



Report for
SR-223, 166, 119, 46 & 65
TRUCK ORIGINS AND DESTINATIONS STUDY
January 20, 2011

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APPENDIX A – TRAFFIC COUNT DATA

EXECUTIVE SUMMARY

The Kern Council of Governments (Kern COG) commissioned KOA Corporation to conduct an origin and destination truck study along State Routes (SR)-223, SR-166, SR-119, SR-46, and SR-65 within Kern County. This report documents the results of that effort.

These study corridors are primarily east-west routes that serve as interregional connectors within the County. Previous area studies conducted by KOA Corporation for Kern COG in 2009 analyzed the major north-south trucking routes along Interstate 5 (I-5) and SR-99 and another study that evaluated the major east-west SR-58 corridor from Bakersfield to Barstow in San Bernardino County.

Study Objectives and General Methodology

The objective of this truck study is to gain statistical information on the origin and destination of trucks traveling through Kern County on the study routes, and to better understand the types of cargo being transported by trucks. Information gained from the study will be used to assist regional and local transportation planning efforts, air quality and greenhouse gas emission analyses and the development of funding programs activities currently underway by Kern COG, Kern County, and other agencies.

The five study routes are located in generally rural and occasionally hilly portions of Kern County. This presented a data collection challenge, as the more traditional truck intercept surveys that were previously applied could not be conducted. An alternative method of collecting data was incorporated through the use of video surveillance. Images were collected of all vehicles traveling in both directions at the study locations during daylight hours, and were supplemented by vehicle classification counts.

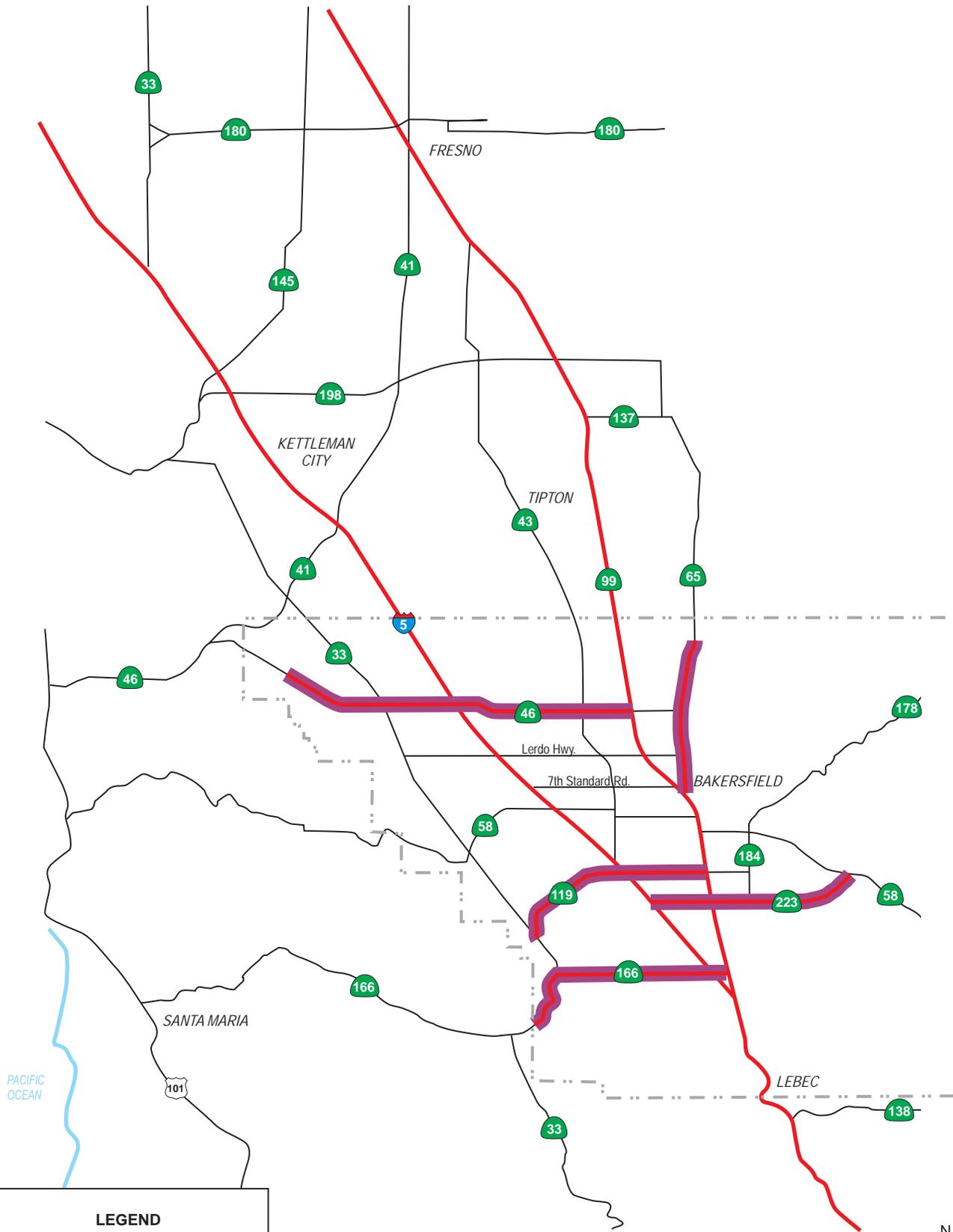
Due to the constraints associated with the data collection effort, the data that was collected was limited to truck types and visual checks on commodities, volumes and axle classifications. Data specific to the origin and destination of each truck was not collected. As a result, the analysis effort was modified to represent general origin and destination trends dependent on separate interviews that were undertaken with trucking companies observed to be using the study routes or third party shipping and logistics operators.

Data was collected for the study during summer months of 2010, in the form of vehicle classification counts, video surveillance, and phone interviews of identified commercial fleet operators. A literature review of other recent area studies related to trucks was also included. The following summary provides a brief description of each task and key findings.

Figure ES-1 illustrates the limits of the study area.

Literature Review

A total of 19 truck travel and mobility studies, previously conducted by Caltrans, nearby county governments, and other Councils of Government (COGs), were reviewed to identify relevant information and data that pertains to the current study. The identified studies either provide data for the project study area, or provide valuable concepts related to goods movement or lessons learned from other areas.



LEGEND

- Study Corridors
- Kern County Boundary



Not to Scale

Additional studies were incorporated for background context related to goods movement produced by other Departments of Transportation, COGs, and county agencies throughout California, but do not have specific relevance to study area goods movement and travel characteristics.

Vehicle Classification Counts

Passenger vehicle and truck counts were conducted on key roadway segments and at highway interchanges along SR-223, SR-166, SR-119, SR-46, and SR-65. The classification counts consisted of eight-day 24-hour counts at 16 locations and one-day peak-period (morning, mid-day, and afternoon) turning movement counts at 10 ramp interchanges/intersections, which coincided with the date of study route video surveillance activities. The general findings from the vehicle classification counts are as follows:

- Of the five study routes, SR-46 had the highest truck traffic based on the 24-hour counts and peak-period counts conducted on the route. Truck traffic along the SR-46 corridor is generally heaviest near the I-5 interchange within Lost Hills. This is likely due to the accessibility to the coast on the west and lack of significant curvilinear features of the roadway, as compared to the other study routes that have a significant number of curved segments.
- SR-46 volumes generally had a higher proportion of trucks. Additional routes with higher truck proportions included SR-223, SR-166, and SR-65. Although the total truck volumes were not as high as SR-46 (which ranged from approximately 20% to 60%) on these routes, the average percentage of trucks ranged from approximately 20% to 30%. This is significantly higher than typical roadways, where truck volumes proportions are usually less than five percent.

For a more details regarding the vehicle classifications and additional findings, refer to Chapter 3.0, "Vehicle Classification Counts".

Video Surveillance

There were a total of eight video surveillance locations within the study area. Video surveillance at each location was completed for one day during the daylight hours (6:00 a.m. to 8:00 p.m.) for each direction of traffic. The following summarizes the general findings from the video surveillance:

- A total of 10,797 trucks were captured using video surveillance.
- The majority of trucks (44.60%) were five-axle double unit types and the next most common were two-axle (27.16%) types.
- Of the freight truck types identified, the majority of the truck types fell into two categories – van and hopper. The largest proportion of truck equipment types were within the freight category at 77.24%. The service/work category included 21.60% of the trucks.
- For specific freight truck types, the van and hopper were the predominant truck types observed. Overall, the van truck types had the highest proportion of trucks at 39%. This was followed by the hopper truck types with 26.76%.
- For specific service/work truck types, the majority of truck types identified were in the tool (44.68%) and specialized/other (34.05%) categories.

- A noticeable directionality of truck volume flows was witnessed at the video surveillance locations. For east-west routes, the truck volumes tended to be higher in the morning going westbound. In the afternoon/evening period, the truck volumes tended to be higher going eastbound. For the north-south routes, there was no measurable directionality.
- Of the identifiable commodities, the top three commodities were miscellaneous/other, empty, and agricultural products. Most of the identified operators serve local customers that are agricultural.
- As compared to previous studies for I-5 and SR-99, the study routes have a larger proportion of farm vehicles, specialized trailing units and machinery used in agriculture and animal enterprises, feeds and equipment for such businesses, and flatbed and tank truck (liquid or dry) trailers.

For a more details regarding the video surveillance effort and additional findings, refer to Chapter 4.0, "Video Surveillance".

Commercial Fleet Operator Survey

Tioga Group, under a subcontract with KOA for this project, conducted a survey of commercial fleet operators within the study area. This was done to achieve a better understanding of commodities being transported in the corridor, including proximity to and rational for dispatching trucks onto the study routes by the fleet operators. There were 118 companies contacted for the survey, including commercial (for-hire) and shipping/receiving trucking firms. Ultimately, 35 firms completed the fleet operator survey.

The general findings from the survey across the study routes are as follows:

- The agribusinesses surveyed tended to be clustered east of Bakersfield. The more general purpose equipment, supply, warehouse, and distribution businesses tended to be more evenly distributed across the region.
- For national trucking companies, the study routes are not normally used as trucking routes. The study routes have a higher use by local trucking companies. While they are used by regional and national carriers, central office operations staff know relatively little about the specifics of their operation using these routes unless they know of a specific movement that probably uses the route or a specific customer on or near the route.
- The major complaints by truckers focus on the safety of the roadways. These are generally two-lane roads which allow relatively high travel speeds. There are slower-moving local and agricultural machinery traveling on the roads. Many drivers on the roadways are not local drivers and therefore have insufficient awareness of the safety issues associated with the highways (e.g. speed, local traffic conditions).
- There are seasonal factors that affect utilization of the routes. These involve the transport of unusual equipment related to agriculture and the related movement of those products.

- The study roadways are considered by the surveyed operators to be in good shape for rural roadways. The truckers are not comparing the roads to freeways, but rather to other area rural non-State Route roads.
- Truckers that primarily use the north-south routes (I-5 and SR-99) and are based beyond the study area (particularly the Los Angeles and Central Valley areas) tend to use these five routes only if they have a customer on one of the routes
- Truckers that access SR-58 to the east primarily only transit Kern County (not stopping at local industries) and prefer to use SR-58 when east of Bakersfield and SR- 46 when west of Kern.
- When traveling beyond Bakersfield to either the coastal counties or points north of Kern County, truckers will use I-5 or SR-99.
- SR-223 is often viewed as “the way to go to avoid SR-99, particularly at its junction with SR-58 just south of Bakersfield, particularly at rush hour” by truckers that wish to transit the area.
- SR-119, which is the primary route between Bakersfield and the Taft area, has a large amount of traffic related to petroleum production, since that is a major component of the Taft area economy
- There was relatively less agricultural traffic reported on SR-119. The area around Taft is rather arid, and much more dominated by petroleum than much of the rest of Kern County.
- Several firms use SR-166 to reach the Maricopa area. These were primarily petroleum-related trips, although all of the agricultural packing material suppliers reported significant use of this route as well.
- SR-223 is the primary route from Lamont, Arvin and Edison, either to SR-99 heading south or to SR-58 heading east.

For a more details regarding the commercial fleet operator survey and additional findings, refer to Chapter 5.0, “Commercial Fleet Operator Survey”.

I.0 PROJECT OVERVIEW

The Kern Council of Governments (Kern COG) commissioned KOA Corporation to conduct an origin and destination truck study for State Route (SR)-223, SR-166, SR-119, SR-46, and SR-65 within Kern County. This chapter provides an overview of the study's purpose, general background information, and analysis methodology.

1.1 Study Purpose and Need

The objective of this truck study is to gain statistical information on the origin and destination of trucks traveling through Kern County on the study routes, and to better understand the types of cargo being transported by trucks. Information gained from the study will be used to assist regional and local transportation planning efforts, air quality and greenhouse gas emission analyses and the development of funding programs activities currently underway by Kern COG, Kern County, and other agencies.

These study corridors are primarily east-west routes that serve as interregional and local connectors within the County. Previous area studies conducted in 2009 analyzed the major trucking routes going north-south along Interstate 5 (I-5) and SR-99 and another study that evaluated the major east-west route SR-58 corridor from Bakersfield to Barstow in San Bernardino County.

1.2 Study Route Background

The study area is comprised of five state routes within Kern County. The limits of the study corridor, defined by Kern COG at the start of the study include:

- SR-223 in Kern County from its junction with SR-58 to its junction with I-5.
- SR-166 in Kern County from its junction with SR-99 to the western county border east of New Cuyama.
- SR-119 in Kern County from its junction with SR-99 to its junction with SR-33 in the City of Taft.
- SR-46 in Kern County from its junction with SR-99 to the western county border.
- SR-65 from its junction with SR-99 to the northern county border.

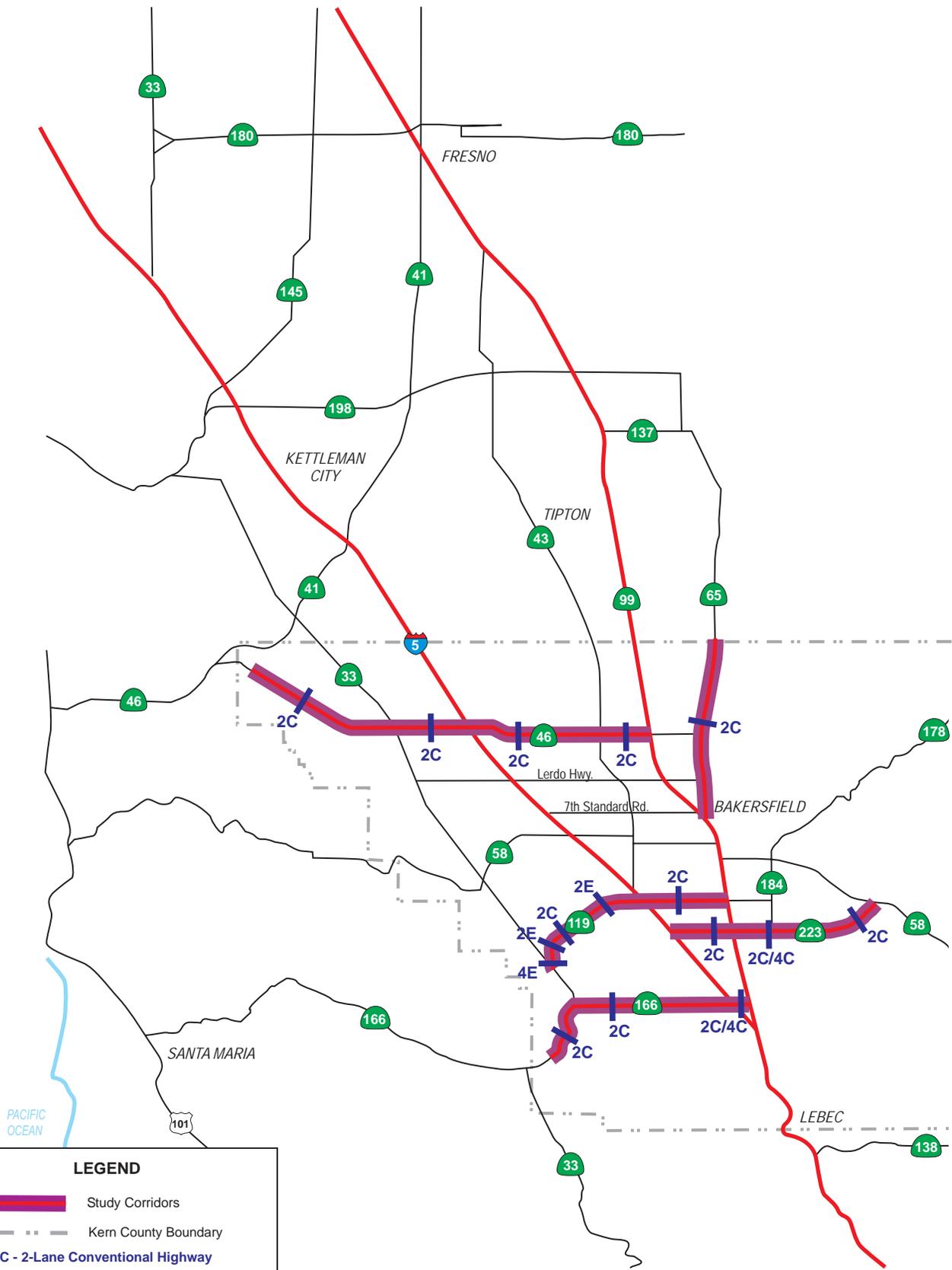
Figure I-1 illustrates the study area and functional roadway classifications.

The following sub-sections provide more details on the study routes included in the analysis.

1.2.1 State Route 223

California State Route 223 (SR-223) is an east-west highway that traverses rural areas. It provides 30 miles of highway between I-5 (north of Paloma) and SR-58 (near Caliente). The major interchanges to other highways and freeways on SR-223 include:

- I-5 (north of Paloma)
- SR-99 (south of Castle Ranch)
- SR-184 (south of Lamont)
- SR-58 (near Caliente)



LEGEND

-  Study Corridors
-  Kern County Boundary
- 2C** - 2-Lane Conventional Highway
- 2E** - 2-Lane Expressway
- 4C** - 4-Lane Conventional Highway
- 4E** - 4-Lane Expressway

Source:
 Caltrans. (2009). Transportation Concept Report - State Route 223.
 Caltrans. (2007). Transportation Concept Report - State Route 166.
 Caltrans. (2006). Transportation Concept Report - State Route 119.
 Caltrans. (2001). Transportation Concept Report - State Route 46.
 Caltrans. (2002). Transportation Concept Report - State Route 65.



SR-223 is generally a two-lane highway; however, a portion of the highway in Arvin is a four-lane highway. Grade separations are provided at the interchanges with I-5 and SR-99. Land use along the route is dedicated to agricultural activities, except in the Arvin which is comprised of commercial, industrial, and residential uses.

1.2.2 State Route 166

California State Route 166 (SR-166) is an east-west highway that traverses rural areas. It provides access from the Central Valley to the Central Coast of California along 96 miles of highway within the counties of Santa Barbara, San Luis Obispo, and Kern. SR-166 has its western terminus at SR-1 (in Guadalupe) and its eastern terminus at SR-99 (in Mettler). The major interchanges/intersections that connect to SR-166 include:

- SR-1 (Guadalupe) – Santa Barbara County
- US-101 (in Santa Maria) – Santa Barbara County/San Luis Obispo County
- SR-33 (east of New Cuyama to Maricopa) – Kern County/San Luis Obispo County
- I-5 – Kern County
- SR-99 (in Mettler) – Kern County

Within Kern County, SR-166 is approximately 34 miles long. It is a two-lane highway with a small segment between I-5 and SR-99 where it is a four-lane highway. Grade separations are provided at the interchanges with I-5 and SR-99. The largest community served by the route is Maricopa which is located at the SR-166 and SR-33 junction. Land use along the route is dedicated to agricultural activities, except in the community of Maricopa which is comprised of residential and commercial uses.

1.2.3 State Route 119

California State Route 119 (SR-119) is an east-west highway that is 31 miles long and is located entirely within Kern County. SR-119 has its western terminus at SR-33 (in Taft) and its eastern terminus at SR-99 (in Castle Ranch). The major interchanges/intersections along SR-119 include:

- SR-33 (in Taft)
- SR-43
- I-5
- SR-99 (Castle Ranch)

SR-119 is generally a two-lane highway or a two-lane expressway. However, a portion of the highway in Taft is a four-lane expressway. Grade separations are provided at the interchanges with I-5 and SR-99. The land uses that border the route include commercial, residential, agricultural, and oil fields. The largest community located on the route is the City of Taft.

1.2.4 State Route 46

California State Route 46 (SR-46) is an east-west highway that provides access from the Central Valley to the Central Coast of California (Monterey and San Luis Obispo counties) along 118 miles of road. The route has its west terminus at SR-1 (south of Cambria) and its east terminus at SR-99 (in Famoso). The major interchanges/intersections along SR-46 include:

- SR-1 (south of Cambria) – San Luis Obispo County

- US-101 (in Paso Robles) – San Luis Obispo County
- SR-41 (in Shandon) – San Luis Obispo County
- I-5 (in Lost Hills) – Kern County
- SR-43 (in Wasco) – Kern County
- SR-99 (in Famoso) – Kern County

Within Kern County, the east-west oriented SR-46 is approximately 58 miles long and serves the communities of Lost Hills, Wasco, and Famoso. SR-46 is a two-lane highway in the study area. Grade separations are provided at the interchanges with I-5 and SR-99. The route is primarily bordered by oil fields to the east of Lost Hills and then these border uses transition to residential and commercial land uses within Lost Hills. To the east, the area becomes agricultural and eventually passes through the community of Wasco which is a mix of residential and commercial land uses. To the east of Wasco, the area transitions back to agriculture.

1.2.5 State Route 65

California State Route 65 (SR-65) is a north-south highway that provides access from Bakersfield to Exeter along 40 miles of road within the counties of Tulare and Kern. SR-65 has its western terminus at SR-99 (in Bakersfield) and its eastern terminus at SR-198 (in Exeter). The major interchanges/intersections along SR-65 include:

- SR-198 (Exeter) – Tulare County
- SR-137 (Cairns Corner) – Tulare County
- SR-190 (in Porterville) – Tulare County
- SR-155 – Kern County
- 7th Standard Road/Merle Haggard Drive (in Bakersfield) – Kern County
- SR-99 (in Bakersfield) – Kern County

Within Kern County, the north-south SR-65 is a two-lane highway in the study area. The truck traffic tends to be local as it is servicing local customers between the Bakersfield area and Porterville.

1.3 Study Methodology

The study effort consisted of these four major data collection tasks:

1. Literature review and prior study data collection
2. Vehicle classification counts
3. Video surveillance
4. Commercial fleet operator survey

The five study routes are located in generally rural and occasionally hilly portions of Kern County. This presented a data collection challenge since more traditional truck intercept surveys could not be conducted. There are no available truck stops/rest areas along the study routes where trucks could be pulled over for such surveys. Therefore, an alternative method was undertaken to collect the requisite data. This method incorporated the use of video surveillance to collect images of all vehicles traveling in both directions at the study locations during the daylight hours. There was approximately 112 hours of video data collected during the entire video survey.

Due to the constraints associated with data collection, the data was limited to truck types and visual

checks on commodities, volumes and axle classifications. Outreach to identified trucking companies was pursued to question operations on typical routes traveled. Data specific to origin and destination was not collected. As a result, the data collection effort was modified to represent general origin and destination trends dependent on the interviews with trucking companies.

This section provides a brief description of the methodology used for each of the four major tasks.

1.3.1 Literature Review and Data Collection

A total of 19 truck and mobility studies were identified and reviewed to obtain relevant information and data that pertains to this current study effort. The process of data collection required public website searches for studies that pertained to some of the following key words: truck study, origin and destination, goods movement, Kern County. The results of the search provided studies within the state conducted by Caltrans, COGs, other state agencies, metropolitan planning organizations (MPOs) and nearby counties.

Based on the review of available reports and data, a synopsis of each document was created. Generally, the available data obtained are previous vehicle counts and general background information. The details of this task are provided in Section 2.0, "Literature Review and Data Collection", of this report.

1.3.2 Vehicle Classification Count

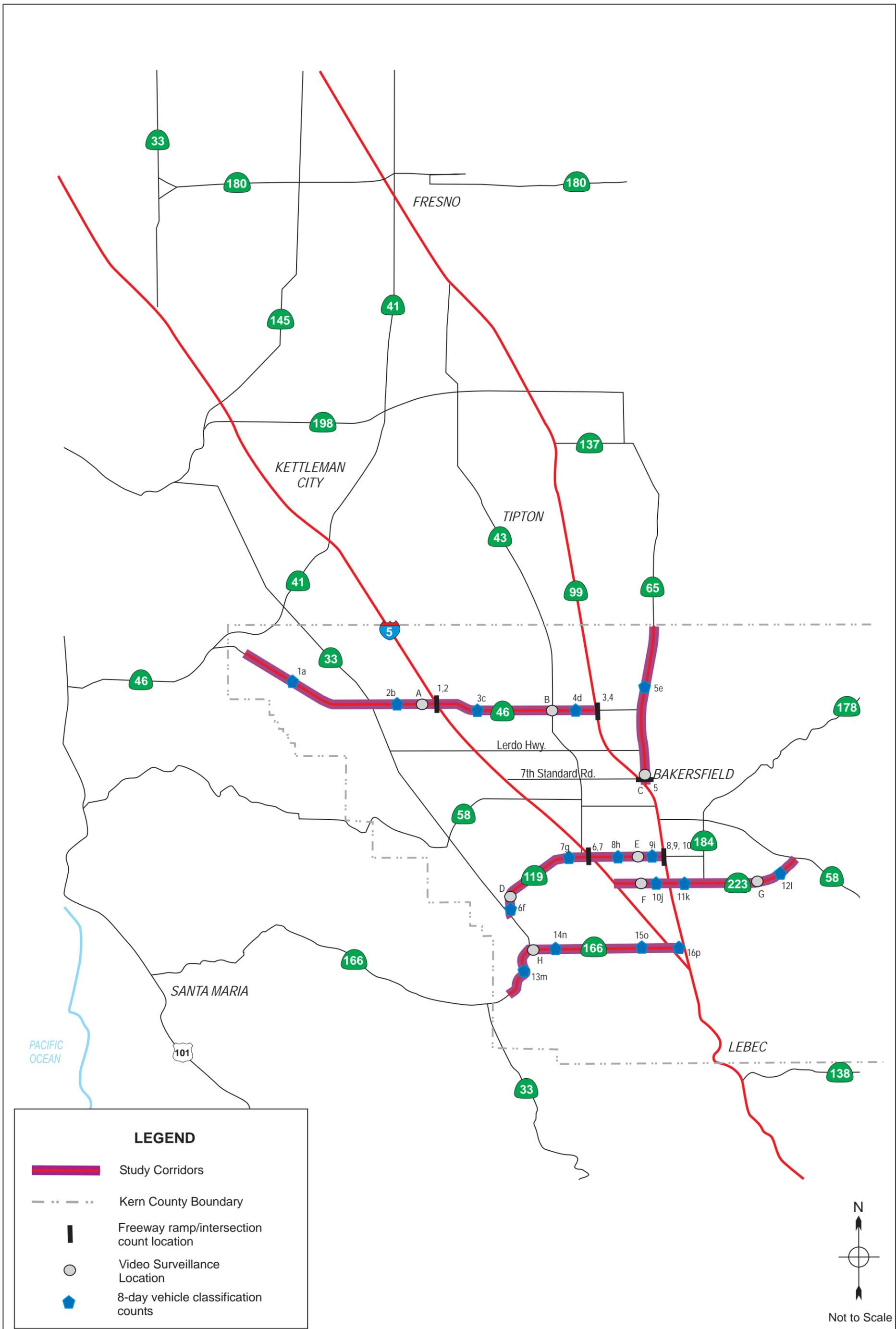
Vehicle classification counts (which included passenger vehicles and trucks) were conducted at key interchanges and intersections along the five study routes. Machine (automatic 24-hour) counts were conducted for an eight-day period at 16 key highway segments. The turning movement counts were conducted at a total of 10 interchange/intersection locations and included data for the morning, mid-day and afternoon peak period.

Figure 1-2 illustrates all of the study count locations and video surveillance locations.

24-Hour Classification Counts

The 16 machine count locations were conducted from Thursday, July 15, 2010 to Thursday, July 22, 2010. An additional count was conducted on SR-119 on Tuesday July 27, 2010 due to technical issues in the field. The 16 locations included the following:

1. SR-46, between Kecks Road and Bitterwater Valley Road
2. SR-46, between SR-33 and Holloway Road/Brown Material Road
3. SR-46, between Corcoran Road and Rowlee Road
4. SR-46, between Smith Avenue and Beech Avenue
5. SR-65, between Sherwood Avenue and Famoso-Woody Road
6. SR-119, between Harrison Street and Cedar Street
7. SR-119, between Tupman Road/Golf Course Road and Tank Farm Road



8. SR-119, between Buena Vista Road and Old River Road
9. SR-119, between Giminiani Land and Hughes Lane
10. SR-223, between Ashe Road and Stine Road
11. SR-223, between Adobe Road and Fairfax Road
12. SR-223, between Rockpile Road and General Beale Road
13. SR-166, between Elkhorn Grade Road and Clark Street
14. SR-166, between Brummett Way and Short Road
15. SR-166, between Old River Road and I-5
16. SR-166, between I-5 and SR-99

Turning Movement Counts

The 10 turning movement counts were conducted during the morning (6:00 a.m. to 9:00 a.m.), mid-day (11:00 a.m. to 2:00 p.m.) and afternoon/evening (4:00 p.m. to 7:00 p.m.) peak periods. These count location dates were as follows:

- Locations 1 and 2 – SR-46 and I-5 NB/SB ramps (Tuesday, July 20, 2010)
- Locations 3 and 4 – SR-46 and SR-99 NB/SB ramps (Tuesday, July 20, 2010)
- Locations 5 – SR-65 and 7th Standard/Merle Haggard Drive (Thursday, July 15, 2010)
- Locations 6 and 7 – SR-119 and I-5 NB/SB ramps (Tuesday, July 27, 2010)
- Locations 8, 9, and 10 – SR-119 and SR-99 NB/SB ramps (Tuesday, July 27, 2010)

The turning movement dates for the study routes coincided with the video surveillance schedule, in order to capture as much data as possible during the video surveillance timeframe.

Further details, results and findings from this portion of the study are provided in Section 3.0, “Vehicle Classification Counts”, of this report.

1.3.3 Video Surveillance

Video Surveillance was conducted at a total of eight locations to survey truck traffic along the study routes. Video surveillance at each location was undertaken for one day during the daylight hours (6:00 a.m. to 8:00 p.m.) for each direction of traffic flow. For routes that had multiple survey locations, the video surveillance was conducted on the same day for consistency. The locations and surveillance dates were as follows:

- Locations A and B – SR-46 at two locations (Tuesday, July 20, 2010)
- Location C – SR-65 at one location (Thursday, July 15, 2010)
- Locations D and E – SR-119 – at two locations (Tuesday, July 27, 2010)
- Locations F and G – SR-223 – at two locations (Thursday, July 22, 2010)
- Location H – SR-166 at one location (Thursday, July 15, 2010)

Prior to the start of the video surveillance effort, KOA coordinated with Caltrans District 6 for encroachment permits and the ideas of proper safety processes. Additional coordination included meetings between the stakeholders (Kern COG, Caltrans District 6, KOA, and NDS (the count company)) and law enforcement officials with the California Highway Patrol Buttonwillow Station.

A project database for the organized selection of truck type/commodity data was created through discussion and input with Tioga Group. Once the data was gathered in the field, the next step was to view the videos and catalog the truck and equipment type along with any visible commodities into the project database. The information that was gathered for inclusion into the database was based on categories which included locational information, classification, and truck information. The specific categories and their options were as follows:

Locational Information

- *Date* – July 15, July 20, July 22, and July 27
- *Time* – Anytime between 6:00 a.m. to 8:00 p.m.
- *Location* – A, B, C, D, E, F, G, and H
- *Direction* – northbound (NB), southbound (SB), eastbound (EB), and westbound (WB)

Classification

- *Federal Highway Administration (FHWA) classification type* – Types 5 to 13
- *Equipment Type* – Freight, Service/Work, and Unknown. Although all trucks may carry some form of freight, for the purpose of this study freight refers to an equipment type.
- *Freight Truck Type* – The majority of freight trucks identified consisted of these types: Dry Van, Dump, Flatbed/Platform, Liquid Tank, Pressurized Gas Tank, Open Top, Specialized/Other, Reefer, Tautliner, Double Bottom Dump
- *Service/Work Truck Type* – The majority of service/work trucks identified consisted of these types: Bucket, Cement Mixer, Closed Van, Crane, Drilling, Dump, Flatbed, Oil Field Equipment, Open Van, Specialized/Other, Pumper, Stake, Tool, Tow, Trash, Unknown

Truck Information

- *Truck Name* – if applicable
- *Cab Information* – if applicable
- *Commodity* – if applicable
- *Notes* – if applicable

Additional information specific to video filename and video log time, differing for each individual location, were cataloged for reference. The details, results and findings from this task are provided in Section 4.0, “Video Surveillance”, of this report.

Table I-1 provides a sample of the video surveillance database. Table I-2 provides the FHWA vehicle classification types used to classify truck types. There are a total of 13 classes which include motorcycles, passenger vehicles, buses, and trucks. For the purpose of this study, only the truck classes were considered (Types 5 to 13).

1.3.4 Commercial Fleet Operator Survey

The Tioga Group conducted a commercial fleet operator survey. Using multiple sources, Tioga compiled a list of likely fleet truck operators for this survey. This list included both businesses and trucking companies in the study area that were likely to operate their own vehicles, and companies that were identified from the video surveillance. The list contained approximately 29 names for commercial (for hire) and just over 150 names for shipper/receiver trucking firms. All telephone numbers were called, multiple times if required.

Table I-1: Video Surveillance Database Sample

Date	Time	Location	Direction	Classification						Truck Name	Cab Information	Commodity	Notes
				FHWA Classification	Equipment Type	Freight Truck Type	Other	Service/Work Truck	Other				
7/27/10	6:00 AM	D	NB	5	Service/Work				Tool				
7/22/10	6:00 AM	F	WB	6	Freight	Liquid Tank - Petroleum							
7/15/10	6:00 AM	C	NB	9	Freight	Dry Van							
7/22/10	6:00 AM	F	WB	9	Freight	Dry Van				Fineline Carriers, Inc.			
7/22/10	6:00 AM	F	WB	9	Freight	Reefer							
7/27/10	6:00 AM	E	EB	9	Freight	Pressurized Gas Tank							
7/27/10	6:00 AM	E	EB	11	Freight	Double Bottom Dump							
7/27/10	6:00 AM	E	EB	11	Freight	Flatbed/Platform					Unknown		
7/15/10	6:01 AM	C	NB	6	Freight	Dump							towing flatbed trailer
7/20/10	6:01 AM	B	EB	9	Freight	Auto Transport							
7/20/10	6:01 AM	B	WB	9	Freight	Flatbed/Platform							
7/15/10	6:01 AM	C	SB	9	Freight	Heavy Haul Low Bed							
7/22/10	6:01 AM	F	WB	9	Freight	Liquid Tank - Crude							
7/15/10	6:01 AM	H	WB	9	Freight	Liquid Tank - Petroleum							
7/22/10	6:01 AM	F	EB	11	Freight	Double Bottom Dump							
7/22/10	6:01 AM	F	EB	11	Freight	Transfer Dump							
7/22/10	6:01 AM	F	WB	11	Freight	Transfer Dump							
7/22/10	6:01 AM	F	WB	11	Freight	Transfer Dump							
7/20/10	6:01 AM	A	WB	9	Freight	Dry Van							
7/20/10	6:01 AM	A	EB	9	Freight	Dry Van							
7/20/10	6:01 AM	A	WB	9	Freight	Dry Van							
7/20/10	6:01 AM	A	EB	9	Freight	Dry Van							
7/15/10	6:02 AM	C	NB	5	Service/Work				Closed Van	Cintas			
7/22/10	6:02 AM	F	WB	5	Service/Work				Bucket				
7/15/10	6:02 AM	C	NB	6	Freight	Transfer Dump							
7/22/10	6:02 AM	G	EB	6	Service/Work				Trash				
7/20/10	6:02 AM	B	EB	9	Freight	Dry Van							
7/20/10	6:02 AM	B	EB	9	Freight	Flatbed/Platform							
7/20/10	6:02 AM	B	EB	9	Freight	Liquid Tank - Petroleum							
7/20/10	6:02 AM	B	EB	9	Freight	Reefer							
7/15/10	6:02 AM	C	NB	9	Freight	Dry Van				Gardner Trucking Inc.			
7/22/10	6:02 AM	F	WB	9	Freight	Dump							
7/20/10	6:02 AM	B	EB	10	Freight	Deep Drop/Drop Frame				Mayflower			
7/20/10	6:02 AM	B	WB	11	Freight	Flatbed/Platform					Empty		
7/20/10	6:02 AM	A	WB	9	Freight	Open Top							
7/20/10	6:02 AM	A	WB	6	Freight	Flatbed/Platform							
7/27/10	6:02 AM	E	WB	9	Freight	Dump							
7/20/10	6:02 AM	A	WB	11	Freight	Flatbed/Platform					Empty		
7/20/10	6:02 AM	A	WB	9	Freight	Dry Van							truck name not clear
7/20/10	6:02 AM	A	WB	9	Freight	Container							
7/20/10	6:02 AM	A	WB	5	Service/Work				Bucket				
7/20/10	6:03 AM	B	WB	5	Service/Work				Tool				
7/15/10	6:03 AM	C	NB	5	Unknown								High profile semi
7/20/10	6:03 AM	B	EB	9	Freight	Dry Van							
7/15/10	6:03 AM	C	SB	9	Freight	Heavy Haul Low Bed					Empty		
7/15/10	6:03 AM	C	SB	11	Freight	Flatbed/Platform					Empty		
7/22/10	6:03 AM	F	WB	11	Freight	Transfer Dump							

Table I-2: Vehicle Classification

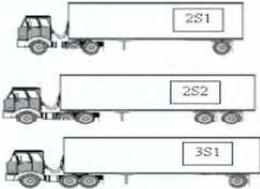
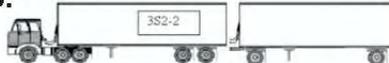
1.		Motorcycles
2.		Passenger Cars, Light Vans, Light Pick-Ups including those hauling those recreational and other trailers.
3.		2 Axle 4 Tire - Full Size Pick-Ups, Full Size Vans, Limos, Motor Homes including those hauling recreational and other trailers.
4.		Buses
5.		2 Axle, 6 Tire Single Unit
6.		3 Axle Single Unit
7.		4 Axle Single Unit
8.		4 Axle or Less Double Unit, One Unit is a Truck
9.		5 Axle Double Unit, One Unit is a Truck
10.		6 or More Axle Double, One Unit is a Truck
11.		5 Axle or Less Multi Unit
12.		6 Axle Multi Unit
13.		7 or More Axle Multi Unit

Table I-3 provides the contact list of the commercial (for hire) companies surveyed. Table I-4 provides the contact list of the shipper/receiver companies surveyed.

For companies that responded, an approximately 15-minute, 14-question survey was conducted to gain a better understanding of the types of companies and their subsequent use of a particular route, or multiple area routes, for their operations. Figure I-3 provides the sample interview form.

The details and results of this task are provided in Section 5.0, “Commercial Fleet Operator Survey”, of this report.

