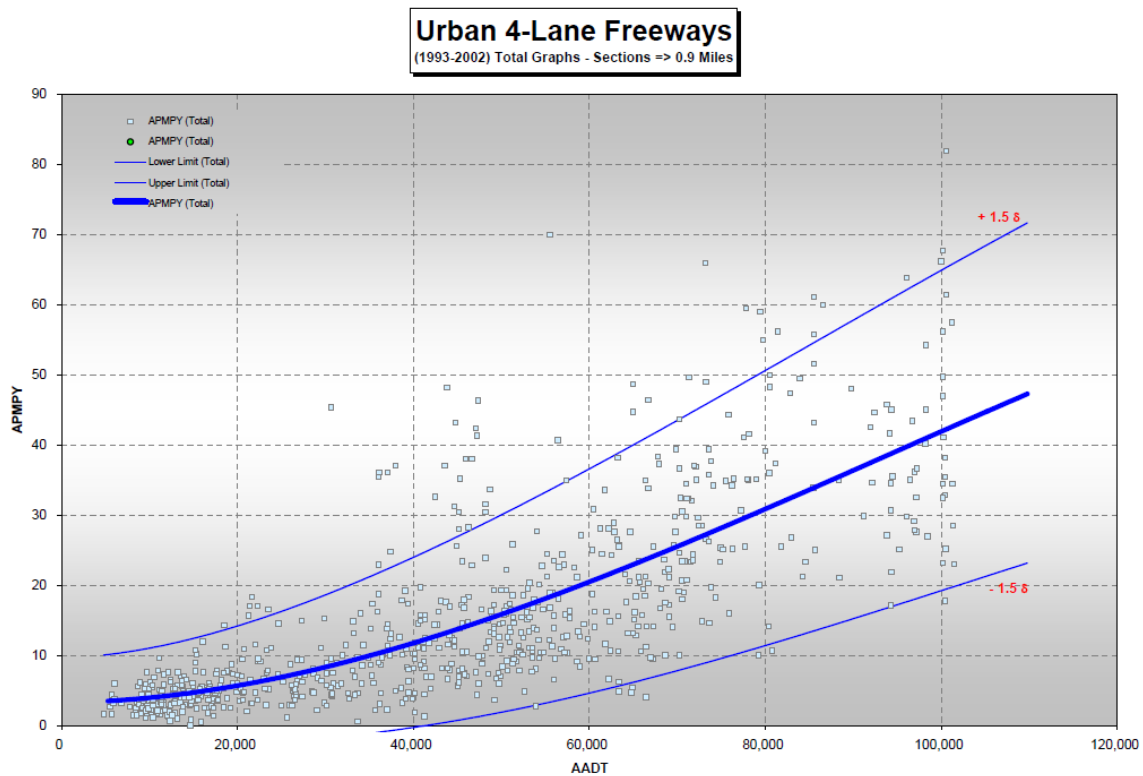


Figure 5. Safety Performance Function for 4-Lane Freeway Developed by CDOT¹

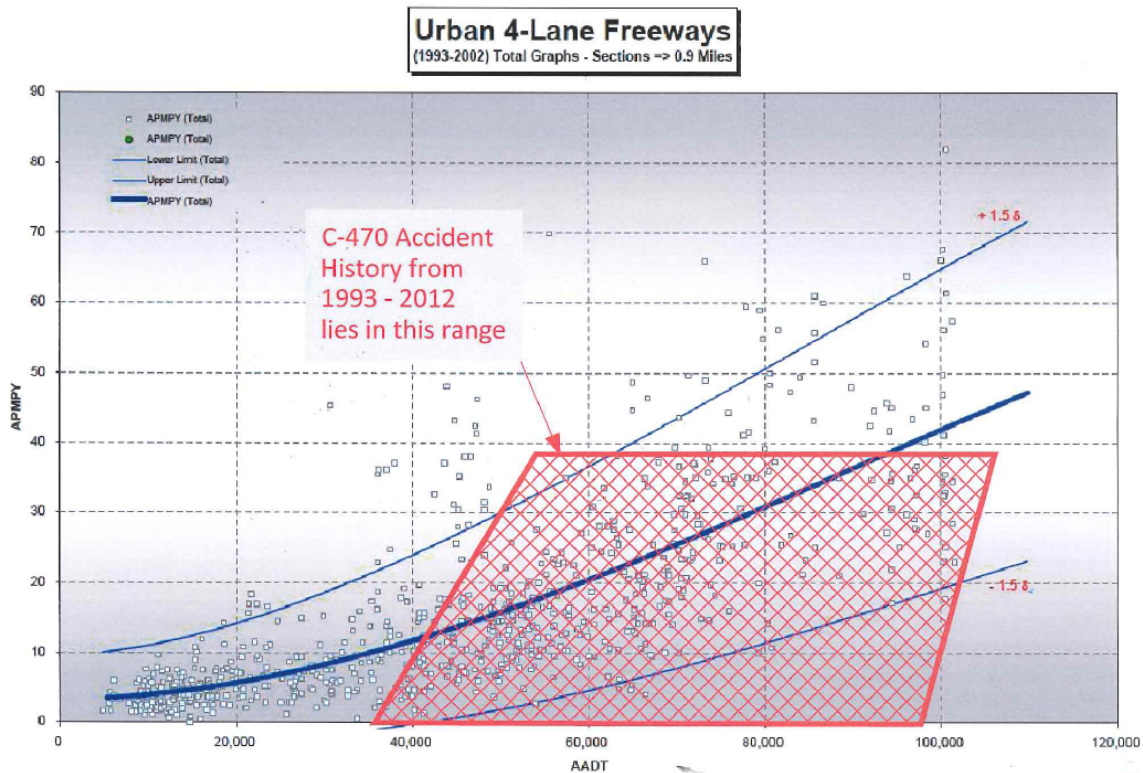


Figure 6. C-470 AADT vs. APMPY Accident History Overlaid on Previous Graph¹

(1) "SPF (Total) for Urban 4-Lane Divided Freeways." Colorado Department of Transportation (CDOT) Website CDOT, 27 July 2005. Web, 16 June 2014.

The rates depicted in the graphs on Figures 5 and 6 were developed in 2005 based on data between 1993 and 2002. The use of updated data has the potential of providing adjusted rates.

Intersection Accidents

The graph in Figure 7 shows the number of accidents with an injury level of 2 or greater at major intersections along the parallel arterials to C-470 in the study area. Figure 15, attached to the memo in Appendix section A3, shows a map of the locations of arterial intersections in the study area.

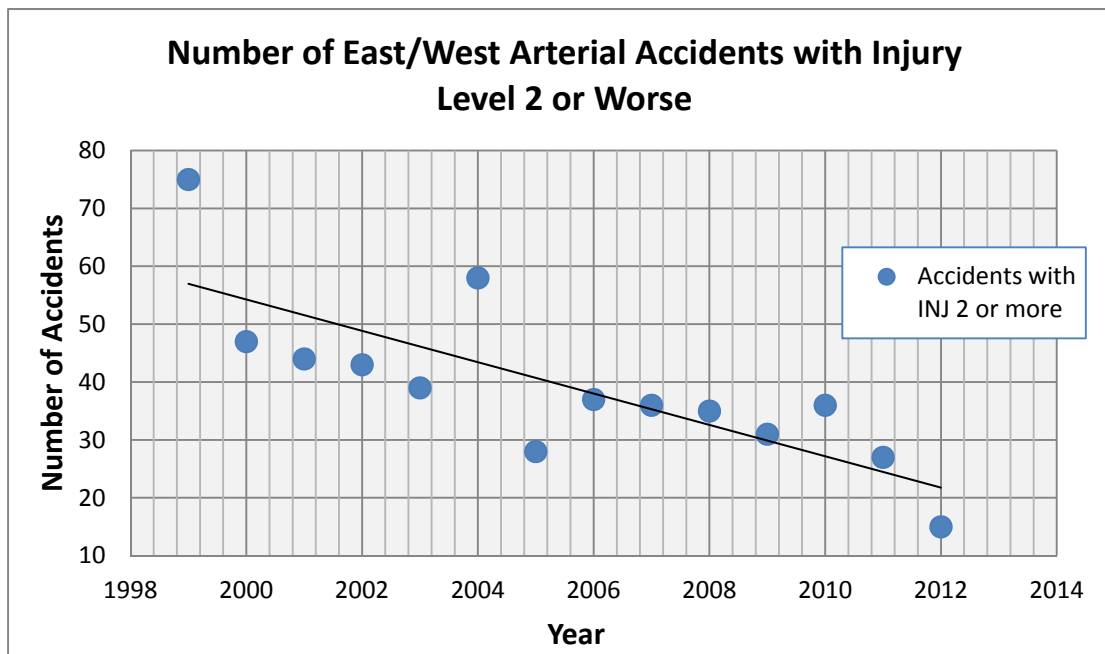


Figure 7. Parallel Arterial Accidents with Injury Level 2 or Worse

For the study area, there was a significant decrease of crashes with severe injuries between 1999 and 2012. This decrease could be due to a variety of factors. Roadway engineering could have decreased the number of severe injury occurrences with intersection geometry improvements and speed limit adjustments for study area roads. Engineering improvements with the automobile result in safer vehicles every year. Slower moving traffic (due to congestion) also decreases the likelihood of a severe injury as crashes have reduced differential speeds.

Peak Hour Percentage

The peak hour percentage compares the peak hour traffic of a road with the daily volume of traffic. Peak hour traffic is the number of cars that are on a road during the one hour when traffic is greatest. The peak hour is typically during rush hour when drivers are commuting to and from work. This section looks at arterial roads and C-470 peak hour percentages.

The peak hour percentage of arterial roads exhibited in Appendix A5. Many segments of arterial roadways have stable peak hour percentages. This signifies that the peak hour traffic volumes change at the same rate that total traffic changes. This is also an indication that the roads do not have additional capacity to serve peak hour traffic.

The C-470 peak hour percentages are presented in the graphs in Figures 8, 9 and 10. The segment of C-470 observed is east of Quebec Street. In the morning, the westbound peak hour percentage decreases and remains close to 7%, which is near the average hourly traffic for a roadway. During the evening period, both eastbound and westbound peak hour percentages have remained stable over the past five years. Figure 8 shows the traffic volumes of C-470 over the study period. The peak hour percentage of C-470 can be compared with this graph to better understand the peak hour volumes of C-470 east of Quebec Street.