Table I-3 Kern COG Study Contact List – Commerical (for hire) Firms

Name	City	Name	City
Ability Tri Modal		Halliburton	Houston
AC Trucking		Indiana Western Express	
Accu-trans		JB Hunt Intermodal	
American Pacific		John Christner	Sapulpa
Apex Bulk		Knight Transportation	
ARAMARK	Bakersfield	Lone Star	Bakersfield
Brian Zinn Trucking		Marten Transport	
California Multi-modal		Oilfields Trucking	
Chas. R. Diaz		Ramirez	Bakersfield
Con-way Freight		Sturgeon & Son	
Con-way Truckload		Swift Transportation	
CR England		Wal-Mart	Porterville
DDC		Western Milling	Goshen
FedEx Freight		Young's Commerical	
Grimmway Farms	Bakersfield		

Source: Tioga Group

Table I-4 Kern COG Study Contact List – Shipper/Receiver Firms

Name	City	Type	Name	City	Type	Name	City	Type	Name	City	Type
A & A Express		Refrigerated transport	De Le Garza Trucking Co.	Arvin	Trucking	John J Kovacevich & Sons	Arvin	Grower-Shipper	Quinn Pumps		Oil Field Service
Agricare	Arvin	Cold Storage	Del Campo Trucking	Lamont	Trucking	Johnston Farms	Bakersfield	Dairy	R & N Enterprises	Bakersfield	Construction Equipment
Agro Chemical	Bakersfield	Scientific Equipment	Delta Scale	Bakersfield	Scientific Equipment	Johnston Farms	Bakersfield	Farm	randy's Trucking		Oil Field Service
ALG Enterprises	Arvin	Farm	D-J Manufacturing Inc	Bakersfield	Screw Machines Products	Johnston vacuum Tank Service	Taft	Oil Field Service	Re Screen & Glass	Bakersfield	Glass
Alvarez Feed & Pet	Bakersfield	Feed Dealer	Dunlap Auto Sales	Bakersfield	Auto Dealer	Jr Pallets	Bakersfield	Pallet sales	Ruben's Pipeline	Bakersfield	Pipeline Contractor
Atlantic Oil Co.	Bakersfield	Oil & Gas Exploration	E. A. Shields Inc.	Bakersfield	Building Material Sales	Kern Chemical & Equipment Co.	Bakersfield	Chemicals	San Joaquin Valley Dairy Equipment	Bakersfield	Farm Equipment
Baker Hughes		Oil Field Service	Eagle Trucking & Crane	bakersfield	Trucking	Kern Ice & Cold Storage Co.	Bakersfield	Cold Storage	Sandoval Construction	Bakersfield	Pipeline Contractor
Bakersfield Auto Auction	Bakersfield	Auto Dealer	East Hill Feed & Supply	Bakersfield	Feed Dealer	Kern Oil & Refining	Bakersfield	Petroleum Products	Scale House	Arvin	Grower-Shipper
Bakersfield Cold & Dry Storage	Bakersfield	Cold Storage	Flashco	Bakersfield	Warehouse	Kern Ridge Growers LLC	Arvin	Grower-Shipper	Schlumberger		Oil Field Service
Bakersfield Cotton Warehouse	Bakersfield	Warehouse	Fleet Parts & Instruments Co	Bakersfield	Scientific Equipment	Kern River Scale	Bakersfield	Scientific Equipment	Sierra Recycling & Demolition	Bakersfield	Chemicals
Bakersfield Irrigation Co.	Bakersfield	Farm Supply	FMP Vineyards	Bakersfield	Scientific Equipment	Kerschman Enterprises	Arvin	Grower-Shipper	Sierra Valley Ag Supply	Bakersfield	Farm Supply
Baldwin		trucking	Frank H. Guidera Co	Bakersfield	Containers and Packaging	Key Cold Storage	Arvin	Cold Storage	Simplot Soilbuilders	Bakersfield	Farm Supply
Banner Farms Inc	Bakersfield	Farm	Frazier Industrial Co.	Bakersfield	Sand and Gravel Sales	Kim Marrs Excavation	Bakersfield	Pipeline Contractor	Stillwell Equipment Sales	Bakersfield	Machinery & Tools
Bartley Trucking	Bakersfield	Trucking	Freymler		Trucking	Kimber Pallets	Bakersfield	Pallet sales	Sully & Sons Hydraulics Inc	Bakersfield	Machinery & Tools
Bhandol Bros. Trucking		Trucking	Galbraith's Horse Trailer Sales	Bakersfield	Trailer Sales	Kirschenmann Enterprises, inc	Lamont	Grower-Shipper	Sunridge Nurseries	Bakersfield	Nursery
Bidart Bros Apple Packing	Shafter	Cold Storage & packing	Garcia Family Farms	Arvin	Grower-Shipper	Kundert Brothers Farms	Bakersfield	Farm	Sunrise Sprayers	Bakersfield	Farm Equipment
Bill Davis Trucking		Trucking	Garrett Moving & Storage	Barstow	Trucking	Landstar Inway inc	Bakersfield	Propane Sales	Sunview Vineyards	Arvin	Grower-Shipper
Bolt house Farms -- Shipping Dept.	Bakersfield	Grower-Shipper	GE Aeroderivative & Package	Bakersfield	Power Plant Equipment	Lehr Brothers, Inc.	Bakersfield	Farm	Target Distribution Center	Shafter	Merchandise distribution
Brock's Trailers	Bakersfield	Trailer Sales	General Scales Inc	Bakersfield	Scientific Equipment	M&M Boys Irrigation	Bakersfield	Farm Supply	Toy's Turf	Bakersfield	Farm
Brown & Fowler Construction	Bakersfield	Pipeline Contractor	Gold Ribbon Potato Co.	Arvin	Grower-Shipper	Maxco Supply	Lamont	Containers and Packaging	Trail Liner		Trucking
BS&E Co Inc.	Bakersfield	Warehouse	Golden State Metals	Bakersfield	Metals	Mazzei injector Corp	Bakersfield	Farm Supply	Trino Packing & Cold Storage	Arvin	Grower-Shipper
Buds Oil Co.	Edison	Oil & Gas Exploration	Green Earth Resources Inc	Arvin	Oil & Gas Exploration	McClusky Machinery	Edison	Machinery & Tools	Triple E Trucking	Bakersfield	Sand & Gravel Hauling Equipment
Bugni Hardware & Feed	Arvin	Farm Supply	Green Valley Packers LLC	Arvin	Grower-Shipper	Mid-Cal Materials Inc.	Bakersfield	Building Material Sales	U S Oil Field Supply		Oil Field Service
Bulk Yard	Bakersfield	Sand & Gravel Hauling Equipment	Griffith Co	Bakersfield	Pipeline Contractor	Mojave Pipeline Operating Co	Bakersfield	Pipeline Operator	United States Cold Storage	Bakersfield	Cold Storage
Burt's Distributing	Bakersfield	Producers Dairy Distributor	Grimmway Farms	Arvin	Farm	Newby Rubber Co.	Bakersfield	Rubber	Valley Propane Service	Bakersfield	Propane Sales
C & W Irrigation Inc.	Bakersfield	Farm Supply	Grimmway Farms	Bakersfield	Farm	Occidental Elk Hills		Oil Field Service	Ventura Directional Drilling	Bakersfield	Pipeline Contractor
C R England		Trucking	Grimmway Farms	Lamont	Farm	Ojeda Trucking	Arvin	Trucking	Virginia Ford Trucking, Inc.	Bakersfield	Warehouse and Trucking
Cal Organic Farms	Lamont	Grower-Shipper	Halliburton	Taft	Oil Field Service	Pacific Irrigation Inc.	Bakersfield	Farm Supply	Vulcan Materials Co.	Bakersfield	Building Material Sales
Calcot Ltd	Bakersfield	Cotton sales	Halliburton	Bakersfield	Oil Field Service	Pacific Pipeline System	Bakersfield	Pipeline Contractor	Walco International	Bakersfield	Car Sales
Caliente Farms	Arvin	Farm	Happie Bee Co.	Bakersfield	Beekeeper	Pacific Transport Refrigeration	Bakersfield	Trucking	West Valley Construction Co	Bakersfield	Pipeline Contractor
Calpi, Inc.		Oil Field Service	Henderson Trucking		Trucking	Paramount	Delano	Agribusiness	Western Nutrients Corp/Western Mixers	Bakersfield	Farm Supply
Calpine Containers	Lamont	Packaging Material	HPS Mechanical Inc.	Bakersfield	Pipeline Contractor	Penske Truck Rental	Bakersfield		Western Warehouse	Bakersfield	Warehouse
Cattani & Sons	Bakersfield	Farm	Hydratec	Arvin	Farm Supply	Pepsi bakersfield	Bakersfield		White Wolf Potato Co.	Arvin	Grower-Shipper
Central Valley Packaging	Bakersfield	Containers and Packaging	Hydril Co		Oil Field Service	Peter Deboer Dairy	Bakersfield	Containers and Packaging	Wholesale Fuel, Inc.	Bakersfield	Petroleum Products
Copart Salvage Auto Auctions	Bakersfield	Auto Dealer	Indoff inc	Bakersfield	Cargo and Freight Service	PIL			William Bolthouse Farms Inc	Bakersfield	Farm
Corotto Co.	Bakersfield	Farm	Inman Trucking		Trucking	Praxair			World Seed	Bakersfield	Farm Supply
Cox Petroleum Transport	Bakersfield	Trucking	ISD Transportation	Bakersfield	Trucking	Prime, Inc.		Trucking	Zack's Big Tree Nursery	Bakersfield	Nursery
CTI		Trucking	IWX		Trucking	Producers Dairy	Fresno				
Cummins West Inc	Bakersfield	Diesel Engines & Parts	J H Biotech Inc.	Bakersfield	Farm Supply	Progressive Farms	Bakersfield	Cotton sales			
David L Moore Farms	Bakersfield	Grower-Shipper	John Chrisner Trucking		Trucking	Quality Fabrics & Supply Co.	Bakersfield	Containers and Packaging			

Source: Tioga Group

KERN COG

**Truck Origin & Destination Study
Truck Fleet Operator Survey Guide
SR-46, 65, 119, 223 and 166**

This survey guide would be used in telephone contacts with private and commercial truck fleet operators whose vehicles use or would be expected to use the study routes.

The Tioga Group is working with the Kern County Council of Governments and Caltrans on a trucking study of portions of five state highways in Kern County. Kern COG and Caltrans are interested in what you and your drivers think about these routes to help them plan improvements. This should take somewhere between three and fifteen minutes.

Name _____ Company _____ Location _____ Phone _____

Study route use. Does your company operate trucks on:

- SR 46 between Hwy 99 and I-5, and/or west to Hwy 101?
- SR 65 from Hwy 99 north in the direction of Porterville?
- SR 119 between Hwy 99 and SR 33 (i.e. Bakersfield & Taft)?
- SR 223 between Hwy 58 to and including I-5 (N.B. This passes through Hwy 99)?
- SR 166 between Hwy 99 and SR 33 (near Maricopa)?

1. Yes _____ (continue) No _____ (verify and end survey)
2. Company type
 Commercial trucker Private fleet Other _____
3. Relevant operating base/terminal/layover locations on these routes, if any?
4. Scope of company operations (Check: Is this one part of a larger company?)
 National Regional Local Other _____

5. How many times per week does your company use...? (mark all that apply)

SR46 _____	SR65 _____	SR119 _____	SR223 _____	SR166 _____
------------	------------	-------------	-------------	-------------

6. Type of trucks operated on the study route (check all that apply)
- Semi tractor-trailer Doubles Straight truck Auto rack
 - Dry Van Flatbed Dump Tank/liquid bulk
 - Livestock Reefer Dry bulk Other Bobtail

7. Primary commodities hauled (description, to be coded later) _____
 How many one-way trips do your trucks make over the study route in a typical week? _____.
8. How would you describe you company's use of the study route(s)?
(categories plus open-ended narrative as needed)
 Through trips between other areas.
 One or fewer weekly inbound trips from other areas to consignees in the area.
 Two or more weekly inbound trips from other areas to consignees in the area.
 One or fewer weekly outbound trips from shippers in the area to other areas.
 Two or more weekly outbound trips from shippers in the area to other areas.
 One or fewer weekly between shippers and consignees in the area.
 Two or more weekly trips between shippers and consignees in the area.
 Comments: _____
 Do the trucks make round trips or operate peddle/delivery routes over the study route?
 Describe: _____
9. Is your use of the study routes seasonal? _____ When is peak season? _____
 How many per week in peak season? _____ Off peak? _____
10. Does your use of the study routes change in winter or during storms (versus the rest of the year)? _____ If so, why? _____
 If you divert trucks to or from the study routes in winter or during storms, what are your preferred alternatives? _____
11. Has your use of the study route increased or decreased over the last 5 year period?

12. Comments on operating conditions over the study routes? _____

Source: Tioga Group

2.0 LITERATURE REVIEW AND DATA COLLECTION

This chapter summarizes the literature review and historical data collection effort conducted as part of this study.

2.1 Summary

KOA Corporation has conducted a review of all goods movement documents and reports completed regionally and throughout the State to collect information as it relates to the SR-223, SR-166, SR-119, SR-46, and SR-65 Truck Origins and Destinations Study. A total of 19 studies were reviewed to identify relevant information and data that pertains to the study. In general, the studies provide historical and statistical information that include goods movement trends, traffic counts, level of service, and planned roadway improvements to assist in gaining a better understanding of goods movement in the region. Additional studies were incorporated for their background context as it relates to goods movement, but do not have any geographic relevance to this specific study area.

The results of this effort were used during the analysis phase of the study as a valuable resource in relating study findings, and providing a more comprehensive understanding about goods movement along the current study routes and within the Kern County region.

The following sections summarize the information compiled through the literature review.

The sub-sections below are organized in the following manner:

- Central Valley Studies – This section contains eight studies.
- Other California Studies – This section contains seven studies.
- Goods Movement Action Plans – This section contains four studies.

2.2 Central Valley Studies

The following provides a synopsis of Central Valley studies:

Metropolitan Bakersfield General Plan Update - Circulation Element, (Kern County and City of Bakersfield, 2000).

This purpose of this study was to identify existing and future circulation and transportation issues within Bakersfield. The study summarizes the existing conditions to create a guide for future implementation of the circulation system. The input/output analysis conducted for the project modeling effort indicated the strong linkages that the goods movement sector has with the rest of the region's economy. The analysis also showed that the linkages between suppliers and service providers are strong for all transportation sectors except rail. The study recommended that the region should work together to plan for expansions of the goods movement industry in key locations that have adequate access. It was recommended that support for goods movement activities, especially local serving retail, should be encouraged.

The General Plan Update Circulation Element, although near the current study routes, does not provide relevant goods movement information that would be useful for this study.

Goods Movement Study for US-395 Corridor, (Caltrans District 9, June 2006) – conducted by KOA Corporation.

The purpose of the study was to identify goods movement travel patterns along SR-14, US-395, and US-6, to identify the type of goods and modes of transportation within the corridor, and to develop a better understanding of goods distribution between Southern California and Northern Nevada. The goods movement study included for tasks specifically designed to meet the goals and objects of the study that included: conducting truck classification/axle count surveys, conducting truck driver intercept surveys/interviews, conducting local and regional fleet operator surveys/interviews, and documenting the findings.

The findings of the study included goods distribution patterns and truck volume data within the US-395 Corridor.

From this study, statistical data and background context based on a seasonal perspective can be utilized for the current study. Although specific vehicular volumes and distributions are not applicable to the current study, the goods movement patterns along the US-395 corridor does provide insight into determining overall trucking distributions (truck type, commodity type, origin/destination, and fleet surveys) in the region. This information can be utilized to assist in planning and modeling efforts in Kern County.

Kern County General Plan - Circulation Element, (Kern County, 2000).

This purpose of this study was to identify existing conditions to be utilized in the development of guiding policies for future implementation of the circulation system. The circulation element focuses on specific areas where staff expects transportation issues exist or will occur in the future. The study findings related to truck operations included recommendations to start a program to monitor truck traffic operations, monitor truck lane pavement condition, and consideration for adding weigh stations on SR-46 near Keck's Corner and SR-166 near City of Maricopa.

The General Plan Circulation Element details some of the study area routes (SR-166, SR-65, and SR-46), however the data does not provide relevant goods movement information that would be useful for this current study.

SR-58 Origin and Destination Truck Study, (SANBAG, Kern COG, and Caltrans District 6, 8, 9, and Headquarters, February 2009) – conducted by KOA Corporation.

The purpose of the study was to gain statistical information on the origin and destination of trucks traveling along SR-58 in San Bernardino and Kern counties. The study contributes to providing a better understanding of the directional truck distribution and types of cargo being transported in the region for use in future planning efforts. The project tasks included literature review, vehicle classification counts, truck intercept surveys, and commercial fleet operator surveys during the fall and spring seasons.

The study provided insight into seasonal truck goods movement patterns and truck volume data along SR-58.

From this study, statistical data and background context (truck type, commodity type, origin-destination, etc.) based on a seasonal perspective can be utilized for the current study. Overall, this study assists in providing a greater understanding of goods movement patterns in the Kern County region as it relates to truck volumes and origin-destination and the type of goods and trucks moving along SR-58 and their relationship to I-5 and SR-99.

I-5/SR-99 Origin and Destination Truck Study, (Kern COG and Caltrans, October 2009) – conducted by KOA Corporation.

The purpose of the study was to gain statistical information on the origin and destination of trucks

traveling along I-5/SR-99 within Kern County, similar to the SR-58 Origin and Destination Study. The study contributes to providing a better understanding of the directional truck distribution and types of cargo being transported in the region for utilization in future planning efforts. There were three major data collection tasks involved in the project, which included vehicle classification counts, truck intercept surveys, and commercial fleet operator surveys during the fall and spring seasons.

The project findings helped to define truck distribution patterns along I-5/SR-99 from a seasonal standpoint through the surveys and truck volume data collected.

From this study, statistical data and background context can be utilized for the current study. Relevant data includes truck volumes and origin-destination and the type of goods and trucks moving along I-5 and SR-99, as these are key goods movement corridors that generally intersect/connect with all the study routes.

Draft Metropolitan Bakersfield General Plan Update: Existing Conditions, Constrains, and Opportunities Report – Circulation Element, (Kern County and City of Bakersfield, April, 2009).

This draft report highlights issues, challenges, and recommends changes to the existing General Plan for consideration during the update. There are issues that may pose challenges to area growth and development, while there are challenges that provide opportunity for capitalizing on existing or future conditions or trends. The recommendation within this report will be used to assist in the creation of new or updated goals within the General Plan update. The study findings included potential revision of the city's existing truck routes when necessary, and participation in city and county route alignment, travel demand studies and interchange studies in conjunction with Caltrans and Kern COG.

The General Plan Update Circulation Element mentions some of the study facilities in the City, which includes SR-223, SR-119, and SR-65, however, there is no sufficient information specific to area trucking patterns, vehicular volumes, and facilities that would be useful for this study.

Draft 2011 Regional Transportation Plan, (Kern COG, 2010).

The Regional Transportation Plan is a 24-year plan that establishes regional transportation goals, objectives, polices and actions that are utilized as a guide in development of future multimodal transportation systems in Kern County. There is a Freight Movement Action Element that discusses the existing conditions and future needs. Strategies included better involvement and communication between freight stakeholders, possible public private partnerships, and infrastructure improvements.

This report is a Countywide plan that has information regarding goods movement and specific transportation projects within Kern County that relates to the current study. Relevant information that can be utilized for this study includes the description of the region's freight mobility as being served by three separate types of freight movement: (1) primary – inter-regional thru-county, (2) secondary – freight destined/originating locally, and (3) tertiary – local freight delivery. Additionally, existing and future conditions are detailed with regard to primary truck good movement facilities and corridors in the region.

State Route Transportation Concept Reports, (Caltrans, various dates).

These State Route Transportation Concept reports are long-range (20 year) system plans that document the current and projected operations and planned roadway improvements for the particular State route studied. The State routes that were included in the report are the SR-223, SR-166, SR-119, SR-46, and SR-65.

From these reports, information specific to each project route can be utilized for the current study. These individual reports provide relevant details via highway descriptions, planned improvement projects, and fact

sheets that feature segment descriptions of level of service, segment length, traffic forecasts, land use, roadway geometry, and volumes.

2.3 Other California Studies

The following provides a synopsis of California studies identified outside of the Central Valley Region:

California Heavy Duty Truck Travel Survey, (Caltrans, December 2001).

The purpose of the study was to collect truck travel data for selected sites in California. The areas of data included: truck type, direction of travel, distance travel, etc. The study's objective was to develop procedures to acquire and conduct truck travel data. This study also focused on identifying relationships between economic activity and truck travel patterns and collection of data for analysis of commodity flow throughout California. The study recommended that further study and data collection is needed to develop a reliable/accurate truck model.

Goods Movement Truck and Rail Study, (SCAG, January 2003).

The purpose of the study was to understand the role of surface freight movement in the SCAG region. The study focused on freight movement via truck, rail, and intermodal freight transportation. Chapters 2 and 3 provided an overview of freight transportation and truck transportation respectively. In Chapter 2, information pertaining to the business and freight transportation is described as it relates to the economics, transportation modes, and stakeholders. Chapter 3 is specific to trucking and defines the truck industry by truck types and through statistics related to existing conditions and industry forecasts.

Regional Goods Movement Study for the San Francisco Bay Area Final Summary Report, (MTC, December 2004).

The study developed priorities for allocating transportation funds for goods movement activities, provided economic impact information to consider when making infrastructure and land use decisions, and prepared a common freight platform for the agency and its partners for federal advocacy and regional planning efforts. Interstates 80, 580, and 880, and U.S. Highway 101 provide more than 80% of the goods movement in the Bay Area related to trucking. All of these major trucking corridors are facing growing levels of congestion that affect goods movement costs. Study recommendations included capacity improvements, truck-only and truck climbing lanes, and interchange improvements.

Sacramento Area Council of Governments Regional Goods Movement Study, Phase One Report, (SACOG, September 2006).

The purpose of the study was to understand the role of freight movement and distribution in the SACOG region and determine the implications of freight transportation on planning and policy decisions. This effort was Phase One of a three part plan, and provided background information through the assessment of current conditions in the SACOG region. It addressed goods movement activities (highway, railroad, marine, and air cargo and related facilities such as distribution centers, transloading and truck stop facilities) within six-counties in SACOG.

Inland Port Feasibility Study, Project No 06-23, (SCAG, August 2008).

The purpose of the study was to determine whether or not port concepts could be implemented to reduce truck VMT and generate other public benefits in the SCAG region. The study's overall conclusion was that the inland port/rail shuttle concept was a sound concept and would benefit the region if it was implemented.

Healthy Communities and Healthy Economies, a Toolkit for Goods Movement, (Caltrans, RCTC, Metro, and SANBAG, March 2009).

The purpose of the toolkit is for communities to understand how goods movement works, the burdens and benefits of goods movement, and how communities and the goods movement industry can coexist. The document mainly focuses on data in the counties of Los Angeles, San Bernardino, and Riverside County. The study focused on freight movement via truck, rail lines, rail yards, sports, and warehouses and distribution centers.

Advancing Goods Movement through the Inland Empire, (RTCT, SCAG, SANBAG, WRCOG, May 2009).

The purpose of the study was to understand the role of surface freight movement in the Inland Empire region of California. The document states that in 2006, the Ports of Long Beach and Los Angeles served as the primary gateway for over \$380 billion in cargo. Over 70% of the imported goods were transported by truck or railroad to locations outside Southern California, or which many traveled through the Inland Empire. The study focused on freight movement via truck, rail, seaports, warehousing, and air cargo.

2.4 Goods Movement Action Plans

The State of California has established a Goods Movement Action Plan for various agencies to implement in their jurisdiction. The publication of the Administration Goods Movement Policy, "Goods Movement in California," was established in January 2005. The Action Plan states that it is the policy of the Administration to improve and expand California's good movement industry and infrastructure, in a manner that will:

- Generate jobs
- Increase mobility and relieve traffic congestion
- Improve air quality and protect public health
- Enhance public and port safety
- Improve California's quality of life

The following provides a synopsis of each local Goods Movement Action Plan document that various agencies, within California, have completed:

Goods Movement Action Plan – Phase I: Foundations, (Caltrans and California EPA, September 2005).

The purpose of the study was to gain information on the "why" and "what" of goods movement in California. The specific topics included: (1) goods movement industry and its growth potential; (2) four "port-to-border" transportation corridors - constitute the state's goods movement backbone - and the associated planned/under construction infrastructure projects; (3) extent of environmental and community impacts and a description of their related mitigation measures; and (4) key aspects related to public safety and homeland security.

Good Movement Emission Reduction Action Plan, (SCAG, March 2008).

This study focuses on truck and railroad locomotive emission reduction strategies, since SCAG is actively engaged in planning improvements to highway and railroad systems. This Action Plan complements a much lengthier technical report that presents a detailed emission reduction and cost effectiveness analysis for more than 40 individual strategies and is titled "Analysis of Goods Movement Emission Reduction Strategies: Task I Final Report, January 2008". Many efforts are underway to reduce

goods movement in Southern California, including plans developed by Ports of Los Angeles and Long Beach, the South Cost Air Quality District, and the California Air Resource Board. Truck emission strategies stated in this report include the following: Accelerated Engine Controller Reprogramming, Replacement (Accelerated Turnover), Repowering, Retrofit, Combination Replace and Retrofit, Alternative Fuels, Virtual Container Yard, Incident Management for Trucks, and Infrastructure Projects. These strategies were analyzed based on emission reduction effectiveness as well as cost effectiveness.

Multi-County Goods Movement Action Plan, Ventura County Action Plan, (Metro, Caltrans, OCTA, RCTC, SANBAG, SCAG, VCTC, and SANDAG, April 2008).

This was a collective study between various agencies to develop strategies to support the efficient movement of goods without disproportionately impacting local communities, the environment, or the transportation network. The report recommended four actions sets for goods movement within the region, which include the following:

- Action Set 1: Accelerate Regional Environmental Mitigation
- Action Set 2: Relieve Congestion and Increase Mobility
- Action Set 3: Improve Operational Efficiency
- Action Set 4: Develop Equitable Public/Private Funding Strategy

Draft San Joaquin Valley Regional Goods Movement Action Plan, Regional Transportation Planning Agencies of San Joaquin Valley (Fresno COG, Kern COG, MCAG, StanCOG, TCAG, SJCOG, KCAG, Madera County Transportation Commission and Caltrans, 2008).

This action plan addressed the San Joaquin Valley region and issues related to the goods movement system, commodity flow analysis, air quality, and provided a goods movement strategic action plan for the region. With forecasts showing continued growth in trucking within the San Joaquin Valley Region, infrastructure within the region will need to be upgraded and built to deal with future growth and air quality issues. Strategies included highway improvements along SR-99 and east-west routes, and multi-modal concepts which included short haul rail and short sea shipping.

3.0 VEHICLE CLASSIFICATION COUNTS

KOA conducted vehicle classification counts at key locations along all of the study routes – SR-223, SR-166, SR-119, SR-46, and SR-65. The counts included eight-day 24-hour classification counts and peak-period turning movement counts.

Figure 3-1 illustrates both the 24-hour count locations and the turning movement count locations. The raw count data, which shows vehicle types by passenger vehicles and trucks (classification by number of axles) are provided in Appendix A.

3.1 24-Hour Classification Counts

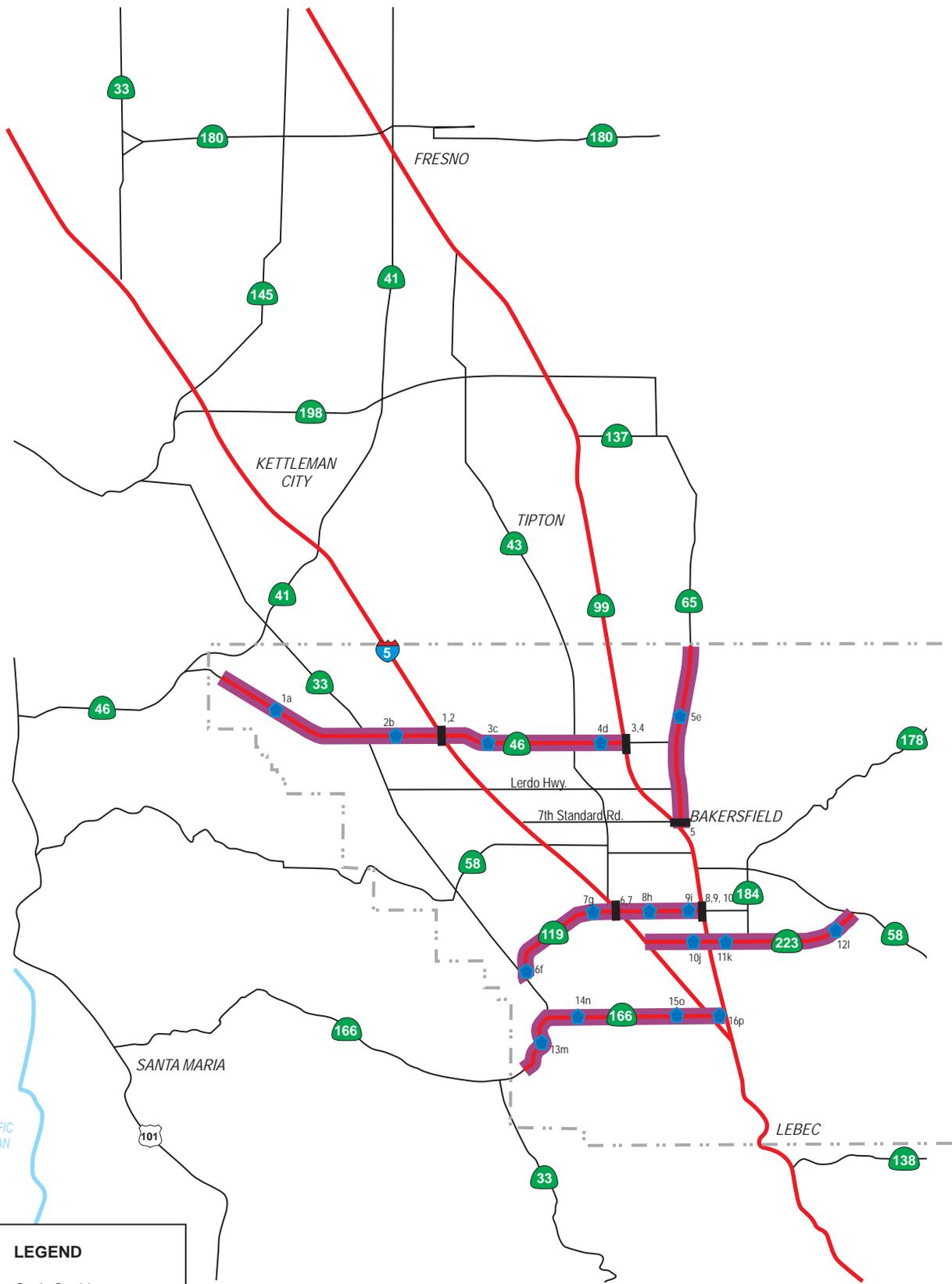
A total of 16 key locations were identified for the roadway counts. Data was collected from Thursday, July 15, 2010 to Thursday, July 22, 2010. An additional count date was conducted on SR-119 on Tuesday July 27, 2010 due to technical issues in the field.

The list of figures below provides a summary of total traffic (passenger vehicles and heavy duty trucks) at the 16 count locations. The figures summarize traffic flow in both directions (either eastbound/westbound or northbound/southbound) by average weekday, weekend, and week periods. The figures include machine and video based counts. This section focuses on machine counts details while video capture details are discussed in a later section.

- Figure 3-2 illustrates machine counts on SR-46, Location 1 through Location 4
- Figure 3-3 illustrates machine counts on SR-65, Location 5
- Figure 3-4 illustrates machine counts on SR-119, for Location 6 through Location 9
- Figure 3-5 illustrates machine counts on SR-223, for Location 10 through Location 12
- Figure 3-6 illustrates machine counts on SR-166, for Location 13 through Location 16

Machine count summaries on these figures are based on all vehicles (passenger vehicles (P.V.) and heavy duty trucks (HDT)). Video count summaries are based on trucks only.

Further discussion of the 24-hour classification counts are provided within Section 3.2, “Key Findings”, of this report.



LEGEND

- Study Corridors
- Kern County Boundary
- Freeway ramp/intersection count location
- 8-day vehicle classification counts



**Location: 2
Machine Count Summary**

	Total	P.V	HDT	
←	3,974	2,693	1,281	Avg Weekday
	3,774	2,987	788	Avg Weekend
	3,917	2,777	1,140	Avg Week
	Total	P.V	HDT	
Avg Weekday	3,946	2,604	1,342	→
Avg Weekend	4,300	3,312	989	
Avg Week	4,047	2,806	1,241	

**Location: 3
Machine Count Summary**

	Total	P.V	HDT	
←	3,365	2,245	1,120	Avg Weekday
	2,929	2,363	566	Avg Weekend
	3,240	2,279	962	Avg Week
	Total	P.V	HDT	
Avg Weekday	3,371	2,191	1,180	→
Avg Weekend	2,941	2,386	555	
Avg Week	3,248	2,247	1,001	

**Location: 1
Machine Count Summary**

	Total	P.V	HDT	
←	3,410	2,138	1,272	Avg Weekday
	3,583	2,662	921	Avg Weekend
	3,459	2,288	1,171	Avg Week
	Total	P.V	HDT	
Avg Weekday	3,219	2,034	1,185	→
Avg Weekend	4,254	3,100	1,154	
Avg Week	3,515	2,339	1,176	

**Location: 4
Machine Count Summary**

	Total	P.V	HDT	
←	3,889	2,409	1,480	Avg Weekday
	3,173	2,250	924	Avg Weekend
	3,684	2,363	1,321	Avg Week
	Total	P.V	HDT	
Avg Weekday	3,651	2,491	1,360	→
Avg Weekend	3,064	2,105	959	
Avg Week	3,628	2,381	1,245	



**Location: A
Video Count Summary**

Westbound	
Total:	871
AM Peak:	282
Mid-day Peak:	187
PM Peak:	109
Eastbound	
Total:	1,107
AM Peak:	172
Mid-day Peak:	245
PM Peak:	216

**Location: B
Video Count Summary**

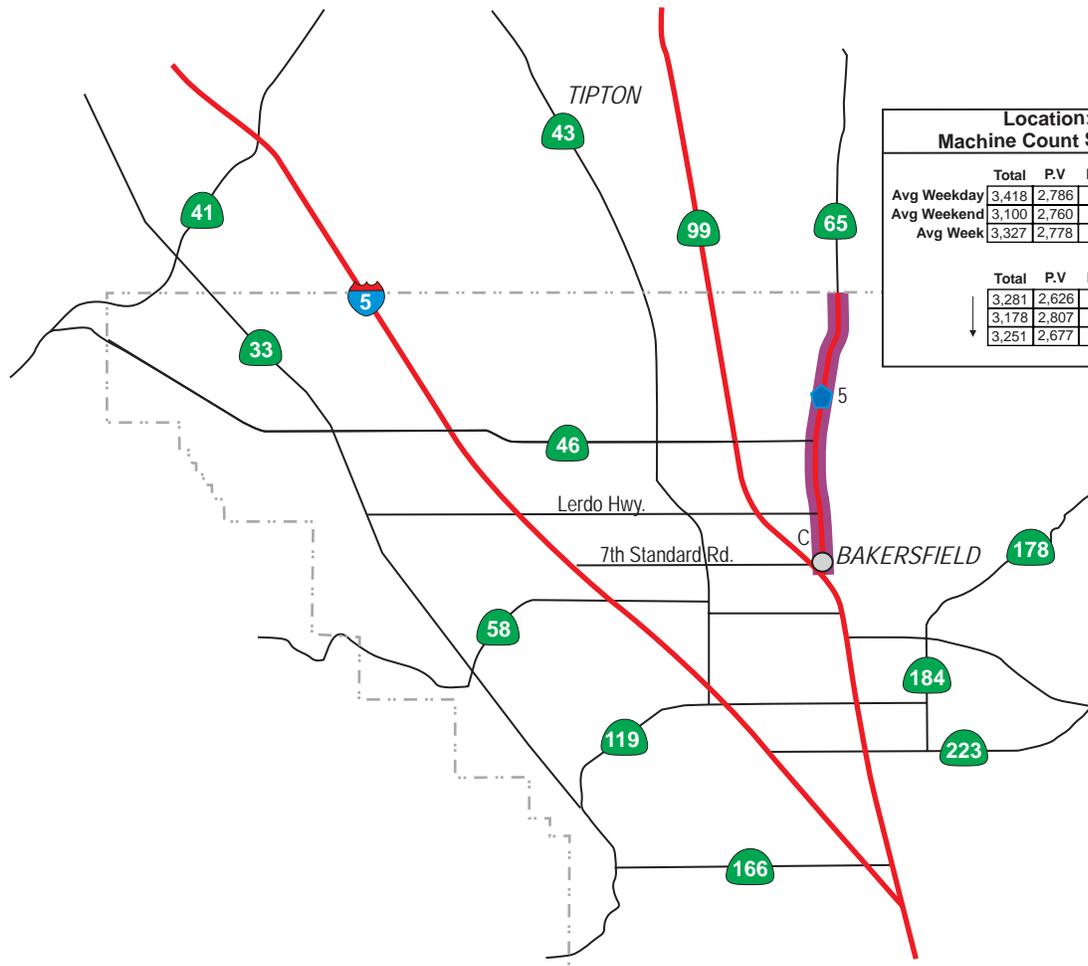
Westbound	
Total:	865
AM Peak:	229
Mid-day Peak:	193
PM Peak:	146
Eastbound	
Total:	1,248
AM Peak:	228
Mid-day Peak:	323
PM Peak:	223

LEGEND

- Study Corridor
- Kern County Boundary
- Video Surveillance Location
- 8-day vehicle classification counts



Not to Scale



**Location: 5
Machine Count Summary**

	Total	P.V	HDT
Avg Weekday	3,418	2,786	632
Avg Weekend	3,100	2,760	340
Avg Week	3,327	2,778	549

	Total	P.V	HDT	
	3,281	2,626	655	Avg Weekday
	3,178	2,807	371	Avg Weekend
	3,251	2,677	574	Avg Week

**Location: C
Video Count Summary**

Northbound

Total:	715
AM Peak:	189
Mid-day Peak:	172
PM Peak:	105

Southbound

Total:	701
AM Peak:	167
Mid-day Peak:	143
PM Peak:	121

LEGEND

- Study Corridor
- Kern County Boundary
- Video Surveillance Location
- 8-day vehicle classification counts



**Location: 7
Machine Count Summary**

	Total	P.V	HDT	
←	5,877	5,416	461	Avg Weekday
	3,763	3,582	181	Avg Weekend
	5,273	4,891	382	Avg Week
	Total	P.V	HDT	
Avg Weekday	5,646	5,186	461	→
Avg Weekend	3,708	3,520	188	
Avg Week	5,093	4,710	383	

**Location: 8
Machine Count Summary**

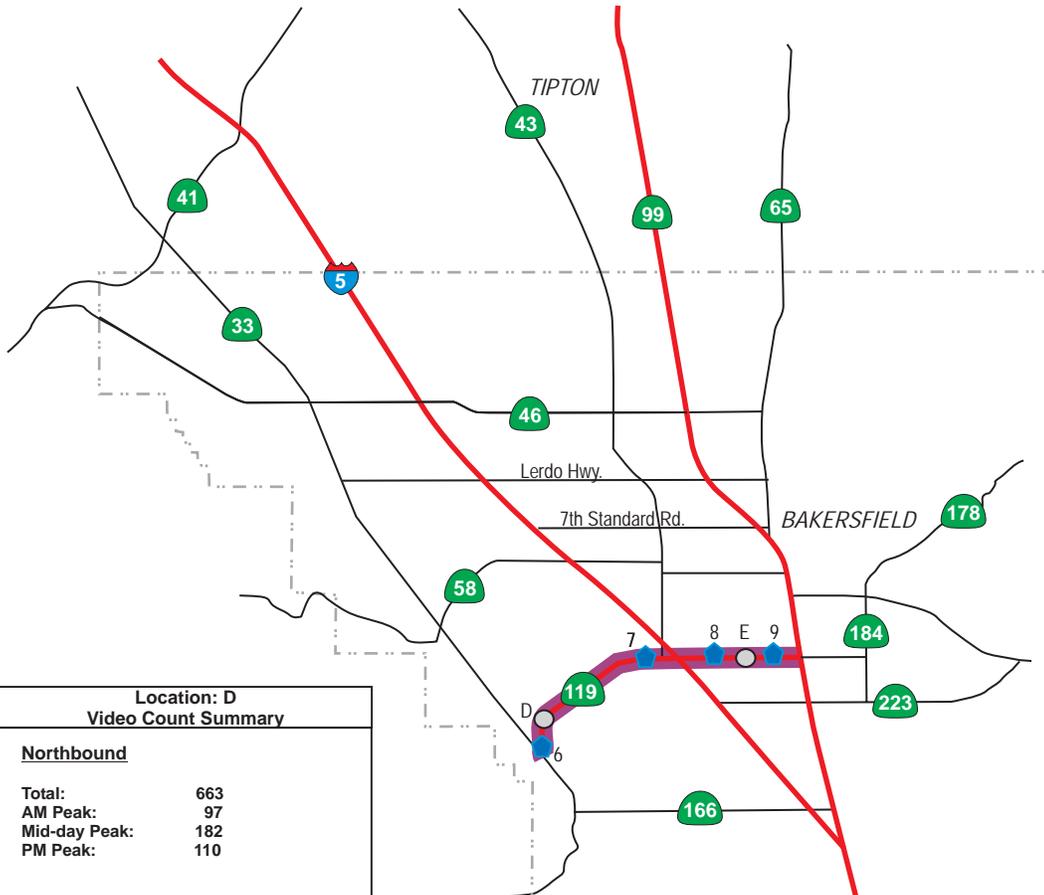
	Total	P.V	HDT	
←	4,120	3,656	464	Avg Weekday
	3,008	2,802	207	Avg Weekend
	3,802	3,412	390	Avg Week
	Total	P.V	HDT	
Avg Weekday	4,300	3,866	435	→
Avg Weekend	3,071	2,866	205	
Avg Week	3,949	3,580	369	

**Location: 6
Machine Count Summary**

	Total	P.V	HDT	
↓	2,674	2,420	253	Avg Weekday
	2,147	2,003	144	Avg Weekend
	2,523	2,304	219	Avg Week
	Total	P.V	HDT	
Avg Weekday	2,665	2,407	259	↑
Avg Weekend	2,096	1,989	107	
Avg Week	2,502	2,291	212	

**Location: 9
Machine Count Summary**

	Total	P.V	HDT	
←	6,780	6,286	494	Avg Weekday
	5,585	5,391	194	Avg Weekend
	6,439	6,030	408	Avg Week
	Total	P.V	HDT	
Avg Weekday	6,610	6,119	491	→
Avg Weekend	5,450	5,244	206	
Avg Week	6,278	5,869	409	



**Location: D
Video Count Summary**

<u>Northbound</u>	
Total:	663
AM Peak:	97
Mid-day Peak:	182
PM Peak:	110
<u>Southbound</u>	
Total:	370
AM Peak:	117
Mid-day Peak:	103
PM Peak:	31

**Location: E
Video Count Summary**

<u>Westbound</u>	
Total:	504
AM Peak:	177
Mid-day Peak:	113
PM Peak:	56
<u>Eastbound</u>	
Total:	575
AM Peak:	111
Mid-day Peak:	134
PM Peak:	96

LEGEND

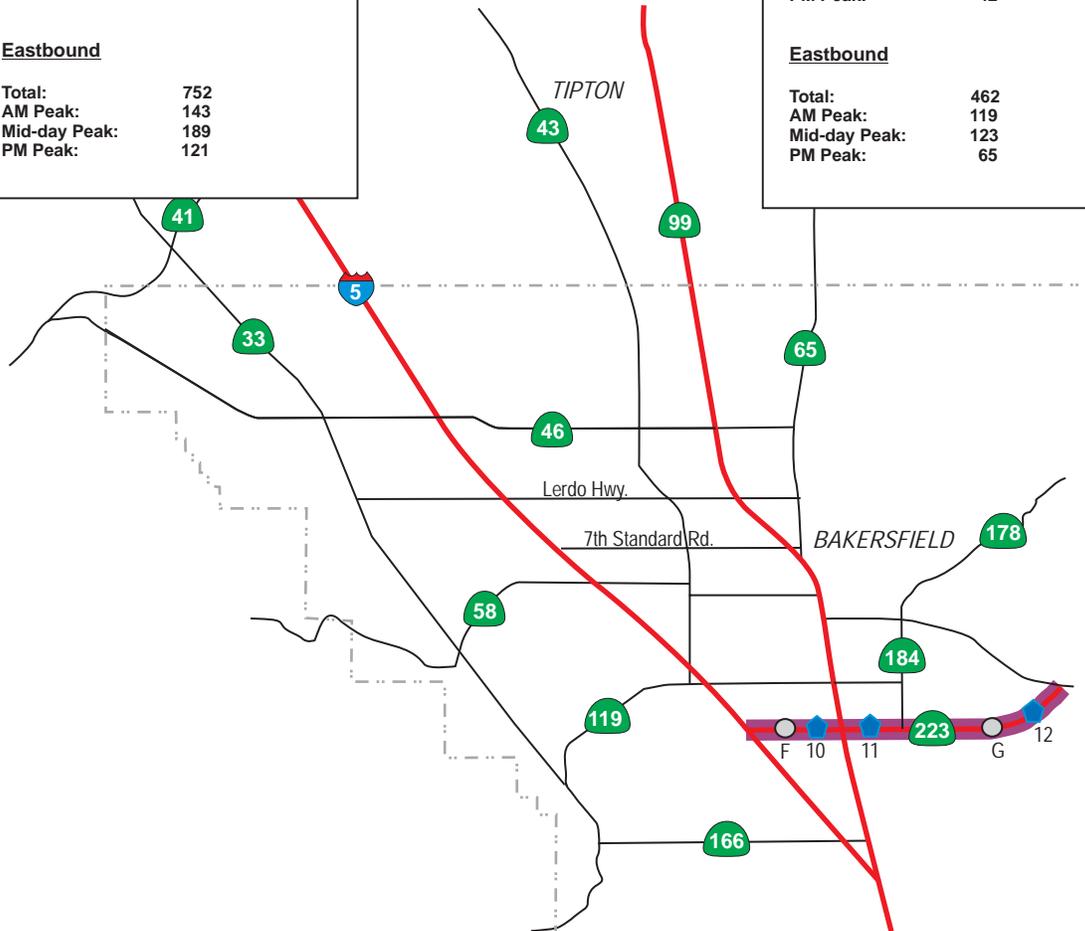
- Study Corridor
- Kern County Boundary
- Video Surveillance Location
- 8-day vehicle classification counts



Not to Scale

Location: F Video Count Summary	
Westbound	
Total:	810
AM Peak:	222
Mid-day Peak:	234
PM Peak:	67
Eastbound	
Total:	752
AM Peak:	143
Mid-day Peak:	189
PM Peak:	121