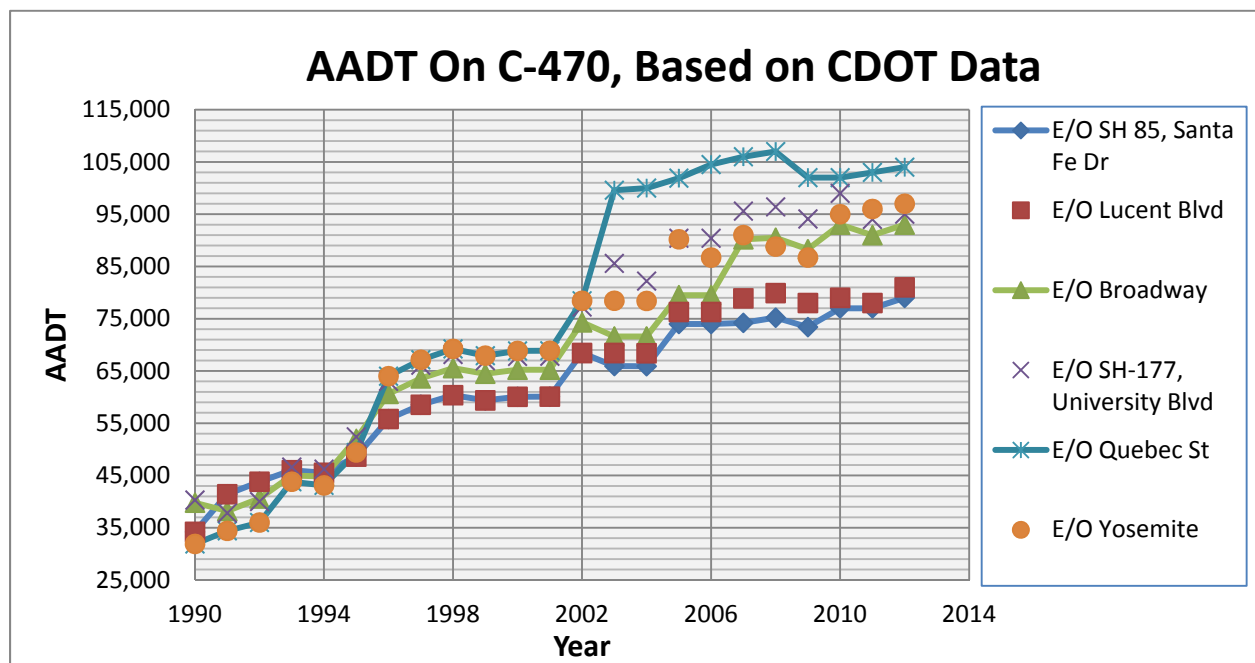


Figure 8. AADT on Segments of C-470

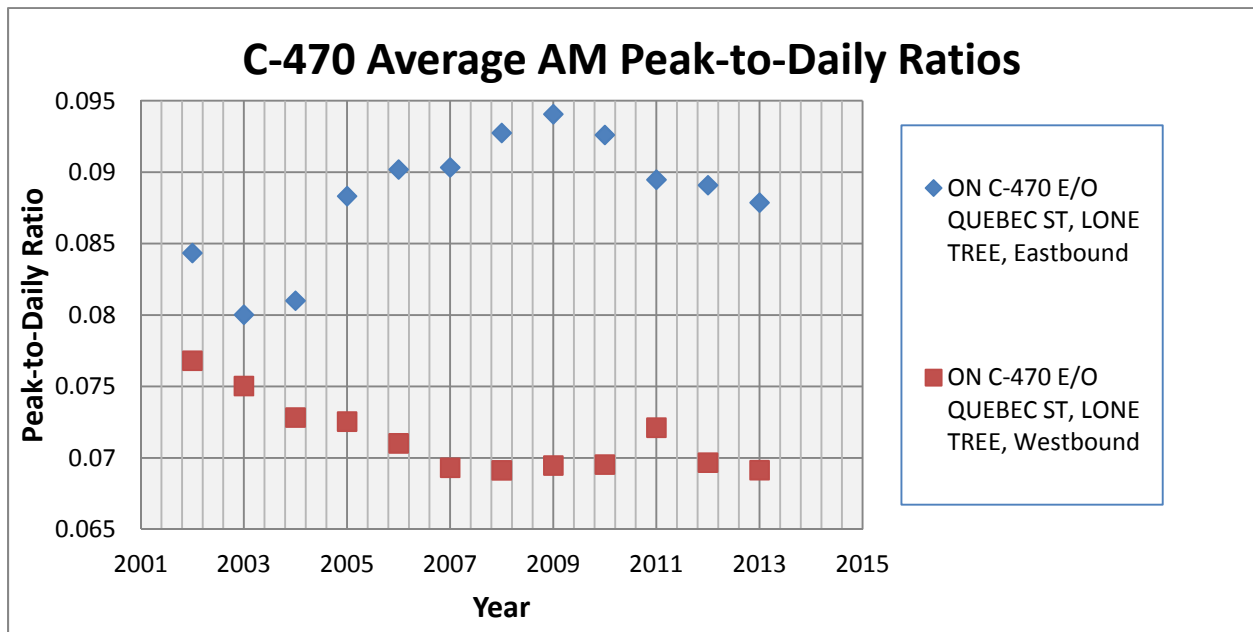


Figure 9. Morning Peak Hour Percentage for Segments of C-470

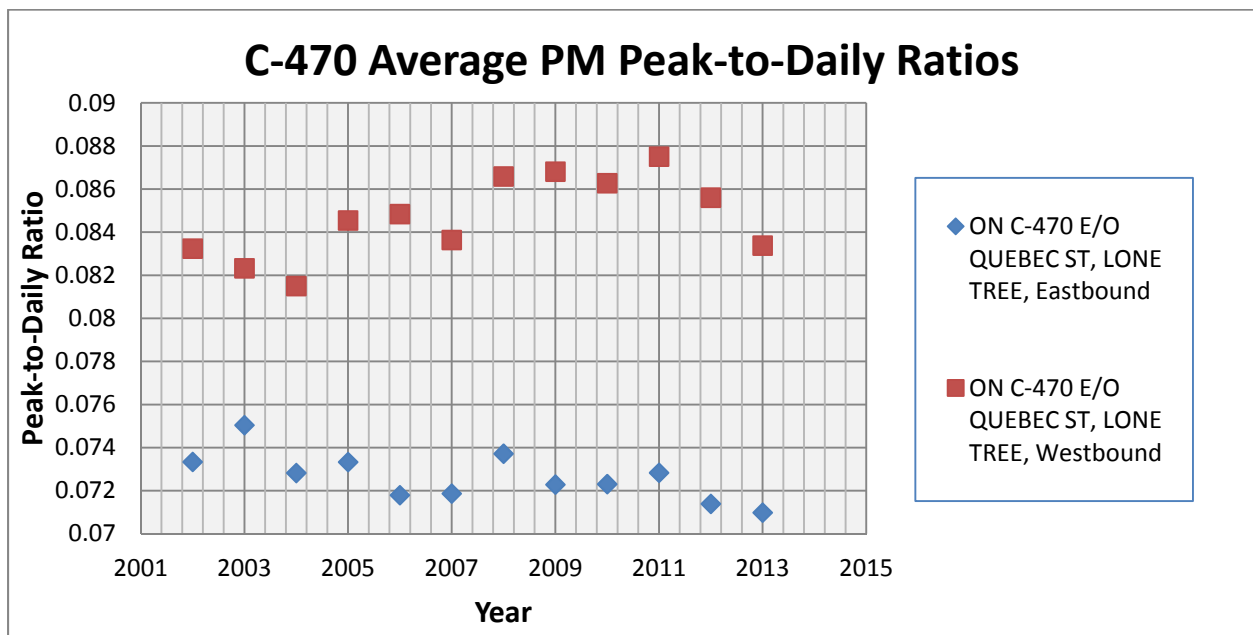


Figure 10. Evening Peak Hour Percentage for Segments of C-470

Traffic Patterns

The key questions identified for this study can be answered by looking at the historical 20 year traffic patterns, volumes and accidents within the study area, and attempting to project the potential influence in the future.

What is the historical growth in traffic volumes on roads in the southeast metro area over the past 20 years, and how is the past expected to affect future traffic patterns?

The presented information shows that C-470 exhibited an increase in traffic volumes since 1993. However, AADT on different segments of C-470 started to plateau. The traffic on C-470 from 2007 to 2012 is shown in Table 1. In this time period, most segments of C-470 have had minor increases or decreases in traffic.

Segment Of C-470	Year & Average Annual Daily Traffic					
	2012	2011	2010	2009	2008	2007
E/O Santa Fe Drive	79,000	77,000	77,000	73,400	75,200	74,200
E/O Lucent Boulevard	81,000	78,000	79,000	78,000	79,900	78,900
E/O Broadway	93,000	91,000	93,000	88,300	90,500	90,200
E/O University Boulevard	95,000	94,000	99,000	94,100	96,400	95,600
E/O Quebec Street	104,000	103,000	102,000	102,000	107,000	106,000

Table 1. C-470 Traffic Volumes

Traffic volumes increase on C-470 closer to I-25 where a large amount of C-470 traffic is entering or exiting I-25. These most recent traffic volumes have resulted in C-470 experiencing significant congestion during the peak hours. The plateau of traffic volumes in the past six years combined with current congestion levels would suggest that AADT will remain relatively constant in the coming years as the highway does not have available capacity to handle an increase in traffic volume.

The arterials parallel to C-470 had stable traffic volumes during this same six year time period. The traffic data collected is included in Attachment section A2. Many segments of roads have traffic volumes that have stayed at the same level for multiple years ($\pm 1,000$ cars). Even with a large increase of traffic on C-470, the parallel arterials have not seen an increase in traffic due to diversions from the freeway.

Looking at the available data, traffic on the parallel arterial roads would be expected to either increase or stay at the current level in the coming years. I-25 traffic is increasing as seen in Figure 1 of this report. As volumes grow on the interstate, the roads connecting to the interstate will also likely have increasing traffic. Also, the current levels of C-470 congestion could lead to an increase in arterial road traffic. Conversely, arterial road traffic could remain at their current level. Consistent levels could be an indication that there is no room for development in the study area. The study area is mostly residential with a few commercial buildings. Without additional development, there will be no reason for more traffic to enter the area. Arterial road traffic could also stay the same because those arterial roads are approaching capacity during peak

conditions. If the roadways cannot serve a larger amount of peak hour traffic, then the current levels of traffic volumes will likely remain at the same amount.

Has the increase of freeway traffic volumes resulted in drivers diverting from C-470 to the local parallel arterial roadways?

The only potential diversion pattern observed was on County Line Road, the volume of which has doubled over the 20-year period. Otherwise, drivers do not appear to have diverted. Figures 12, 13 and 14, in the attachments, show traffic for east and west movements in the study area. These screen line graphs give a side-by-side comparison of traffic traveling in the same direction. Traffic diversion from C-470 to the parallel arterial roads was not found when looking at the traffic volume data on arterial roads between the years 2001 and 2012. This was confirmed by the screen line graphs that compared traffic on east-west roads in the study area. Traffic on C-470 has increased at a steady rate as seen in the Figure 1 graph. Even with this increase, the volumes on east-west arterial roads have not shown a corresponding increase.

Can a better understanding of traffic and accident patterns assist in the selection of safety improvements projects?

An examination of accidents can lead to better knowledge as to what safety improvements should be made to intersections and roads. Table 2 provides a summary of safety improvements recommended by the Federal Highway Administration to help reduce certain types of crashes. Each of the improvements listed provides a means to control traffic. With any improvement, consideration should be given to whether or not the modification is appropriate for the intersection. A cost benefit analysis is also important to factor into analysis of a potential improvement.

Accident Pattern	Safety Improvement	Example of Safety Improvement
High frequency of angled crashes with left turning vehicles	Multiphase signal operation	Add a protected left turn to signal phasing
Rear-end crashes	Optimize clearance between phases	Increase the all red time
High frequency of crashes related to turning movements	Restrict or eliminate turning maneuvers	"No Right Turn on Red" Sign
High frequency of pedestrian or bicycle crashes	Improve signage in area	Add timer to pedestrian signal head or prohibit turns through a crosswalk when pedestrians are allowed to cross

Table 2. Safety Improvements for Intersections based on Types of Crashes²

(2) "Signalized Intersection Safety Strategies." - *FHWA Safety Program*. United States Department of Transportation, n.d. Web. 24 June 2014.

Review of crash data could help identify patterns in accidents. Based on these patterns we could determine the appropriate safety improvements for an intersection. This would require that intersections be evaluated on a case-by-case basis.

Conclusion

There are two distinct conclusions that can be drawn from the research for this study; one related to traffic volumes and the other relative to accident patterns.

Traffic in the study area has changed dissimilarly for each road type. C-470 volumes have started to stabilize at each segment in the study area with varying volume ceilings identified for each segment of the freeway. The highways with signalized intersections primarily behaved in one of two ways over the past 20 years. Santa Fe Drive traffic has been increasing, while the traffic on Belleview Avenue and University Boulevard has stabilized. In addition, Belleview Avenue and University Boulevard have actually exhibited decreasing traffic volumes during the last few years of the study period. However, in general the traffic on arterial roads has been stable through most segments in the study area. There were no large or definitive increases in traffic volumes along the parallel arterial roads that would suggest drivers are diverting from the freeways.

C-470 mainline total accidents appear to be below average when compared with the safety performance function for similar roadways developed by CDOT. However, that safety performance function was created in 2005, so evaluating updated data has the potential of providing adjusted rates. This report also looked at injuries on the C-470 mainline and parallel arterial intersections. The segment from University Boulevard to Quebec Avenue was identified as having the most total injuries when compared with other segments of C-470. However, in general, the mainline of C-470 has had a decreasing number of accidents with severe injuries over the past ten years within the study area. Similarly, parallel arterial intersections have also experienced a decrease in the number of accidents per year.

Considerations for Future Research

This study of the Denver Metropolitan Area and the transportation system throughout the southeast section has helped to better understand how highways and arterials have complimented one another over the course of 20 years. Possible future research could help to identify means by which the transportation system could be more effective. The following are some potential future research ideas and how this research could be a benefit:

- **Research Topic: Examine dynamic speed management during the peak hour.**
Benefit: Increase safety on highways during the peak hour.
- **Research Topic: Conduct an evaluation to determine if past traffic forecasts align with the traffic volumes that actually occurred on a road.**
Benefit: Improve the accuracy of forecasting future volumes.
- **Research Topic: Observe crashes on an intersection-by-intersection basis over multiple years.**
Benefit: Better understanding of which CDOT intersection improvements provide the most impact on safety.