Location: G Video Count Summary	
Westbound	
Total:	308
AM Peak:	71
Mid-day Peak:	87
PM Peak:	42
Eastbound	
Total:	462
AM Peak:	119
Mid-day Peak:	123
PM Peak:	65



Location: 10 Machine Count Summary				
	Total	P.V	HDT	
←	2,329	1,534	795	Avg Weekday
	1,277	938	340	Avg Weekend
	2,028	1,363	665	Avg Week
	Total	P.V	HDT	
Avg Weekday	2,264	1,501	764	→
Avg Weekend	1,456	1,084	373	
Avg Week	2,033	1,381	652	

Location: 11 Machine Count Summary				
	Total	P.V	HDT	
←	3,351	2,585	765	Avg Weekday
	2,800	2,329	472	Avg Weekend
	3,193	2,512	682	Avg Week
	Total	P.V	HDT	
Avg Weekday	3,420	2,539	881	→
Avg Weekend	2,675	2,087	588	
Avg Week	3,207	2,409	797	

Location: 12 Machine Count Summary				
	Total	P.V	HDT	
←	1,167	804	363	Avg Weekday
	676	569	108	Avg Weekend
	1,027	737	290	Avg Week
	Total	P.V	HDT	
Avg Weekday	1,274	859	415	→
Avg Weekend	719	611	108	
Avg Week	1,116	788	328	

LEGEND	
	Study Corridor
	Kern County Boundary
	Video Surveillance Location
	8-day vehicle classification counts



Not to Scale

Location: H Video Count Summary	
Westbound	
Total:	351
AM Peak:	115
Mid-day Peak:	80
PM Peak:	38
Eastbound	
Total:	495
AM Peak:	92
Mid-day Peak:	130
PM Peak:	98

Location: 13 Machine Count Summary				
	Total	P.V	HDT	
←	1,975	1,553	422	Avg Weekday
	1,877	1,723	154	Avg Weekend
	1,947	1,602	345	Avg Week
	Total	P.V	HDT	
Avg Weekday	1,986	1,510	476	
Avg Weekend	2,251	2,034	217	→
Avg Week	2,061	1,659	402	

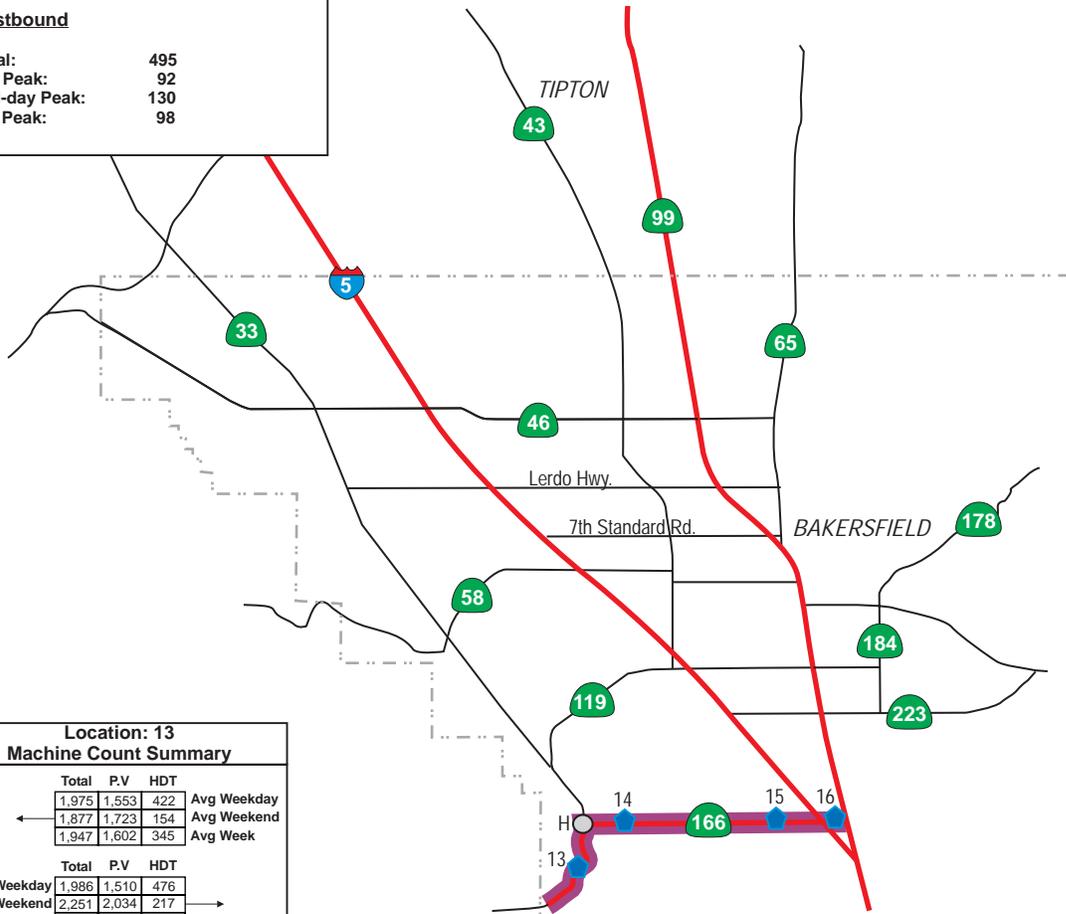
Location: 14 Machine Count Summary				
	Total	P.V	HDT	
←	1,198	873	326	Avg Weekday
	945	835	110	Avg Weekend
	1,126	862	264	Avg Week
	Total	P.V	HDT	
Avg Weekday	1,402	1,000	402	
Avg Weekend	1,201	1,032	169	→
Avg Week	1,344	1,009	335	

Location: 15 Machine Count Summary				
	Total	P.V	HDT	
←	1,261	840	420	Avg Weekday
	907	732	176	Avg Weekend
	1,160	811	349	Avg Week
	Total	P.V	HDT	
Avg Weekday	1,525	1,027	498	
Avg Weekend	1,033	743	291	→
Avg Week	1,385	946	438	

Location: 16 Machine Count Summary				
	Total	P.V	HDT	
←	1,780	1,419	361	Avg Weekday
	940	722	218	Avg Weekend
	1,540	1,224	316	Avg Week
	Total	P.V	HDT	
Avg Weekday	1,804	1,309	495	
Avg Weekend	1,121	791	331	→
Avg Week	1,609	1,162	447	

LEGEND

-  Study Corridor
-  Kern County Boundary
-  Video Surveillance Location
-  8-day vehicle classification counts



Not to Scale

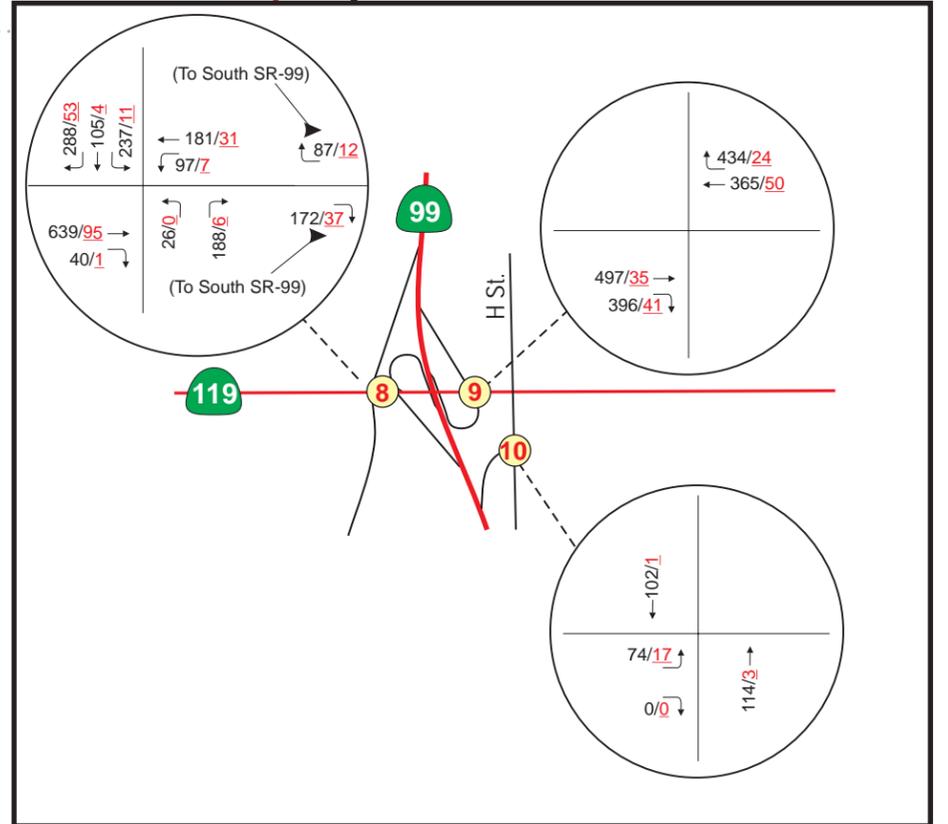
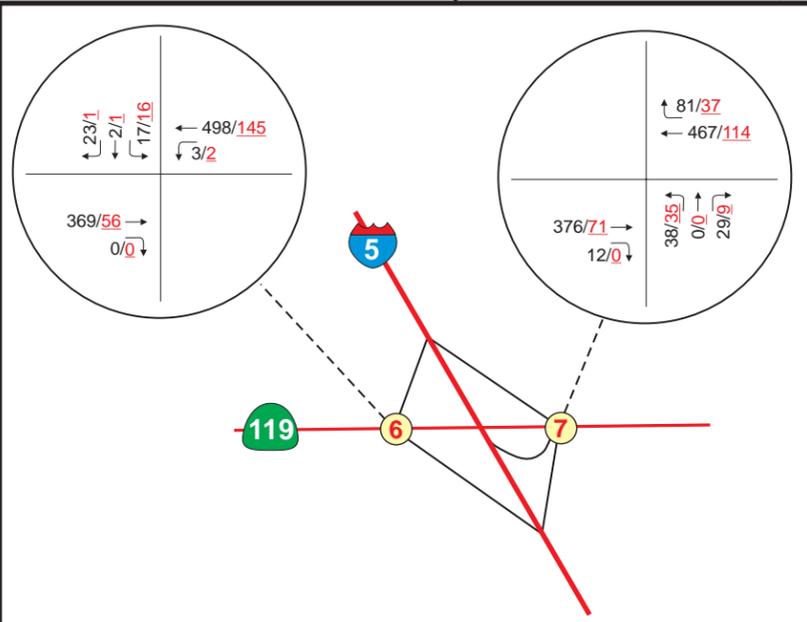
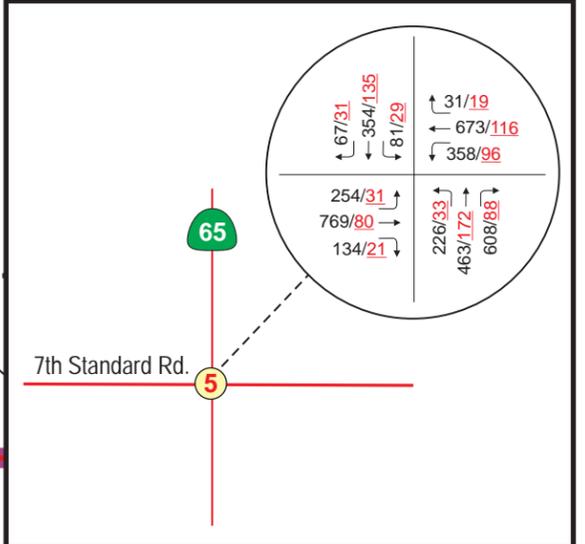
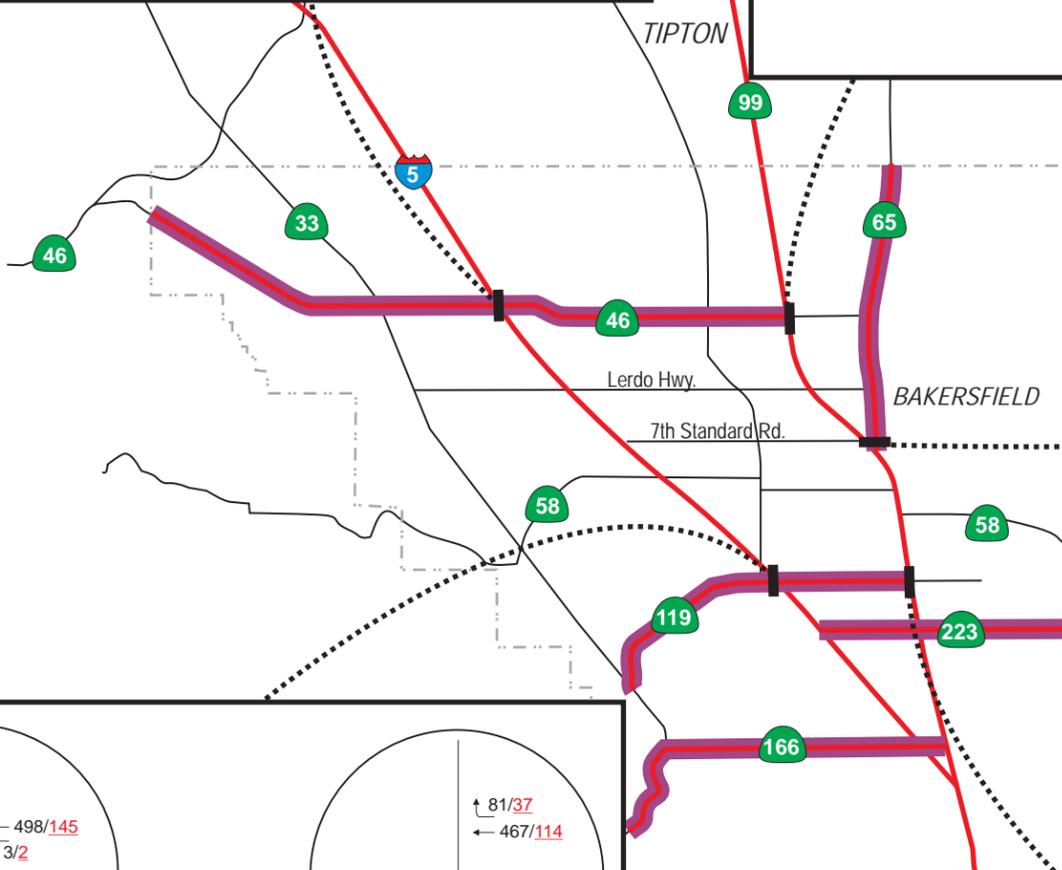
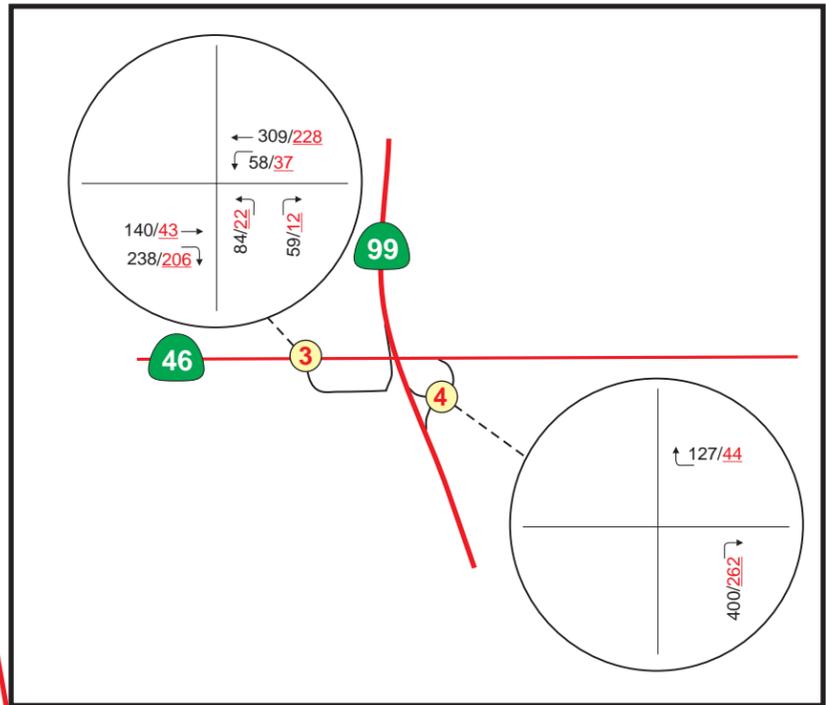
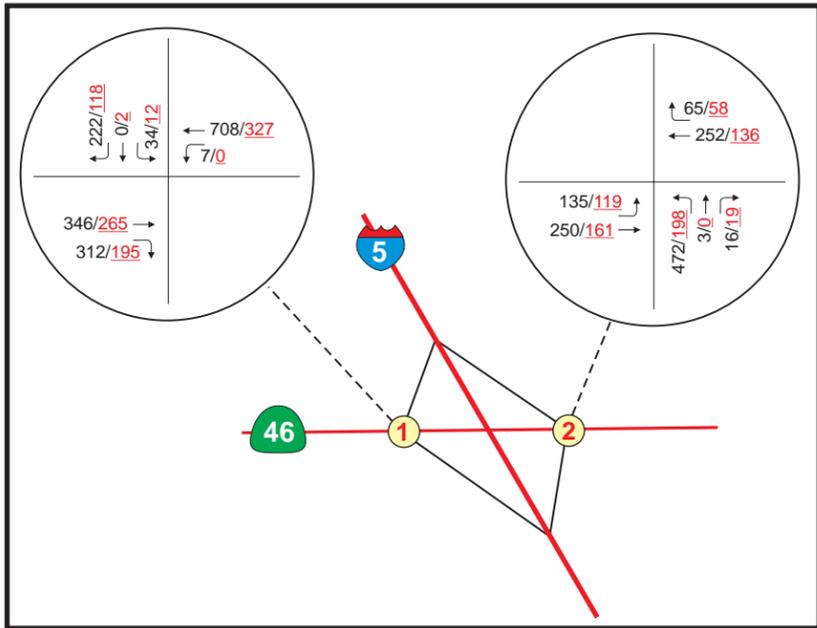
3.2 Turning Movement Counts

The turning movement counts were conducted at freeway ramps/intersection in the study area during the morning (6:00 a.m. to 9:00 a.m.), mid-day (11:00 a.m. to 2:00 p.m.) and p.m. (4:00 p.m. to 7:00 p.m.) peak periods.

The list of figures below provides a summary of total vehicular traffic along all of the five study corridors for the a.m., mid-day, and p.m. peak periods at the study interchanges/intersections. They summarize turning movements for all the study locations.

- Figures 3-7 illustrates the a.m. peak period for turning movement counts
- Figures 3-8 illustrates the mid-day peak period for turning movement counts
- Figures 3-9 illustrates the p.m. peak period for turning movement counts

Further discussions of the turning movement counts are located below under Section 3.2 “Key Findings”.

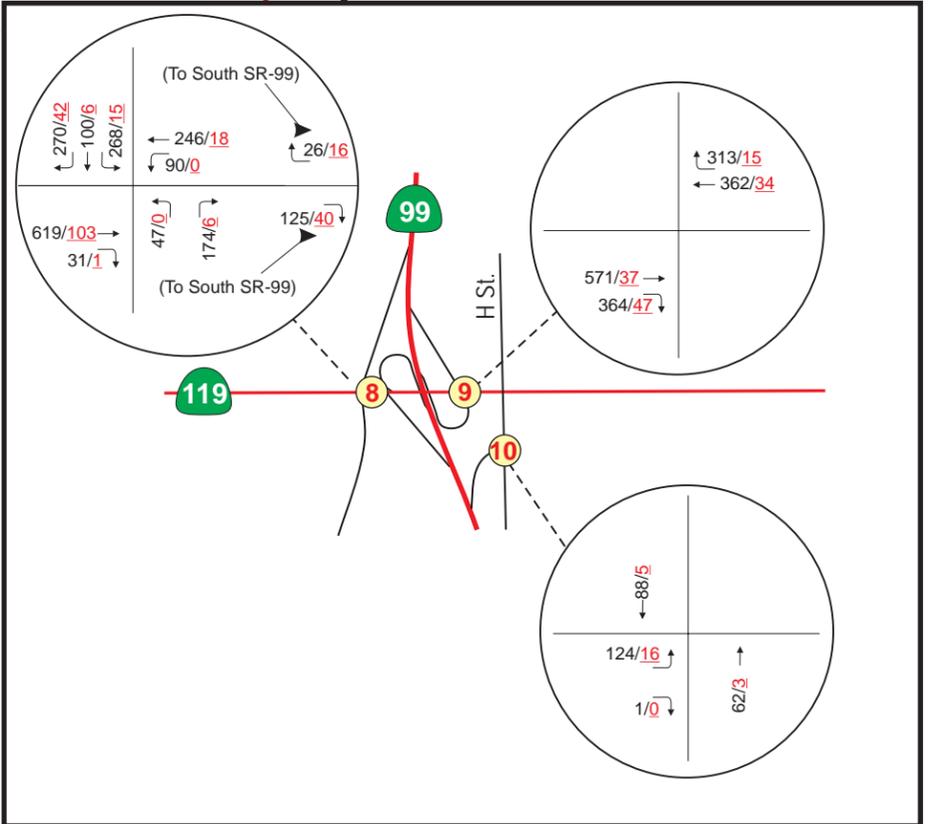
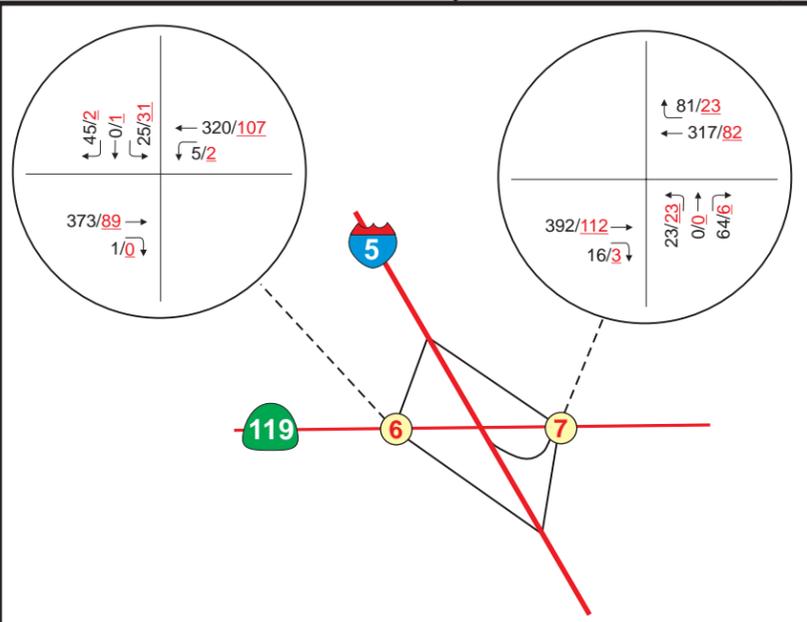
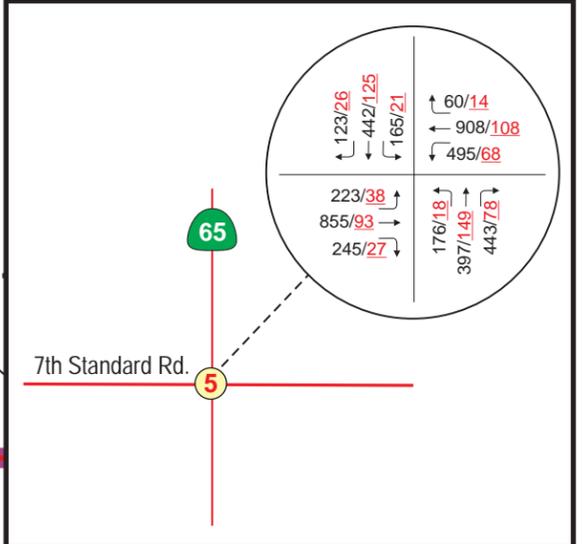
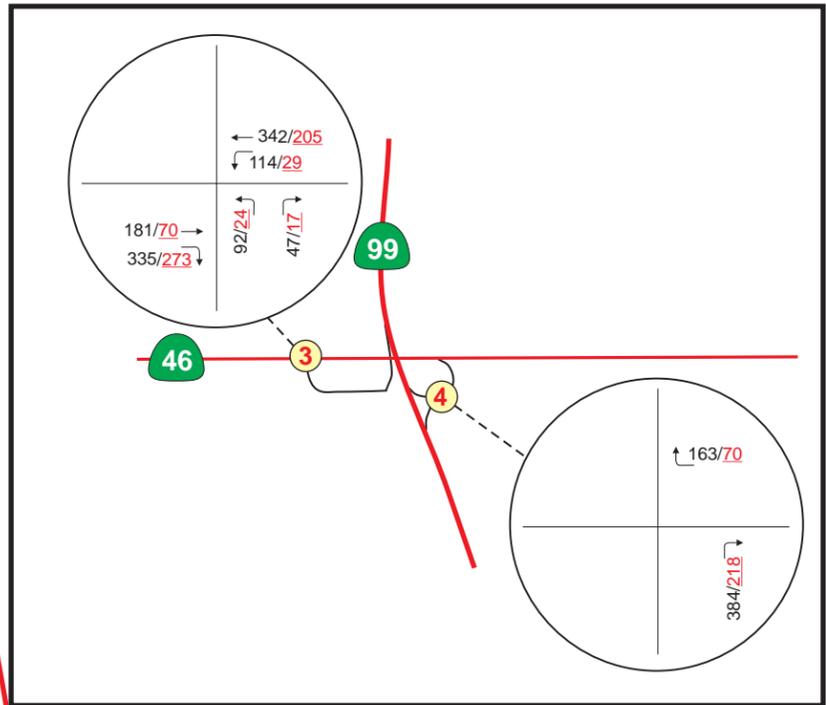
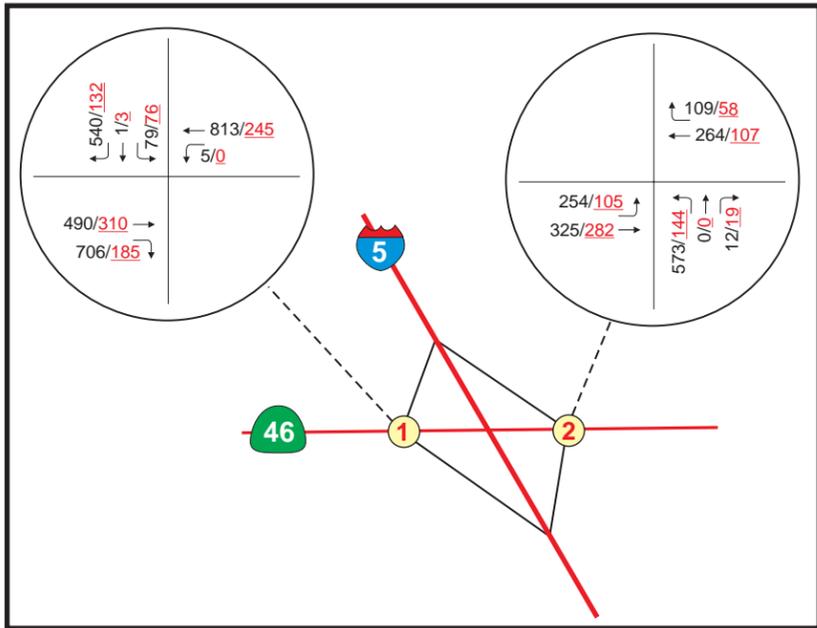


LEGEND

- Study Corridor
- Kern County Boundary
- Freeway ramp/intersection count location
- Intersections
- XX/XXX** Vehicles/Trucks



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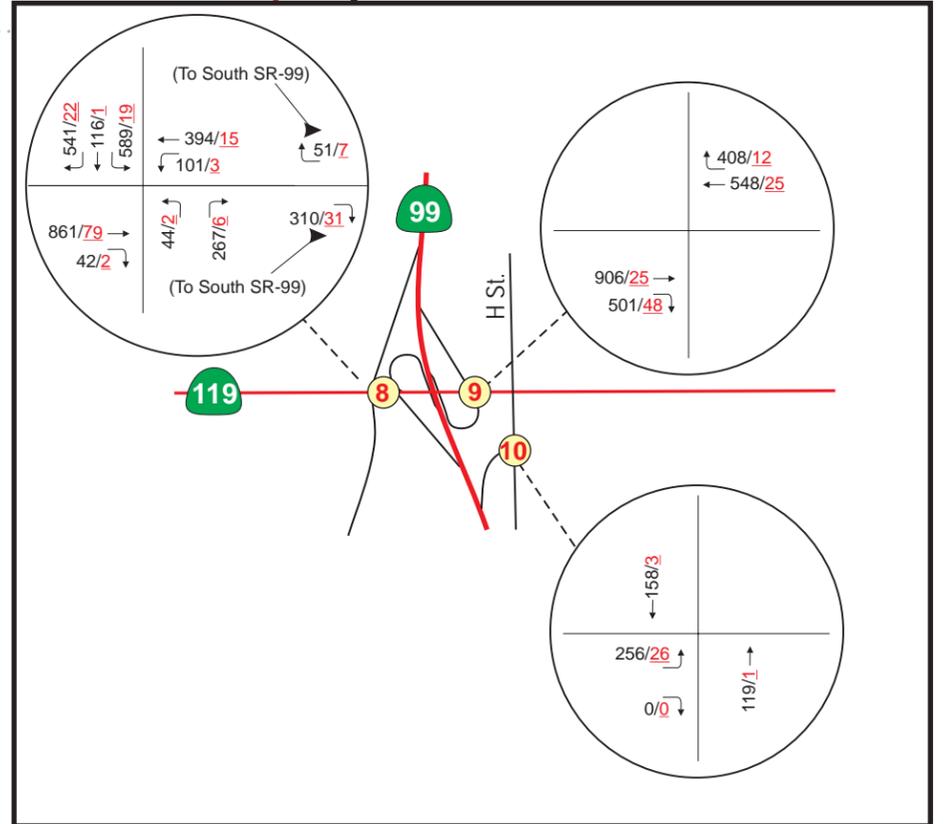
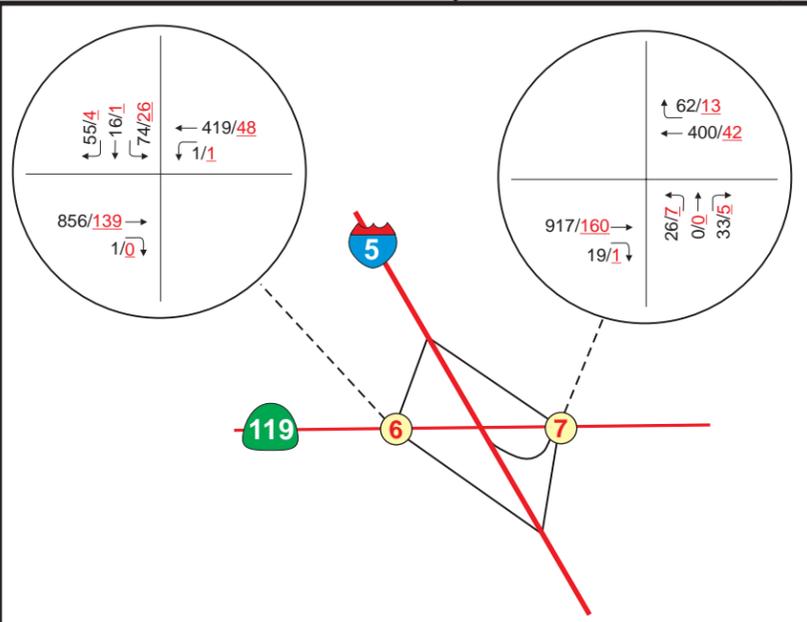
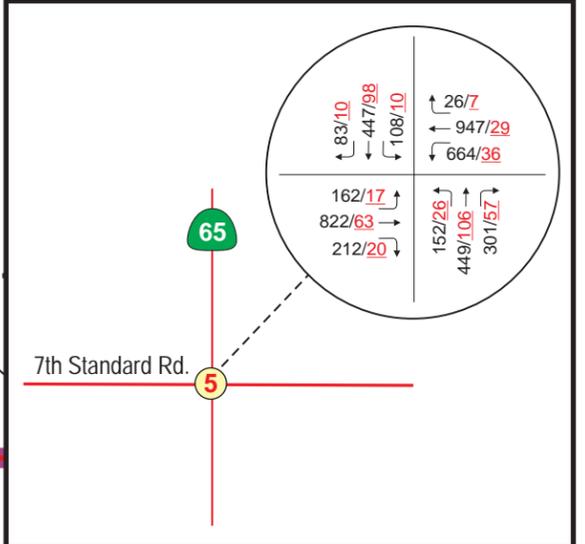
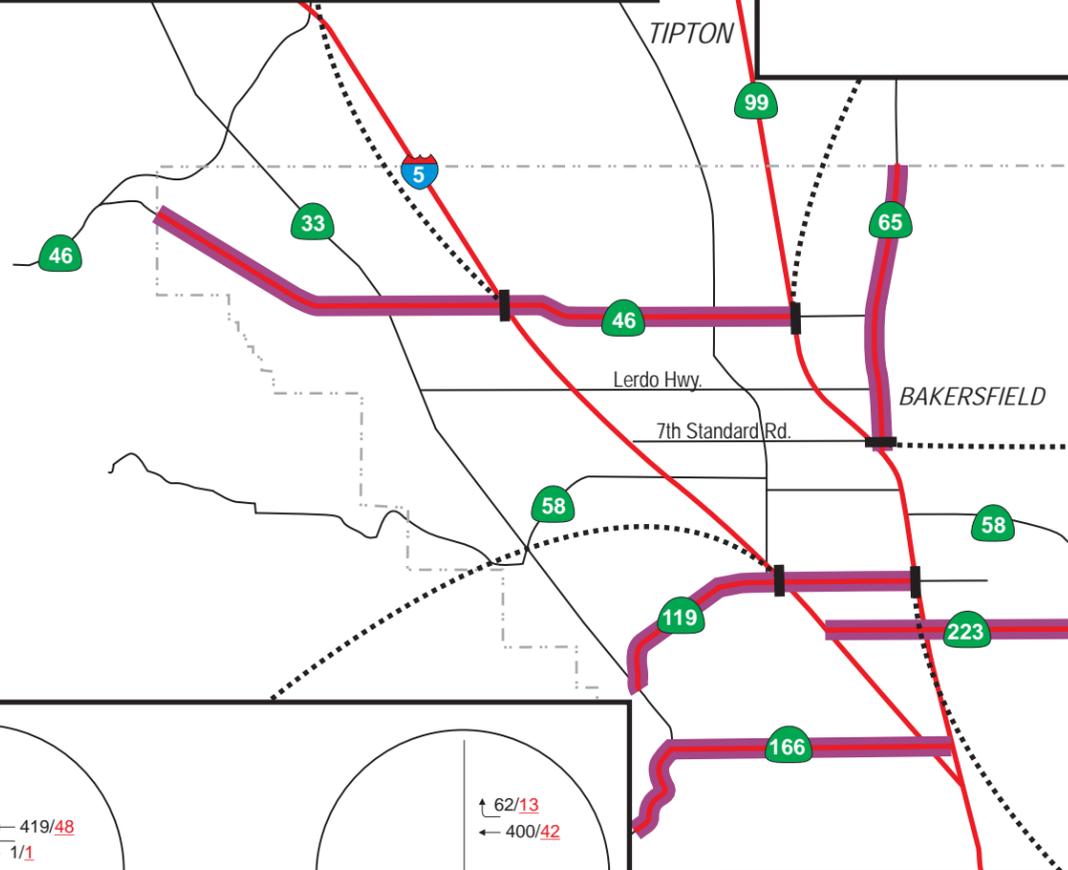
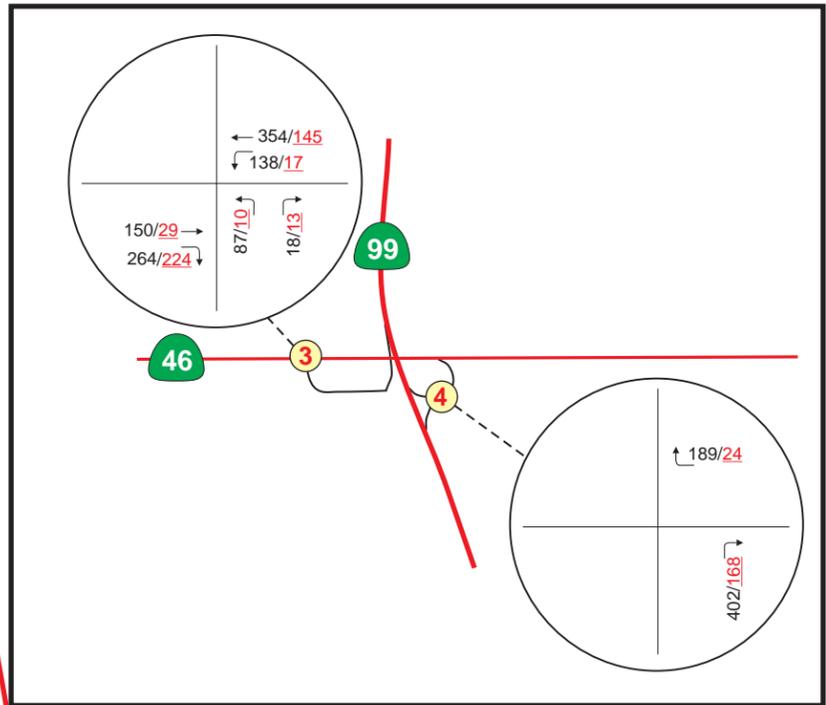
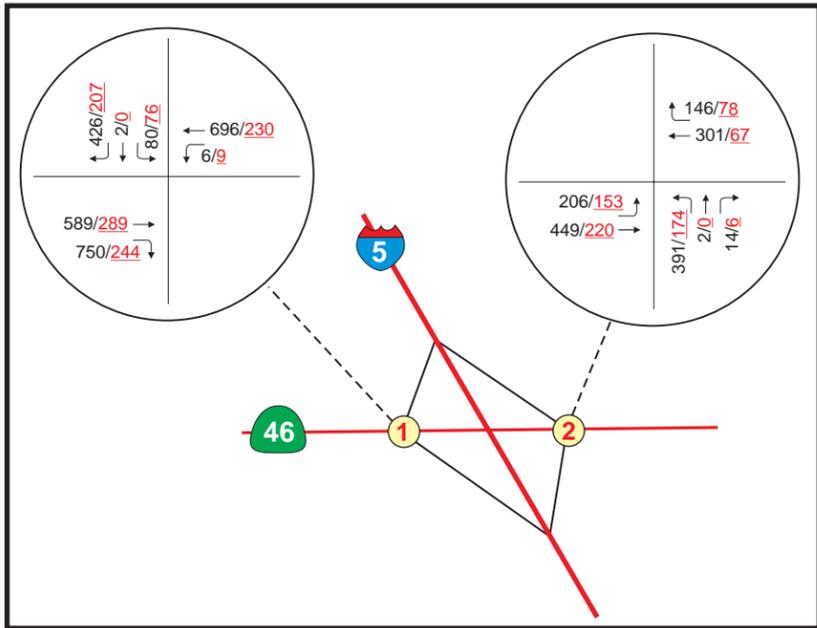


LEGEND

- Study Corridor
- Kern County Boundary
- Freeway ramp/intersection count location
- Intersections
- Vehicles/Trucks



Not to Scale



LEGEND

- Study Corridor
- Kern County Boundary
- Freeway ramp/intersection count location
- Intersections
- XX/XXX** Vehicles/Trucks



Not to Scale

3.3 Key Findings

In addition to Figures 3-1 through 3-9, the list of figures below provides a summary of total truck traffic along all of the five study corridors for the analyzed peak hours. These figures summarize traffic flow in both directions (either eastbound/westbound or northbound/southbound) through route segment counts and displaying the approach and departure volumes at major interchanges/junctions when applicable. These figures incorporate peak-hour volumes from both the 24-hour classification counts and the turning movement counts:

- Figures 3-10 to 3-12 illustrate the truck only peak-hour volumes along SR-223
- Figures 3-13 to 3-15 illustrate the truck only peak-hour volumes along SR-166
- Figures 3-16 to 3-18 illustrate the truck only peak-hour volumes along SR-119
- Figures 3-19 to 3-21 illustrate the truck only peak-hour volumes along SR-46
- Figures 3-22 to 3-24 illustrate the truck only peak-hour volumes along SR-65

Based on a combination of 24-hour classification counts and peak-period turning movement counts, a summary of findings for each route is discussed below.

3.3.1 State Route 223

- The highest volume of trucks during the peak hours occurred between I-5 and SR-99 and between SR-99 and SR-184. However, when considering the percentage of trucks to vehicles, the segment east of SR-184 had a higher proportion of trucks to passenger vehicles.
- On an average weekday, the total vehicle (passenger vehicles and trucks) volumes on the route between I-5 and SR-99 (machine count location 10) were 4,593 and of that total 1,559 or 34% were trucks. In the eastbound direction, the average weekday totals were 2,264 and of that total 764 or 34% were trucks. In the westbound direction, the average totals were 2,329 and of that number 795 or 34% were trucks.
- The total number of vehicles counted between SR-99 and SR-184 (machine count location 11) during an average weekday was 6,771 of which 1,646 or 24% were trucks. In the eastbound direction, there was a total of 3,420 vehicles and of that total 881 vehicles or 26% were trucks. In the westbound direction, there was a total of 3,351 and of that total 765 vehicles or 23% were trucks.
- At machine count location 12, on the route to the east of SR-184, the average weekday volume was 2,441 vehicles and of that total 778 vehicles or 32% were trucks. In the eastbound direction, there was a total of 1,274 vehicles and of that total 415 vehicles or 33% were trucks. In the westbound direction, there was a total of 1,167 vehicles and of that total 363 vehicles or 31% were trucks.
- The higher proportion of trucks to the east of SR-184 could be attributed to truckers using SR-223 to bypass Bakersfield.

3.3.2 State Route 166

- The highest volume of trucks during the analyzed peak hours on this route were generally west

of SR-33, just west of the I-5, and between I-5 and SR-99. The counts along SR-166, when considering the percentage of trucks versus total vehicles, was consistent across the route during each of the peak hours.

- On an average weekday, the total vehicle (passenger vehicles and trucks) volumes on the route west of SR-33 (machine count location 13) were 3,961 of which a total of 898 vehicles or 23% were trucks. In the eastbound direction, the average weekday total was 2,264 vehicles and of that total 476 vehicles or 21% were trucks. In the westbound direction, the average total was 1,975 vehicles and of that number 422 vehicles or 21% were trucks.
- At machine count location 14, on the route to the east of SR-33, the average weekday volume was 2,600 vehicles of which a total of 728 vehicles or 28% were trucks. In the eastbound direction, there was a total of 1,402 vehicles and of that 402 vehicles or 29% were trucks. In the westbound direction, there was a total of 1,198 vehicles and of that total 326 vehicles or 27% were trucks.
- At machine count location 15, on the route to the west of I-5, the average weekday volume was 2,786 vehicles and of that total 918 vehicles or 33% were trucks. In the eastbound direction, there was a total of 1,525 vehicles and of that total 498 vehicles or 33% were trucks. In the westbound direction, there was a total of 1,261 vehicles and of that total 420 vehicles or 33% were trucks.
- At machine count location 16, on the route segment between I-5 and SR-99, the average weekday volume was 3,584 vehicles of that number 856 vehicles or 24% were trucks. In the eastbound direction, there was a total of 1,804 vehicles and of that total 495 vehicles or 27% were trucks. In the westbound direction, there was a total of 1,780 vehicles and of that total 361 vehicles or 20% were trucks.

3.3.3 State Route 119

- SR-119 has the highest 24-hour counts (includes passenger vehicles and trucks) from just west of I-5 to SR-99. The overwhelming majority of the users are passenger vehicles. This is an important commuter route between Bakersfield and Taft.
- The highest volume of trucks during the analyzed peak hours on this route were generally at the I-5 and SR-99 ramps since these are major interchanges with the major north-south routes in the region.
- At machine count location 6, on the route at SR-33, the average weekday volume was 5,339 vehicles of which a total of 512 vehicles or 10% were trucks. In the northbound direction, the totals were 2,665 vehicles and of that total 259 vehicles or 10% were trucks. In the southbound direction, there was a total of 2,674 vehicles and of that total 253 vehicles or 9% were trucks.
- At machine count location 7, on the route west of SR-43, the average weekday volume was 11,523 vehicles of that total 922 vehicles or 8% were trucks. In the eastbound direction, there was a total of 5,646 vehicles and of that total 461 vehicles or 8% were trucks. In the westbound direction, there was a total of 5,877 vehicles and of that total 461 vehicles or 8% were trucks.
- At machine count location 8, on the route east of I-5, the average weekday volume was a total

of 8,420 vehicles and of that total 899 vehicles or 11% trucks. In the eastbound direction, there was a total of 4,300 vehicles and of that total 435 vehicles or 10% were trucks. In the westbound direction, there was a total of 4,120 vehicles and of that total 464 vehicles or 11% were trucks.

- At machine count location 9, on the route west of SR-99, the average weekday volume was a total of 13,390 vehicles and of that total 985 vehicles or 7% were trucks. In the eastbound direction, there was a total of 6,610 vehicles and of that total 491 vehicles or 7% were trucks. In the westbound direction, there was a total of 6,780 vehicles and of that total 494 vehicles or 7% were trucks.
- There were two intersection/ramp counts for trucks. The first was at I-5 and the second was at SR-99.
 - At I-5, the majority of the trucks traveled through the two intersections with more trucks going westbound than eastbound. A significant number of trucks exited from northbound I-5 to westbound SR-119, but that count of 35 vehicles was matched by 37 vehicles that traveled from westbound SR-119 to northbound I-5.
 - At SR-99, the largest count of trucks traveled from eastbound SR-119 to northbound SR-99, the second greatest number traveled southbound SR-99 to westbound SR-119, and the third greatest count continued through the intersection eastbound continuing on Taft Highway which becomes East Panama Road towards Lamont, CA.

3.3.4 State Route 46

- SR-46 had the highest truck traffic based on 24-hour counts and peak hour counts. Truck traffic on the SR-46 is generally heaviest near the Interstate 5 (I-5) interchanges within Lost Hills. This is likely due to the accessibility to the coast on the west, and commercial rest stops, and conditions of the roadway as compared to the other study routes.
- At machine count location 1, on the route west of SR-33, the average weekday volume was 6,629 vehicles of which a total of 2,457 vehicles or 37% were trucks. In the eastbound direction, there was a total of 3,219 vehicles and of that total 1,185 vehicles or 37% were trucks. In the westbound direction, there was a total of 3,410 vehicles and of that total 1,272 vehicles or 37% were trucks.
- At machine count location 2, on the route segment between SR-33 and I-5, the average weekday volume was 7,920 vehicles of which a total of 2,623 vehicles or 33% were trucks. In the eastbound direction, there was a total of 3,946 vehicles and of that total 1,342 vehicles or 34% were trucks. In the westbound direction, there was a total of 3,874 vehicles and of that total 1,281 vehicles or 32% were trucks.
- At machine count location 3, on the route between I-5 and SR-43, the average weekday volume totaled 6,736 vehicles and of that total 2,300 vehicles or 34% were trucks. In the eastbound direction, there was a total of 3,371 vehicles and of that total 1,180 vehicles or 35% were trucks. In the westbound direction, there was a total of 3,365 vehicles and of that total 1,120 vehicles or 33% were trucks.
- At machine count location 4, on the route between SR-43 and SR-99, the average weekday

volume was a total of 7,740 vehicles and of that number 2,840 vehicles or 37% were trucks. In the eastbound direction, there was a total of 3,851 vehicles and of that total 1,360 vehicles or 35% were trucks. In the westbound direction, there was a total of 3,889 vehicles and of that total 1,480 vehicles or 38% were trucks.

- The intersection/ramp count at the intersection of SR-46 and I-5 were significantly inflated due to so many trucks patronizing the fuel and food vendors on the west side of I-5 by exiting I-5 at SR-46 to make a stop and then re-entering I-5 after completing the stop.
- The intersection/ramp count for trucks at the intersection of SR-46 and SR-99 showed high truck volumes from northbound SR-99 to westbound SR-46 and from eastbound SR-46 to southbound SR-99.

3.3.5 State Route 65

- The highest volume of trucks analyzed during the peak hours were between 7th Standard Road and Lerdo Highway. When considering the percentage of trucks versus vehicles, the segment north of Famoso Road had an equivalent proportion of trucks to passenger vehicles as compared to the southern segment.
- At machine count location 5, on the route north of Famoso Road, the average weekday volume was 6,699 vehicles and of that total 1,287 vehicles or 19% were trucks. In the northbound direction, there was a total of 3,418 vehicles and of that total 632 vehicles or 18% were trucks. In the southbound direction, there was a total of 3,281 vehicles and of that total 655 vehicles or 20% were trucks.
- The mid-day intersection/ramp count at 7th Standard Road and SR-65 showed the highest truck traffic going northbound and southbound:
 - Northbound on SR-65 totaled 201 truck trips. Of the total, 149 (74%) proceeded northbound across 7th Standard, 14 (7%) turned north from east 7th Standard, and 38 (19%) turned north from westbound 7th Standard.
 - Southbound on SR-65 totaled 220 truck trips. Of the total, 125 (57%) proceed southbound across 7th Standard (and on to southbound SR 99), 21 (10%) turned eastbound onto 7th Standard, and 26 (12%) turned westbound onto 7th Standard.

SR - 223
Westbound



188 (43%)



111 (26%)



184

119 (53%)



SR - 223
Eastbound



147 (49%)

163 (35%)

122 (54%)

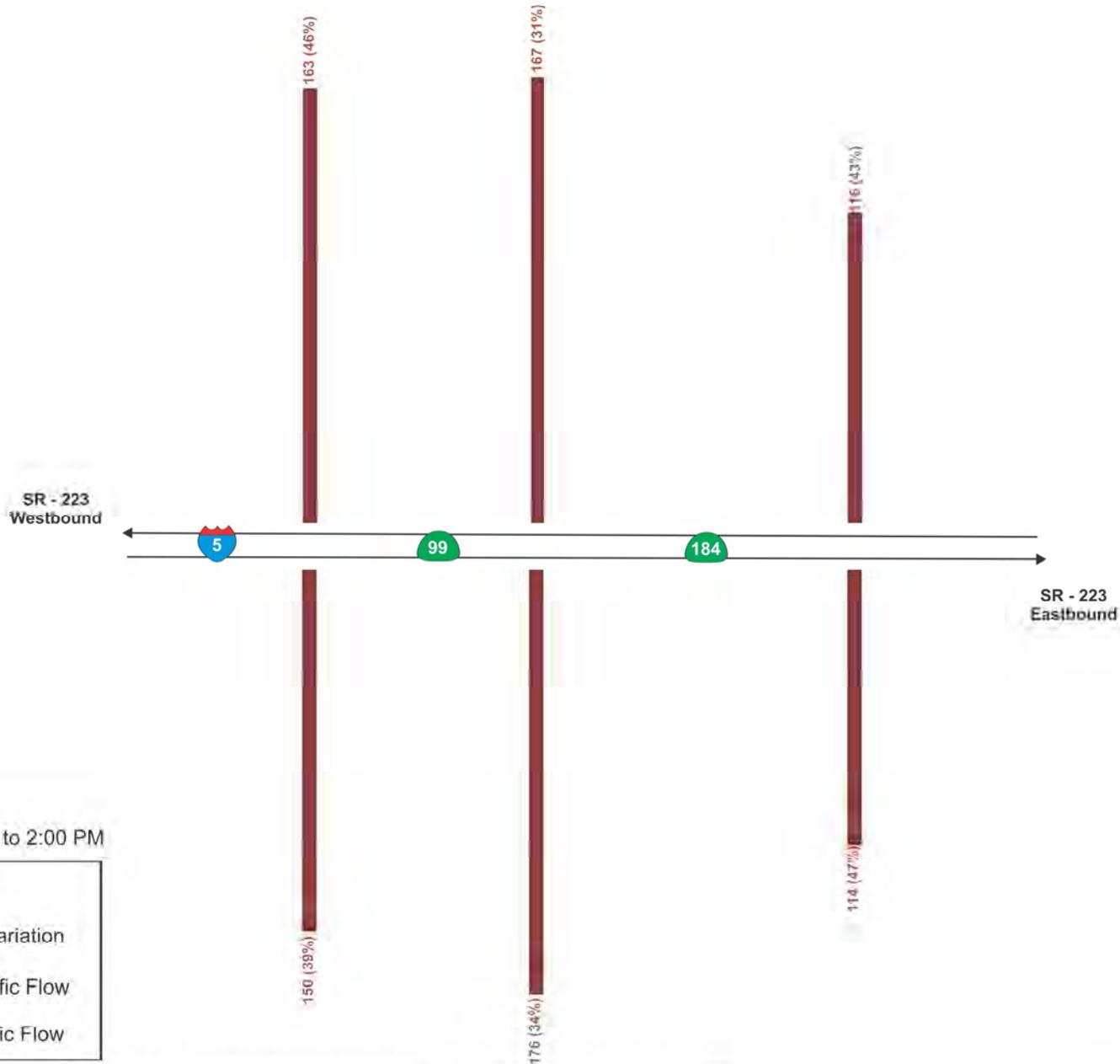
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LEGEND

-  Truck Volume Variation
-  Westbound Traffic Flow
-  Eastbound Traffic Flow



Not to Scale

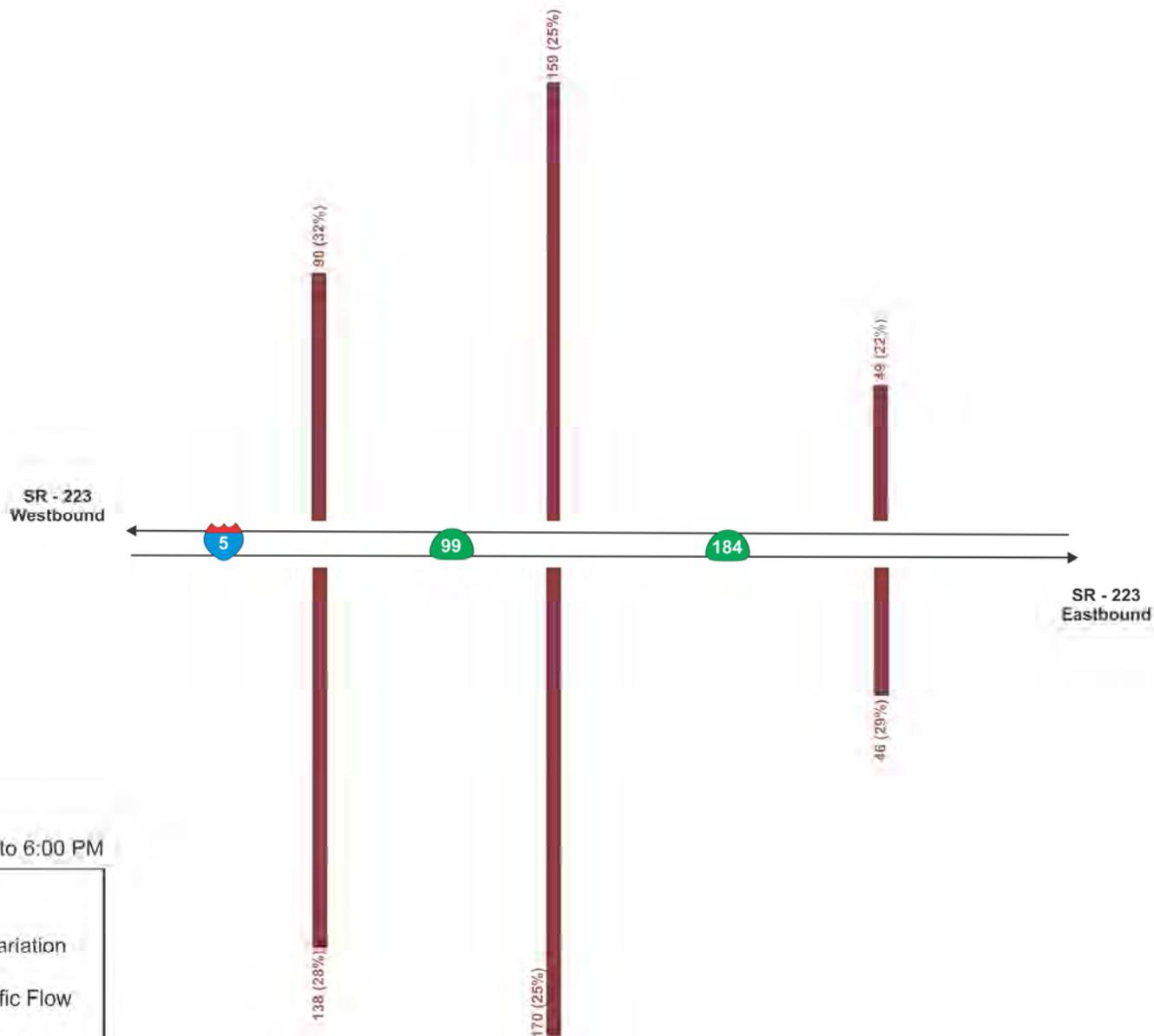


Count Period: 11:00 AM to 2:00 PM

LEGEND

- Truck Volume Variation
- Westbound Traffic Flow
- Eastbound Traffic Flow





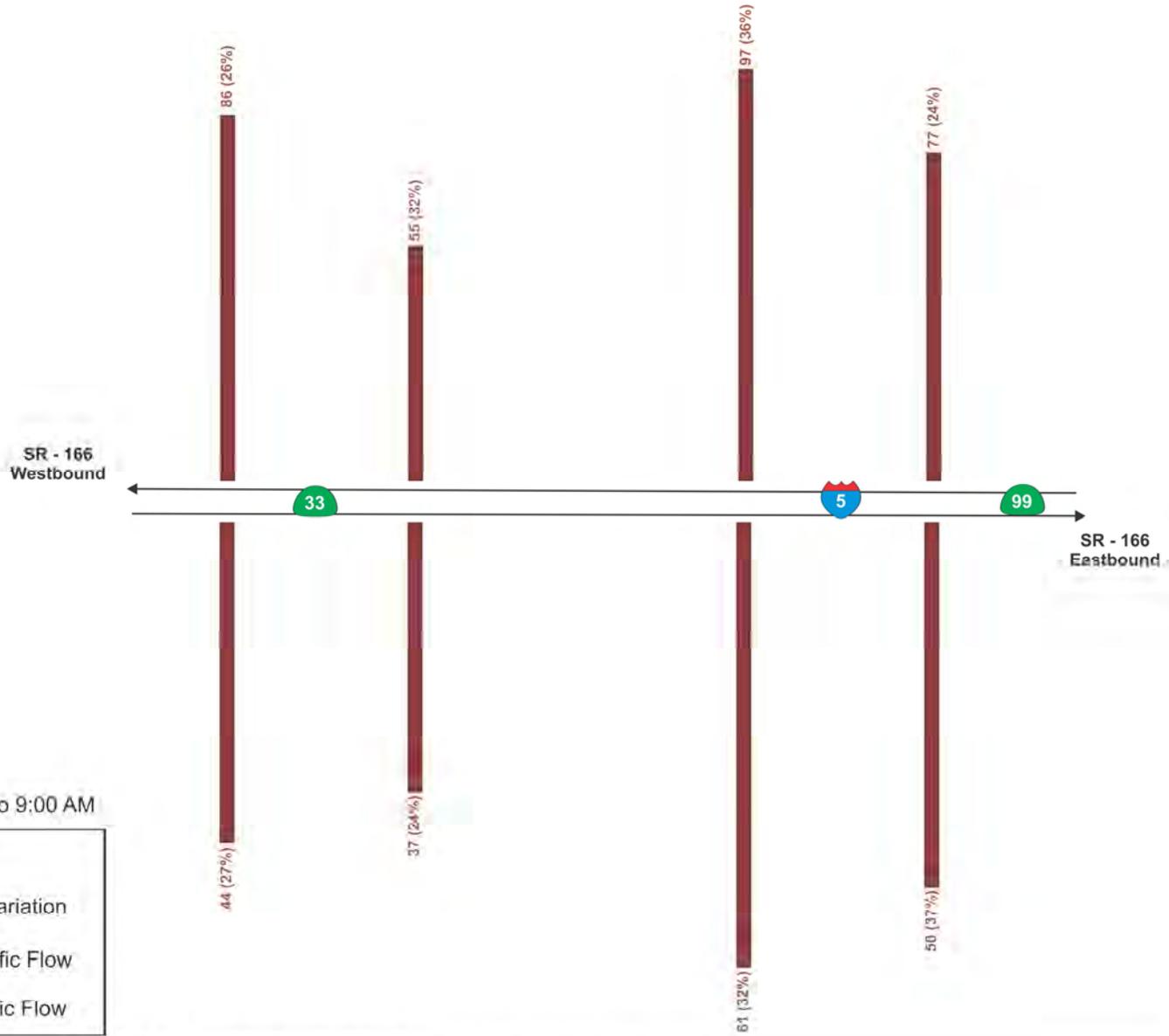
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LEGEND

- Truck Volume Variation
- Westbound Traffic Flow
- Eastbound Traffic Flow



Not to Scale

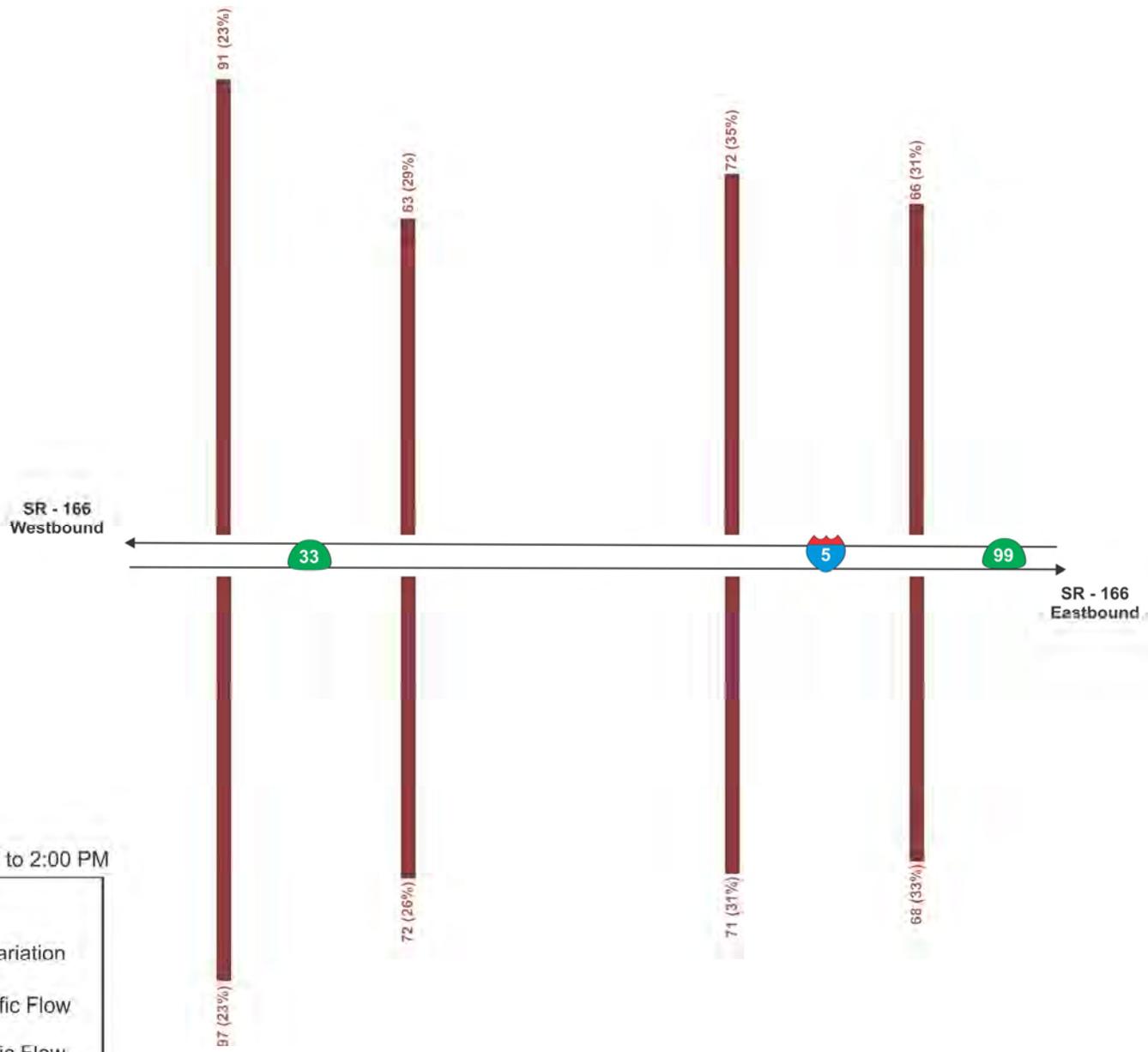


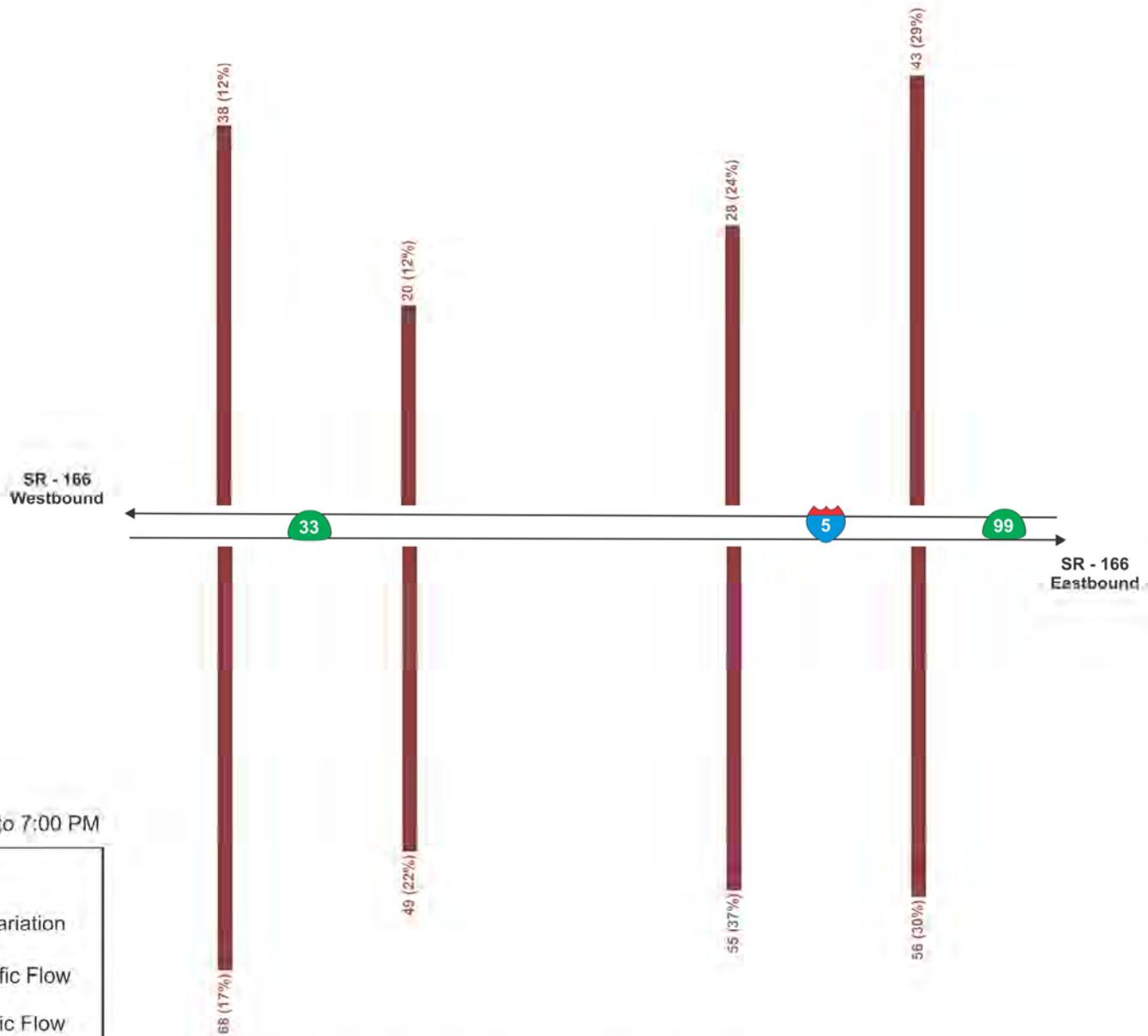
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LEGEND

- Truck Volume Variation
- Westbound Traffic Flow
- Eastbound Traffic Flow





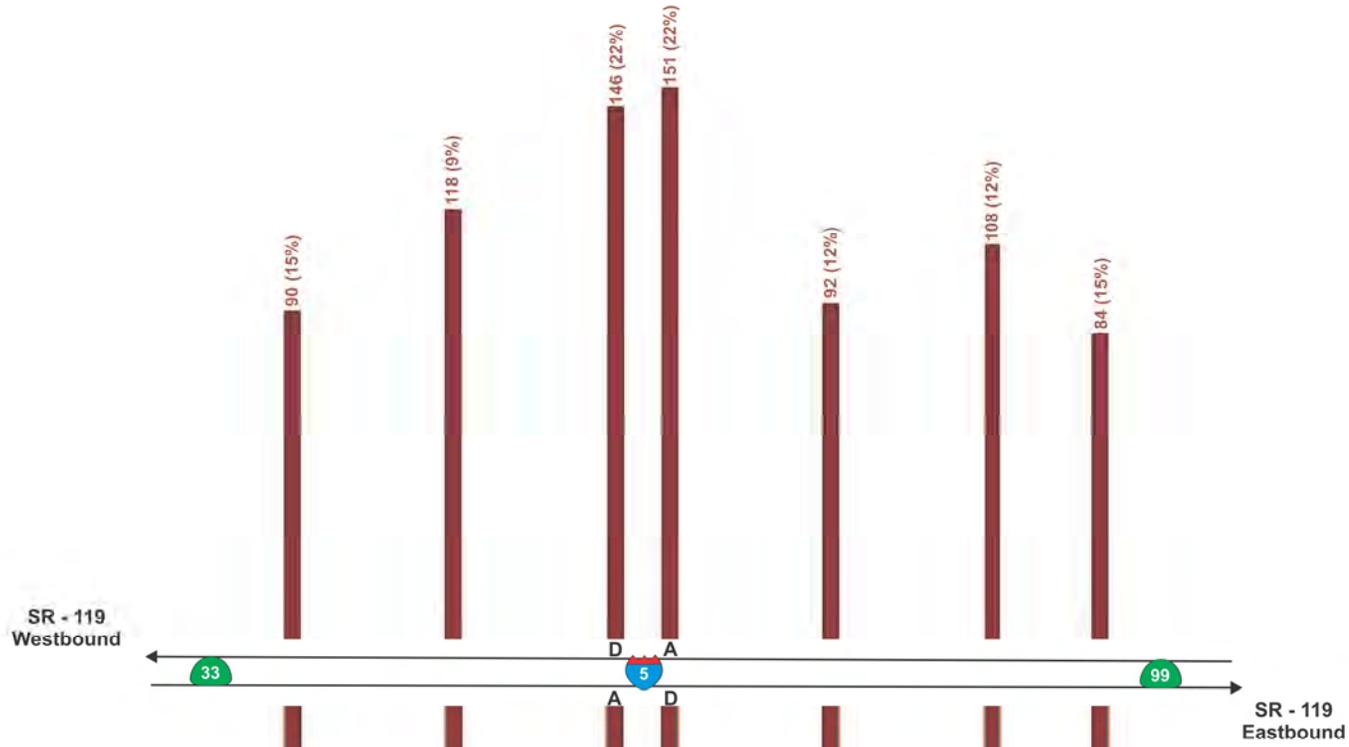


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LEGEND

- Truck Volume Variation
- Westbound Traffic Flow
- Eastbound Traffic Flow



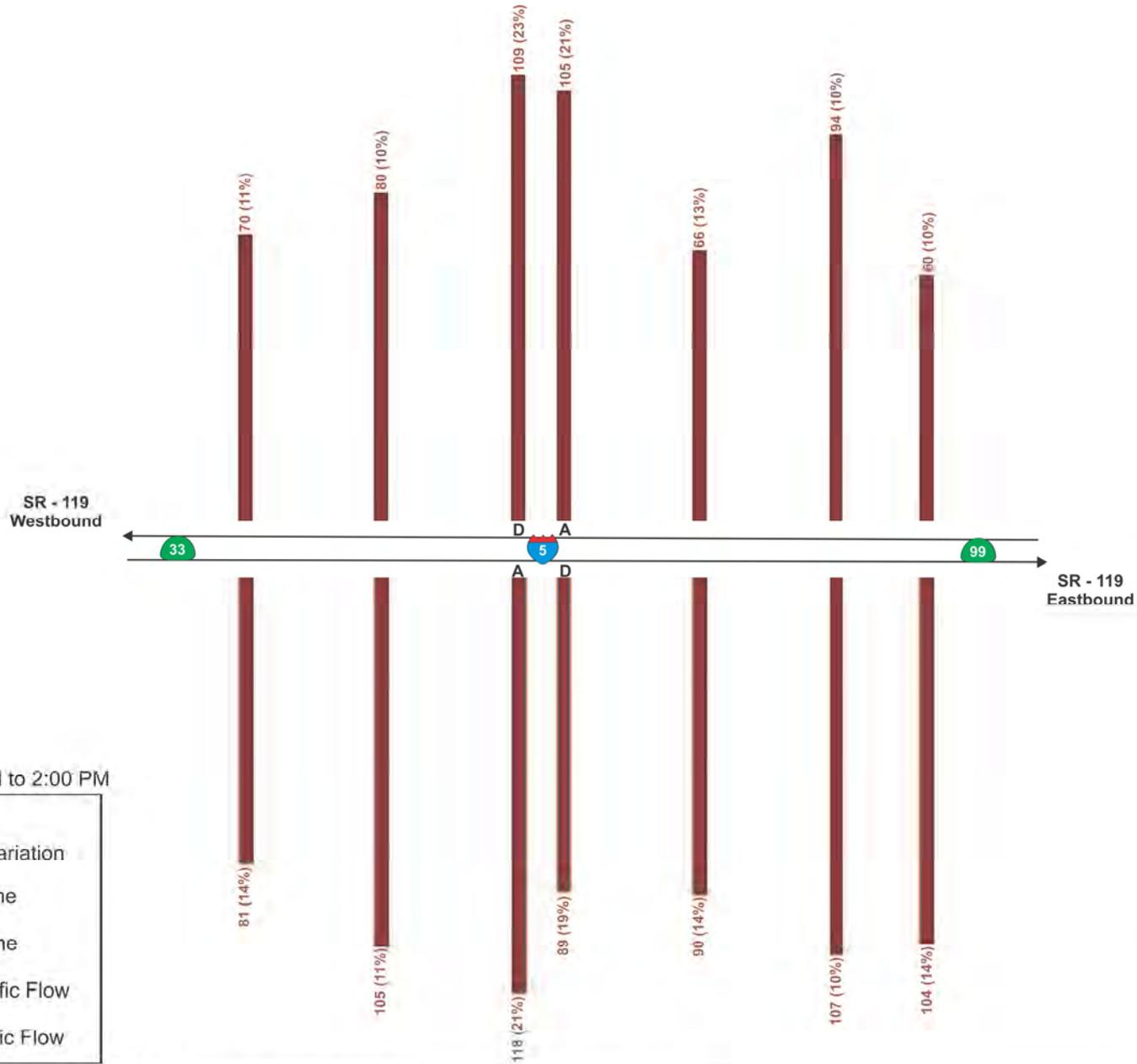


Count Period: 6:00 AM to 9:00 AM

LEGEND

- Truck Volume Variation
- A Approach Volume
- D Departure Volume
- ← Westbound Traffic Flow
- Eastbound Traffic Flow



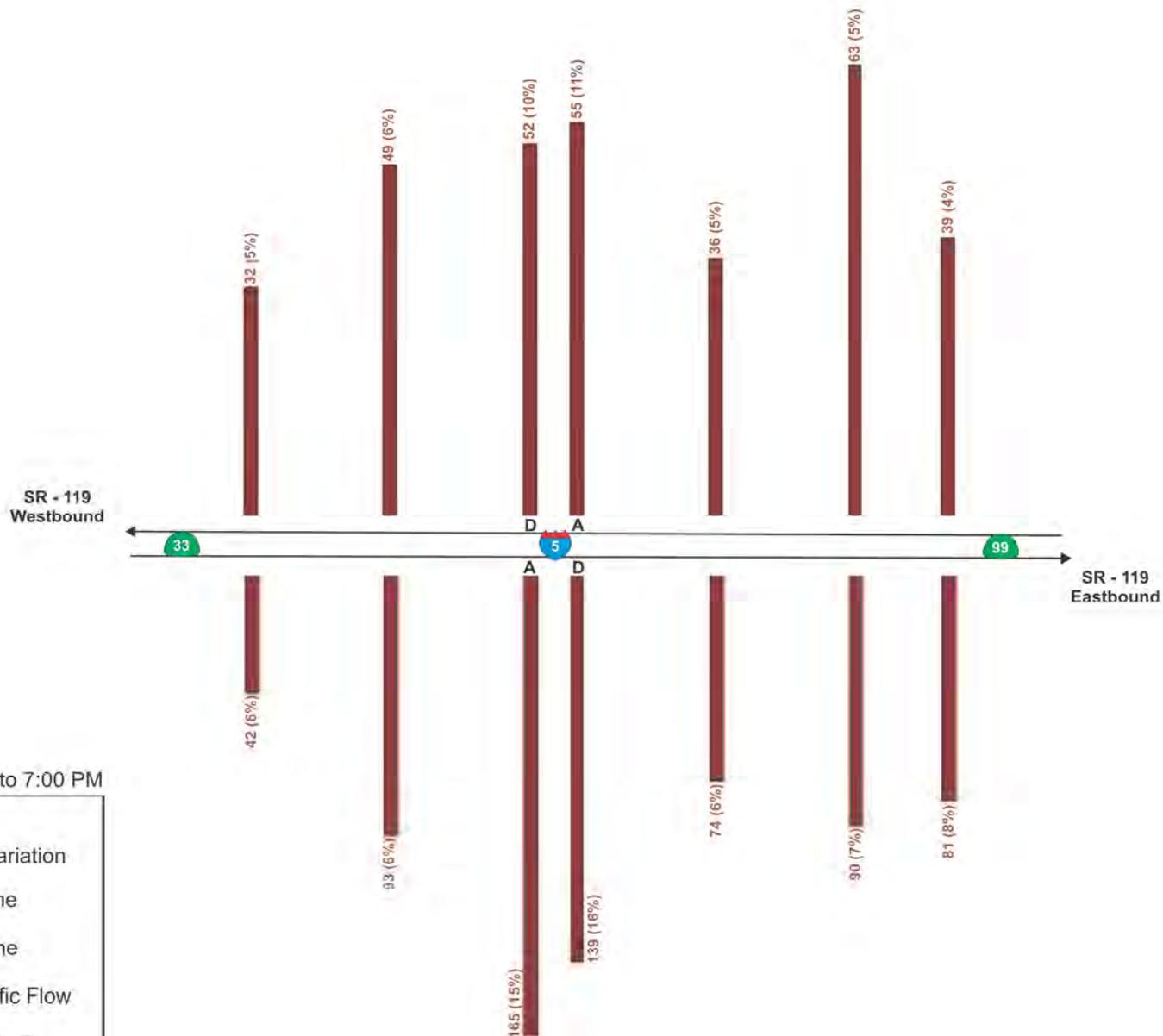


Count Period: 11:00 AM to 2:00 PM

LEGEND

- Truck Volume Variation
- A Approach Volume
- D Departure Volume
- ← Westbound Traffic Flow
- Eastbound Traffic Flow





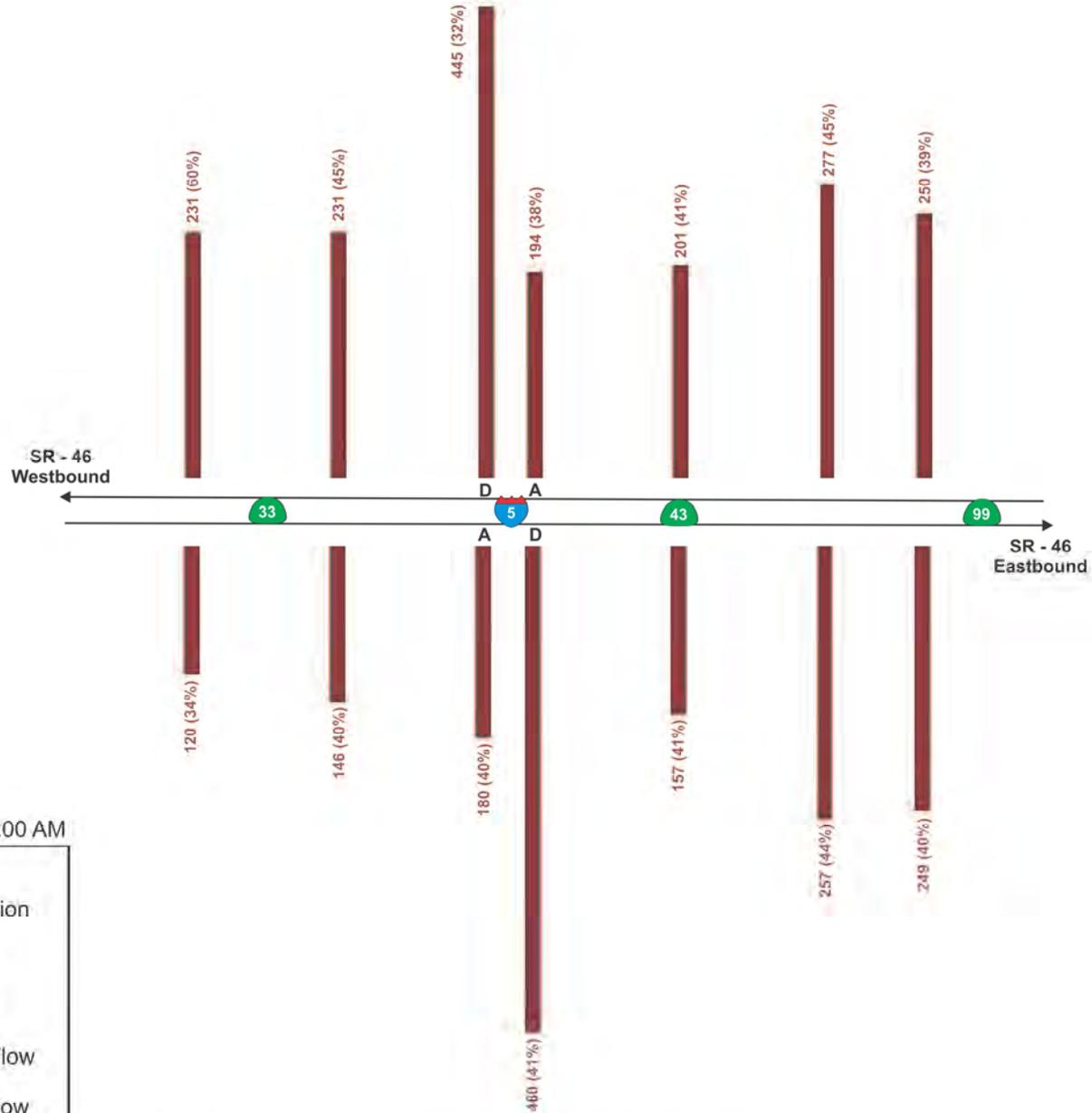
Count Period: 4:00 PM to 7:00 PM

LEGEND

- Truck Volume Variation
- A Approach Volume
- D Departure Volume
- ← Westbound Traffic Flow
- Eastbound Traffic Flow



Not to Scale

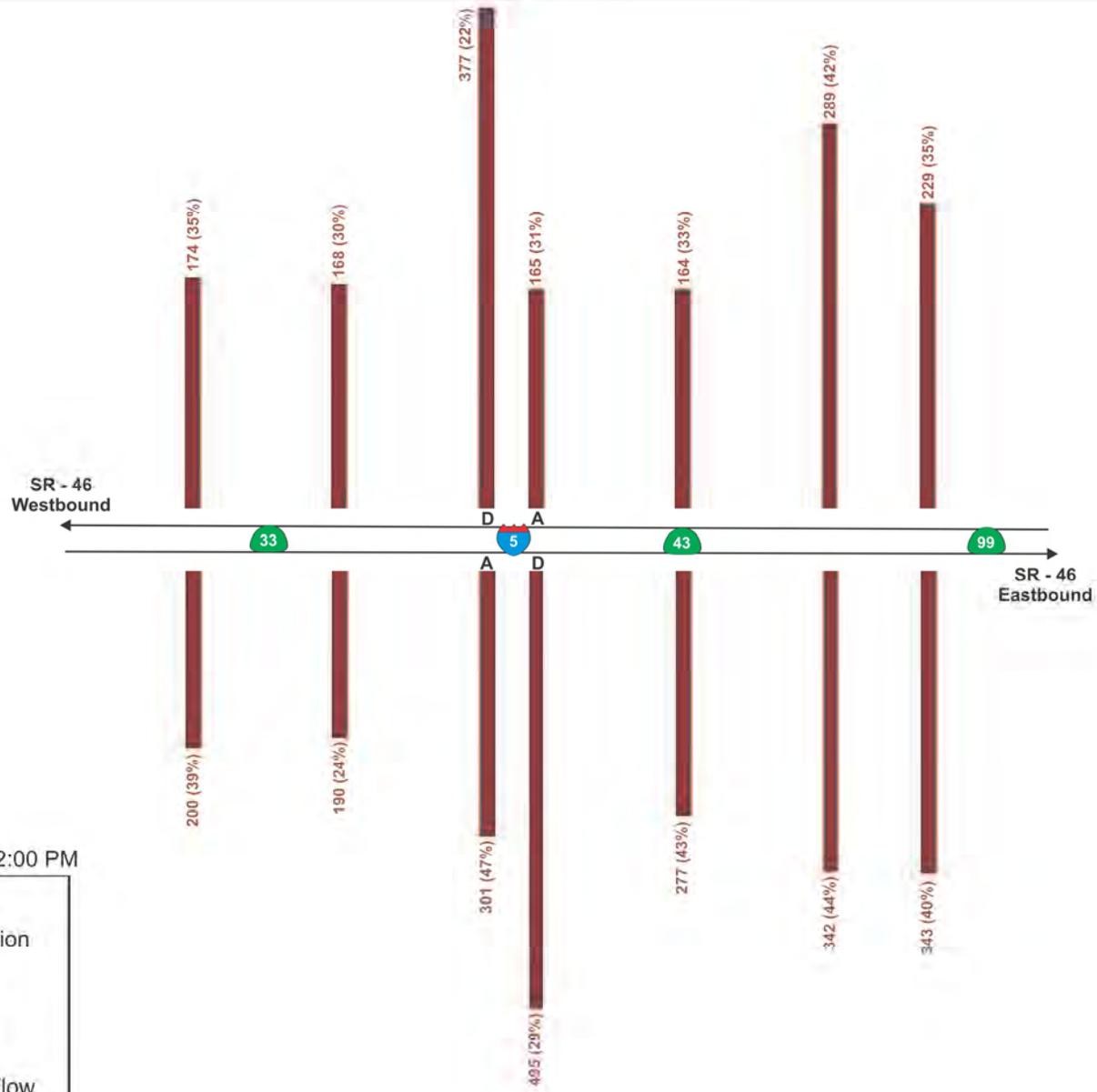


Count Period: 6:00 AM to 9:00 AM

LEGEND

- Truck Volume Variation
- A Approach Volume
- D Departure Volume
- ← Westbound Traffic Flow
- Eastbound Traffic Flow