Attachments

- A1. C-470 Accidents with Injury Level of 2 or Worse split up by segment
- A2. AADT history of study area highways.
- A3. Maps of Study Area with Traffic Count Locations & Accident Locations.
- A4. East & West Arterial Traffic Counts Collected for Study Area
- A5. East & West Arterial Peak hour percentages

A1. C-470 Accidents with Injury Level of 2 or Worse

Split up by Segment

Year	E/O Santa Fe Drive	E/O Lucent Boulevard	E/O Broadway	E/O University Boulevard	E/O Quebec Street	E/O Yosemite	Total
1999	3	5	3	10	3	0	24
2000	4	4	1	6	3	1	19
2001	5	4	6	11	4	1	31
2002	6	3	7	9	5	1	31
2003	7	4	8	10	4	2	35
2004	8	6	5	8	4	1	32
2005	5	5	2	14	0	0	26
2006	4	4	7	7	1	0	23
2007	4	1	1	9	5	1	21
2008	2	2	1	9	4	0	18
2009	5	0	4	7	4	1	21
2010	3	2	3	7	5	1	21
2011	6	2	5	4	3	0	20
2012	1	4	3	5	2	1	16
Segment Totals	63	46	56	116	47	10	338

Table A1. C-470 Accidents with severe injuries history.

A2. AADT History of Study Area Highways

Study Area AADT provided by CDOT

COUNTLOCATION	2012	2011	2010	2009	2008	2007	2006
ON I-25 N/O SH 470, LONE TREE	164,000	162,000	162,000	118,000	118,000	120,000	120,900
ON I-25 N/O COUNTY LINE RD, CENTENNIAL	201,000	198,000	203,000	173,000	173,000	162,700	144,700
ON I-25 N/O DRY CREEK RD, CENTENNIAL	205,000	203,000	203,000	181,000	181,000	172,000	153,100
ON I-25 N/O SH 88, ARAPAHOE RD, GREENWOOD VILLAGE	226,000	222,000	218,000	201,000	202,000	194,600	179,500
ON I-25 S/O SH 88, BELLEVIEW AVE, GREENWOOD VILLAGE	238,000	236,000	219,000	221,000	222,000	216,000	201,900
ON SH 85, SANTA FE DR NE/O SH 470, LITTLETON	40,000	39,000	39,000	39,200	37,600	42,200	41,200
ON SH 85, SANTA FE DR NE/O COUNTY LINE RD, LITTLETON	44,000	43,000	42,000	42,000	41,500	43,900	46,100
ON SH 85, SANTA FE DR NE/O MINERAL AVE, LITTLETON	47,000	46,000	46,000	45,100	46,500	49,500	49,600
ON SH 85, SANTA FE DR S/O SH 75, BOWLES AVE & LITTLETON BLVD, LITTLETON	54,000	54,000	54,000	48,200	52,500	53,800	55,700
ON SH 85, SANTA FE DR SW/O SH 88, BELLEVIEW AVE, LITTLETON	57,000	50,000	55,000	53,100	54,400	55,700	53,800
ON SH 88, BELLEVIEW AVE E/O SH 85, SANTA FE DR, LITTLETON	40,000	39,000	39,000	35,600	38,000	37,500	38,400
ON SH 88, BELLEVIEW AVE W/O BROADWAY, ENGLEWOOD	31,000	31,000	31,000	30,700	31,700	33,300	33,300
ON SH 88, BELLEVIEW AVE E/O BROADWAY, ENGLEWOOD	31,000	31,000	31,000	30,400	31,400	33,600	33,600
ON SH 88, BELLEVIEW AVE W/O SH 177, UNIVERSITY BLVD, CHERRY HILLS VILLAGE	29,000	31,000	31,000	30,100	32,800	33,600	34,300
ON SH 88, BELLEVIEW AVE E/O, SH 177, UNIVERSITY BLVD, CHERRY HILLS VILLAGE	29,000	29,000	29,000	28,700	29,700	31,300	33,100

Study Area AADT provided by CDOT

COUNTLOCATION	2012	2011	2010	2009	2008	2007	2006
ON SH 88, BELLEVIEW AVE E/O MONACO PKWY, DENVER	33,000	33,000	33,000	34,700	41,700	37,600	37,600
ON SH 88, BELLEVIEW AVE W/O I-25, GREENWOOD VILLAGE	37,000	37,000	37,000	32,700	35,100	36,300	35,300
ON SH 470 E/O SH 85, SANTA FE DR, LITTLETON	79,000	77,000	77,000	73,400	75,200	74,200	74,000
ON SH 470 E/O LUCENT BLVD, HIGHLANDS RANCH	81,000	78,000	79,000	78,000	79,900	78,900	76,300
ON SH 470 E/O BROADWAY, HIGHLANDS RANCH	93,000	91,000	93,000	88,300	90,500	90,200	79,500
ON SH 470 E/O SH 177, UNIVERSITY BLVD, HIGHLANDS RANCH	95,000	94,000	99,000	94,100	96,400	95,600	90,400
ON SH 470 E/O QUEBEC ST, LONE TREE	104,000	103,000	102,000	102,000	107,000	106,000	104,500
ON SH 470 SE/O YOSEMITE ST, LONE TREE	97,000	96,000	95,000	86,700	88,800	91,000	86,700
ON SH 177, UNIVERSITY BLVD N/O SH 470, HIGHLANDS RANCH	35,000	32,000	29,000	34,200	35300	36,700	38,800
ON SH 177, UNIVERSITY BLVD N/O COUNTY LINE RD, CENTENNIAL	26,000	28,000	29,000	28,900	27200	33,700	37,400
ON SH 177, UNIVERSITY BLVD N/O DRY CREEK RD, CENTENNIAL	32,000	32,000	32,000	32,100	33200	34,900	38,800
ON SH 177, UNIVERSITY BLVD S/O ORCHARD RD, GREENWOOD VILLAGE	32,000	32,000	32,000	31,200	32300	33,600	37,300
ON SH 177, UNIVERSITY BLVD N/O SH 88, BELLEVIEW AVE, CHERRY HILLS VILLAGE	30,000	30,000	33,000	32,500	33600	32,400	36,000
ON SH 177, UNIVERSITY BLVD S/O SH 285, HAMPDEN AVE, CHERRY HILLS VILLAGE	24,000	27,000	25,000	27,400	30200	31,100	33,900

Study Area AADT provided by CDOT

COUNTLOCATION	2005	2004	2003	2002	2001	2000	1999
ON I-25 N/O SH 470, LONE TREE	120,900	106,800	106,775	106,744	106,818	106,807	105,958
ON I-25 N/O COUNTY LINE RD, CENTENNIAL	144,700	127,500	127,539	127,499	127,599	127,568	126,415
ON I-25 N/O DRY CREEK RD, CENTENNIAL	153,100	135,500	135,509	135,310	135,937	135,909	126,415
ON I-25 N/O SH 88, ARAPAHOE RD, GREENWOOD VILLAGE	179,500	158,800	158,833	158,789	158,893	158,885	157,687
ON I-25 S/O SH 88, BELLEVIEW AVE, GREENWOOD VILLAGE	201,900	179,100	179,120	178,395	158,893	158,885	157,687
ON SH 85, SANTA FE DR NE/O SH 470, LITTLETON	36,900	36,900	36,599	37,481	37,478	39,392	32,979
ON SH 85, SANTA FE DR NE/O COUNTY LINE RD, LITTLETON	43,200	41,600	41,572	41,570	46,769	29,462	29,429
ON SH 85, SANTA FE DR NE/O MINERAL AVE, LITTLETON	49,200	49,200	49,030	49,744	47,767	51,985	37,486
ON SH 85, SANTA FE DR S/O SH 75, BOWLES AVE & LITTLETON BLVD, LITTLETON	49,200	49,200	49,030	49,744	49,740	52,772	42,653
ON SH 85, SANTA FE DR SW/O SH 88, BELLEVIEW AVE, LITTLETON	61,100	58,000	59,822	53,802	51,729	56,069	41,594
ON SH 88, BELLEVIEW AVE E/O SH 85, SANTA FE DR, LITTLETON	38,400	38,500	36,383	37,576	34,763	35,540	32,405
ON SH 88, BELLEVIEW AVE W/O BROADWAY, ENGLEWOOD	34,800	29,700	29,706	30,817	26,972	26,972	26,953
ON SH 88, BELLEVIEW AVE E/O BROADWAY, ENGLEWOOD	33,600	34,100	31,108	31,989	28,924	28,925	28,940
ON SH 88, BELLEVIEW AVE W/O SH 177, UNIVERSITY BLVD, CHERRY HILLS VILLAGE	35,900	34,100	31,108	31,989	29,659	29,659	29,678
ON SH 88, BELLEVIEW AVE E/O, SH 177, UNIVERSITY BLVD, CHERRY HILLS VILLAGE	33,300	32,800	32,769	31,907	34,772	34,772	34,800

Study Area AADT provided by CDOT

COUNTLOCATION	2005	2004	2003	2002	2001	2000	1999
ON SH 88, BELLEVIEW AVE E/O MONACO PKWY, DENVER	38,000	36,700	36,732	36,478	37,316	38,563	34,457
ON SH 88, BELLEVIEW AVE W/O I-25, GREENWOOD VILLAGE	45,900	41,000	40,997	40,954	40,809	41,377	43,896
ON SH 470 E/O SH 85, SANTA FE DR, LITTLETON	74,000	65,900	65,933	68,434	60,079	60,062	59,372
ON SH 470 E/O LUCENT BLVD, HIGHLANDS RANCH	76,300	68,400	68,434	68,434	60,079	60,062	59,372
ON SH 470 E/O BROADWAY, HIGHLANDS RANCH	79,500	71,600	71,598	74,313	65,242	65,221	64,457
ON SH 470 E/O SH 177, UNIVERSITY BLVD, HIGHLANDS RANCH	90,400	82,200	85,593	77,243	67,816	67,791	66,965
ON SH 470 E/O QUEBEC ST, LONE TREE	101,900	100,000	99,589	78,438	68,871	68,836	67,925
ON SH 470 SE/O YOSEMITE ST, LONE TREE	90,200	78,400	78,438	78,438	68,871	68,836	67,925
ON SH 177, UNIVERSITY BLVD N/O SH 470, HIGHLANDS RANCH	40,900	42,400	39,071	39,390	36,784	37,316	35,080
ON SH 177, UNIVERSITY BLVD N/O COUNTY LINE RD, CENTENNIAL	37,700	36,600	36,569	37,030	35,485	37,502	30,479
ON SH 177, UNIVERSITY BLVD N/O DRY CREEK RD, CENTENNIAL	38,800	38,300	37,674	39,868	37,767	37,755	37,379
ON SH 177, UNIVERSITY BLVD S/O ORCHARD RD, GREENWOOD VILLAGE	36,900	38,300	37,674	39,868	39,968	39,968	39,951
ON SH 177, UNIVERSITY BLVD N/O SH 88, BELLEVIEW AVE, CHERRY HILLS VILLAGE	34,700	39,100	39,128	38,405	40,807	43,494	34,557
ON SH 177, UNIVERSITY BLVD S/O SH 285, HAMPDEN AVE, CHERRY HILLS VILLAGE	37,100	36,600	36,517	37,829	30,192	41,045	39,946

Study Area AADT provided by CDOT

COUNTLOCATION	1998	1997	1996	1995	1994	1993
ON I-25 N/O SH 470, LONE TREE	107,171	103,944	102,600	98,000	93,500	83,000
ON I-25 N/O COUNTY LINE RD, CENTENNIAL	128,062	124,206	122,600	109,800	111,600	99,000
ON I-25 N/O DRY CREEK RD, CENTENNIAL	136,419	132,311	130,600	119,000	117,400	108,200
ON I-25 N/O SH 88, ARAPAHOE RD, GREENWOOD VILLAGE	159,399	154,599	152,600	149,200	148,200	139,400
ON I-25 S/O SH 88, BELLEVIEW AVE, GREENWOOD VILLAGE	148,327	143,860	142,000	139,400	136,000	148,000
ON SH 85, SANTA FE DR NE/O SH 470, LITTLETON	33,532	32,522	31,000	26,800	24,400	22,400
ON SH 85, SANTA FE DR NE/O COUNTY LINE RD, LITTLETON	29,591	28,700	31,100	27,000	24,600	22,600
ON SH 85, SANTA FE DR NE/O MINERAL AVE, LITTLETON	38,075	36,928	35,200	31,900	29,700	30,000
ON SH 85, SANTA FE DR S/O SH 75, BOWLES AVE & LITTLETON BLVD, LITTLETON	43,267	41,964	40,000	38,300	37,400	34,500
ON SH 85, SANTA FE DR SW/O SH 88, BELLEVIEW AVE, LITTLETON	42,185	40,915	39,000	37,600	36,600	33,600
ON SH 88, BELLEVIEW AVE E/O SH 85, SANTA FE DR, LITTLETON	32,770	31,783	31,200	30,600	27,500	27,800
ON SH 88, BELLEVIEW AVE W/O BROADWAY, ENGLEWOOD	27,308	26,486	26,000	23,600	21,200	21,400
ON SH 88, BELLEVIEW AVE E/O BROADWAY, ENGLEWOOD	29,199	28,320	27,800	29,700	26,700	26,900
ON SH 88, BELLEVIEW AVE W/O SH 177, UNIVERSITY BLVD, CHERRY HILLS VILLAGE	29,934	29,033	28,500	30,800	27,700	28,000
ON SH 88, BELLEVIEW AVE E/O, SH 177, UNIVERSITY BLVD, CHERRY HILLS VILLAGE	35,081	34,025	33,400	36,800	32,000	32,500

Study Area AADT provided by CDOT

COUNTLOCATION	1998	1997	1996	1995	1994	1993
ON SH 88, BELLEVIEW AVE E/O MONACO PKWY, DENVER	34,661	33,617	33,000	39,100	30,900	31,300
ON SH 88, BELLEVIEW AVE W/O I-25, GREENWOOD VILLAGE	39,913	38,711	38,000	45,000	33,900	37,400
ON SH 470 E/O SH 85, SANTA FE DR, LITTLETON	60,358	58,540	55,800	48,600	45,500	46,000
ON SH 470 E/O LUCENT BLVD, HIGHLANDS RANCH	60,358	58,540	55,800	48,600	45,500	46,000
ON SH 470 E/O BROADWAY, HIGHLANDS RANCH	65,549	63,575	60,600	52,000	44,800	45,000
ON SH 470 E/O SH 177, UNIVERSITY BLVD, HIGHLANDS RANCH	68,145	66,093	63,000	52,400	46,200	46,600
ON SH 470 E/O QUEBEC ST, LONE TREE	69,227	67,142	64,000	49,400	43,100	43,800
ON SH 470 SE/O YOSEMITE ST, LONE TREE	69,227	67,142	64,000	49,400	43,100	43,800
ON SH 177, UNIVERSITY BLVD N/O SH 470, HIGHLANDS RANCH	35,881	34,800	30,400	27,400	23,900	26,400
ON SH 177, UNIVERSITY BLVD N/O COUNTY LINE RD, CENTENNIAL	30,880	29,950	29,400	26,700	24,500	27,000
ON SH 177, UNIVERSITY BLVD N/O DRY CREEK RD, CENTENNIAL	37,917	36,775	36,100	31,100	29,400	32,400
ON SH 177, UNIVERSITY BLVD S/O ORCHARD RD, GREENWOOD VILLAGE	40,438	39,220	38,500	36,400	26,800	29,600
ON SH 177, UNIVERSITY BLVD N/O SH 88, BELLEVIEW AVE, CHERRY HILLS VILLAGE	34,871	33,821	33,200	35,300	28,600	31,600
ON SH 177, UNIVERSITY BLVD S/O SH 285, HAMPDEN AVE, CHERRY HILLS VILLAGE	40,417	39,200	38,800	36,200	32,800	36,200

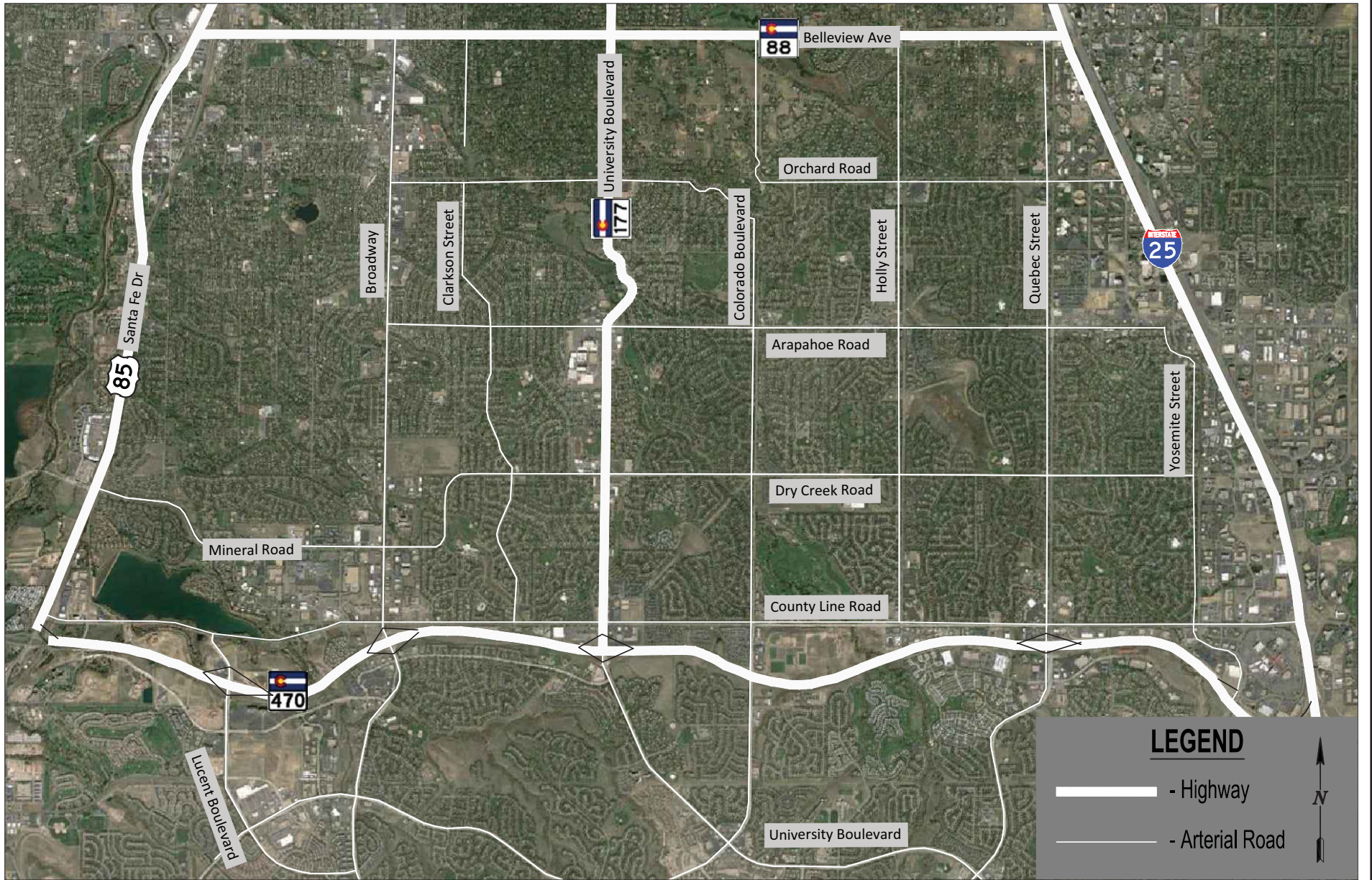
Study Area AADT provided by CDOT

COUNTLOCATION	1992	1991	1990	1989	1988	1987	1986
ON I-25 N/O SH 470, LONE TREE	71,300	71,400	69,200	71,000	69,600	64,400	54,600
ON I-25 N/O COUNTY LINE RD, CENTENNIAL	84,600	83,600	82,000	84,900	83,200	78,200	80,000
ON I-25 N/O DRY CREEK RD, CENTENNIAL	93,600	93,400	93,200	93,300	91,400	85,400	108,600
ON I-25 N/O SH 88, ARAPAHOE RD, GREENWOOD VILLAGE	131,400	127,600	126,000	122,500	120,000	113,600	108,600
ON I-25 S/O SH 88, BELLEVIEW AVE, GREENWOOD VILLAGE	156,800	148,000	146,800	139,000	136,200	131,000	128,400
ON SH 85, SANTA FE DR NE/O SH 470, LITTLETON	20,000	19,600	20,000	22,000	21,600	21,400	15,000
ON SH 85, SANTA FE DR NE/O COUNTY LINE RD, LITTLETON	21,200	19,600	21,000	22,000	21,600	17,300	12,200
ON SH 85, SANTA FE DR NE/O MINERAL AVE, LITTLETON	25,100	24,300	26,000	26,700	26,200	24,500	18,100
ON SH 85, SANTA FE DR S/O SH 75, BOWLES AVE & LITTLETON BLVD, LITTLETON	35,300	34,100	34,200	30,400	29,800	24,500	25,400
ON SH 85, SANTA FE DR SW/O SH 88, BELLEVIEW AVE, LITTLETON	35,000	33,800	33,900	30,100	29,500	29,000	25,500
ON SH 88, BELLEVIEW AVE E/O SH 85, SANTA FE DR, LITTLETON	29,200	27,700	25,400	20,100	19,600	26,200	27,200
ON SH 88, BELLEVIEW AVE W/O BROADWAY, ENGLEWOOD	22,300	21,200	19,300	17,100	16,700	22,300	23,200
ON SH 88, BELLEVIEW AVE E/O BROADWAY, ENGLEWOOD	26,900	26,100	23,800	21,200	20,700	25,600	24,700
ON SH 88, BELLEVIEW AVE W/O SH 177, UNIVERSITY BLVD, CHERRY HILLS VILLAGE	27,600	26,800	24,400	21,700	21,200	25,600	24,700
ON SH 88, BELLEVIEW AVE E/O, SH 177, UNIVERSITY BLVD, CHERRY HILLS VILLAGE	29,200	28,700	25,200	20,500	20,000	19,600	18,500

Study Area AADT provided by CDOT

COUNTLOCATION	1992	1991	1990	1989	1988	1987	1986
ON SH 88, BELLEVIEW AVE E/O MONACO PKWY, DENVER	29,500	29,400	25,800	20,900	20,400	19,600	18,500
ON SH 88, BELLEVIEW AVE W/O I-25, GREENWOOD VILLAGE	35,600	35,000	29,800	33,400	32,600	32,800	29,800
ON SH 470 E/O SH 85, SANTA FE DR, LITTLETON	43,800	41,400	34,200	35,300	34,600	32,400	25,500
ON SH 470 E/O LUCENT BLVD, HIGHLANDS RANCH	43,800	41,400	34,200	35,300	34,600	32,400	25,500
ON SH 470 E/O BROADWAY, HIGHLANDS RANCH	40,600	38,200	39,800	40,200	39,400	33,500	26,200
ON SH 470 E/O SH 177, UNIVERSITY BLVD, HIGHLANDS RANCH	40,000	37,800	40,300	38,800	38,000	33,600	26,400
ON SH 470 E/O QUEBEC ST, LONE TREE	36,000	34,400	31,900	29,000	28,400	26,200	21,800
ON SH 470 SE/O YOSEMITE ST, LONE TREE	36,000	34,400	31,900	29,000	28,400	26,200	21,800
ON SH 177, UNIVERSITY BLVD N/O SH 470, HIGHLANDS RANCH	20,400	19,500	18,800	13,100	12,800	13,000	11,000
ON SH 177, UNIVERSITY BLVD N/O COUNTY LINE RD, CENTENNIAL	21,600	20,500	19,800	16,200	15,800	16,000	15,000
ON SH 177, UNIVERSITY BLVD N/O DRY CREEK RD, CENTENNIAL	28,500	26,400	29,000	25,000	24,400	19,800	24,300
ON SH 177, UNIVERSITY BLVD S/O ORCHARD RD, GREENWOOD VILLAGE	29,600	26,400	29,000	24,200	23,600	25,800	25,600
ON SH 177, UNIVERSITY BLVD N/O SH 88, BELLEVIEW AVE, CHERRY HILLS VILLAGE	32,000	27,100	29,800	26,400	25,800	28,500	28,500
ON SH 177, UNIVERSITY BLVD S/O SH 285, HAMPDEN AVE, CHERRY HILLS VILLAGE	37,300	32,400	37,200	26,400	25,800	28,000	29,600