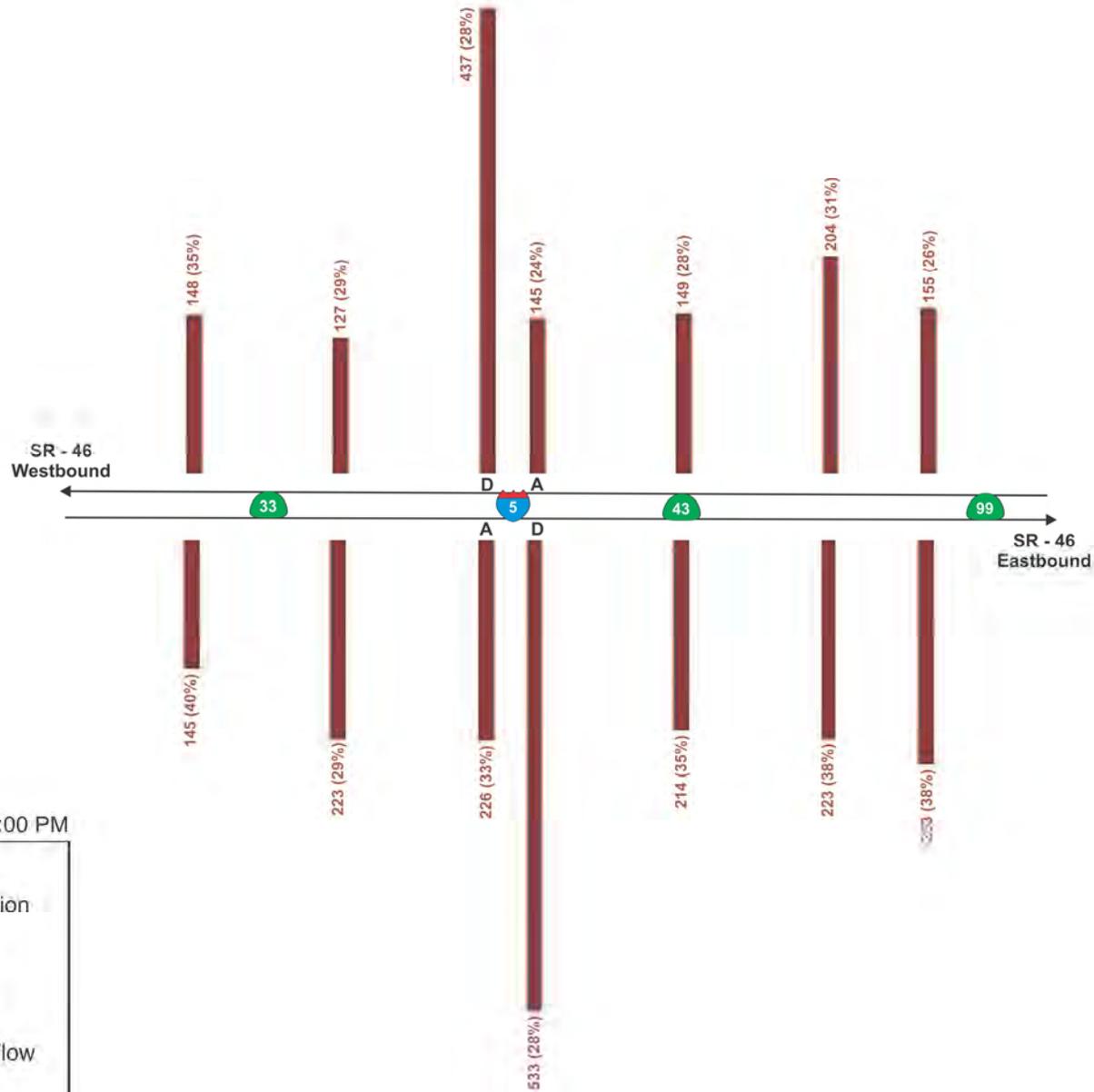
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LEGEND

- Truck Volume Variation
- A Approach Volume
- D Departure Volume
- ← Westbound Traffic Flow
- Eastbound Traffic Flow



Not to Scale



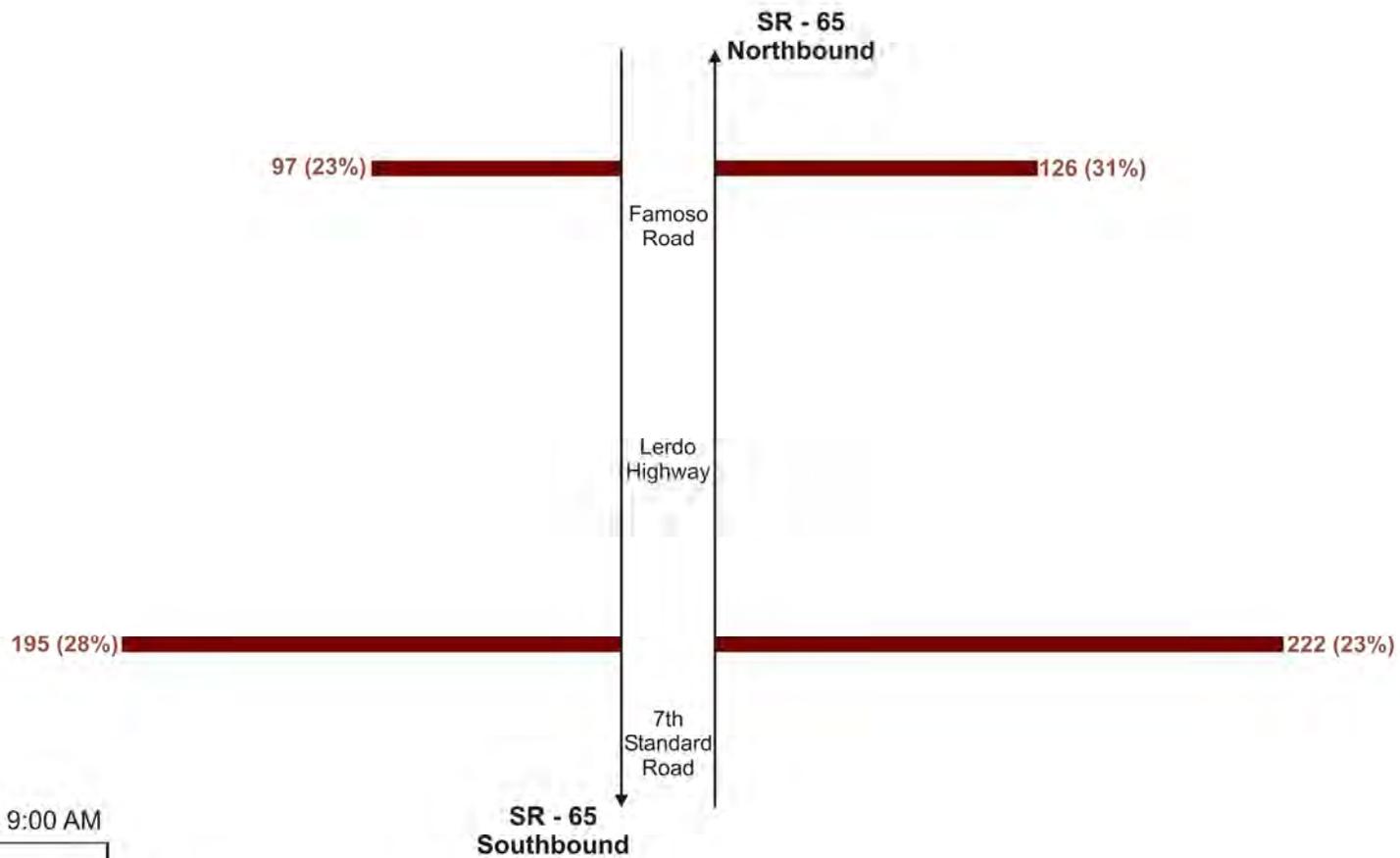
Count Period: 4:00 PM to 7:00 PM

LEGEND

- Truck Volume Variation
- A Approach Volume
- D Departure Volume
- ← Westbound Traffic Flow
- Eastbound Traffic Flow



Not to Scale



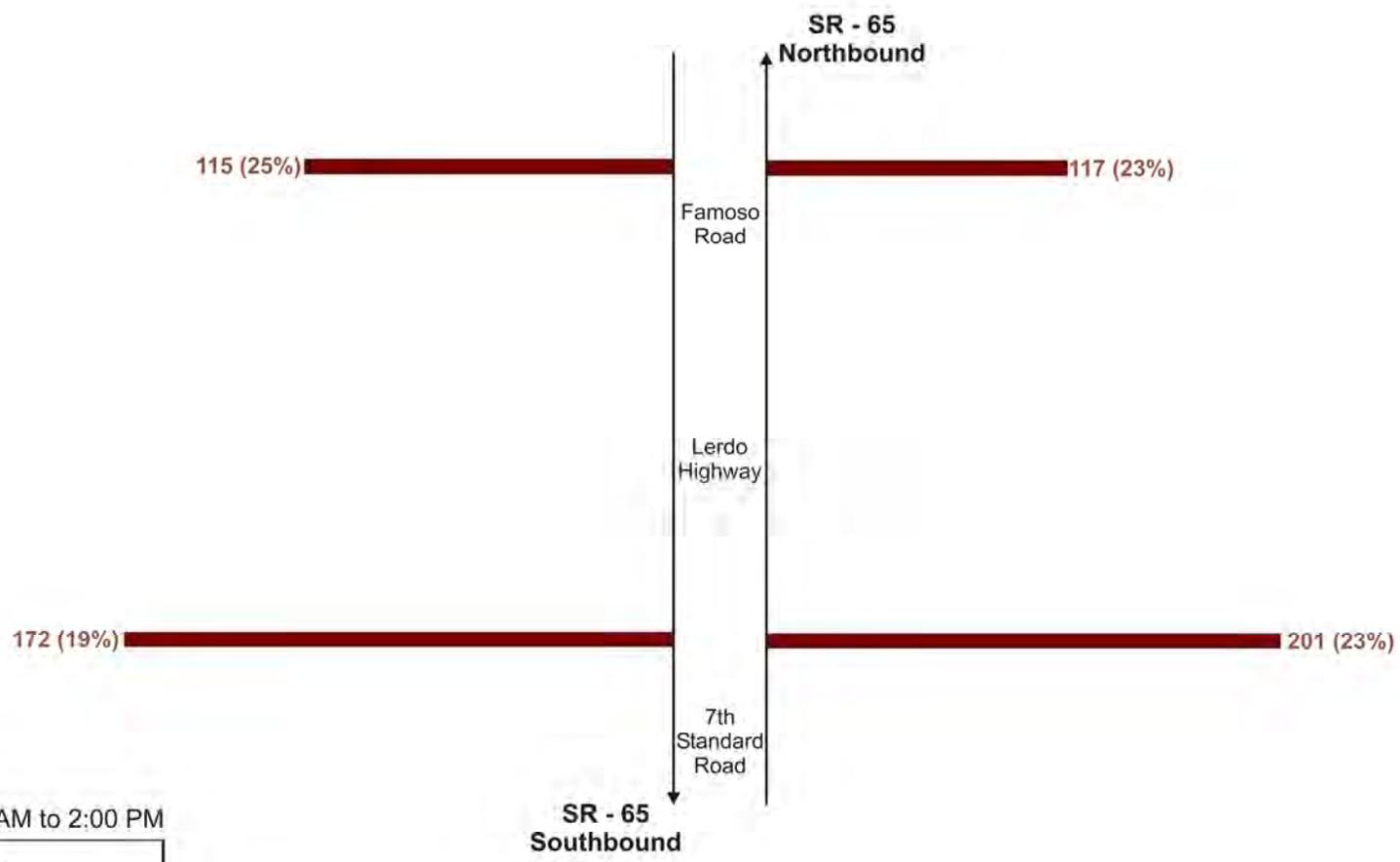
Count Period: 6:00 AM to 9:00 AM

LEGEND

- Truck Volume Variation
- ↑ Northbound Traffic Flow
- ↓ Southbound Traffic Flow



Not to Scale



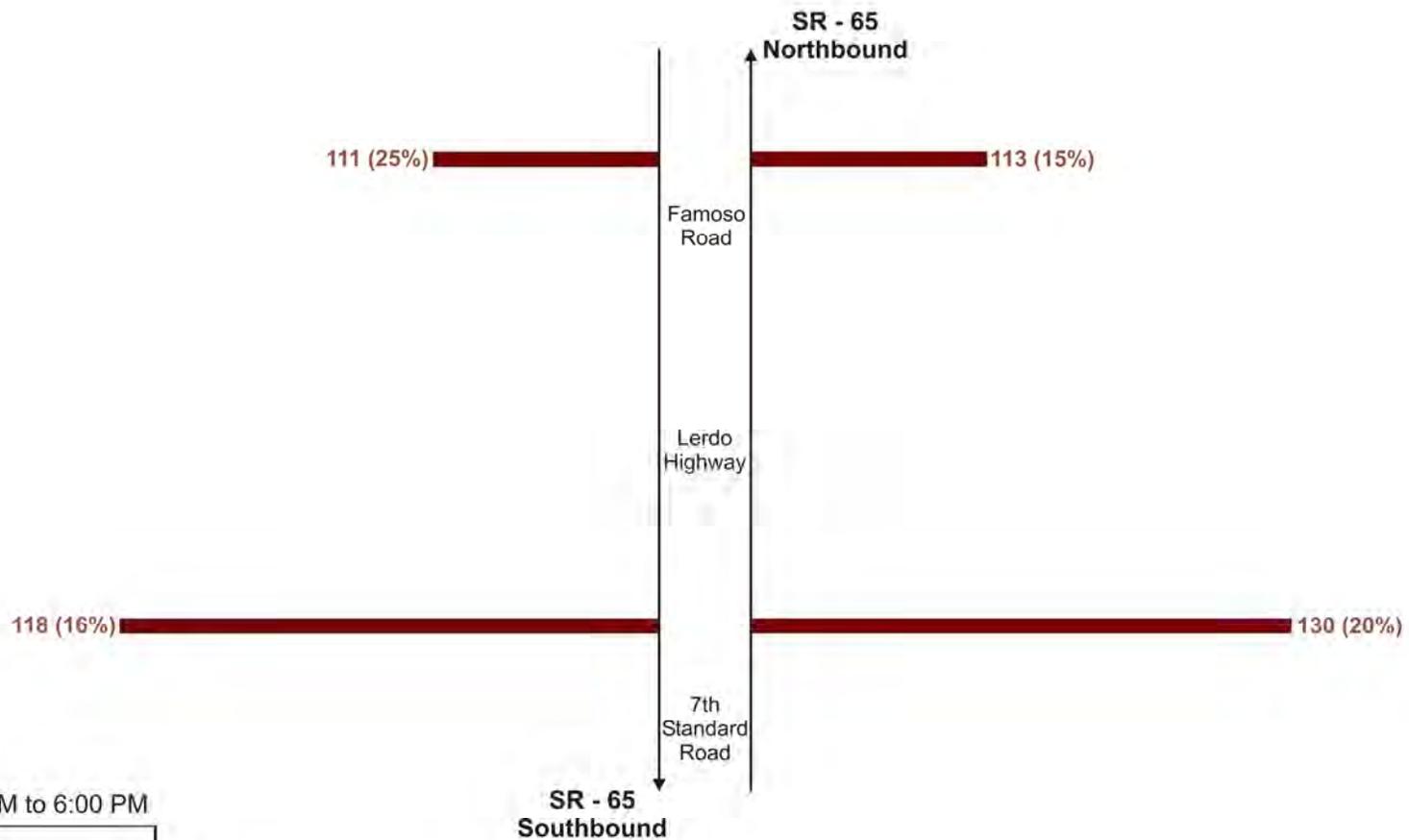
Count Period: 11:00 AM to 2:00 PM

LEGEND

- Truck Volume Variation
- Northbound Traffic Flow
- Southbound Traffic Flow



Not to Scale



Count Period: 4:00 PM to 6:00 PM

LEGEND

-  Truck Volume Variation
-  Northbound Traffic Flow
-  Southbound Traffic Flow



Not to Scale

4.0 VIDEO SURVEILLANCE

Video surveillance was conducted at a total of eight locations to collect detailed truck traffic data along the five study routes. Each of the eight locations had one day during the daylight hours (6:00 a.m. to 8:00 p.m.) for each direction of traffic flow. Data was gathered from the videos of identified truck types and any visible trucking company information. The results of the effort are detailed below.

The analysis provided in this report section from the video surveillance efforts is limited, due to the challenges associated with this form of data collection. Although there were data constraints, the following text provides a general overview of trucking within the region through the use of collected truck classification, equipment type, and trucking activity data, over the course of a typical day.

The video surveillance locations and the related study routes are identified below:

- Locations A and B – SR-46
- Location C – SR-65
- Locations D and E – SR-119
- Locations F and G – SR-223
- Location H – SR-166

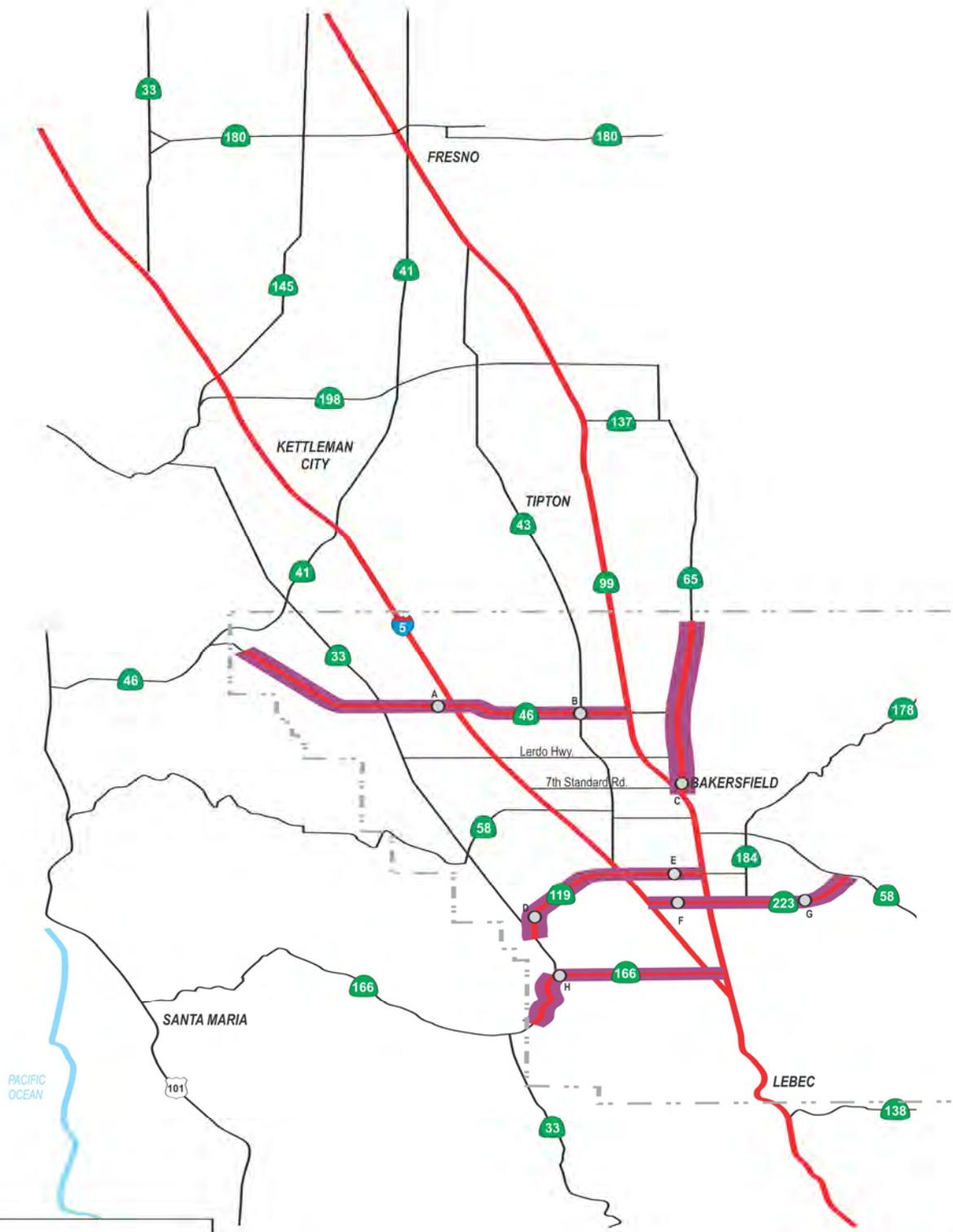
Figure 4-1 illustrates the locations of the video surveillance effort for all five study routes.

There were a total of 10,797 trucks identified from the video surveillance for all eight locations. Table 4-1 lists the number of identified trucks by location and the direction of travel.

Table 4-1 Total Number of Identified Trucks by Location

Location	Direction				Total
	NB	SB	EB	WB	
A	-	-	1,107	871	1,978
B	-	-	1,248	865	2,113
C	715	701	-	-	1,416
D	663	370	-	-	1,033
E			575	504	1,079
F			752	810	1,562
G			462	308	770
H			495	351	846
Total					10,797

The top five locations with the highest number truck volumes includes Location B, along SR-46, with 2,113 trucks; followed by Location A, on SR-46, with 1,978 trucks; Location F on SR-223 was the third highest with 1,562 trucks; Location C on SR-65 with 1,416 trucks was the fourth highest; and Location E, along SR-119 with 1,079 trucks was the fifth highest.



LEGEND

- Study Corridors
- Freeway
- Kern County Boundary
- Video Surveillance Location



4.1 Truck Classification

Truck types were compiled from the video surveys to gain a better understanding of the various types of trucks traveling through the study corridors. The truck classifications are based on the FHWA classification standards, which contain a total of 13 vehicle categories of motorcycles, passenger vehicles, buses, and trucks. The study is focused on the nine truck classes (Type 5 to Type 13).

- Chart 4-1 illustrates the summary of the truck classification types for all locations

The list of charts below display the nine truck classes by direction at each study location:

- Chart 4-2 - eastbound and westbound - Location A
- Chart 4-3 - eastbound and westbound - Location B
- Chart 4-4 - northbound and southbound - Location C
- Chart 4-5 - northbound and southbound - Location D
- Chart 4-6 - eastbound and westbound - Location E
- Chart 4-7 - eastbound and westbound - Location F
- Chart 4-8 - eastbound and westbound - Location G
- Chart 4-9 - eastbound and westbound - Location H

Further discussions of the truck classification charts are provided below under Section 4.6, “Key Findings”.