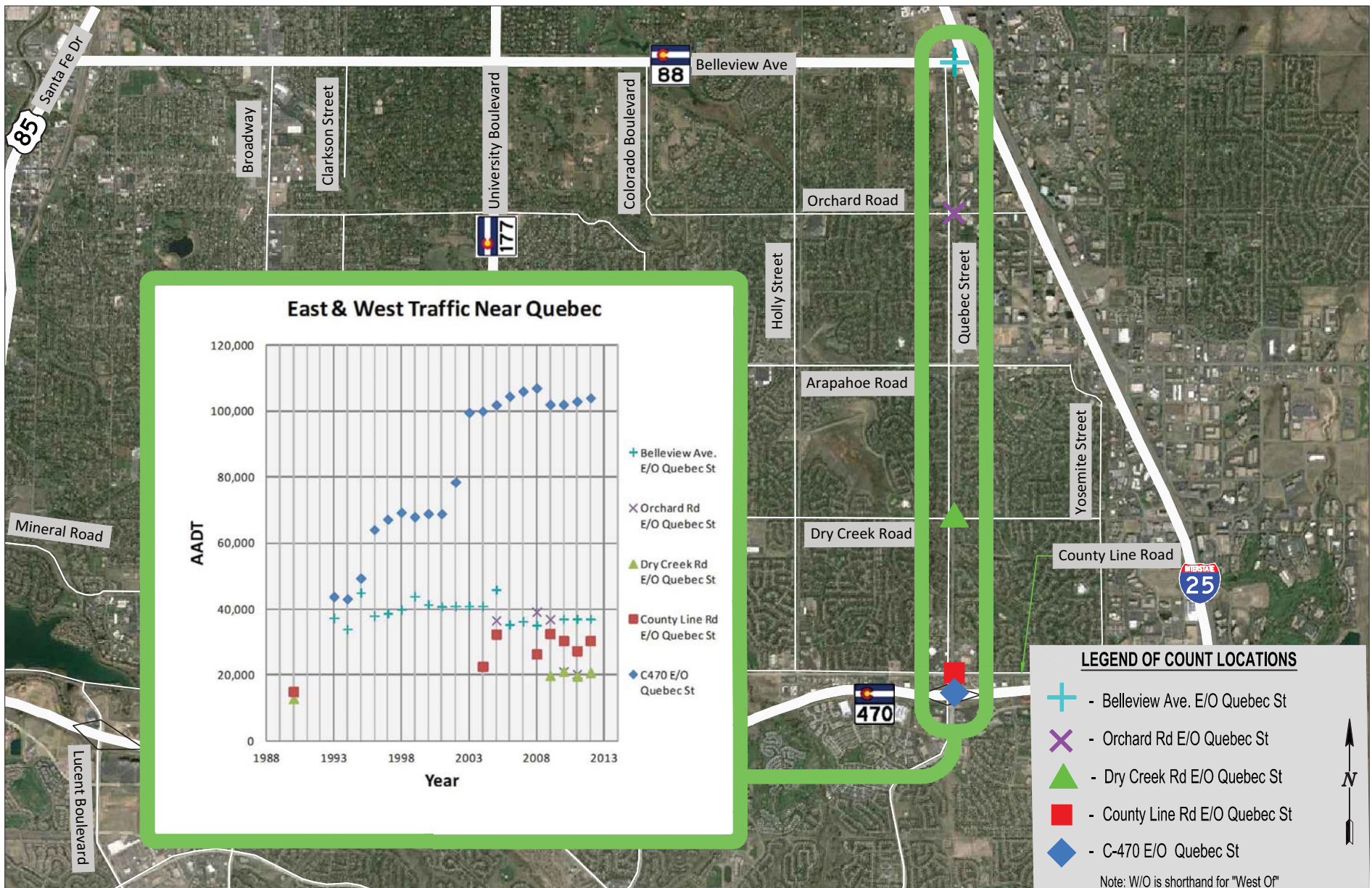
A3. Maps of Study Area with Traffic Count Locations & Accident Locations



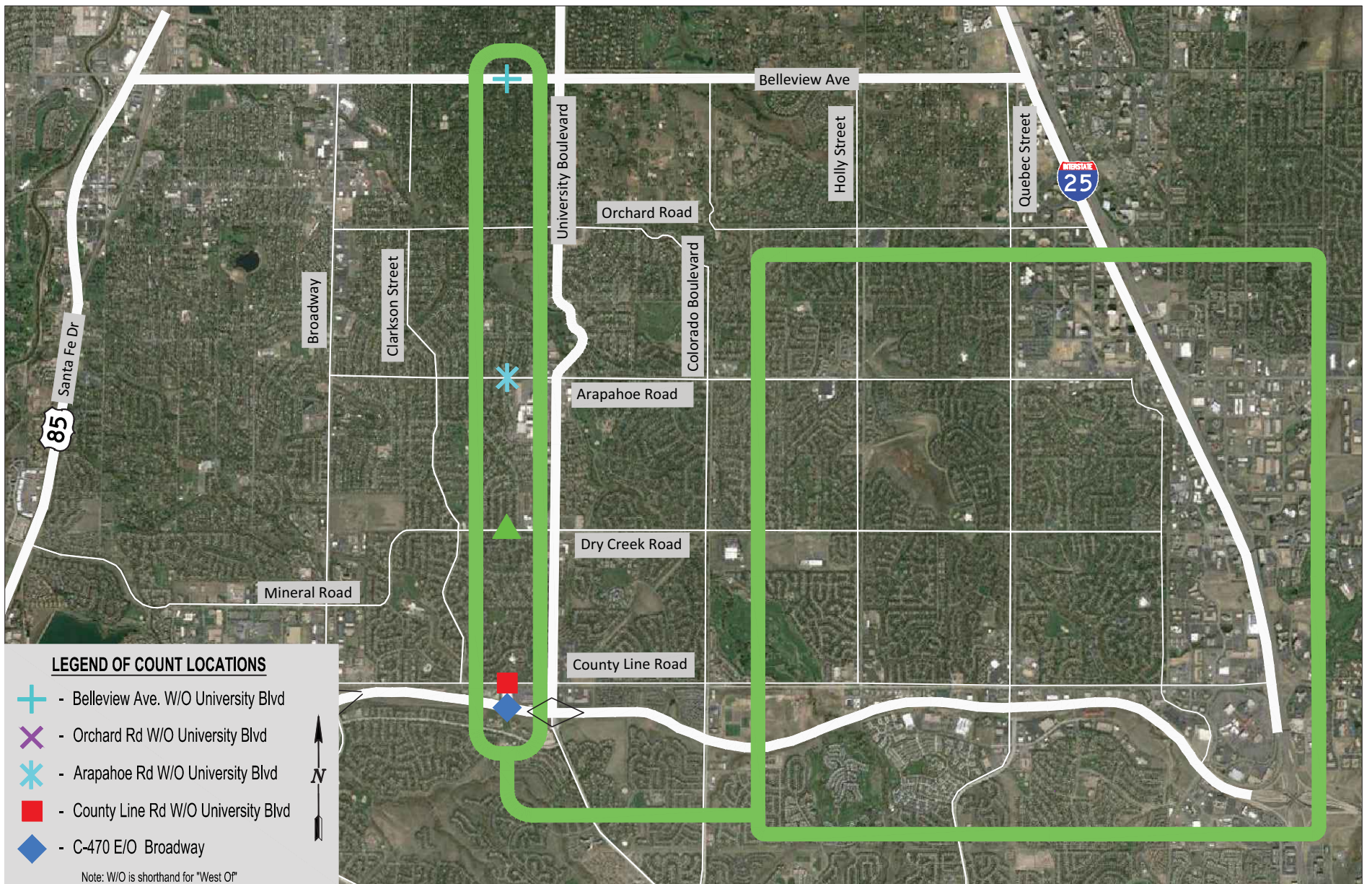
A Comparison of Freeway and Parallel Major Arterial Corridors Safety Patterns Study in the Denver Metropolitan Area, CO
 Study Area



Scale	1" = 1 Mile	Date	7/5/2014	Drawn by	JMM	Job #	122972-COTHQ	Figure	11
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A Comparison of Freeway and Parallel Major Arterial Corridors Safety Patterns Study in the Denver Metropolitan Area, CO
 Traffic Volumes 1986 to 2013



LEGEND OF COUNT LOCATIONS

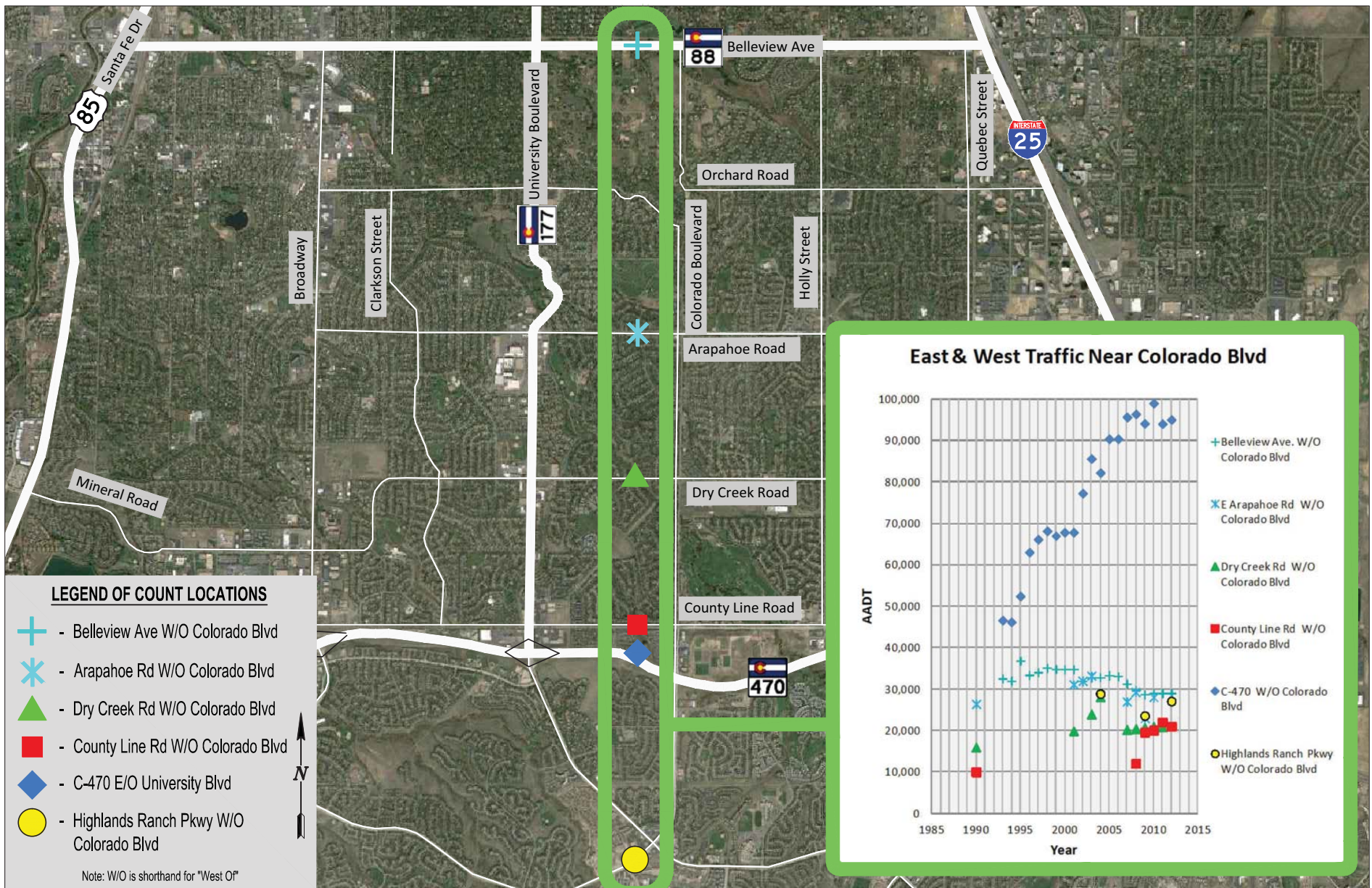
- + - Belleview Ave. W/O University Blvd
- X - Orchard Rd W/O University Blvd
- * - Arapahoe Rd W/O University Blvd
- - County Line Rd W/O University Blvd
- ◆ - C-470 E/O Broadway

Note: W/O is shorthand for "West Of"



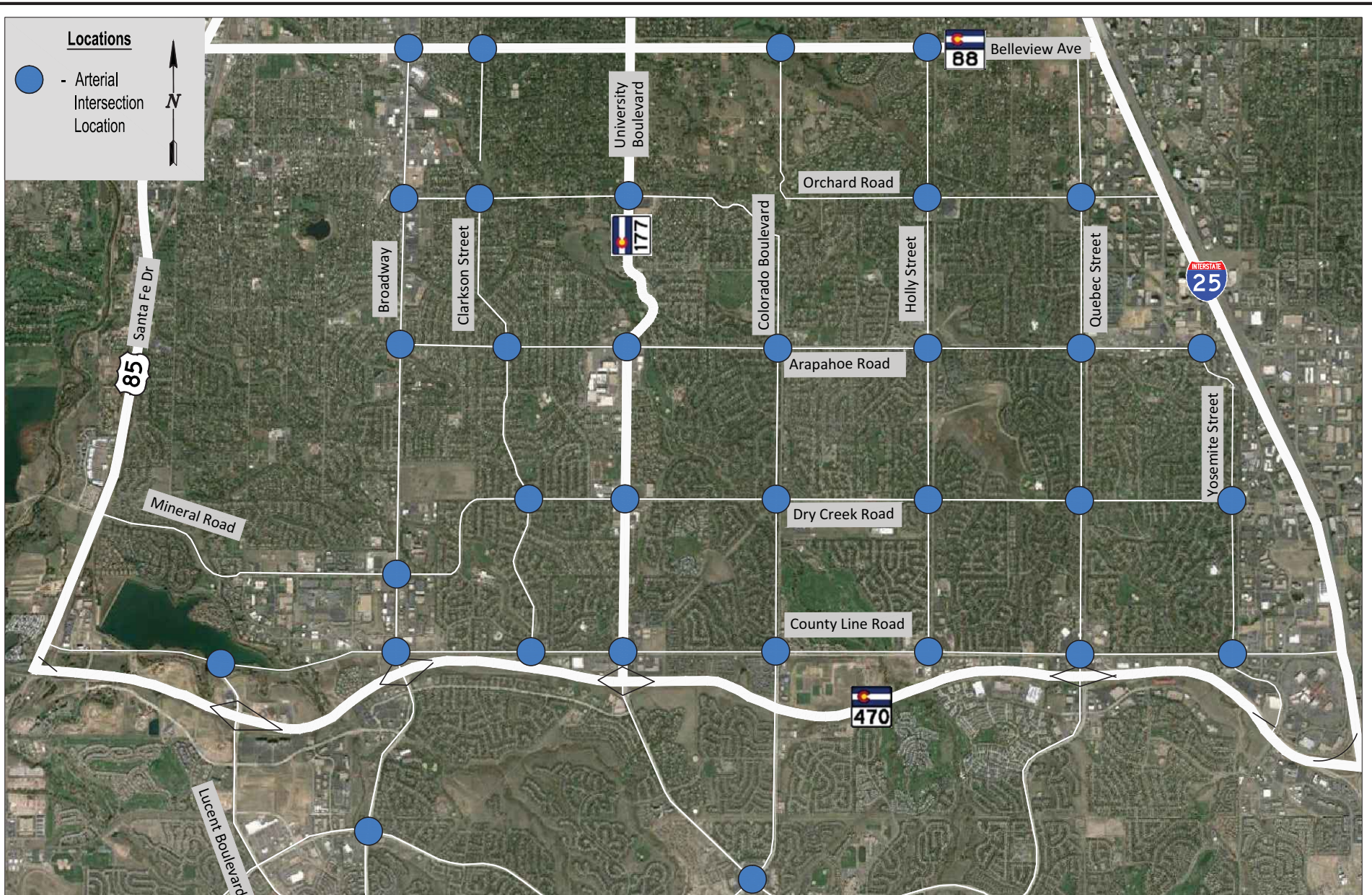
A Comparison of Freeway and Parallel Major Arterial Corridors Safety Patterns Study in the Denver Metropolitan Area, CO
 Traffic Screenline West of University

Scale	1" = 1 Mile	Date	7/5/2014	Drawn by	JMM	Job #	122972-COTHQ	Figure	13
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A Comparison of Freeway and Parallel Major Arterial Corridors Safety Patterns Study in the Denver Metropolitan Area, CO
 Traffic Screenline West of Colorado

Scale	1" = 1 Mile	Date	7/5/2014	Drawn by	JMM	Job #	122972-COTHQ	Figure	14
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A Comparison of Freeway and Parallel Major Arterial Corridors Safety Patterns Study in the Denver Metropolitan Area, CO
 Location of Arterial Intersections in Study Area



Scale	1" = 1 Mile	Date	7/5/2014	Drawn by	JMM	Job #	122972-COTHQ	Figure	15
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A4. East & West Arterial Traffic Counts Collected for Study Area

Study Area East and West Arterial Roads Traffic Counts

		2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	1990
Orchard Road	E/O Broadway			10,112		9,714	9,666		10,589	10,775	11,283	11,703	12,039	10,400
	W/O Clarkson													
	E/O Clarkson			8,273										
	W/O University			9,714		9,714	9,115		8,729	9,776	9,020	10,480	10,175	
	E/O Colorado Blvd					7,308								
	W/O Holly													8,600
	E/O Holly			11,251										9,000
	W/O Quebec			16,432										15,400
E/O Quebec		20,225	21,029	36,916	39,183				36,544					14,800
Arapahoe Road	E/O SH 85 Santa Fe													
	W/O Broadway													
	E/O Broadway	22,947		20,853		22,220	21,707	17,786			27,883	26,150	25,388	18,200
	W/O Clarkson					22,112								
	E/O Clarkson													
	W/O University	29,000	26,554	28,176	27,024	28,043	27,841	30,289	26,245			28,085	27,267	
	E/O University	27,900	29,573	28,028	22,956	28,043	28,121	34,927	31,569		32,646	32,756	31,802	
	W/O Colorado Blvd	29,952	29,573	28,028	22,956	29,251	26,997				33,172	31,980	31,049	26,400
	E/O Colorado Blvd	28,510	33,266	27,095	23,722	29,759	28,361		32,214		34,424	32,758	31,804	27,600
	W/O Holly	28,510	30,230		23,722	29,759	29,140							35,200
	E/O Holly	32,934	46,014	23,007	29,615	34,935			38,757					36,600
	W/O Quebec	32,934	34,139	37,244	34,405	34,696	35,360		35,094		34,451	36,254	37,288	29,400
	E/O Quebec	32,948	38,888	37,246	34,405	47,376		38,550						34,800
W/O Yosemite	32,948	39,161		34,405	44,712									
E/O Yosemite	53,500			52,639	48,623	59,983	58,213							
Dry Creek Road	E/O Broadway	7,272		7,443		7,312		11,008						
	W/O Clarkson		20,151	19,185	20,256	20,844	16,183				31,282	24,662	23,944	
	E/O Clarkson		20,334	19,300										
	W/O University	20,431	20,334	19,300	20,256	20,844	19,719							
	E/O University	21,045	21,056	20,998	20,696	20,435								
	W/O Colorado Blvd	21,045	20,772	21,024	20,696	20,435	20,230			28,135	23,917	const	19,911	16,000
	E/O Colorado Blvd	23,498	21,056	19,135	19,851	20,148								13,600
	W/O Holly	23,498	20,748	19,025	26,593	20,148	19,965	27,785	22,212		22,634	21,954		14,800
	E/O Holly	24,150	20,661		20,228	19,738								11,800
	W/O Quebec	24,150	20,412	23,257	20,228	19,573	21,188		21,767		21,275	22,809	24,718	14,000
	E/O Quebec	20,818	19,700	21,211	19,844									12,800
	W/O Yosemite	20,818	19,828	20,008	19,844	21,995	23,639				24,588	21,868	24,718	14,800
	E/O Yosemite	26,147	24,982	36,944	39,583	35,007		39,179						10,200

Sources

AADT, Arapahoe Count List	2011	to	2001	
24 HR, DRCOG 2008 to 2013	2012	to	2008	http://gis.drcog.org/trafficcounts/
Average				
24 HR, Douglas County	2012	to	2003	http://www.douglas.co.us/traffic/documents/traffic-counts.pdf
AADT, Littleton	2012	to	2006	http://www.littletongov.org/index.aspx?page=505
24 HR, CDOT Off System Data	2013	to	2005	From Leo Livecchi at CDOT Office
24 HR, City of Centennial	2008	to	2012	http://www.centennialcolorado.com/index.aspx?NID=628

Study Area East and West Arterial Roads Traffic Counts

		2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	1990
Mineral Road	E/O SH 85 Santa Fe		23,782		23,830		21,761							
	W/O Broadway		25,704		26,303		21,971							
	E/O Broadway		16,175		16,676		17,025							
County Line Road	E/O SH 85 Santa Fe	8,071		10,346		8,661		7,772			11,313			
	W/O Broadway	15,899		14,838		12,022		9,556						7,600
	E/O Broadway	19,002		17,846	16,708	12,112		17,786	20,576					12,200
	W/O Clarkson		21,957	21,401	19,653		17,142	8,518		23,890	20,610		18,059	
	E/O Clarkson	11,644						9,416						
	W/O University	23,127	22,371	21,391	19,653	11,707		36,868						
	E/O University	30,972	19,766	19,959	19,553	12,049			29,049					
	W/O Colorado Blvd	20,972	21,957	20,078	19,553	12,039								10,000
	E/O Colorado Blvd	28,077	27,598	26,498	24,510									11,600
	W/O Holly	28,077	28,139	26,548	24,510									10,300
	E/O Holly	32,674	30,779	24,455	26,977	22,521								9,900
	W/O Quebec	32,674	30,211	29,826	26,977	22,853			30,038	22,285				15,400
	E/O Quebec	30,426	27,377	30,472	32,566	26,354			32,470	22,562				15,000
	W/O Yosemite	30,426	29,929	29,348	32,566	26,720				22,562				14,700
E/O Yosemite	28,294	26,769	27,655	30,248	33,030	29,080		19,480	26,571				14,500	

Sources

	AADT, Arapahoe Count List	2011	to	2001	
	24 HR, DRCOG 2008 to 2013	2012	to	2008	http://gis.drcog.org/trafficcounts/
	Average				
	24 HR, Douglas County	2012	to	2003	http://www.douglas.co.us/traffic/documents/traffic-counts.pdf
	AADT, Littleton	2012	to	2006	http://www.littletongov.org/index.aspx?page=505
	24 HR, CDOT Off System Data	2013	to	2005	From Leo Livecchi at CDOT Office
	24 HR, City of Centennial	2008	to	2012	http://www.centennialcolorado.com/index.aspx?NID=628