Chart 4-I Truck Classification Summary

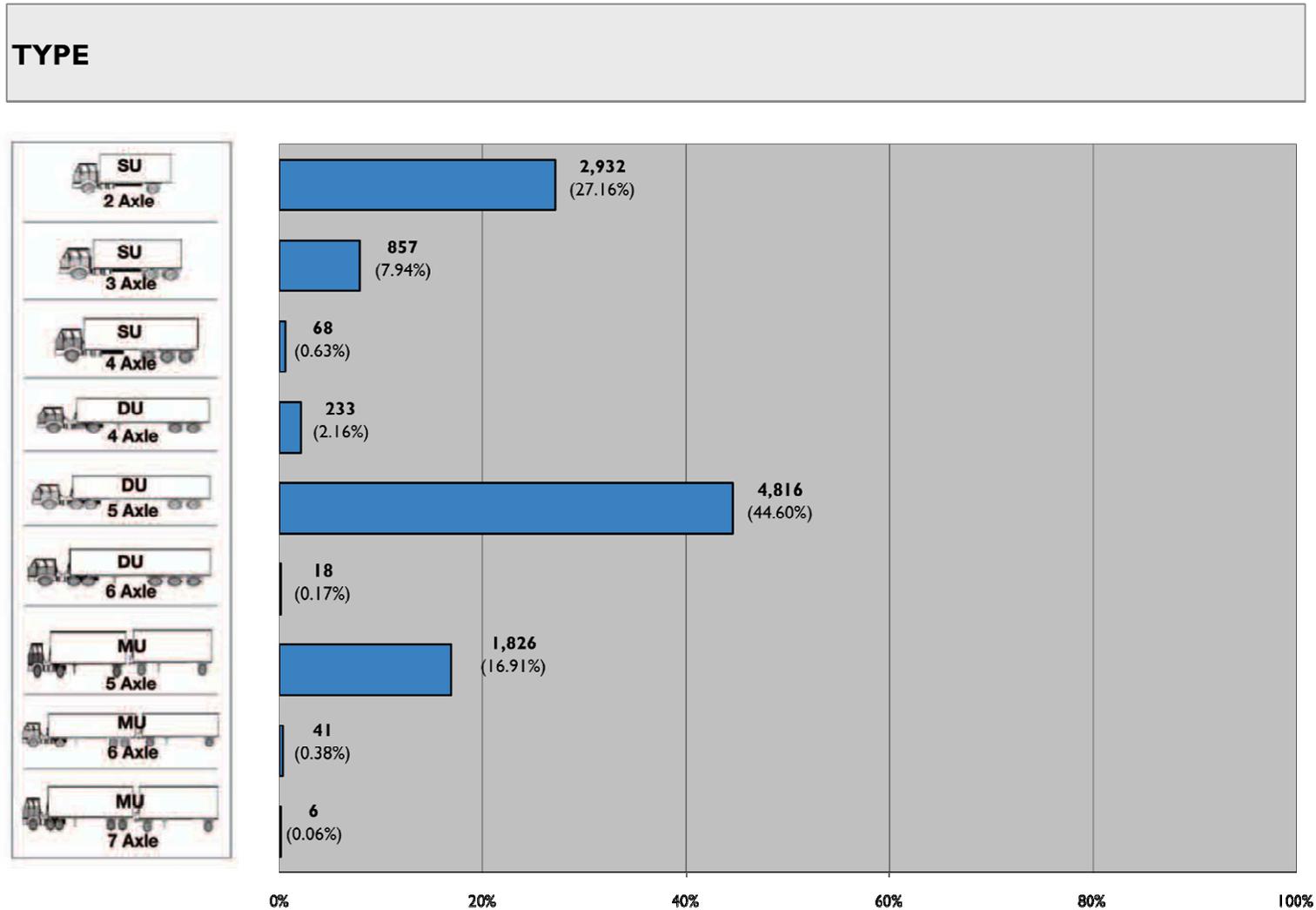


Chart 4-2 Truck Classification – Location A

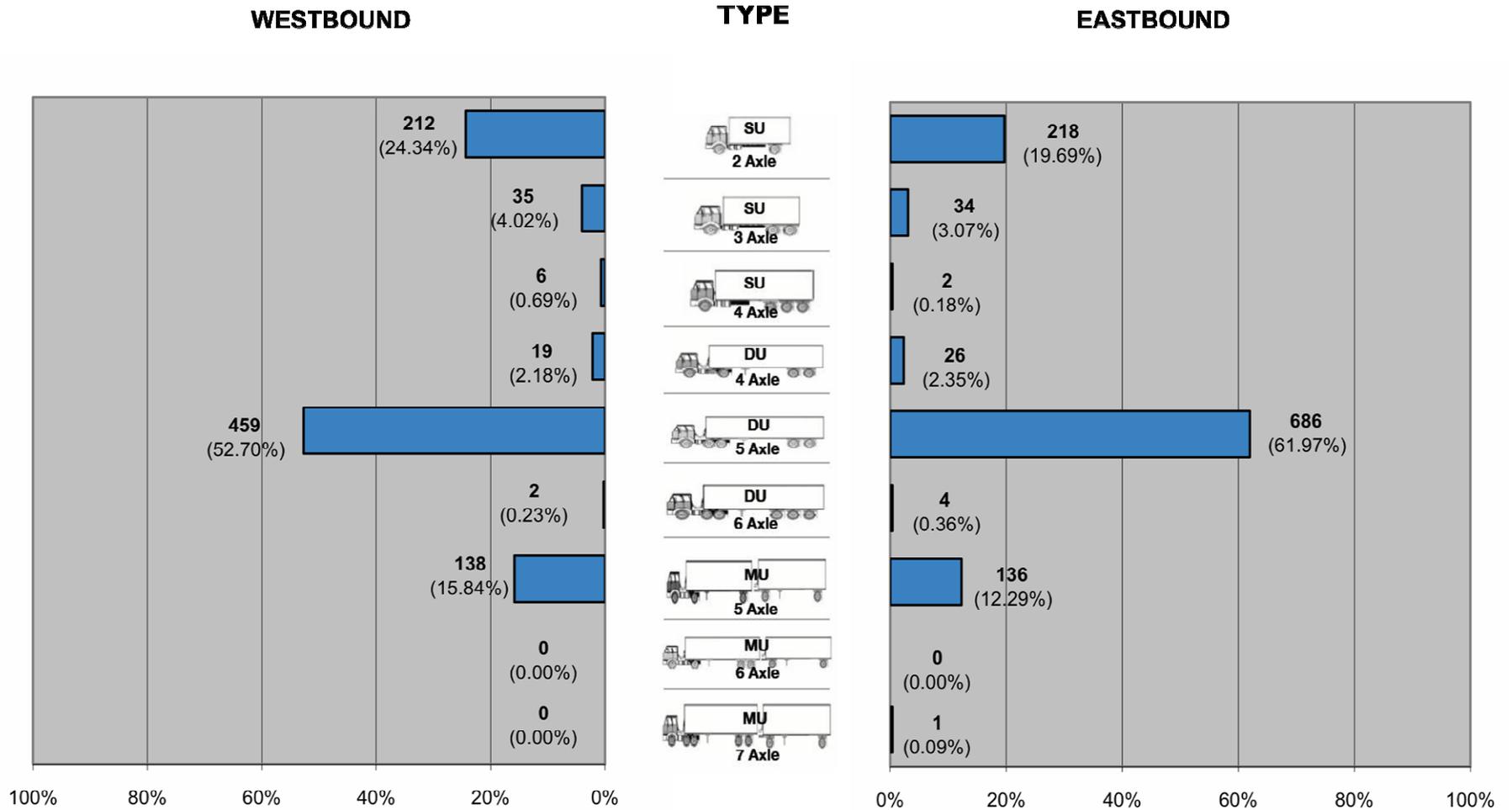


Chart 4-3 Truck Classification – Location B

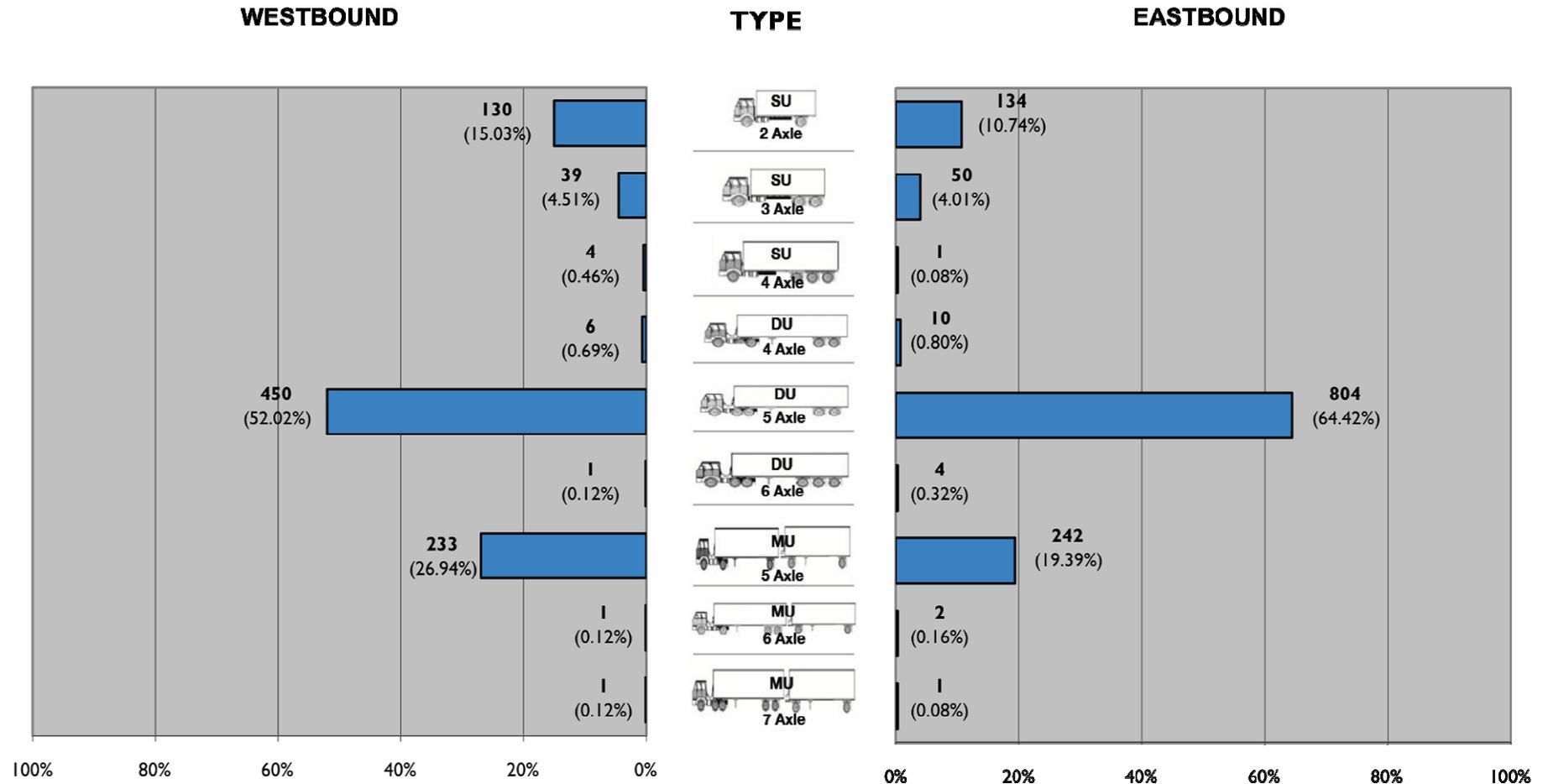


Chart 4-4 Truck Classification – Location C

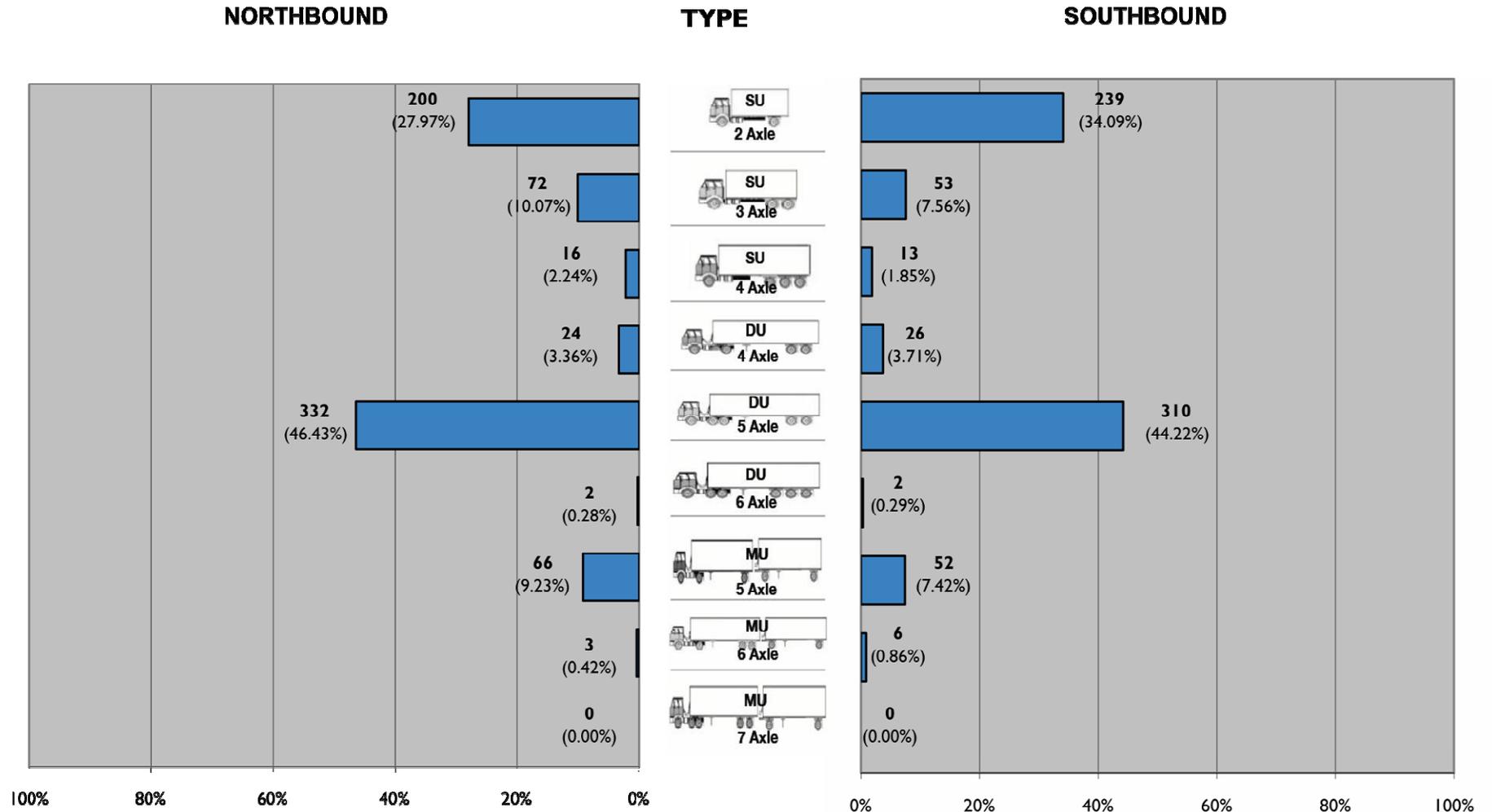


Chart 4-5 Truck Classification – Location D

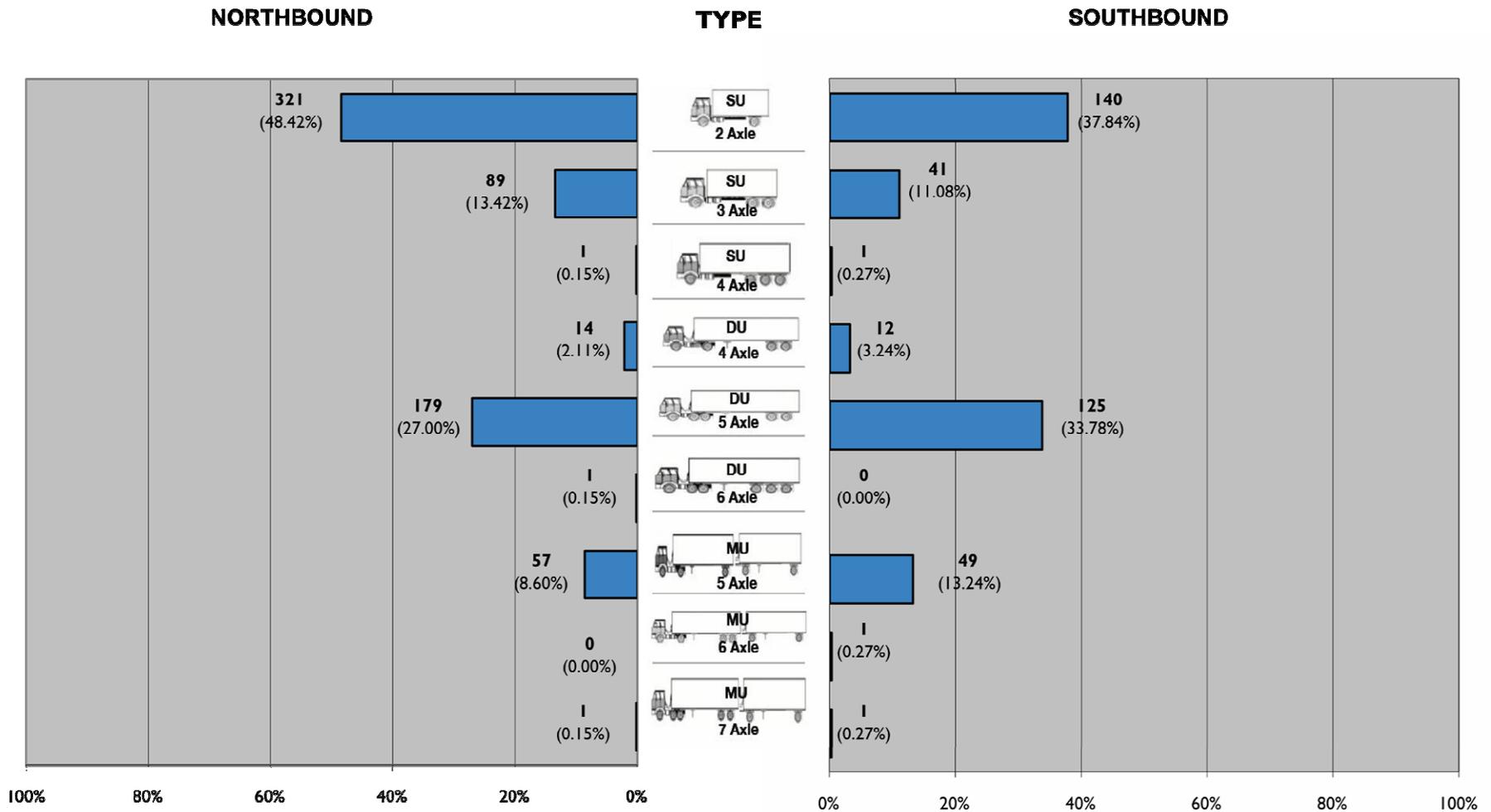


Chart 4-6 Truck Classification – Location E

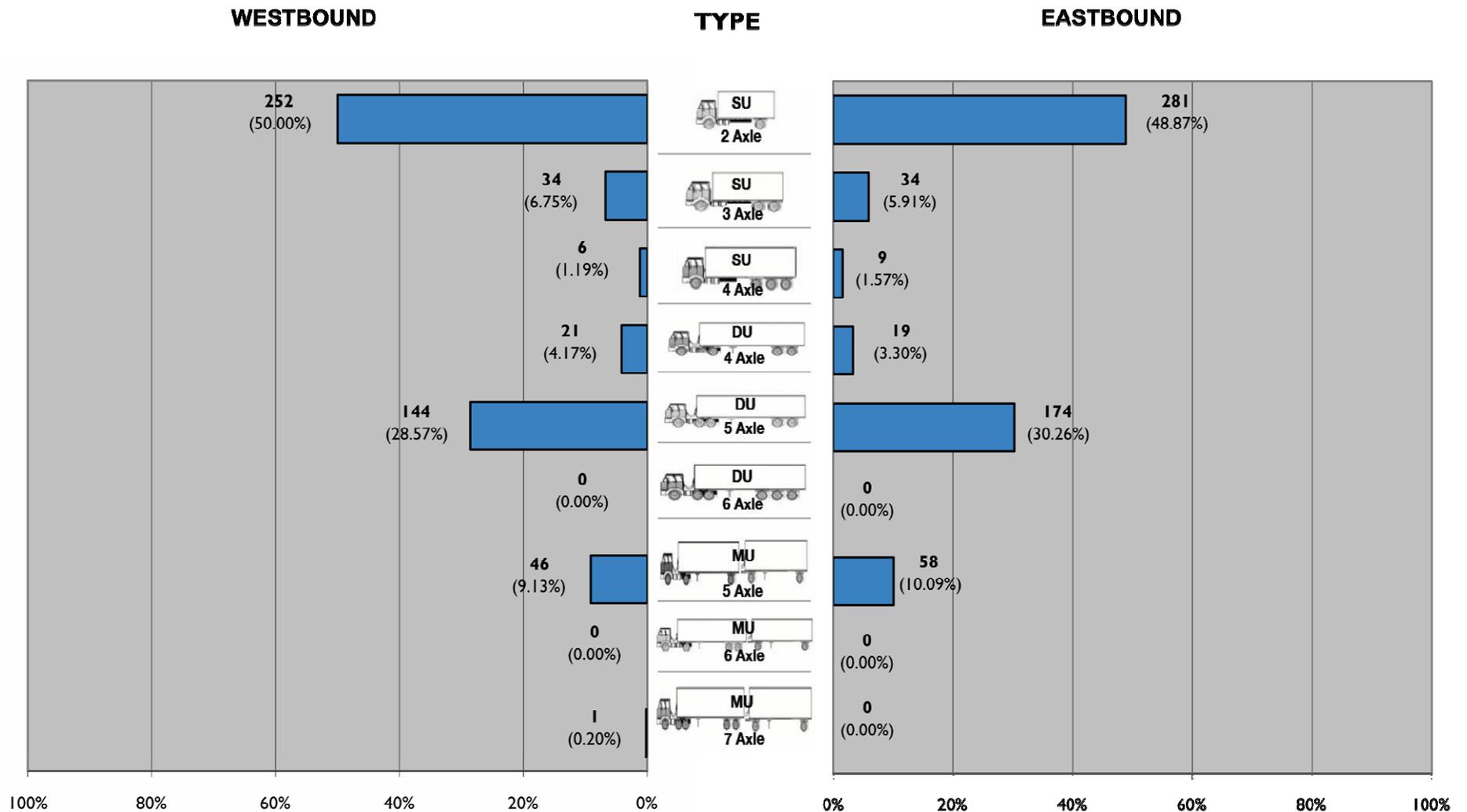


Chart 4-7 Truck Classification – Location F

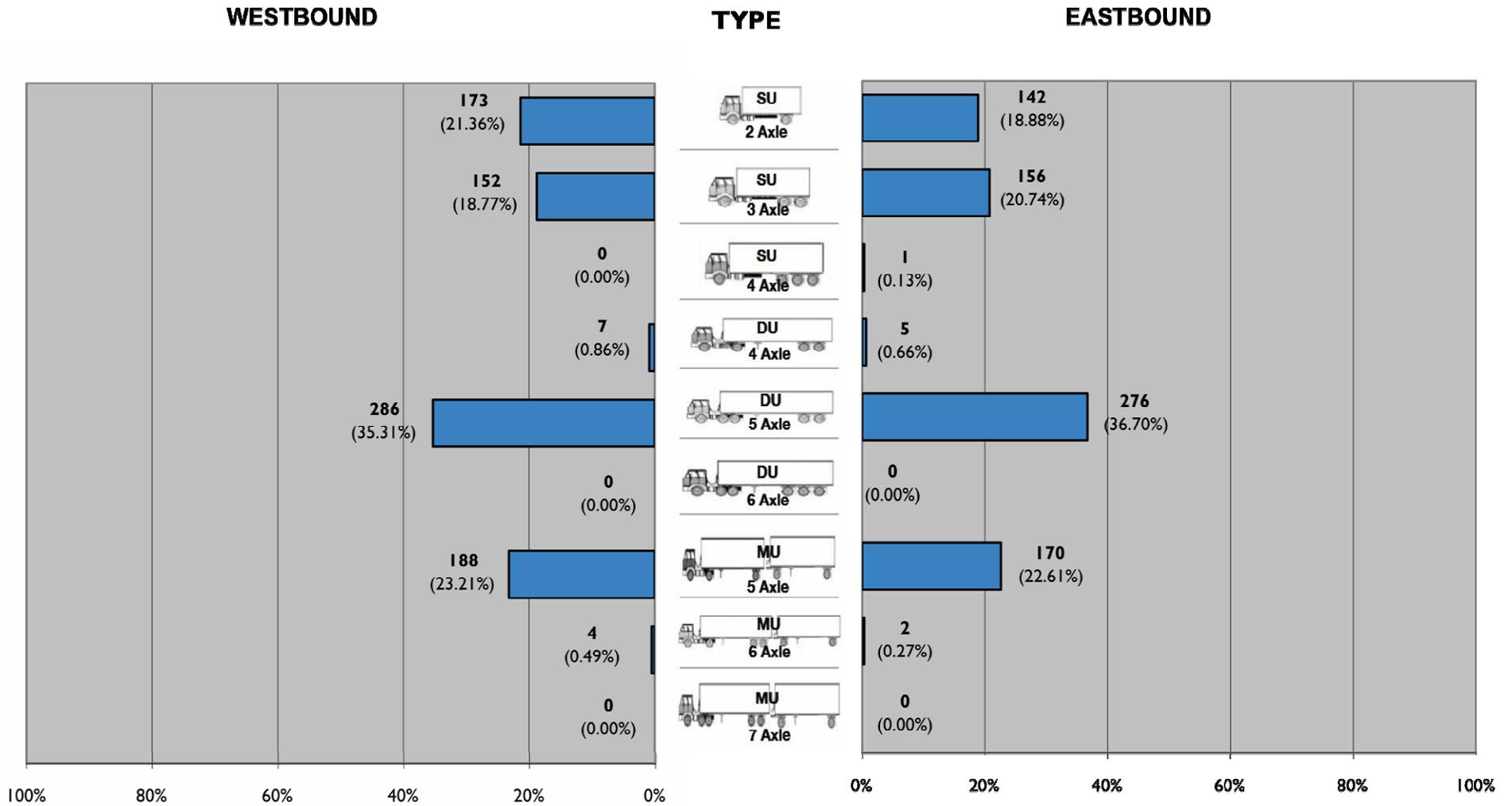


Chart 4-8 Truck Classification – Location G

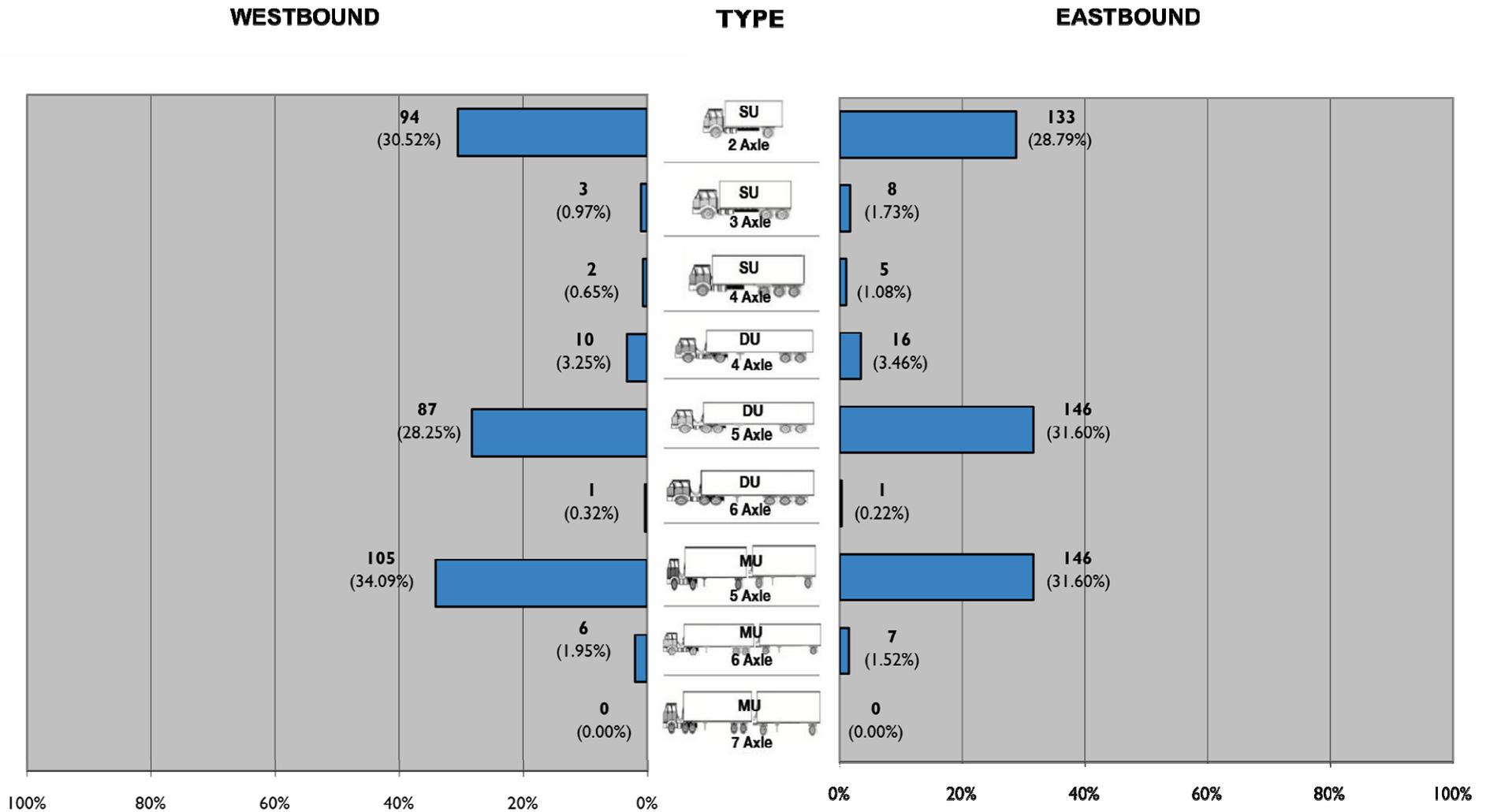
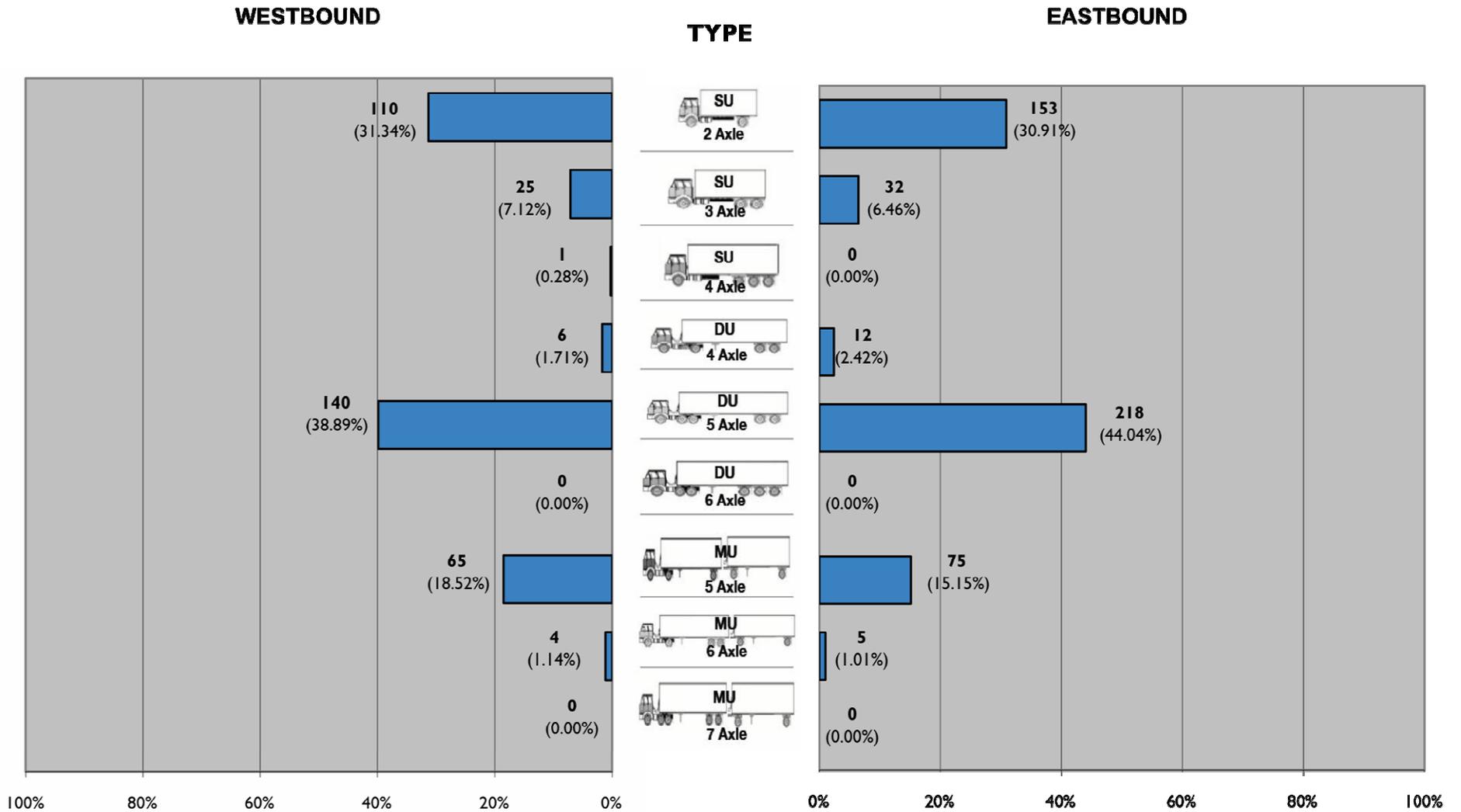


Chart 4-9 Truck Classification – Location H



4.2 Equipment Types

In addition to the compilation of general truck classifications, general equipment types were categorized into three categories:

- Freight
- Service/Work
- Unknown

Although all trucks may carry some form of freight, for the purpose of this study the term refers to an equipment type. The data was compiled to determine the proportion of freight trucks versus service/work trucks. For trucks that could not be classified into specific equipment types, they were categorized as unknown. Chart 4-10 displays the overall equipment types and Chart 4-11 displays the summary of equipment types for all locations.

Further discussions of the equipment type charts are located in Section 4.6, “Key Findings”.

Chart 4-10 Overall Equipment Type

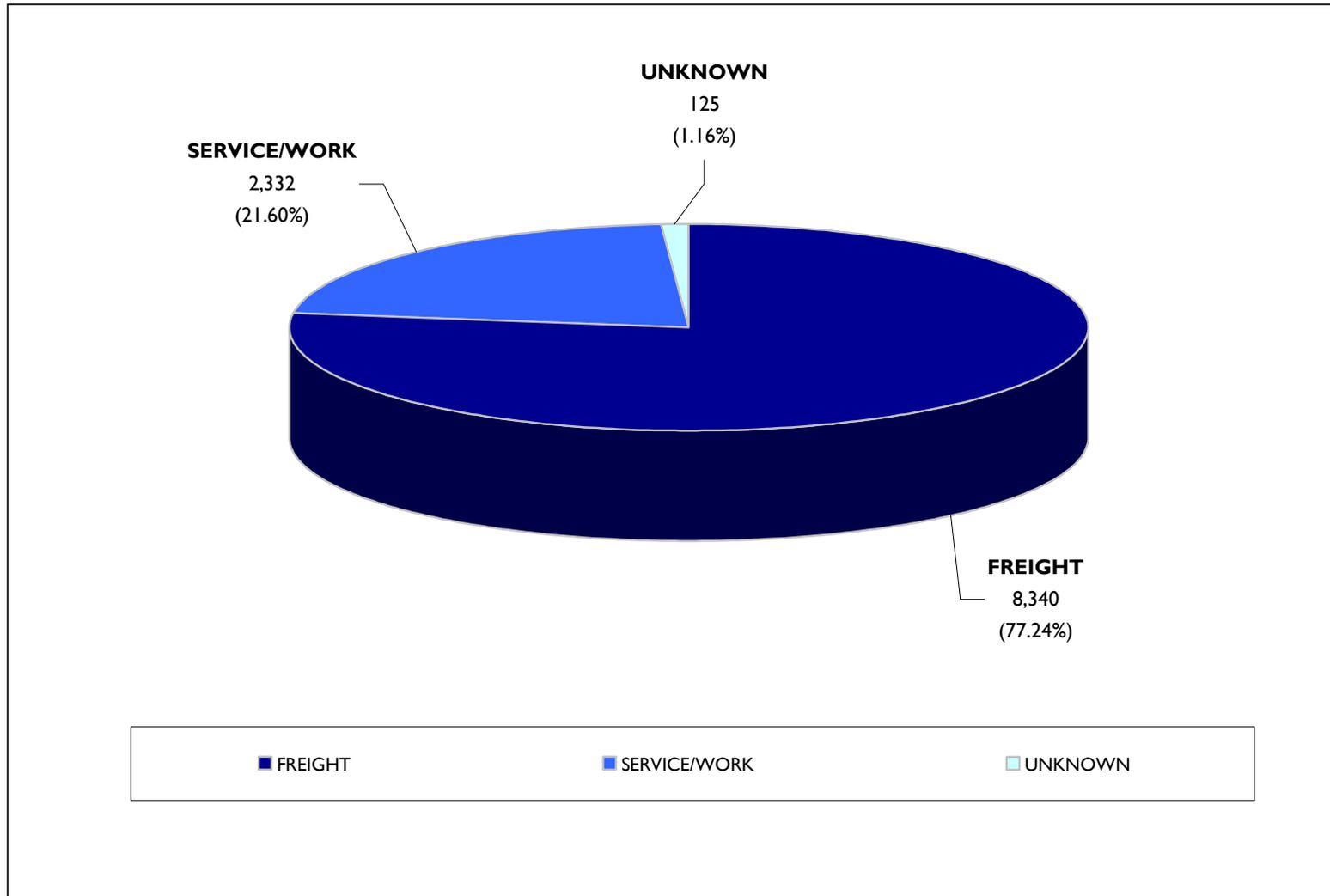
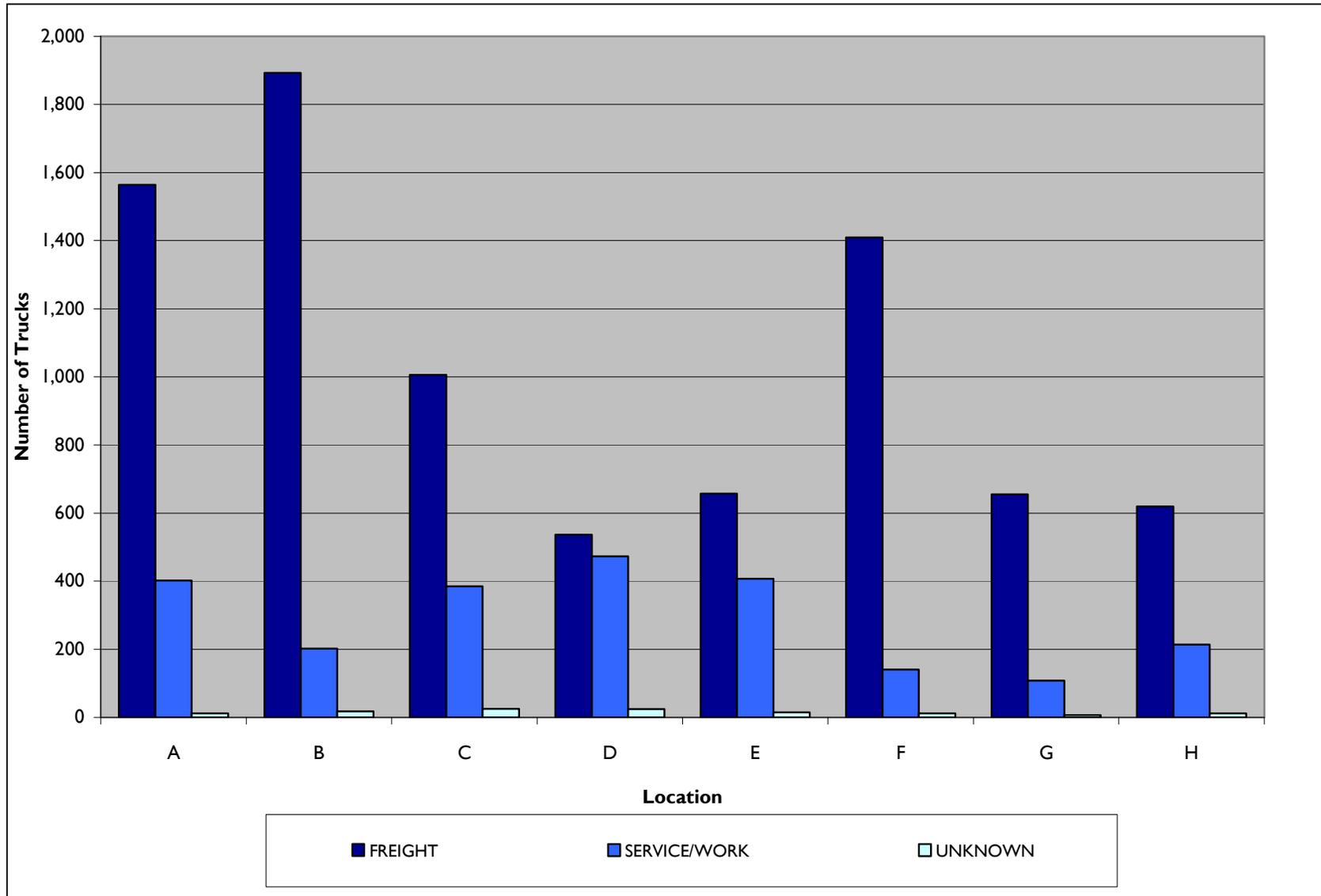


Chart 4-11 Truck Equipment Type by Location



4.3 Truck Types

In addition to the general equipment types, specific truck types related to the freight and service/work equipment types were categorized to gain a better understanding of the truck types that are traveling on the study routes.

4.3.1 Freight

Because there was a variation in the freight truck types identified, the truck type categories were consolidated to ease the analysis efforts. The initial freight truck type list included over 20 truck types that were classified together into the following general freight truck types:

- Flatbed/Low Bed (Platform, Heavy Haul)
- Hopper (Open Top, Transfer Dump, Double Dump, Double Bottom Dump)
- Tanker (Liquid, Gas)
- Van (Dry Van, Double Van, Reefer)
- Specialized/Other (Auto Transport, Container)

Included below are pictures of freight truck types that were captured most frequently during the video surveillance efforts. This represents a sample of all truck types in the study area.

Freight Truck Types

FLATBED/LOW BED

Flatbed



Low Bed



HOPPER

Agricultural Bins



Double Bottom Dump



TANKER

Liquid Tank



Pressurized Gas Tank



VAN

Dry Van



Reefer



SPECIALIZED

Auto Transport



Table 4-2 provides a breakdown of freight truck type data, by video surveillance location. The percentages within the table are based exclusively on freight truck type data. They do not represent the overall proportion of freight trucks observed during the video surveillance effort only those within the freight equipment category.

Table 4-2 Freight Truck Types

LOCATION	DIRECTION	FREIGHT TRUCK TYPES									
		FLATBED/LOW BED		HOPPER		TANKER		VAN		SPECIALIZED/OTHER	
		Total	%	Total	%	Total	%	Total	%	Total	%
A	EB	107	6.84%	154	9.85%	53	3.39%	537	34.34%	50	3.20%
	WB	107	6.84%	124	7.93%	62	3.96%	331	21.16%	39	2.49%
	TOTAL	214	13.68%	278	17.77%	115	7.35%	868	55.50%	89	5.69%
B	EB	152	8.03%	220	11.62%	51	2.69%	676	35.71%	26	1.37%
	WB	137	7.24%	197	10.41%	46	2.43%	364	19.23%	24	1.27%
	TOTAL	289	15.27%	417	22.03%	97	5.12%	1,040	54.94%	50	2.64%
C	NB	79	7.85%	134	13.32%	38	3.78%	213	21.17%	60	5.96%
	SB	64	6.36%	117	11.63%	29	2.88%	207	20.58%	65	6.46%
	TOTAL	143	14.21%	251	24.95%	67	6.66%	420	41.75%	125	12.43%
D	NB	57	10.63%	110	20.52%	40	7.46%	110	20.52%	2	0.37%
	SB	20	3.73%	89	16.60%	41	7.65%	58	10.82%	9	1.68%
	TOTAL	77	14.37%	199	37.13%	81	15.11%	168	31.34%	11	2.05%
E	EB	82	12.48%	92	14.00%	54	8.22%	91	13.85%	37	5.63%
	WB	65	9.89%	82	12.48%	36	5.48%	74	11.26%	44	6.70%
	TOTAL	147	22.37%	174	26.48%	90	13.70%	165	25.11%	81	12.33%
F	EB	79	5.61%	213	15.12%	45	3.19%	66	4.68%	284	20.16%
	WB	85	6.03%	228	16.18%	58	4.12%	66	4.68%	285	20.23%
	TOTAL	164	11.64%	441	31.30%	103	7.31%	132	9.37%	569	40.38%
G	EB	41	6.26%	126	19.24%	17	2.60%	158	24.12%	39	5.95%
	WB	49	7.48%	93	14.20%	10	1.53%	94	14.35%	28	4.27%
	TOTAL	90	13.74%	219	33.44%	27	4.12%	252	38.47%	67	10.23%
H	EB	42	6.77%	136	21.94%	41	6.61%	133	21.45%	12	1.94%
	WB	25	4.03%	117	18.87%	30	4.84%	75	12.10%	9	1.45%
	TOTAL	67	10.81%	253	40.81%	71	11.45%	208	33.55%	21	3.39%

4.3.2 Service/Work

There were fewer service/work truck types as compared to freight truck types. To simplify the analysis, however, the truck types were consolidated. The overall list included over 15 service/work truck types which were consolidated into the following general truck types:

- Bucket
- Crane
- Flatbed
- Oil Field
- Tool
- Specialized/Other (Cement Mixer, Pumper)

Included below are pictures of the service/work truck types that were captured most frequently during the video surveillance. This represents a sample of the total service/work trucks in the study area.

Service/Work Truck Types

BUCKET



CRANE



FLATBED



OIL FIELD



TOOL



SPECIALIZED/OTHER

Cement Mixer



Pumper



Trash



Table 4-3 provides a breakdown of service/work truck type data, by video surveillance location. The percentages within the table are based exclusively on service/work truck type data. They do not represent the overall proportion of service/work trucks observed during the video surveillance effort only those within the service/work equipment category.

Table 4-3 Service/Work Truck Types

LOCATION	DIRECTION	SERVICE/WORK TRUCK TYPES											
		BUCKET		CRANE		FLATBED		OIL FIELD		TOOL		SPECIALIZED/OTHER	
		Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
A	EB	10	2.49%	22	5.47%	29	7.21%	2	0.50%	81	20.15%	53	13.18%
	WB	9	2.24%	14	3.48%	23	5.72%	5	1.24%	89	22.14%	65	16.17%
	TOTAL	19	4.73%	36	8.96%	52	12.94%	7	1.74%	170	42.29%	118	29.35%
B	EB	4	1.98%	4	1.98%	11	5.45%	0	0.00%	18	8.91%	77	38.12%
	WB	6	2.97%	13	6.44%	4	1.98%	0	0.00%	13	6.44%	52	25.74%
	TOTAL	10	4.95%	17	8.42%	15	7.43%	0	0.00%	31	15.35%	129	63.86%
C	NB	21	5.45%	4	1.04%	31	8.05%	1	0.26%	35	9.09%	83	21.56%
	SB	32	8.31%	4	1.04%	38	9.87%	0	0.00%	47	12.21%	89	23.12%
	TOTAL	53	13.77%	8	2.08%	69	17.92%	1	0.26%	82	21.30%	172	44.68%
D	NB	6	1.27%	24	5.07%	27	5.71%	0	0.00%	191	40.38%	84	17.76%
	SB	6	1.27%	11	2.33%	8	1.69%	0	0.00%	74	15.64%	42	8.88%
	TOTAL	12	2.54%	35	7.40%	35	7.40%	0	0.00%	265	56.03%	126	26.64%
E	EB	5	1.23%	12	2.95%	8	1.97%	3	0.74%	132	32.43%	51	12.53%
	WB	6	1.47%	7	1.72%	7	1.72%	2	0.49%	123	30.22%	51	12.53%
	TOTAL	11	2.70%	19	4.67%	15	3.69%	5	1.23%	255	62.65%	102	25.06%
F	EB	1	0.71%	2	1.42%	0	0.00%	0	0.00%	37	26.24%	22	15.60%
	WB	4	2.84%	3	2.13%	0	0.00%	0	0.00%	48	34.04%	24	17.02%
	TOTAL	5	3.55%	5	3.55%	0	0.00%	0	0.00%	85	60.28%	46	32.62%
G	EB	4	3.70%	1	0.93%	0	0.00%	0	0.00%	43	39.81%	28	25.93%
	WB	3	2.78%	0	0.00%	0	0.00%	0	0.00%	16	14.81%	13	12.04%
	TOTAL	7	6.48%	1	0.93%	0	0.00%	0	0.00%	59	54.63%	41	37.96%
H	EB	6	2.80%	8	3.74%	16	7.48%	2	0.93%	58	27.10%	33	15.42%
	WB	4	1.87%	4	1.87%	14	6.54%	5	2.34%	37	17.29%	27	12.62%
	TOTAL	10	4.67%	12	5.61%	30	14.02%	7	3.27%	95	44.39%	60	28.04%

Charts 4-12 through 4-20 illustrate the equipment types (freight, service/work, and unknown) and specific freight truck types (flatbed/low bed, hopper, tanker, van, and specialized/other) for each study location. Each chart includes the overall total and the directional (eastbound/westbound or northbound/southbound) totals for each location. The overall total percentages represented in the charts are based on the overall proportion of truck types for each location. For the directional totals, the percentages represent the proportion of equipment and truck types for that particular direction.

- Chart 4-12 - illustrates the overall truck types by specific truck type and equipment type

The list of charts below display specific truck type by equipment type through overall totals and direction at each study location:

- Chart 4-13 - Location A
- Chart 4-14 - Location B
- Chart 4-15 - Location C
- Chart 4-16 - Location D
- Chart 4-17 - Location E
- Chart 4-18 - Location F
- Chart 4-18 - Location G
- Chart 4-20 - Location H

Further discussions of the truck type charts are located in Section 4.6, “Key Findings”.

Chart 4-12 Overall Truck Type by Equipment Type

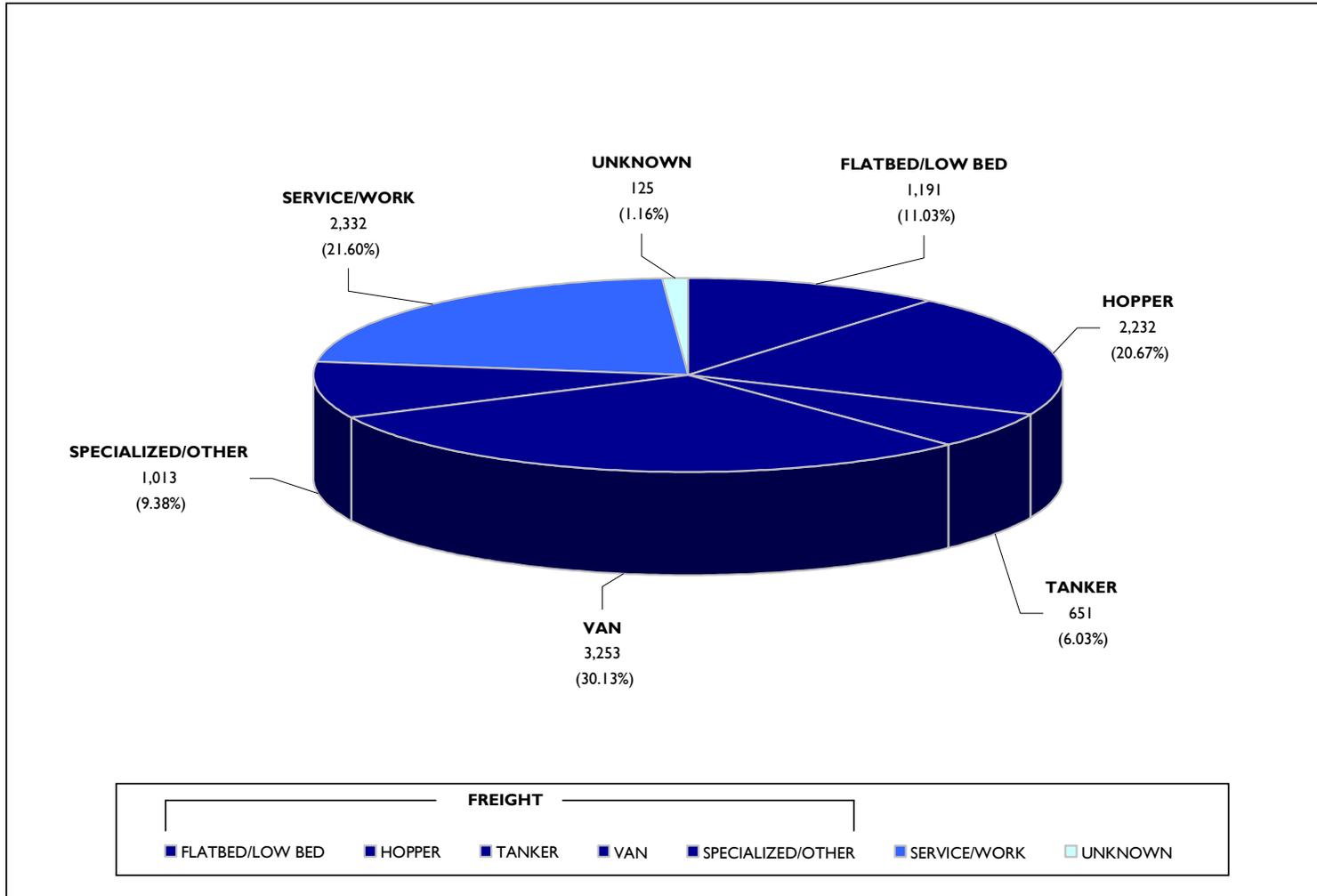


Chart 4-13 Truck Type by Equipment Type – Location A

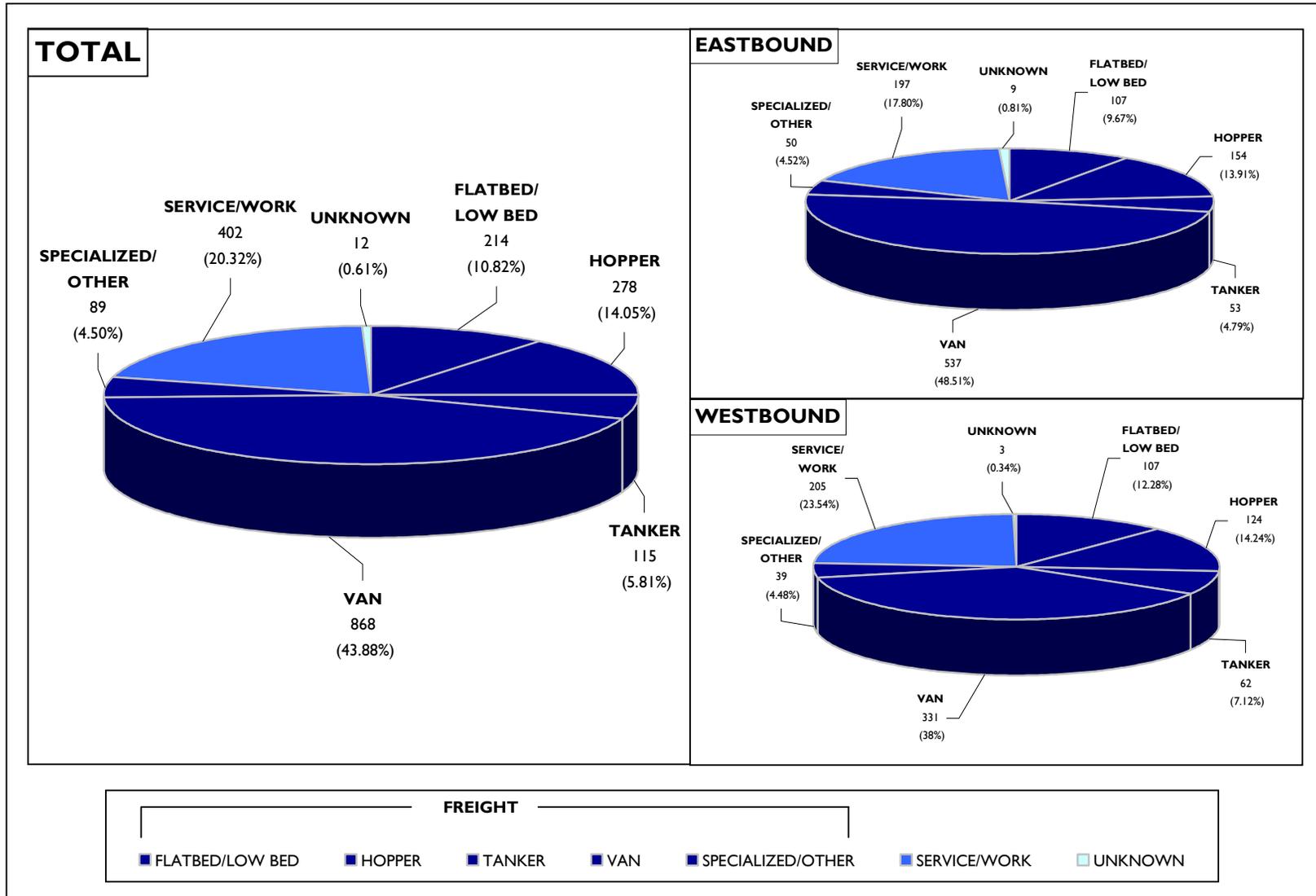


CHART 4-14 TRUCK TYPE BY EQUIPMENT TYPE - LOCATION B

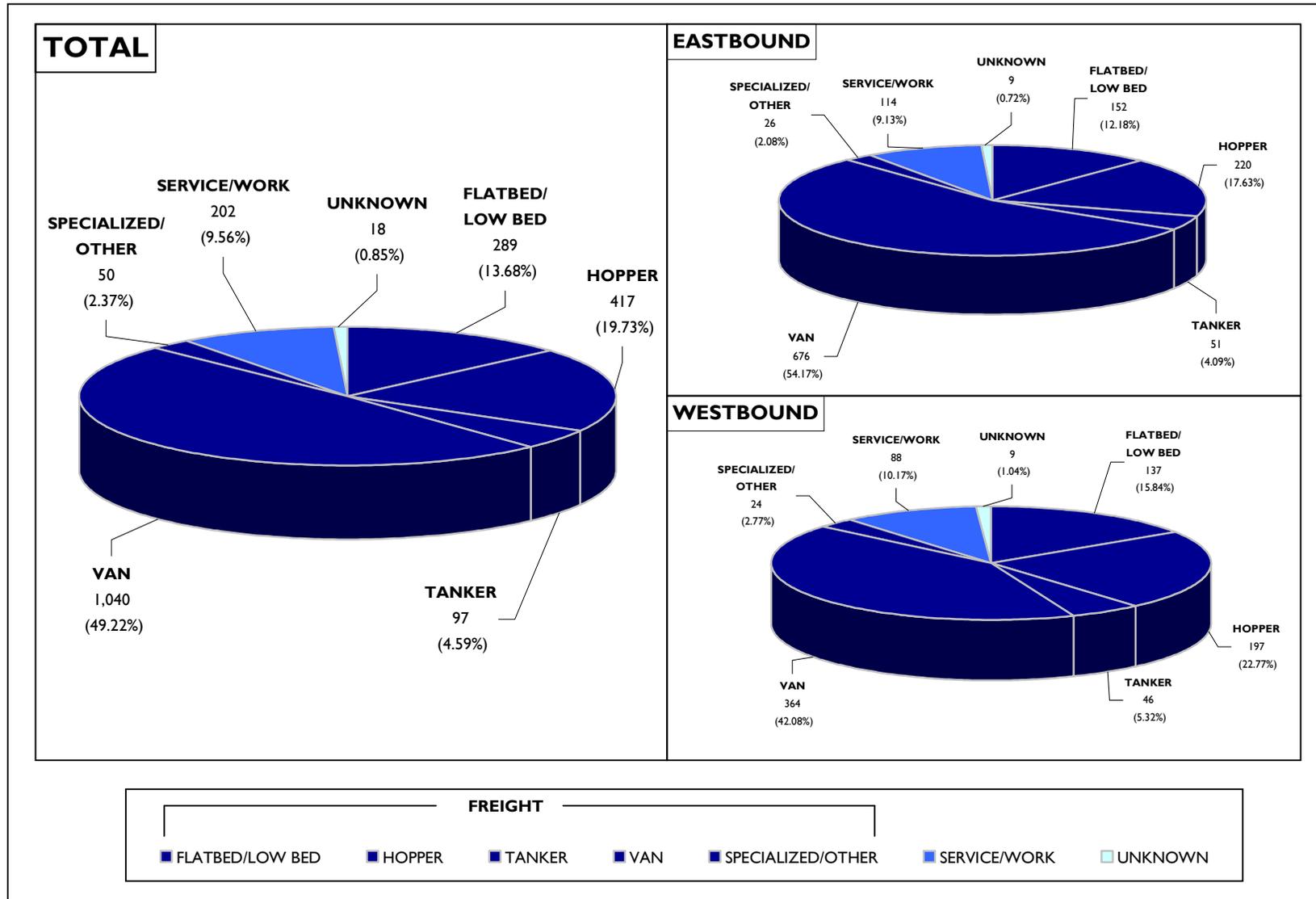


Chart 4-15 Truck Type by Equipment Type – Location C

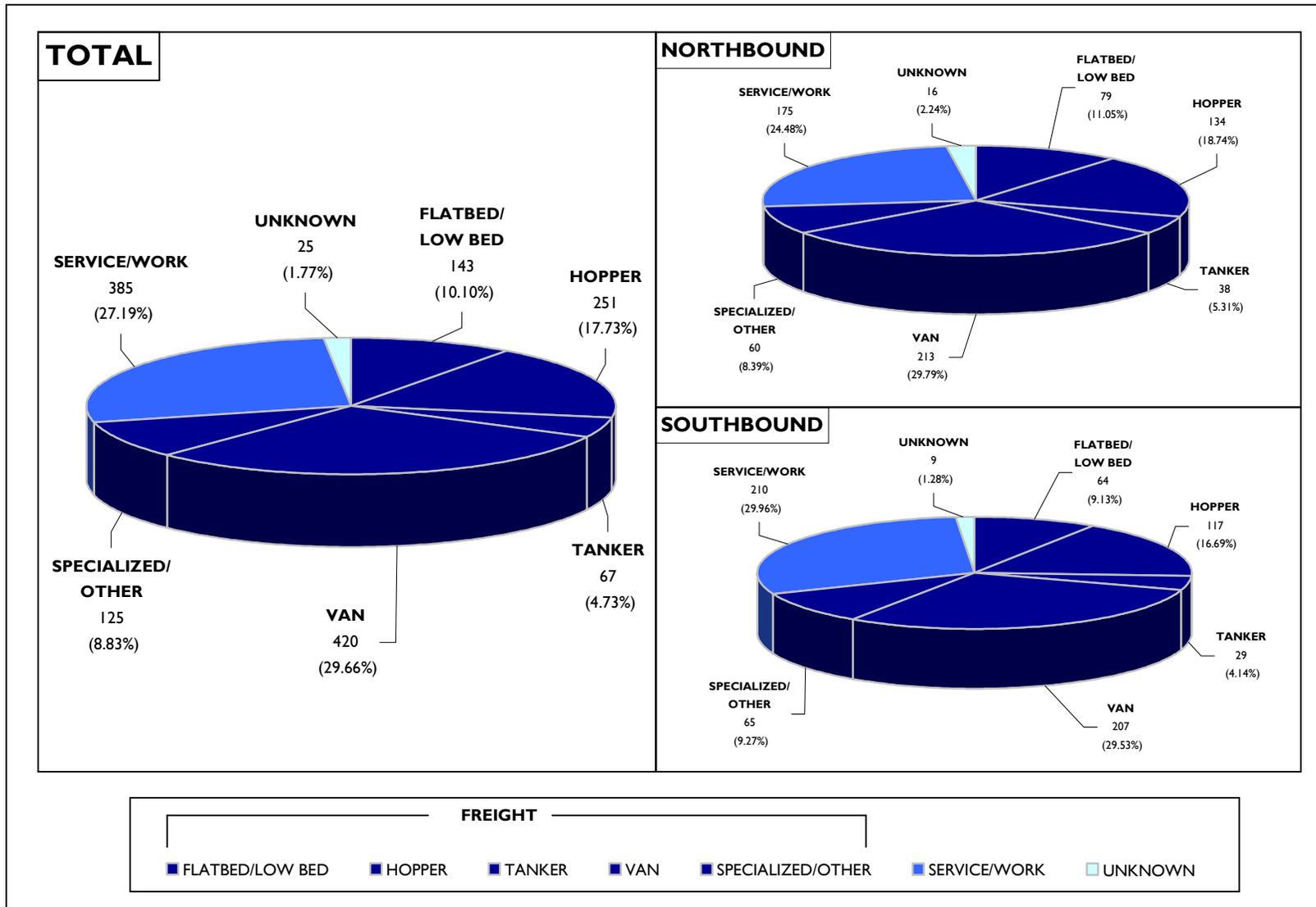


Chart 4-16 Truck Type by Equipment Type – Location D

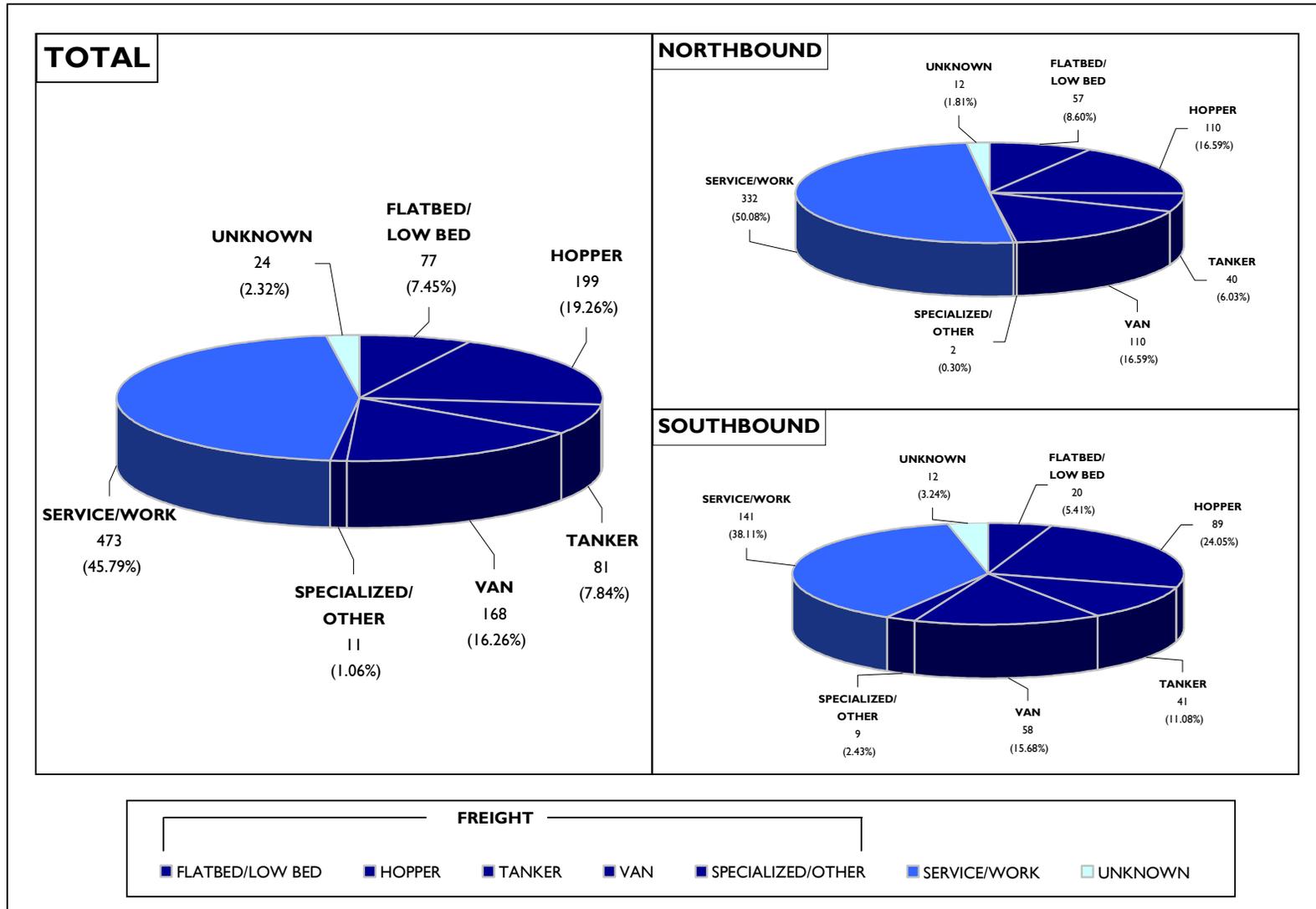


Chart 4-17 Truck Type by Equipment Type – Location E

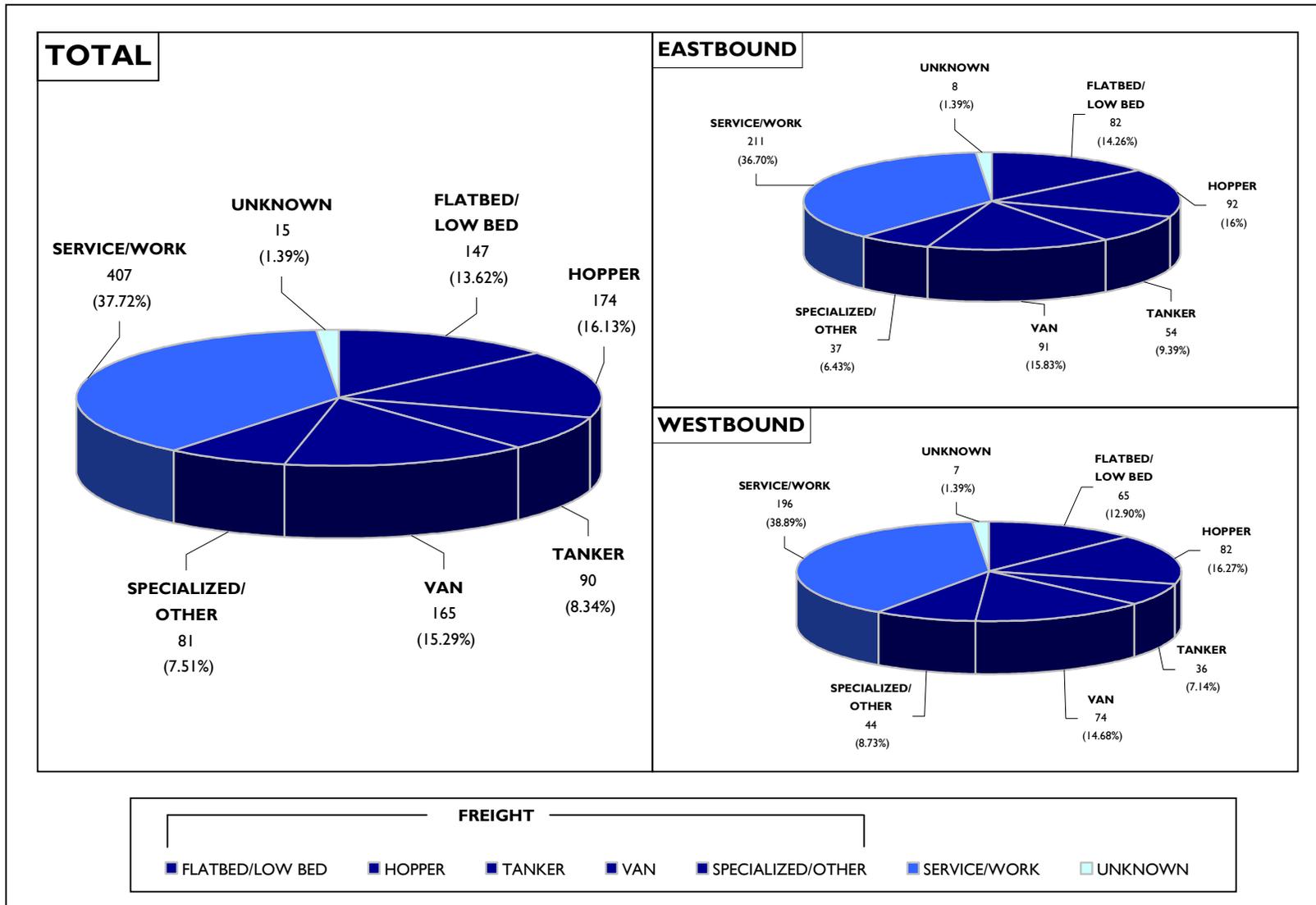


Chart 4-18 Truck Type by Equipment Type - Location F

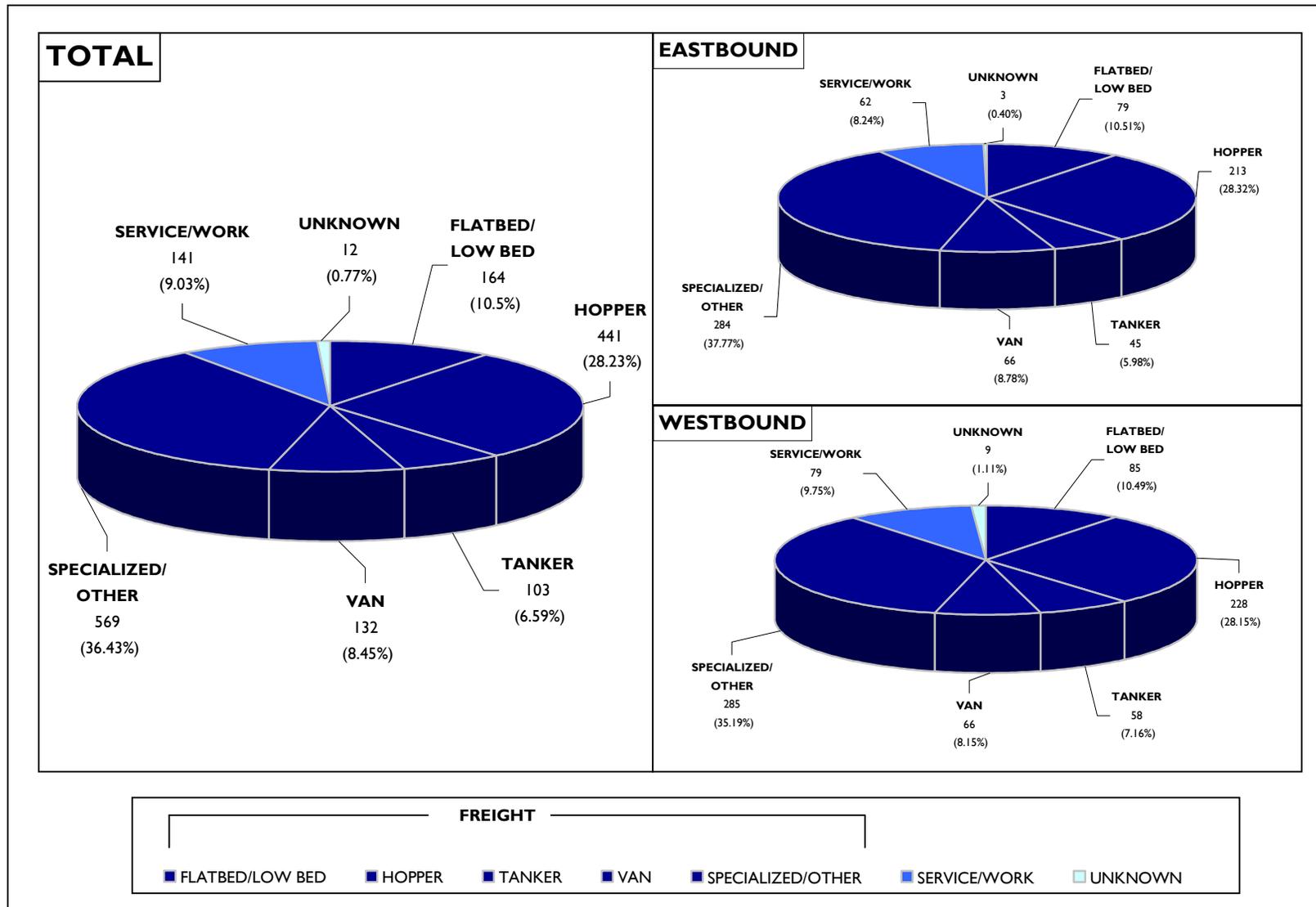


Chart 4-19 Truck Type by Equipment Type - Location G

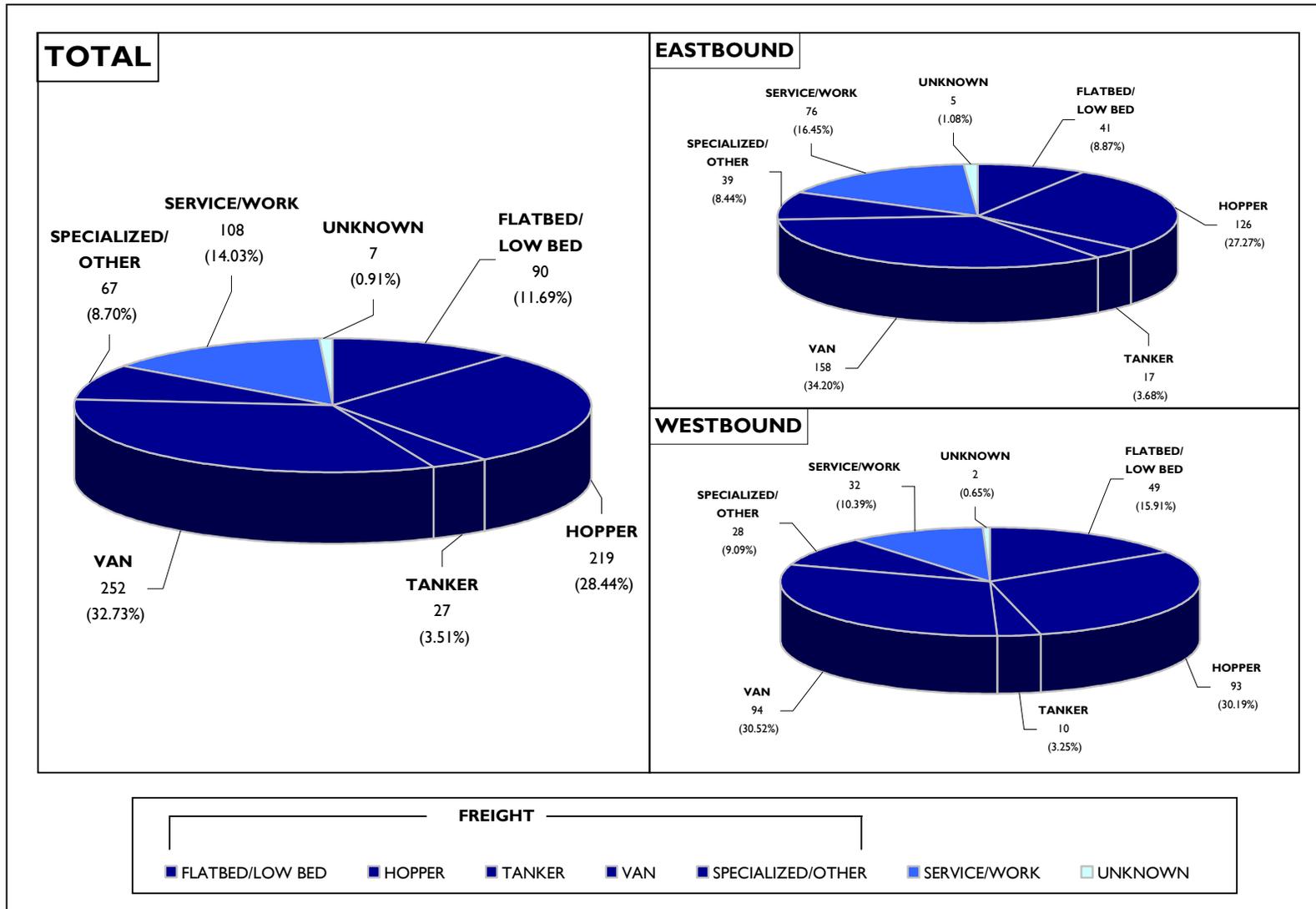
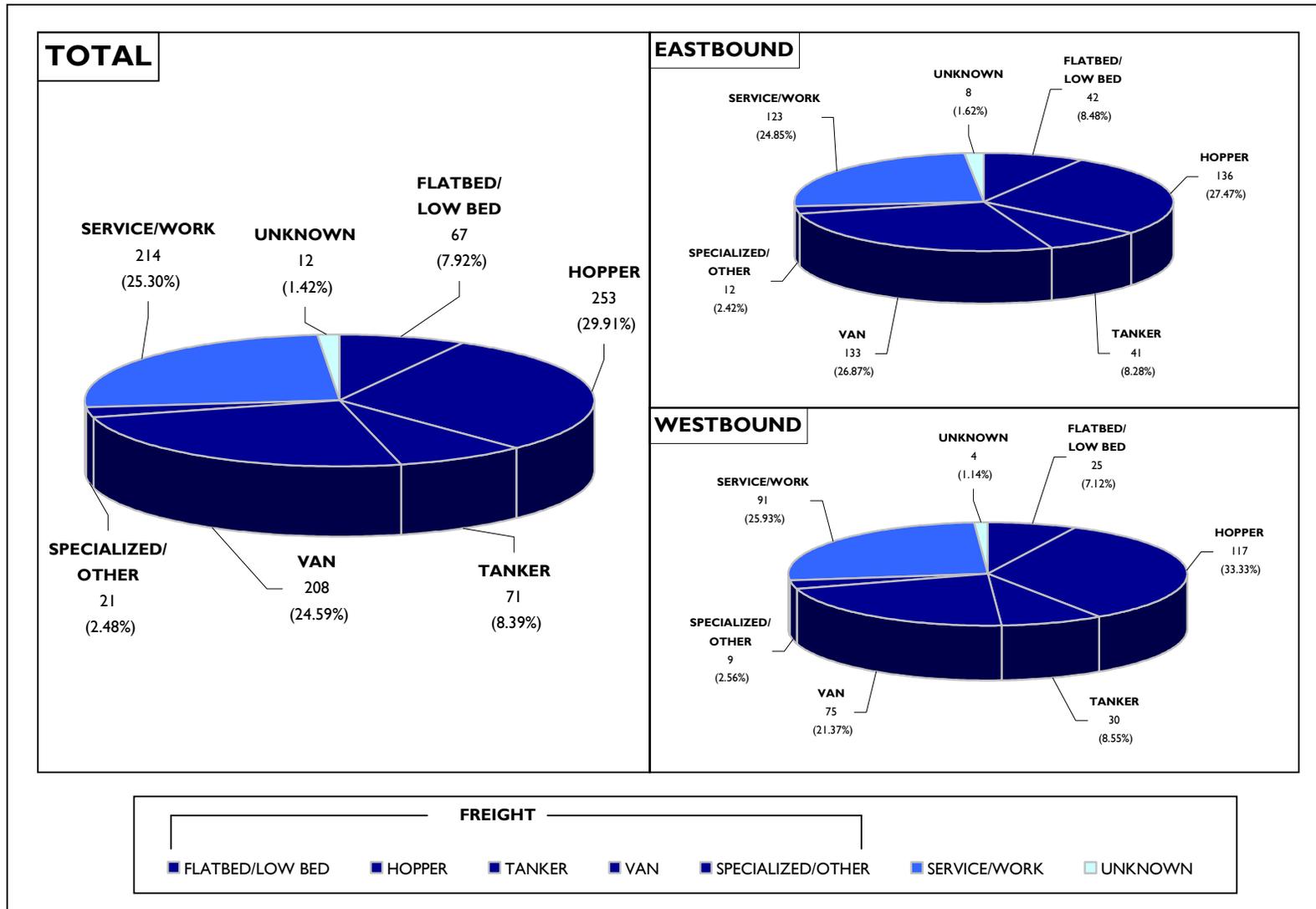


Chart 4-20 Truck Type by Equipment Type – Location H



4.4 Truck Volumes Observed Over the Day

A summary was made of the number of trucks that were observed during the video surveillance. The charts are separated by travel direction, providing an overview of trucking movements over the survey period.

The following charts illustrate the variation in truck volumes over the course of the survey period:

- Chart 4-21 - Location A
- Chart 4-22 - Location B
- Chart 4-23 - Location C
- Chart 4-24 - Location D
- Chart 4-25 - Location E
- Chart 4-26 - Location F
- Chart 4-27 - Location G
- Chart 4-28 - Location H

Further discussions of the truck volumes observed over the day charts are provided in Section 4.6, “Key Findings”.