Study Area North and South Arterial Roads Traffic Counts

		2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	1990
Yosemite Street	N/O Arapahoe			22,685										
	S/O Arapahoe		19,379	17,253	18,656	18,611								
	N/O Dry Creek		19,387	19,482	18,656	18,611	17,190		18,623		20,754	19,839	20,196	10,200
	S/O Dry Creek	12,348	15,394	14,481	15,681	16,887	15,003		18,028		20,021	19,805	21,286	8,400
	N/O County Line Road	12,348	15,616	14,297	15,861	16,887								5,200
Quebec Street	S/O Belleview Ave				21,075									
	N/O Orchard RD				21,075									12,200
	S/O Orchard Rd	20,565	21,032	20,050	19,226	19,540								14,800
	N/O Arapahoe Rd	20,565	21,032	20,050	21,038	19,540	21,066		23,800		20,662			16,800
	S/O Arapahoe Rd	20,478	17,332	18,898	19,661	17,984	20,174		21,241		22,407	21,511		20,600
	N/O Dry Creek Rd	20,478	17,332	10,739	19,661	16,230	24,120							11,200
	S/O Dry Creek Rd	24,913	25,008	23,971	24,630	14,072	19,831							14,600
	N/O County Line Rd	24,913	24,849	24,218	24,630	19,731	19,124		18,767		22,302	21,409		11,000
	S/O County Line Rd = N/O C-470		25,008	23,971	24,630	19,831	22,798		22,706		25,180			11,000
	S/O C470	35,206		31,965		43,273								
	N/O Highlands Ranch Pkwy								15,768		29,475			
S/O Highlands Ranch Pkwy	24,800		24,193					12,319		19,952				
Holly Street	S/O Belleview Ave		8,926											
	N/O Orchard RD													5,300
	S/O Orchard Rd	12,235	11,906	12,163	10,676	11,386								11,600
	N/O Arapahoe Rd	12,235	11,906	12,163	10,676	11,386	11,863			15,999	17,381	18,021		8,600
	S/O Arapahoe Rd	13,385	13,399	13,211	12,095	14,361	14,429			15,986	15,505			11,200
	N/O Dry Creek Rd	13,385	13,399	13,211	12,095	14,361	17,706		15,991	16,244	15,594			8,400
	S/O Dry Creek Rd	13,135	12,332	12,525	12,371	12,295	14,076		14,171	14,980	14,530			9,600
	N/O County Line Rd	13,135	12,141	12,617	12,371	12,295								5,900
Colorado Boulevard	N/O Arapahoe Rd						7,539			8,777	9,198	10,014	9,723	
	S/O Arapahoe Rd	12,835	10,819	10,739	10,078	10,977	10,817		8,193	11,754	12,377	13,269	12,883	9,200
	N/O Dry Creek Rd	12,835	10,819	10,739	10,078	10,977	11,946		18,019	13,571	14,808			10,400
	S/O Dry Creek Rd	12,775	13,522	12,798	12,371	13,881	11,834		12,531	12,527	13,699		12,161	6,400
	N/O County Line Rd	12,775	13,428	12,812	12,798	13,881								3,800
	S/O C470		19,047											200
	N/O University		19,644	17,230	18,914									

Sources

AADT, Arapahoe Count List	2011	to	2001	
24 HR, DRCOG 2008 to 2013	2012	to	2008	http://gis.drcog.org/trafficcounts/
Average				
Douglas County	2012	to	2003	http://www.douglas.co.us/traffic/documents/traffic-counts.pdf
Littleton	2012	to	2006	http://www.littleongov.org/index.aspx?page=505
CDOT Data	2013	to	1986	
24 HR, City of Centennial	2012	to	2008	http://www.centennialco.gov/Public-Works/traffic-counts.aspx

Study Area North and South Arterial Roads Traffic Counts

		2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	1990
SH 177, University Boulevard	N/O SH 88, BELLEVIEW AVE,	30,000	30,000	33,000	32,500	33,600	32,400	36,000	34,700	39,100	39,128	38,405	40,807	29,800
	S/O SH 88, Belleview Ave													29,800
	N/O Orchard Rd,													29,800
	S/O ORCHARD RD,	32,000	32,000	32,000	31,200	32,300	33,600	37,300	36,900	38,300	37,674	39,868	39,968	29,000
	N/O Arapahoe Rd		33,591	33,131										29,000
	S/O Arapahoe Rd		34,676	31,086										30,000
	N/O DRY CREEK RD, CENTENNIAL	32,000	32,000	32,000	32,100	33,200	34,900	38,800	38,800	38,300	37,674	39,868	37,767	29,000
	S/O Dry Creek Rd		31,280											24,400
	N/O COUNTY LINE RD, CENTENNIAL	26,000	28,000	29,000	28,900	27,200	33,700	37,400	37,700	36,600	36,569	37,030	35,485	19,800
	N/O SH 470, HIGHLANDS RANCH	35,000	32,000	29,000	34,200	35,300	36,700	38,800	40,900	42,400	39,071	39,390	36,784	18,800
On University SE/O C-470 Exit Ramps	31,593			30,699	36,241									11,000
Clarkson Street	N/O County Line Rd					3,091			1,680					
Broadway	S/O Belleview Ave		46,465	44,882	36,924		39,207							37,000
	N/O Orchard RD		39,865											39,800
	S/O Orchard Rd		40,490		38,058		42,300							37,700
	N/O Arapahoe Rd		40,490		38,058		42,300		38,692				47,106	29,600
	S/O Arapahoe Rd		36,200											30,900
	N/O Dry Creek Rd		36,424		36,239		38,964							31,700
	S/O Dry Creek Rd		36,424		36,239		38,964							
	N/O Mineral Rd		36,424		36,239		38,964							
	S/O Mineral Rd		39,400		39,363		38,617							19,300
	N/O County Line Rd		39,400		39,363		38,617							21,400
	S/O County Line Rd = N/O County Line Road			43,869										21,000
	S/O C470			37,018										
N/O Highlands Ranch Pkwy	34,458													

Sources

	AADT, Arapahoe Count List	2011	to	2001	
	24 HR, DRCOG 2008 to 2013	2012	to	2008	http://gis.drcog.org/trafficcounts/
	Average				
	Douglas County	2012	to	2003	http://www.douglas.co.us/traffic/documents/traffic-counts.pdf
	Littleton	2012	to	2006	http://www.littleongov.org/index.aspx?page=505
	CDOT Data	2013	to	1986	
	24 HR, City of Centennial	2012	to	2008	http://www.centennialco.gov/Public-Works/traffic-counts.aspx

A5. East & West Arterial Peak Hour Percentages

Study Area Peak to Daily Ratios of Arterial Roads

	ON ARAPAHOE RD E/O COLORADO BLVD, ARAPAHOE CO		ON ARAPAHOE RD E/O HOLLY ST, ARAPAHOE CO		ON ARAPAHOE RD E/O QUEBEC ST, ARAPAHOE CO	
Row Labels	East	West	East	West	East	West
2005						
Average of PM Peak / Daily	7.21%	11.19%	6.67%	11.24%		
Average of AM Peak / Daily	9.15%	5.62%	9.33%	5.54%		
2006						
Average of PM Peak / Daily					7.14%	11.01%
Average of AM Peak / Daily					8.50%	6.78%
2007						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2008						
Average of PM Peak / Daily	6.93%	12.75%	6.78%	10.79%	6.26%	10.27%
Average of AM Peak / Daily	9.22%	6.23%	10.59%	6.38%	9.19%	6.88%
2009						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2010						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2011						
Average of PM Peak / Daily	6.88%	11.06%	8.14%	9.20%	7.20%	9.76%
Average of AM Peak / Daily	9.90%	5.87%	8.40%	7.18%	8.46%	6.70%
2012						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2013						
Average of PM Peak / Daily						
Average of AM Peak / Daily						

Study Area Peak to Daily Ratios of Arterial Roads

	ON ARAPAHOE RD E/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO		ON ARAPAHOE RD W/O I-25, GREENWOOD VILLAGE		ON ARAPAHOE RD W/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO	
Row Labels	East	West	East	West	East	West
2005						
Average of PM Peak / Daily	7.65%	9.79%				
Average of AM Peak / Daily	8.37%	5.79%				
2006						
Average of PM Peak / Daily	7.97%	9.74%	7.72%	8.07%	8.05%	9.42%
Average of AM Peak / Daily	7.97%	6.66%	8.15%	7.56%	8.27%	6.55%
2007						
Average of PM Peak / Daily	9.32%	9.62%	8.38%	7.96%		
Average of AM Peak / Daily	7.27%	6.51%	7.44%	7.75%		
2008						
Average of PM Peak / Daily			7.95%	8.79%		
Average of AM Peak / Daily			7.74%	7.63%		
2009						
Average of PM Peak / Daily	8.15%	9.77%	8.72%	7.59%	8.12%	9.96%
Average of AM Peak / Daily	7.41%	6.35%	7.17%	8.12%	8.04%	6.59%
2010						
Average of PM Peak / Daily	7.76%	11.02%				
Average of AM Peak / Daily	7.72%	6.23%				
2011						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2012						
Average of PM Peak / Daily	7.55%	9.05%	8.36%	8.04%	7.94%	10.28%
Average of AM Peak / Daily	8.27%	7.73%	6.68%	8.79%	7.65%	6.21%
2013						
Average of PM Peak / Daily	7.89%	11.99%	8.12%	7.49%	7.54%	10.81%
Average of AM Peak / Daily	9.12%	6.04%	6.86%	8.10%	8.43%	6.30%

Study Area Peak to Daily Ratios of Arterial Roads

	ON COUNTY LINE RD E/O BROADWAY, LITTLETON		ON COUNTY LINE RD E/O QUEBEC ST, LONE TREE		ON COUNTY LINE RD E/O SH 177, UNIVERSITY BLVD	
Row Labels	East	West	East	West	East	West
2005						
Average of PM Peak / Daily	10.14%	9.38%	8.12%	11.29%	8.78%	9.97%
Average of AM Peak / Daily	7.57%	6.11%	9.22%	6.89%	8.29%	5.91%
2006						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2007						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2008						
Average of PM Peak / Daily	9.58%	9.06%				
Average of AM Peak / Daily	7.49%	8.40%				
2009						
Average of PM Peak / Daily	10.17%	9.98%				
Average of AM Peak / Daily	8.29%	6.78%				
2010						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2011						
Average of PM Peak / Daily			7.93%	11.86%		
Average of AM Peak / Daily			9.78%	6.78%		
2012						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2013						
Average of PM Peak / Daily						
Average of AM Peak / Daily						

Study Area Peak to Daily Ratios of Arterial Roads

	ON COUNTY LINE RD E/O SH 85, SANTA FE, LITTLETON		ON COUNTY LINE RD E/O UNIVERSITY BLVD		ON COUNTY LINE RD W/O QUEBEC ST	
Row Labels	East	West	East	West	East	West
2005						
Average of PM Peak / Daily					7.27%	10.30%
Average of AM Peak / Daily					8.74%	7.32%
2006						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2007						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2008						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2009						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2010						
Average of PM Peak / Daily	9.01%	13.07%				
Average of AM Peak / Daily	10.32%	6.62%				
2011						
Average of PM Peak / Daily			13.42%	9.35%	8.73%	12.28%
Average of AM Peak / Daily			5.73%	6.81%	7.77%	6.89%
2012						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2013						
Average of PM Peak / Daily						
Average of AM Peak / Daily						

Study Area Peak to Daily Ratios of Arterial Roads

	ON COUNTY LINE RD W/O SH 177, UNIVERSITY BLVD		ON DRY CREEK RD E/O BROADWAY, LITTLETON		ON DRY CREEK RD E/O SH 177, UNIVERSITY BLVD, CENTENNIAL	
Row Labels	East	West	East	West	East	West
2005						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2006						
Average of PM Peak / Daily	7.33%	10.00%				
Average of AM Peak / Daily	9.04%	5.73%				
2007						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2008						
Average of PM Peak / Daily					7.94%	13.50%
Average of AM Peak / Daily					9.09%	7.73%
2009						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2010						
Average of PM Peak / Daily			10.76%	9.23%		
Average of AM Peak / Daily			6.57%	9.81%		
2011						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2012						
Average of PM Peak / Daily	9.88%	11.87%			8.00%	11.25%
Average of AM Peak / Daily	8.75%	6.49%			8.87%	6.48%
2013						
Average of PM Peak / Daily						
Average of AM Peak / Daily						

Study Area Peak to Daily Ratios of Arterial Roads

	ON DRY CREEK RD W/O HOLLY ST, CENTENNIAL		ON DRY CREEK RD W/O I-25 (W/O RAMPS)		ON DRY CREEK RD W/O QUEBEC ST, CENTENNIAL	
Row Labels	East	West	East	West	East	West
2005						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2006						
Average of PM Peak / Daily	7.73%	10.12%	9.55%	10.58%		
Average of AM Peak / Daily	11.23%	6.40%	8.28%	8.63%		
2007						
Average of PM Peak / Daily					7.58%	15.84%
Average of AM Peak / Daily					11.08%	5.50%
2008						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2009						
Average of PM Peak / Daily	7.52%	15.45%	10.91%	9.09%		
Average of AM Peak / Daily	11.93%	4.98%	7.76%	8.74%		
2010						
Average of PM Peak / Daily			9.55%	9.87%	7.64%	15.04%
Average of AM Peak / Daily			7.74%	9.62%	13.01%	4.98%
2011						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2012						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2013						
Average of PM Peak / Daily	8.36%	15.01%				
Average of AM Peak / Daily	11.49%	5.30%				

Study Area Peak to Daily Ratios of Arterial Roads

	ON DRY CREEK RD W/O SH 177, UNIVERSITY BLVD, CENTENNIAL		ON DRY CREEK RD W/O YOSEMITE ST, CENTENNIAL		ON DRY CREEK RD W/O, COLORADO BLVD, CENTENNIAL	
Row Labels	East	West	East	West	East	West
2005						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2006						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2007						
Average of PM Peak / Daily	9.68%	12.65%			8.37%	15.07%
Average of AM Peak / Daily	8.70%	6.47%			10.70%	6.71%
2008						
Average of PM Peak / Daily			6.49%	15.33%		
Average of AM Peak / Daily			12.47%	6.20%		
2009						
Average of PM Peak / Daily						
Average of AM Peak / Daily						
2010						
Average of PM Peak / Daily	9.88%	12.58%				
Average of AM Peak / Daily	8.93%	7.57%				
2011						
Average of PM Peak / Daily					9.27%	13.58%
Average of AM Peak / Daily					10.04%	6.14%
2012						
Average of PM Peak / Daily	7.67%	11.36%				
Average of AM Peak / Daily	8.27%	6.22%				
2013						
Average of PM Peak / Daily						
Average of AM Peak / Daily						

Peak Hour Percentages for Parallel Arterials One Mile or Less Away From C-470

AM or PM	Location	2005	2006	2007	2008	2009	2010	2011	2012	2013
AM	ON COUNTY LINE RD E/O BROADWAY, LITTLETON, Eastbound	7.57%			7.49%	8.29%				
PM	ON COUNTY LINE RD E/O BROADWAY, LITTLETON, Eastbound	10.14%			9.58%	10.17%				
AM	ON COUNTY LINE RD E/O BROADWAY, LITTLETON, Westbound	6.11%			8.40%	6.78%				
PM	ON COUNTY LINE RD E/O BROADWAY, LITTLETON, Westbound	9.38%			9.06%	9.98%				
PM	ON COUNTY LINE RD E/O QUEBEC ST, LONE TREE, Eastbound	8.12%						7.93%		
AM	ON COUNTY LINE RD E/O QUEBEC ST, LONE TREE, Eastbound	9.22%						9.78%		
AM	ON COUNTY LINE RD E/O QUEBEC ST, LONE TREE, Westbound	6.89%						6.78%		
PM	ON COUNTY LINE RD E/O QUEBEC ST, LONE TREE, Westbound	11.29%						11.86%		
AM	ON COUNTY LINE RD W/O QUEBEC ST, Eastbound	8.74%						7.77%		
PM	ON COUNTY LINE RD W/O QUEBEC ST, Eastbound	7.27%						8.73%		
AM	ON COUNTY LINE RD W/O QUEBEC ST, Westbound	7.32%						6.89%		
PM	ON COUNTY LINE RD W/O QUEBEC ST, Westbound	10.30%						12.28%		
AM	ON COUNTY LINE RD W/O SH 177, UNIVERSITY BLVD, Eastbound		9.04%						8.75%	
PM	ON COUNTY LINE RD W/O SH 177, UNIVERSITY BLVD, Eastbound		7.33%						9.88%	
AM	ON COUNTY LINE RD W/O SH 177, UNIVERSITY BLVD, Westbound		5.73%						6.49%	
PM	ON COUNTY LINE RD W/O SH 177, UNIVERSITY BLVD, Westbound		10.00%						11.87%	
	Location	2005	2006	2007	2008	2009	2010	2011	2012	2013
AM	ON DRY CREEK RD E/O SH 177, UNIVERSITY BLVD, CENTENNIAL, Westbound				7.73%				6.48%	
PM	ON DRY CREEK RD E/O SH 177, UNIVERSITY BLVD, CENTENNIAL, Eastbound				7.94%				8.00%	
AM	ON DRY CREEK RD E/O SH 177, UNIVERSITY BLVD, CENTENNIAL, Eastbound				9.09%				8.87%	
PM	ON DRY CREEK RD E/O SH 177, UNIVERSITY BLVD, CENTENNIAL, Westbound				13.50%				11.25%	
PM	ON DRY CREEK RD W/O HOLLY ST, CENTENNIAL, Eastbound		7.73%			7.52%				8.36%
AM	ON DRY CREEK RD W/O HOLLY ST, CENTENNIAL, Eastbound		11.23%			11.93%				11.49%
AM	ON DRY CREEK RD W/O HOLLY ST, CENTENNIAL, Westbound		6.40%			4.98%				5.30%
PM	ON DRY CREEK RD W/O HOLLY ST, CENTENNIAL, Westbound		10.12%			15.45%				15.01%
AM	ON DRY CREEK RD W/O I-25 (W/O RAMPS), Eastbound		8.28%			7.76%	7.74%			
PM	ON DRY CREEK RD W/O I-25 (W/O RAMPS), Eastbound		9.55%			10.91%	9.55%			
AM	ON DRY CREEK RD W/O I-25 (W/O RAMPS), Westbound		8.63%			8.74%	9.62%			
PM	ON DRY CREEK RD W/O I-25 (W/O RAMPS), Westbound		10.58%			9.09%	9.87%			
PM	ON DRY CREEK RD W/O QUEBEC ST, CENTENNIAL, Eastbound			7.58%			7.64%			
AM	ON DRY CREEK RD W/O QUEBEC ST, CENTENNIAL, Eastbound			11.08%			13.01%			
AM	ON DRY CREEK RD W/O QUEBEC ST, CENTENNIAL, Westbound			5.50%			4.98%			
PM	ON DRY CREEK RD W/O QUEBEC ST, CENTENNIAL, Westbound			15.84%			15.04%			
AM	ON DRY CREEK RD W/O SH 177, UNIVERSITY BLVD, CENTENNIAL, Westbound			6.47%			7.57%		6.22%	
PM	ON DRY CREEK RD W/O SH 177, UNIVERSITY BLVD, CENTENNIAL, Eastbound			9.68%			9.88%		7.67%	
AM	ON DRY CREEK RD W/O SH 177, UNIVERSITY BLVD, CENTENNIAL, Eastbound			8.70%			8.93%		8.27%	
PM	ON DRY CREEK RD W/O SH 177, UNIVERSITY BLVD, CENTENNIAL, Westbound			12.65%			12.58%		11.36%	
PM	ON DRY CREEK RD W/O, COLORADO BLVD, CENTENNIAL, Eastbound			8.37%				9.27%		
AM	ON DRY CREEK RD W/O, COLORADO BLVD, CENTENNIAL, Eastbound			10.70%				10.04%		
AM	ON DRY CREEK RD W/O, COLORADO BLVD, CENTENNIAL, Westbound			6.71%				6.14%		
PM	ON DRY CREEK RD W/O, COLORADO BLVD, CENTENNIAL, Westbound			15.07%				13.58%		

Cells that are highlighted have a significant change in peak hour percentage ratios. A Significant change is an increases or decreases by greater than 2% between measurement(s)

Consistent and/or Significant Increase across measurements		Consistent and/or Significant Decrease across measurements
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Peak Hour Percentage for Parallel Arterials 2 Miles Away From C-470

AM or PM	Location	2005	2006	2007	2008	2009	2010	2011	2012	2013
PM	ON ARAPAHOE RD E/O COLORADO BLVD, ARAPAHOE CO, Eastbound	7.21%			6.93%			6.88%		
AM	ON ARAPAHOE RD E/O COLORADO BLVD, ARAPAHOE CO, Eastbound	9.15%			9.22%			9.90%		
AM	ON ARAPAHOE RD E/O COLORADO BLVD, ARAPAHOE CO, Westbound	5.62%			6.23%			5.87%		
PM	ON ARAPAHOE RD E/O COLORADO BLVD, ARAPAHOE CO, Westbound	11.19%			12.75%			11.06%		
PM	ON ARAPAHOE RD E/O HOLLY ST, ARAPAHOE CO, Eastbound	6.67%			6.78%			8.14%		
AM	ON ARAPAHOE RD E/O HOLLY ST, ARAPAHOE CO, Eastbound	9.33%			10.59%			8.40%		
AM	ON ARAPAHOE RD E/O HOLLY ST, ARAPAHOE CO, Westbound	5.54%			6.38%			7.18%		
PM	ON ARAPAHOE RD E/O HOLLY ST, ARAPAHOE CO, Westbound	11.24%			10.79%			9.20%		
PM	ON ARAPAHOE RD E/O QUEBEC ST, ARAPAHOE CO, Eastbound		7.14%		6.26%			7.20%		
AM	ON ARAPAHOE RD E/O QUEBEC ST, ARAPAHOE CO, Eastbound		8.50%		9.19%			8.46%		
AM	ON ARAPAHOE RD E/O QUEBEC ST, ARAPAHOE CO, Westbound		6.78%		6.88%			6.70%		
PM	ON ARAPAHOE RD E/O QUEBEC ST, ARAPAHOE CO, Westbound		11.01%		10.27%			9.76%		
AM	ON ARAPAHOE RD E/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO, Westbound	5.79%	6.66%	6.51%		6.35%	6.23%		7.73%	6.04%
PM	ON ARAPAHOE RD E/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO, Eastbound	7.65%	7.97%	9.32%		8.15%	7.76%		7.55%	7.89%
AM	ON ARAPAHOE RD E/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO, Eastbound	8.37%	7.97%	7.27%		7.41%	7.72%		8.27%	9.12%
PM	ON ARAPAHOE RD E/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO, Westbound	9.79%	9.74%	9.62%		9.77%	11.02%		9.05%	11.99%
AM	ON ARAPAHOE RD W/O I-25, GREENWOOD VILLAGE, Eastbound		8.15%	7.44%	7.74%	7.17%			6.68%	6.86%
PM	ON ARAPAHOE RD W/O I-25, GREENWOOD VILLAGE, Eastbound		7.72%	8.38%	7.95%	8.72%			8.36%	8.12%
PM	ON ARAPAHOE RD W/O I-25, GREENWOOD VILLAGE, Westbound		8.07%	7.96%	8.79%	7.59%			8.04%	7.49%
AM	ON ARAPAHOE RD W/O I-25, GREENWOOD VILLAGE, Westbound		7.56%	7.75%	7.63%	8.12%			8.79%	8.10%
AM	ON ARAPAHOE RD W/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO, Westbound		6.55%			6.59%			6.21%	6.30%
PM	ON ARAPAHOE RD W/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO, Eastbound		8.05%			8.12%			7.94%	7.54%
AM	ON ARAPAHOE RD W/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO, Eastbound		8.27%			8.04%			7.65%	8.43%
PM	ON ARAPAHOE RD W/O SH 177, UNIVERSITY BLVD, ARAPAHOE CO, Westbound		9.42%			9.96%			10.28%	10.81%
	Location	2005	2006	2007	2008	2009	2010	2011	2012	2013
AM	ON HIGHLANDS RANCH PKWY E/O BROADWAY, Eastbound				6.77%				7.50%	
PM	ON HIGHLANDS RANCH PKWY E/O BROADWAY, Eastbound				9.86%				10.33%	
AM	ON HIGHLANDS RANCH PKWY E/O BROADWAY, Westbound				10.85%				7.70%	
PM	ON HIGHLANDS RANCH PKWY E/O BROADWAY, Westbound				7.85%				9.66%	
PM	ON HIGHLANDS RANCH PKWY E/O LUCENT BLVD, Eastbound			7.31%				7.53%		
AM	ON HIGHLANDS RANCH PKWY E/O LUCENT BLVD, Eastbound			10.74%				9.83%		
AM	ON HIGHLANDS RANCH PKWY E/O LUCENT BLVD, Westbound			8.63%				6.42%		
PM	ON HIGHLANDS RANCH PKWY E/O LUCENT BLVD, Westbound			9.26%				11.27%		
AM	ON UNIVERSITY BLVD E/E HIGHLANDS RANCH PKWY, HIGHLANDS RANCH (HR20), Eastbound				6.24%	6.55%		7.15%		
AM	ON UNIVERSITY BLVD E/E HIGHLANDS RANCH PKWY, HIGHLANDS RANCH (HR20), Westbound				6.54%	7.09%		7.84%		
PM	ON UNIVERSITY BLVD E/E HIGHLANDS RANCH PKWY, HIGHLANDS RANCH (HR20), Westbound				9.10%	9.85%		10.17%		
PM	ON UNIVERSITY BLVD E/E HIGHLANDS RANCH PKWY, HIGHLANDS RANCH (HR20), Eastbound				10.16%	10.64%		10.88%		

Cells that are highlighted have a significant change in peak hour percentage ratios. A Significant change is an increase or decrease by greater than 2% between measurement(s)

Consistent and/or Significant Increase across measurements		Consistent and/or Significant Decrease across measurements
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