Chart 4-21 Total Truck Volumes during the Survey Period – Location A

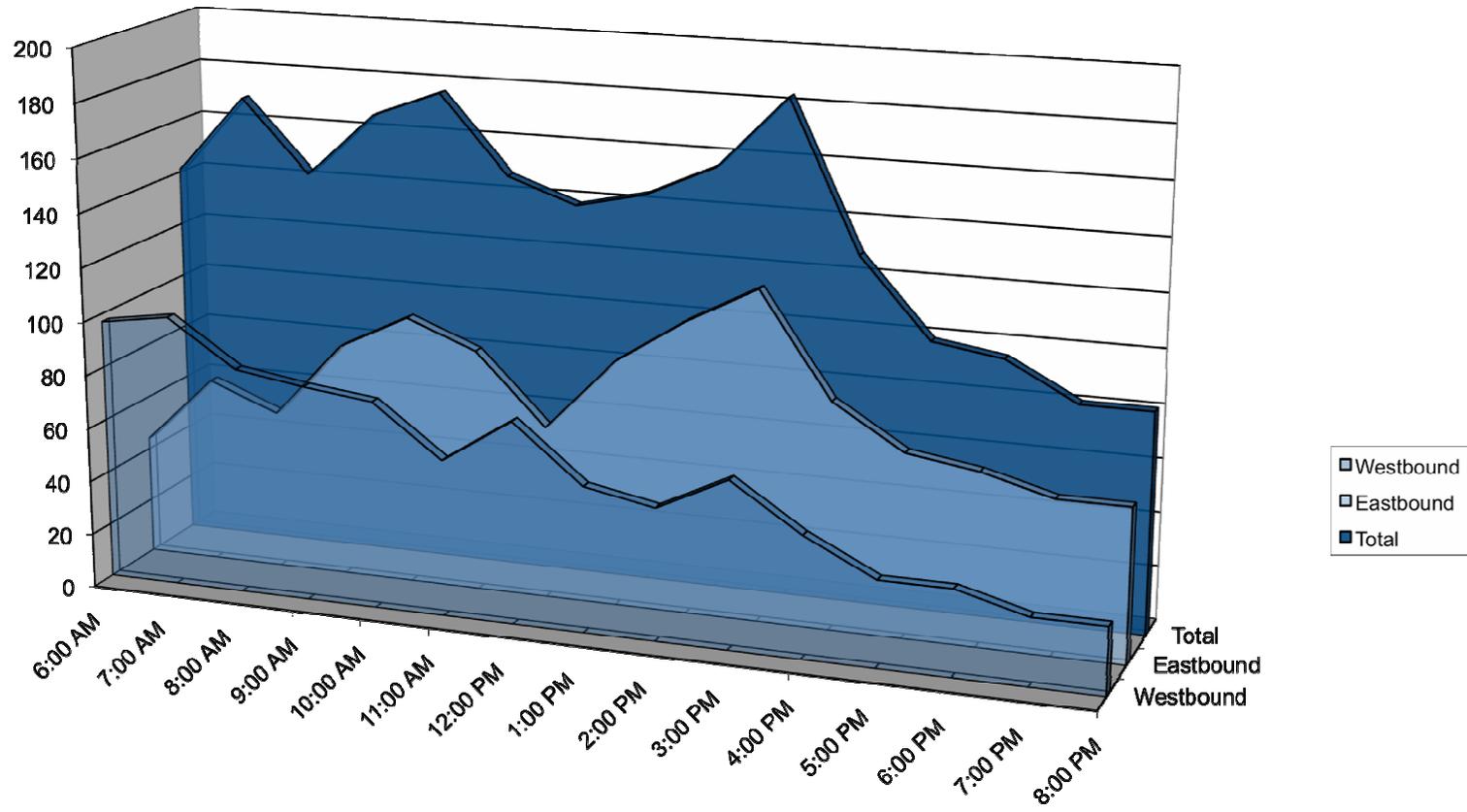


Chart 4-22 Total Truck Volumes during the Survey Period – Location B

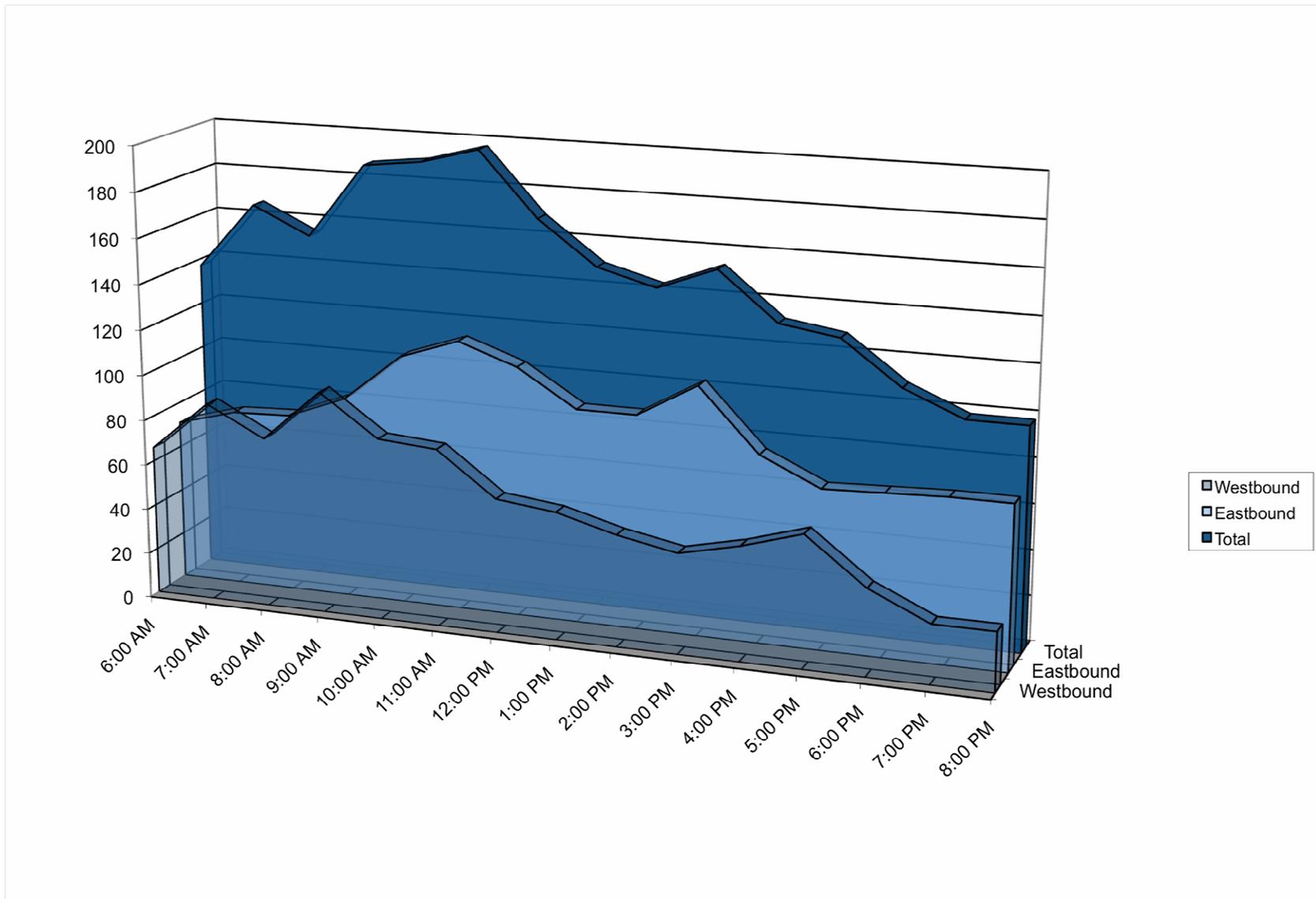


Chart 4-23 Total Truck Volumes during the Survey Period – Location C

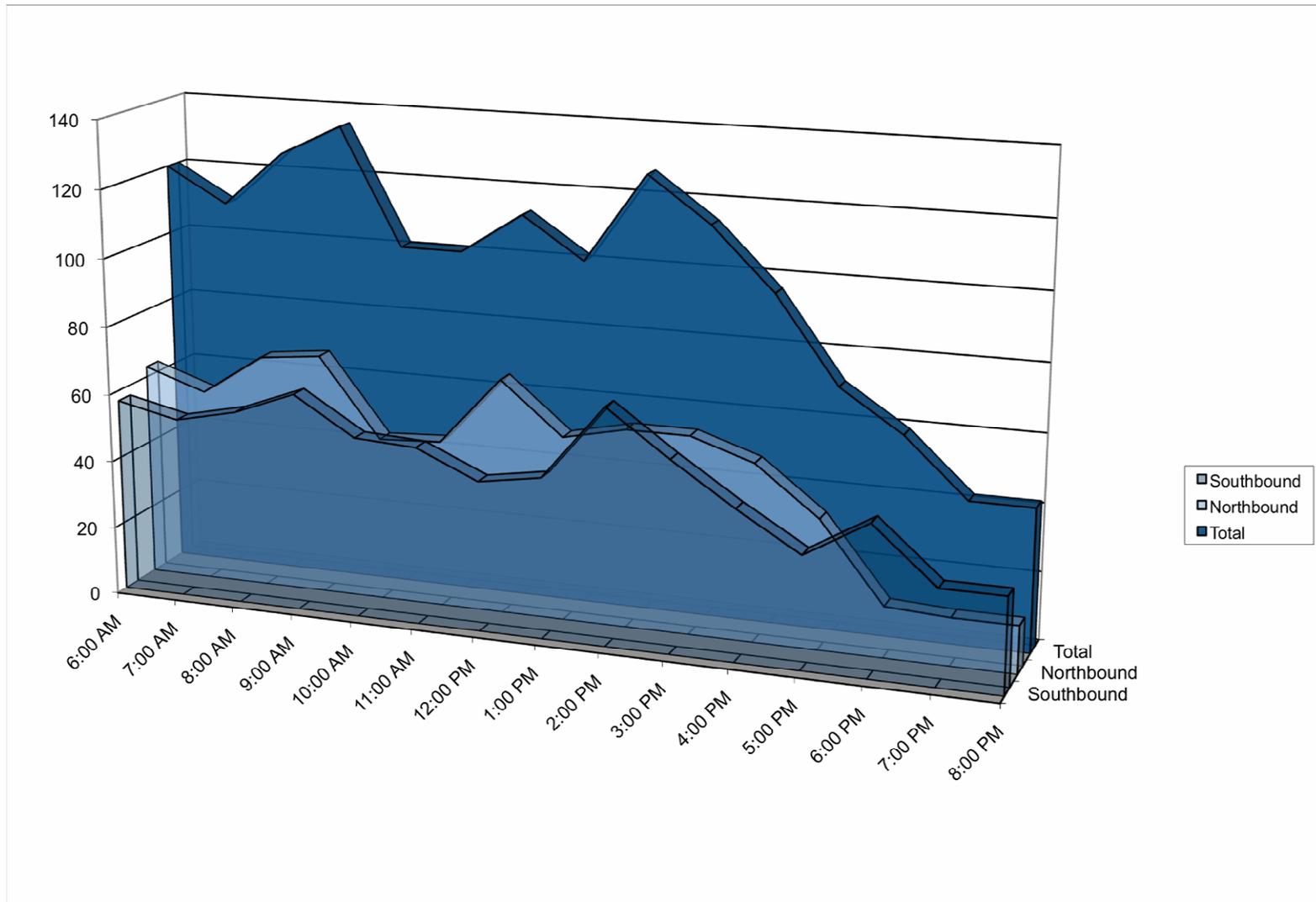


Chart 4-24 Total Truck Volumes during the Survey Period – Location D

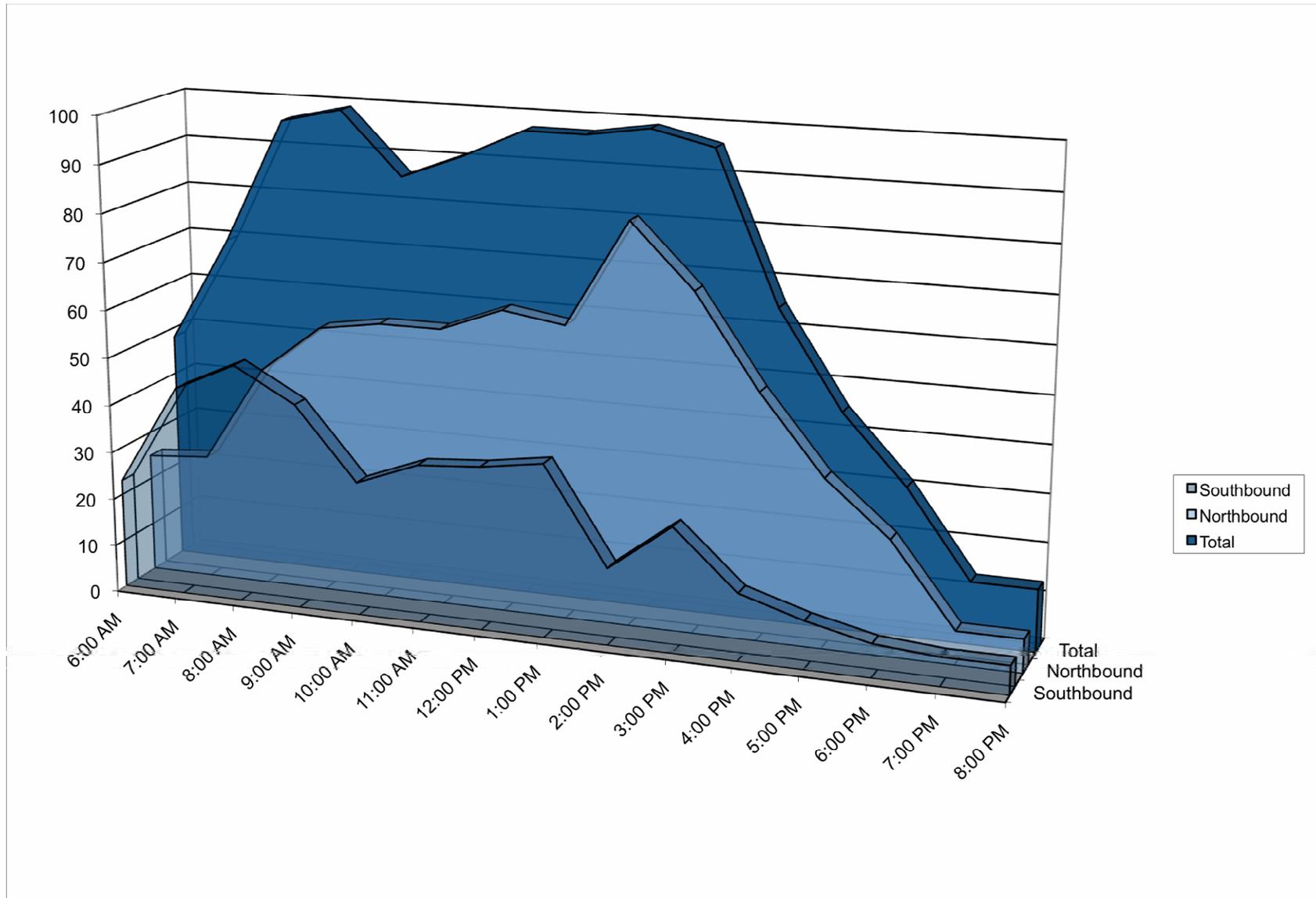


Chart 4-25 Total Truck Volumes during the Survey Period – Location E

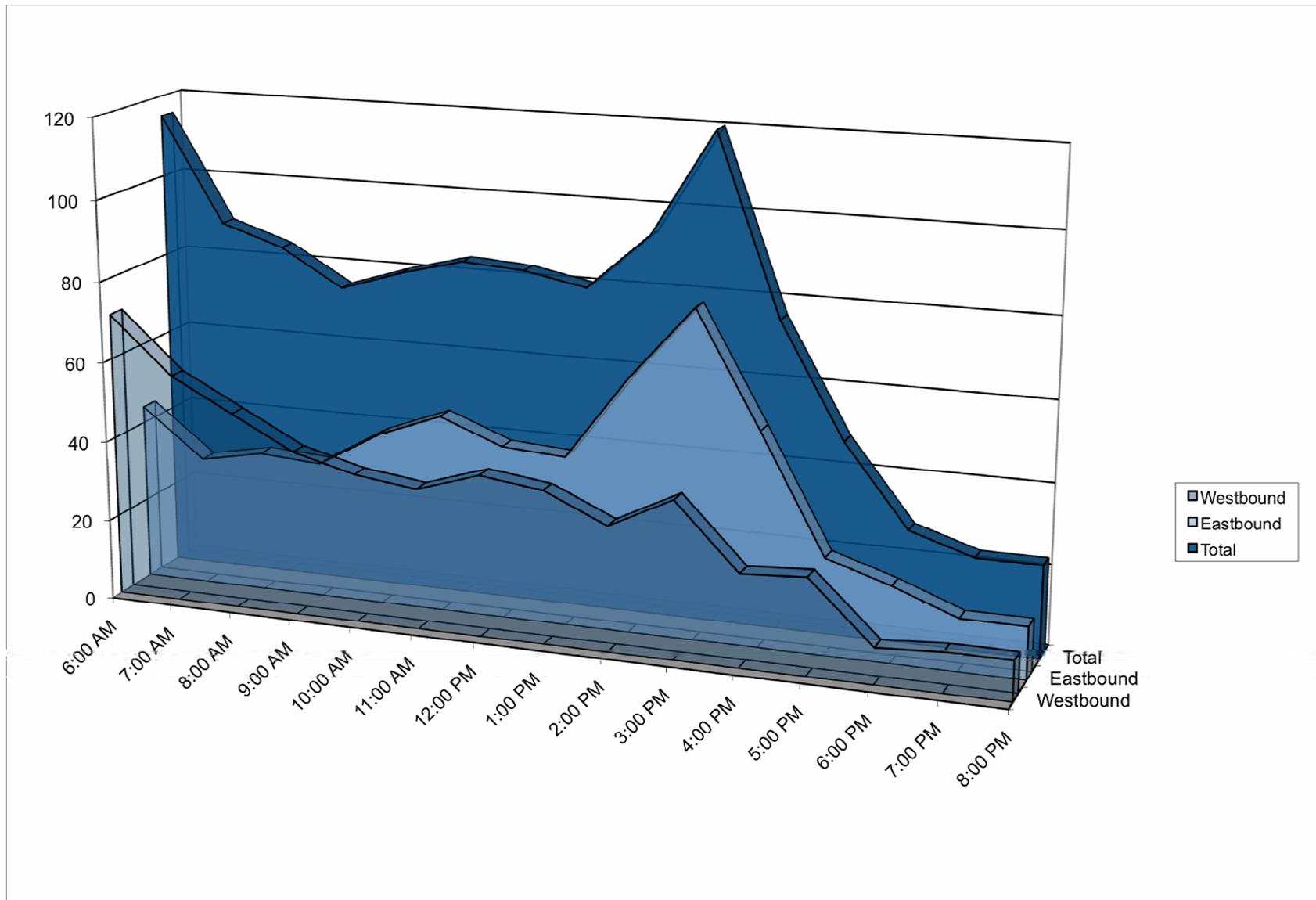


Chart 4-26 Total Truck Volumes during the Survey Period – Location F

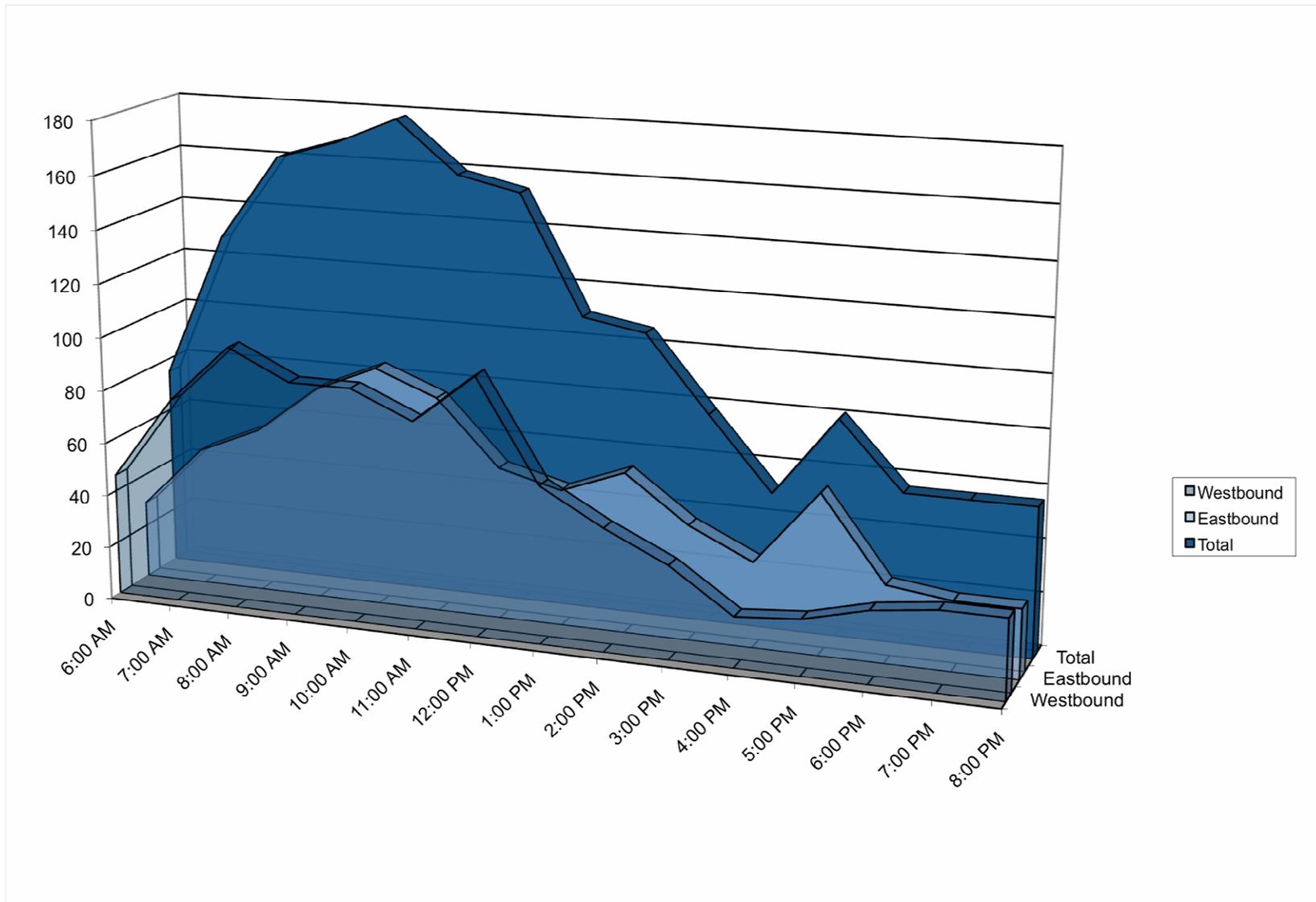


Chart 4-27 Total Truck Volumes during the Survey Period – Location G

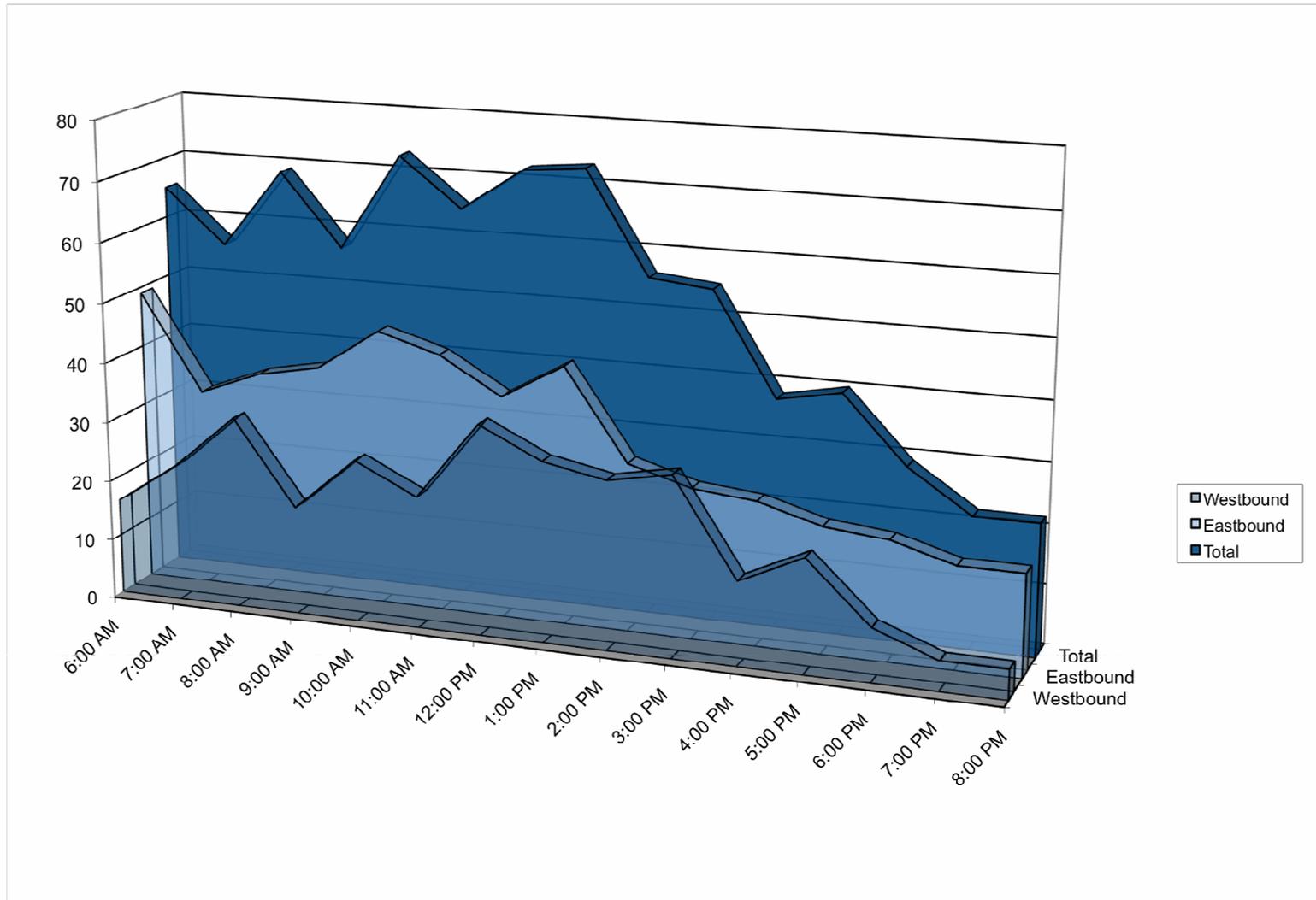
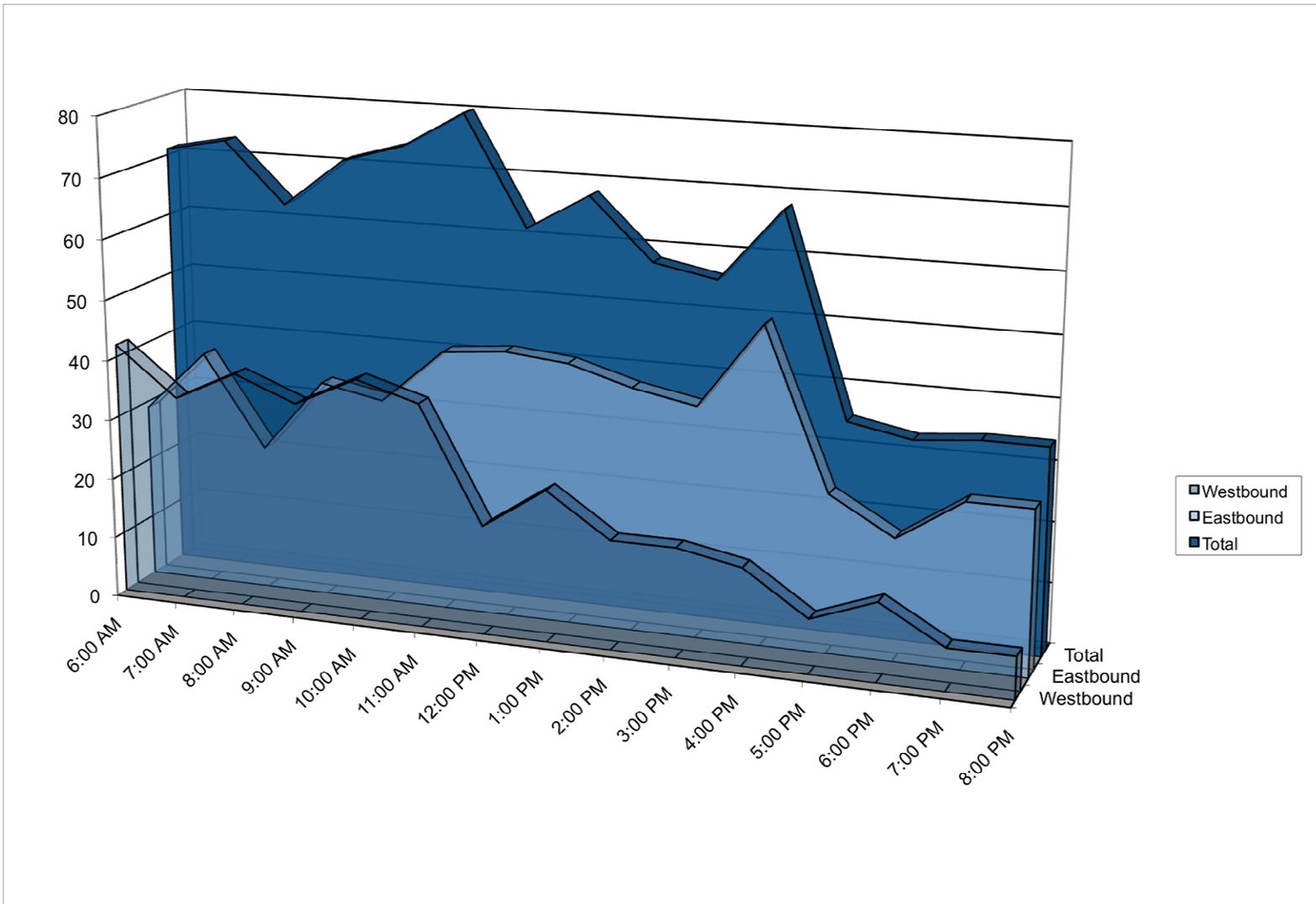


Chart 4-28 Total Truck Volumes during the Survey Period – Location H



4.5 Commodities

Of the 10,797 trucks observed, only 1,485 or approximately 14% of the trucks were identified as carrying some type of good(s). These were trucks that had a commodity that could be visibly identified. The commodities were generally of agricultural, construction, and miscellaneous/other product origins.

The miscellaneous/other category had the highest number of trucks identified at 38%. These trucks were transporting several products within a single load. The next highest category was empty trucks at 31%. These trucks were generally flatbed or hopper type trucks. Agricultural commodities comprised of 21% of the total identified trucks carrying commodities.

Table 4-4 summarizes the various identified commodity categories and their totals and percentages.

Table 4-4 Identified Commodities

Commodity	Total	%
Agricultural	307	20.67%
Construction	46	3.10%
Empty	467	31.45%
Miscellaneous	571	38.45%
Unknown	94	6.33%
Total	1,485	100%

4.6 Key Findings

The following sections summarize the results of from the data collected from the video surveillance efforts conducted at:

- Locations A and B – SR-46
- Location C – SR-65
- Locations D and E – SR-119
- Locations F and G – SR-223
- Location H – SR-166

4.6.1 General Findings

- A total of 10,797 trucks were captured using video surveillance.
- All five study routes in the region are being utilized significantly by trucks. The variation in trucks types depends on the proximity to distribution locations and accessibility and connectivity to other major routes and regions.
- The study surveyed the different types of trucks within the study area. The majority of trucks (44.60%) were five-axle double unit types, followed by two axle (27.16%) types.
- There were two general equipment type categories – freight and service/work. Based on the

number of trucks from the video surveillance, the largest proportion of truck equipment types were within the freight category (77.24%). The next highest category was the service/work category (21.60%). The remaining trucks were unknown (1.16%).

- In general, all of the study locations had a higher proportion of freight trucks in comparison to service/work and unknown truck types. However, on SR-119 there was a more equal number of freight trucks to service/work trucks.
- Of the freight truck types identified, the majority of the truck types fell into two categories – van and hopper. Van equipment types constituted the highest proportion of freight trucks at four out of the eight video surveillance locations (Locations A, B, C, and G). The truck percentage for this truck type ranged from 38% to 56%. The next highest freight category was hopper trucks, with three locations (Locations D, E, and H) where these truck types constituted the highest proportion. The total percentages ranged from 26% to 41%. Overall, the van truck types had the highest proportion of trucks at 39%. This was followed by the hopper truck types with 26.76%.
- If the van or hopper was not the top truck type, it was the second most common vehicle type at all locations except for Location F where the specialized/other category was the most commonly identified freight truck followed by hopper trucks.
- For the service/work trucks types identified, the truck categories with the highest documented truck numbers were tool trucks and specialized/other trucks. The tool truck type constituted the highest proportion of this type at six of the eight locations (Locations A, D, E, F, G, and H). The percentage for this type ranged from 42% to 63%. The next highest service/work truck percentage was the specialized/other category, with two locations (Locations B and C) where this equipment type constituted the highest proportion for this type. The truck percentage ranged from 45% to 64%. Overall, the tool truck type had the highest proportion of trucks at 44.68% and the second highest was specialized/other with 34.05%.
- Truck volumes over the period of the day (6:00 a.m. to 8:00 p.m.), showed noticeable directionality, dependent on the time of day for each of the eight video surveillance locations. Generally, for east-west routes, the truck volumes tended to be higher in the morning going westbound, and higher in the eastbound direction during the afternoon/evening. For the north-south routes, there was no obvious pattern of directional truck flows.
- Of the identifiable commodities, the top three commodities were miscellaneous/other, empty, and agricultural products.
- Most of the identified operators serve local customers that are agricultural. Each of the study routes are primarily in a rural area populated with relatively large agricultural and livestock businesses. The local customers on each of the routes coalesce around certain industry sub sectors, plus residences that attract truck deliveries of consumer goods.

In comparison to the previous studies done on I-5/SR-99 and SR-58 within Kern County, the current study routes tend to:

- Have a larger proportion of certain types of vehicles, namely farm vehicles, specialized trailing units and machinery used in agriculture and animal enterprises, feeds and equipment for such businesses, and flatbed and tank truck (liquid or dry) trailers.

- Have similar patterns of hours of truck traffic due to the nature of local commercial enterprises; specifically earlier and later hours of operation during the day and more activity on weekends, particularly at planting and harvesting times.
- Constitute only a fraction of the truck trips that occur on either I-5 or SR-99.

4.6.2 State Route 223

Location F

- Of the truck company names identified from the video surveys, 243 were operated by Young's Commercial which is a Porterville-based agricultural for-hire motor carrier. The first trip of the day was at approximately 7:30 a.m. and the last was at approximately 8:00 p.m. It can be speculated that Young's had a repetitive movement of raw agricultural products from a farm on or near SR-223. Western Milling, a Goshen based private carrier of feeds, operated 18 trips but does not have a local address on the route. Western Milling was likely delivering feed to a local customer that raises animals or a dairy farm. DDC Transport, a Tulare based for-hire motor carrier operating liquid tank equipment, had eight trips. No other single carrier had more than six trips.
- Many parcel and LTL (less-than-truckload) carriers were identified in the video surveys, and it is likely that each was a "peddle run" serving multiple customers locally on the route.
- Most identified carriers were truckload carriers based on the FHWA vehicle classification, as identified. They were both private carriers (e.g. Westfalia Surge) and for-hire carriers (e.g. Fineline Carriers, Prime, Inc). No one type of trailing equipment dominated from these carriers. However, when the trailing unit was that of a motor carrier (such as Matson, which is an ocean-going container) the likely motor carrier was a for-hire port drayman probably from either of the two Southern California container ports.
- Many identified carriers were operating vehicles that are not the largest (or smallest) possible, that is the FHWA designation was between 3 and 7 (e.g., a typical Pepsi truck). Whether they are private (Pepsi) or for-hire (UPS) was known only if the markings are definitive.
- During the p.m. peak periods, the predominant direction of the truck traffic flows was eastbound (back to the Bakersfield area) by a factor of 2:1.
- Relative to Location G which is also on SR-223 but west of Location F and three to four times more miles from SR-99, truck traffic volumes were about twice as dense/frequent. Likely this is due to Location G being in a very rural area.
- The freight equipment type had the highest number of trucks identified at this location with 1,409 trucks or 90.2%. Under the service/work equipment type, there were 141 trucks or 9.03%.
- The highest truck type in the freight equipment category was the specialized/other truck type with 569 trucks or 36.43% of all trucks at this location. The second highest was the hopper truck type with 441 trucks or 28.23%.

- The highest truck type observed within the service/work equipment type category was the tool truck with 85 trucks or 5.44% of all trucks at this particular location. The second highest was the specialized/other truck type at 46 trucks or 2.94%.

Location G

- Of the 773 passing trucks that were identified at Location G, only one carrier appeared more than six times. Grimmway Farms had 16 identified truck trips. They are a major local processor of raw food products, primarily carrots. It is a private carrier (trading as California Carrot Express) that has ten locations in the Bakersfield area with two of them (Arvin and Lamont) both located off of the eastern end of SR-223.
- The greatest portion of the trips were for-hire carriers (e.g. Stevens, Wildwood). There was the usual assortment of parcel and LTL carriers and service/work trucks (e.g. UPS and FedEx).¹ Many private carriers were identified generally operating medium-sized vehicles, which would tend to indicate that these were servicing local customers. The number of trailing units that were refrigerated was noticeable. In the eastbound direction, this route connects to eastbound SR-58 which is a major route for points east of California.
- The freight equipment type had the highest number of trucks identified with 655 trucks or 85.06%. Under the service/work equipment type, there were 108 trucks or 14.03% identified at this location.
- The highest truck type in the freight equipment category was the van truck type with 252 trucks or 32.73% of all trucks at this location. The second highest was the hopper truck type with 219 trucks or 28.44%.
- The highest truck type observed within the service/work equipment type category was the tool truck with 59 trucks or 7.66% of all trucks at this particular location. The second highest was the specialized/other truck type with 41 trucks or 5.32%.

4.6.3 State Route 166

Location H

- Location H is sufficiently far west that the vast majority of identified truck trips are intercity in nature and not local. Most were “over the hill” to/from the Cuyama and Santa Maria valley areas.
- There is a population nucleus off of SR-166 on SR-33, to the north at Maricopa. Motor carriers serving the local population/industry at or near Maricopa and Taft would likely route LTL and parcel trucks, and to some extent truckloads with stop offs in the same vicinity, in a circular pattern from Bakersfield west to SR-33 and then back to Bakersfield via SR-119 (or counterclockwise).
- When going to/from points on SR-166 that are west of Maricopa from/to the north and west side of Bakersfield and north thereof, it is shorter to use SR-43 to bypass the west side of Bakersfield. This allows trucks to access SR-119 to Taft and then SR-33 to SR-166 at Maricopa,

¹ Note: FedEx has many divisions but all are parcel or LTL. None are as a truckload carrier. All of its trucks are similarly marked with minor color differences and very minor wording difference which indicated which division is operating the trucks.

as opposed to using SR-99 south to SR-166.

- The most prevalent trucks names identified from the video surveys were Wal-Mart/Sam's Club at 11 trips. This is a private carrier distributing consumer goods from warehouses in Portersville and several locations in Southern California. The next most prevalent was Lone Star, which is a private and for-hire carrier of liquid petroleum gases in pressure vessel tanks. No other carrier had over six identified trips outside of the Grimmway Company.
- The freight equipment type had the highest number of trucks identified with 620 trucks or 73.29%. Under the service/work equipment type, there were 214 trucks or 25.30% that were identified at this location.
- The highest truck type in the freight equipment category was the hopper truck type with 253 trucks or 29.91% of all trucks at this location. The second highest was the van truck type with 208 trucks or 24.59%.
- The highest truck type observed within the service/work equipment type category was the tool truck with 95 trucks or 11.23% of all trucks at this particular location. The second highest was the specialized/other truck type with 60 trucks or 7.09%.

4.6.4 State Route 119

Location D

- The motor carrier with the most identified trips from the video surveys was Lone Star, with nine trips followed by Halliburton with eight and Inergy also with eight. All of these are private carriers operating purpose-built equipment and with local operations on or near the study routes.
- UPS was the for-hire carrier with the most trips, at six total identified trips.
- As compared to every other surveyed video location, this was the location where the percentage of freight trucks was the lowest, and commensurately where the percentage of service and work trucks was the highest. This can be attributed to the nature of the population and industry in the Ford City, Maricopa, and Taft areas. As a generalization, service trucks are a large percentage of the total vehicle count when in a metropolitan and suburban area. In this case, it is likely the high percentage is due to service trucks based in Bakersfield also covering the consumers and producers in these outlying areas.
- The freight equipment type had the highest number of trucks identified with 536 trucks or 51.89%. It was closely followed by the service/work equipment type with 473 trucks or 45.79% of the trucks identified at this location.
- The highest truck type in the freight equipment category was the hopper truck type with 199 trucks or 19.26% of all trucks at this location. The second highest was the van truck type with 168 trucks or 16.26%.
- The highest truck type observed within the service/work equipment type category was the tool truck with 265 trucks or 25.65% of all trucks at this location. The second highest was the specialized/other truck type with 126 trucks or 12.20%.

Location E

- The for-hire motor carrier with the highest number of identified trips was UPS with 10, followed by Sturgeon and Son Inc. with six trips. Sturgeon is a multi-line company with headquarters in Bakersfield at a site not near the SR-119 corridor.
- The private motor carrier with the most trips was Western Milling, with 10 followed by Caltrans, Inergy, Ramirez Mobil Mix, and Wal-Mart each with six trips. Ramirez is a local mobile home supplier with a business address in a residential area near SR-119 and SR-99.
- As compared to every other video survey location, at this location the percentage of freight trucks was low and second only to the other video location on this route, Location D. In this case, it is likely that the high percentage of service trucks based in Bakersfield are also covering the consumers and producers in the southern suburbs.
- The freight equipment type had the highest number of trucks identified with 657 trucks or 60.89%. Under the service/work equipment type, there were 407 trucks or 37.72% of the trucks identified at this location.
- The highest truck type in the freight equipment category was the hopper truck type with 174 trucks or 16.13% of all trucks at this location. The second highest was the van truck type with 165 trucks or 15.29%.
- The highest truck type observed within the service/work equipment type category was the tool truck with 255 trucks or 23.63% of all trucks at this particular location. The second highest was the specialized/other truck type with 102 trucks or 9.45%.

4.6.5 State Route 46

- SR-46 had the highest volume of identified trucks based on the video surveys from 6:00 a.m. to 8:00 p.m. and during the peak periods at both Location A and B. Location B had the highest overall truck volume at 2,113 trucks and the highest truck volume during all the peak periods monitored (a.m., mid-day, and p.m.). This is likely attributed to this route serving as a connection between I-5 and SR-99, and being adjacent to SR-43. Based on the I-5/SR-99 Origin and Destination Truck Study conducted in 2009, there were a number of trucks utilizing this route during the fall and spring seasons as an origin route onto I-5 or SR-99.
- Judging by the total counts on SR-46 and the names of the carriers using this route, this is the most frequently used east-west route for two reasons. First, the population and industry in Monterey and San Luis Obispo Counties creates the demand, and secondly, there is more local industry and population on this route than on the others. Also, the nature of the industry in the two counties creates a demand for regional and long-haul refrigerated trucking.

Location A

- For Location A, the motor carrier with the most identified trips was C.R. England, based in Salt Lake City with 16; followed by Indiana Western Express (IWX) based in Springfield, MO; followed by Central Trucking Inc. (CTI) also based in Springfield, MO with 12 trips; and John Chrisner Trucking Inc. (JCT) from Sapulpa, OK with 10 trips. All of these are for-hire carriers specializing in refrigerated trucking. No other motor carrier had more than seven trips of, which Target was the only private identified carrier.

- Overall, the freight equipment type had the highest number of trucks identified at this particular location with 1,564 trucks or 79.07%. Under the service/work equipment type, there were 402 trucks or 20.32% identified.
- The highest truck type in the freight equipment category was the van truck type with 868 trucks or 43.88% of all trucks at this location. This was followed by the hopper truck type with 278 trucks or 14.05%.
- Within the service/work equipment type category, the highest truck type observed was the tool truck with 170 trucks or 8.59% of all trucks at this location. The second highest was the specialized/other truck type with 118 trucks or 5.97%.
- The predominant trailing equipment type on this route was refrigerated trailers, at 642 or 32% of all identified trucks.

Location B

- For Location B, the motor carrier with the most identified trips was IVX with 16, followed by CTI with 15, JCT with 10 and Quest Global Inc. of Cartersville, GA with 10. All of these are for-hire carriers operating refrigerated equipment, similar to those identified at Location A. FedEx (all divisions identified), with nine total trucks was, the most predominant carrier for a for-hire company without refrigerated equipment.
- The private carriers with the most identified trips were Food Maxx and Pepsi, with five trucks.
- Overall, the freight equipment type had the highest number of trucks identified with 1,893 trucks or 89.59%. Under the service/work equipment type, 202 trucks or 9.56% trucks were identified at this particular location.
- The highest truck type in the freight equipment category was the van truck type with 1,040 trucks or 49.22% of all trucks at this location. The second highest was the hopper truck type with 417 trucks or 19.73%.
- In the service/work equipment type category, the highest truck type observed was the specialized/other truck with 129 trucks or 6.11% of all trucks at this location. The second highest was the tool truck type with 31 trucks or 1.47%.
- Trailing equipment type dominated this route, with reefers at 31% and dry vans at 16%.

4.6.6 State Route 65

Location C

- There were 104 trucks identified as Wal-Mart owned, which were traveling to and from that company's major distribution center in the southern portion of Porterville. There were a large number of trucks that were also destined to/from Wal-Mart's distribution center particularly those with markings from an international container company (e.g. Evergreen). Also, JB Hunt, a

for-hire intercity and contract motor carrier, had nine trips. It is highly likely that all nine were to/from the Wal-Mart distribution center. No other carrier had as many as nine identified trips. Generally, SR-99/SR-190 is the preferred route in this area, since it is a multi-lane, divided highway.

- Additional identified companies included FedEx with 24 trips, Aramark with 19 trips, with UPS had 18 trips. FedEx has many divisions but all are parcel or LTL and none are as truckload carriers. All of its trucks are similarly marked with minor color differences and very minor wording difference which indicated which division is operating the trucks. UPS has both a parcel division and an LTL division; the vast preponderance of UPS trips are for its parcel division either as a local delivery “package car” or an intercity line haul trip between its sort centers. Aramark is a private carrier that launders and distributes uniforms, with a local site on Petro Road between SR-99 and SR-65.
- The freight equipment type had the highest number of trucks identified with 1,006 trucks or 71.05%. Under the service/work equipment type, 385 trucks or 27.19% trucks were identified.
- The highest truck type in the freight equipment category was the van truck type with 420 trucks or 29.66% of all trucks. The second highest was the hopper truck type with 251 trucks or 17.73% of all trucks.
- In the service/work equipment type category, the highest truck type observed was the specialized/other truck with 172 trucks or 12.15% of all trucks. The second highest was the tool truck type with 82 trucks or 5.79% of all trucks.

5.0 COMMERCIAL FLEET OPERATOR SURVEY

The section summarizes the results from the truck fleet operator surveys that were conducted for the study.

5.1 Overview

The Tioga Group began contacting regional shippers, receivers, private fleet operators, and truckers for this project, once the traffic data collection and video surveillance efforts were complete. The project team assembled contact lists used in previous Kern COG studies conducted by KOA and Tioga, lists from other regional truck studies, and additional listings for oil field services and other fleet operations (that had not been considered in previous studies) to develop a consolidated contact list for this study. The contact list consisted of approximately 188 trucking companies. A total of 118 organizations were contacted with 35 interviews being completed. The interview efforts were separated by commercial (for-hire) trucking firms and shipper/receiver trucking firms.

Additional contacts were made to selected national and regional trucking firms that do not have operating bases in the study area to obtain their insights into usage patterns on the study routes. Most participants either did not operate their own trucks, however, or did not use the study routes enough to respond to the survey.

Table 5-1 summarizes the list of contacts and highlights the commercial (for hire) companies that were interviewed for the truck survey. Table 5-2 summarizes the list of contacts for shipper/receivers and highlights the companies that were interviewed.

Figure 5-1 displays the locations of agricultural companies in the study area. As the map illustrates, “agribusinesses” tend to be clustered east of Bakersfield, with some packaging companies in the Lemont area accessed via SR-223. As for the more general purpose equipment, supply, warehouse, and distribution businesses, physical location tended to be more evenly distributed across the region, as illustrated on Figure 5-2.

Table 5-1 Companies Interviewed from Contact List – Commercial (for hire) Firms

Name	City	Name	City
Ability Tri Modal		Halliburton	Houston
AC Trucking		Indiana Western Express	
Accu-trans		JB Hunt Intermodal	
American Pacific		John Christner	Sapulpa
Apex Bulk		Knight Transportation	
ARAMARK	Bakersfield	Lone Star	Bakersfield
Brian Zinn Trucking		Marten Transport	
California Multi-modal		Oilfields Trucking	
Chas. R. Diaz		Ramirez	Bakersfield
Con-way Freight		Sturgeon & Son	
Con-way Truckload		Swift Transportation	
CR England		Wal-Mart	Porterville
DDC		Western Milling	Goshen
FedEx Freight		Young's Commerical	
Grimmway Farms	Bakersfield		

Note:

Source: Tioga Group

The trucking companies that were interviewed for this study are highlighted in yellow.

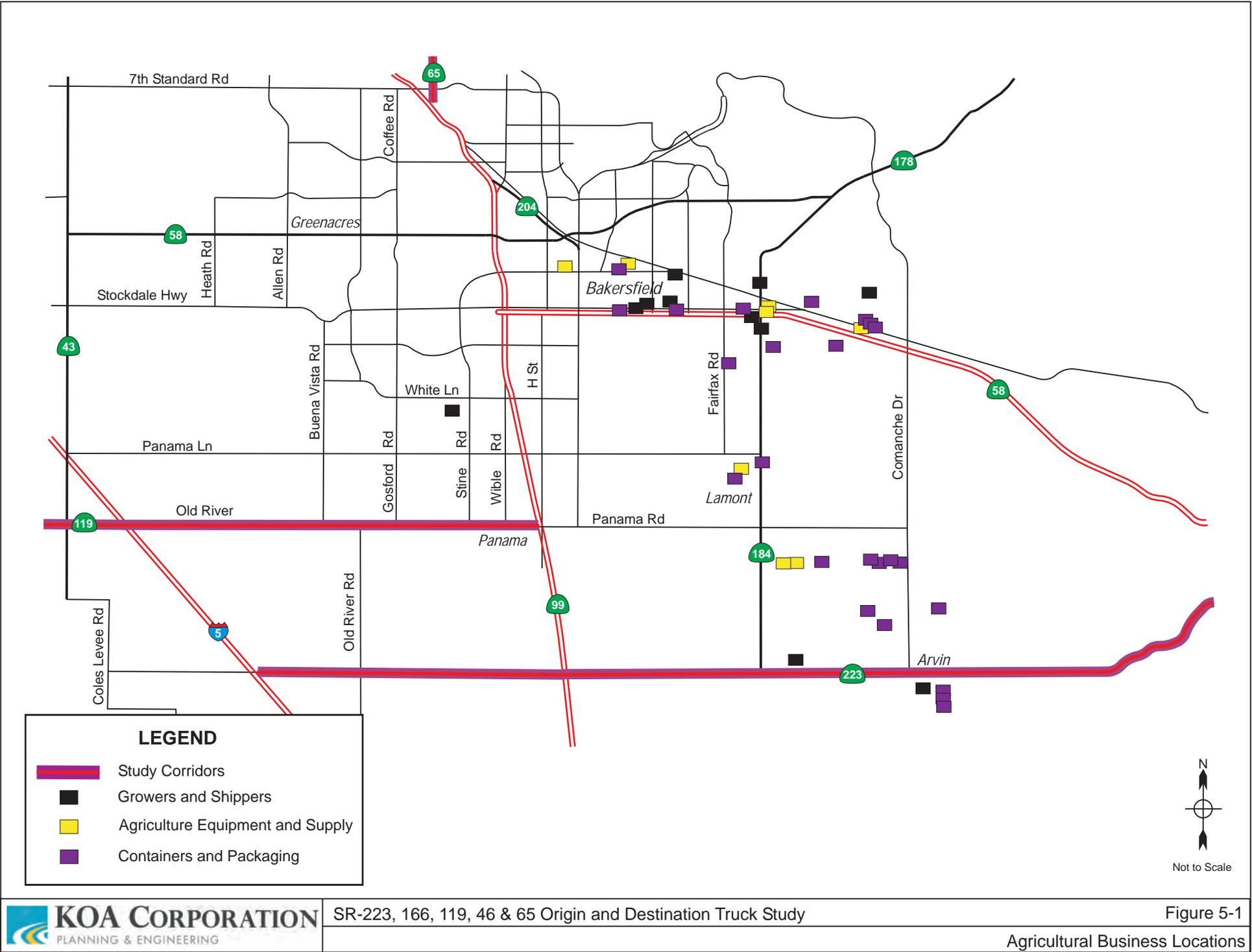
Table 5-2 Companies Interviewed from Contact List – Shipper/Receiver Firms

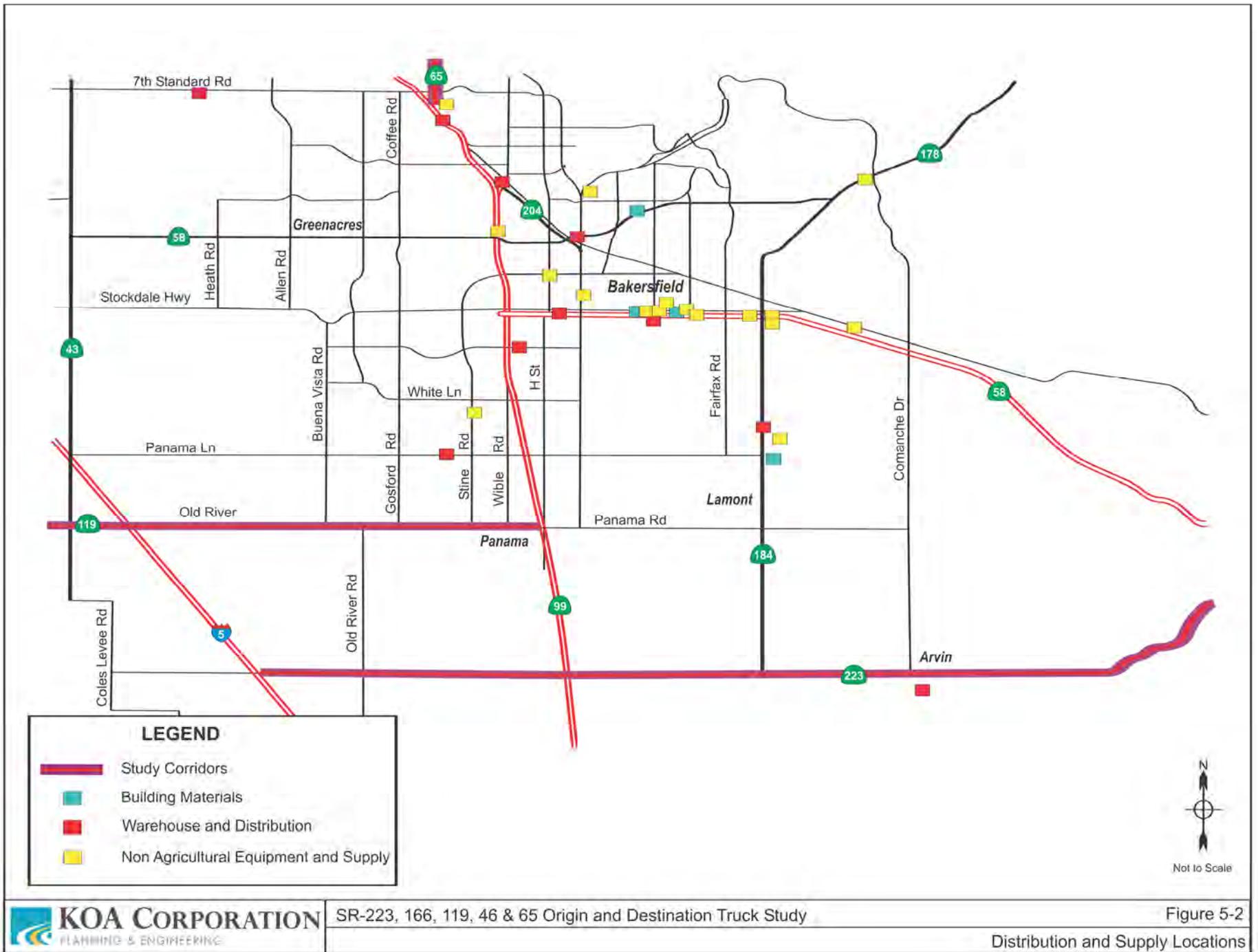
Name	City	Type	Name	City	Type	Name	City	Type	Name	City	Type
A & A Express		Refrigerated transport	De Le Garza Trucking Co.	Arvin	Trucking	John J Kovacevich & Sons	Arvin	Grower-Shipper	Quinn Pumps		Oil Field Service
Agricare	Arvin	Cold Storage	Del Campo Trucking	Lamont	Trucking	Johnston Farms	Bakersfield	Dairy	R & N Enterprises	Bakersfield	Construction Equipment
Agro Chemical	Bakersfield	Scientific Equipment	Delta Scale	Bakersfield	Scientific Equipment	Johnston Farms	Bakersfield	Farm	randy's Trucking		Oil Field Service
ALG Enterprises	Arvin	Farm	D-J Manufacturing Inc	Bakersfield	Screw Machines Products	Johnston vacuum Tank Service	Taft	Oil Field Service	Re Screen & Glass	Bakersfield	Glass
Alvarez Feed & Pet	Bakersfield	Feed Dealer	Dunlap Auto Sales	Bakersfield	Auto Dealer	Jr Pallets	Bakersfield	Pallet sales	Ruben's Pipeline	Bakersfield	Pipeline Contractor
Atlantic Oil Co.	Bakersfield	Oil & Gas Exploration	E. A. Shields Inc.	Bakersfield	Building Material Sales	Kern Chemical & Equipment Co.	Bakersfield	Chemicals	San Joaquin Valley Dairy Equipment	Bakersfield	Farm Equipment
Baker Hughes		Oil Field Service	Eagle Trucking & Crane	bakersfield	Trucking	Kern Ice & Cold Storage Co.	Bakersfield	Cold Storage	Sandoval Construction	Bakersfield	Pipeline Contractor
Bakersfield Auto Auction	Bakersfield	Auto Dealer	East Hill Feed & Supply	Bakersfield	Feed Dealer	Kern Oil & Refining	Bakersfield	Petroleum Products	Scale House	Arvin	Grower-Shipper
Bakersfield Cold & Dry Storage	Bakersfield	Cold Storage	Flashco	Bakersfield	Warehouse	Kern Ridge Growers LLC	Arvin	Grower-Shipper	Schlumberger		Oil Field Service
Bakersfield Cotton Warehouse	Bakersfield	Warehouse	Fleet Parts & Instruments Co	Bakersfield	Scientific Equipment	Kern River Scale	Bakersfield	Scientific Equipment	Sierra Recycling & Demolition	Bakersfield	Chemicals
Bakersfield Irrigation Co.	Bakersfield	Farm Supply	FMP Vineyards	Bakersfield	Scientific Equipment	Kerschman Enterprises	Arvin	Grower-Shipper	Sierra Valley Ag Supply	Bakersfield	Farm Supply
Baldwin		trucking	Frank H. Guidera Co	Bakersfield	Containers and Packaging	Key Cold Storage	Arvin	Cold Storage	Simplot Soilbuilders	Bakersfield	Farm Supply
Banner Farms Inc	Bakersfield	Farm	Frazier Industrial Co.	Bakersfield	Sand and Gravel Sales	Kim Marrs Excavation	Bakersfield	Pipeline Contractor	Stillwell Equipment Sales	Bakersfield	Machinery & Tools
Bartley Trucking	Bakersfield	Trucking	Frey Miller		Trucking	Kimber Pallets	Bakersfield	Pallet sales	Sully & Sons Hydraulics Inc	Bakersfield	Machinery & Tools
Bhandol Bros. Trucking		Trucking	Galbraith's Horse Trailer Sales	Bakersfield	Trailer Sales	Kirschenmann Enterprises, inc	Lamont	Grower-Shipper	Sunridge Nurseries	Bakersfield	Nursery
Bidart Bros Apple Packing	Shafter	Cold Storage & packing	Garcia Family Farms	Arvin	Grower-Shipper	Kundert Brothers Farms	Bakersfield	Farm	Sunrise Sprayers	Bakersfield	Farm Equipment
Bill Davis Trucking		Trucking	Garrett Moving & Storage	Barstow	Trucking	Landstar Inway inc	Bakersfield	Propane Sales	Sunview Vineyards	Arvin	Grower-Shipper
Bolt house Farms -- Shipping Dept.	Bakersfield	Grower-Shipper	GE Aeroderivative & Package	Bakersfield	Power Plant Equipment	Lehr Brothers, Inc.	Bakersfield	Farm	Target Distribution Center	Shafter	Merchandise distribution
Brock's Trailers	Bakersfield	Trailer Sales	General Scales Inc	Bakersfield	Scientific Equipment	M&M Boys Irrigation	Bakersfield	Farm Supply	Toy's Turf	Bakersfield	Farm
Brown & Fowler Construction	Bakersfield	Pipeline Contractor	Gold Ribbon Potato Co.	Arvin	Grower-Shipper	Maxco Supply	Lamont	Containers and Packaging	Trail Liner		Trucking
BS&E Co Inc.	Bakersfield	Warehouse	Golden State Metals	Bakersfield	Metals	Mazzei injector Corp	Bakersfield	Farm Supply	Trino Packing & Cold Storage	Arvin	Grower-Shipper
Buds Oil Co.	Edison	Oil & Gas Exploration	Green Earth Resources Inc	Arvin	Oil & Gas Exploration	McClusky Machinery	Edison	Machinery & Tools	Triple E Trucking	Bakersfield	Sand & Gravel Hauling Equipment
Bugni Hardware & Feed	Arvin	Farm Supply	Green Valley Packers LLC	Arvin	Grower-Shipper	Mid-Cal Materials Inc.	Bakersfield	Building Material Sales	U S Oil Field Supply		Oil Field Service
Bulk Yard	Bakersfield	Sand & Gravel Hauling Equipment	Griffith Co	Bakersfield	Pipeline Contractor	Mojave Pipeline Operating Co	Bakersfield	Pipeline Operator	United States Cold Storage	Bakersfield	Cold Storage
Burt's Distributing	Bakersfield	Producers Dairy Distributor	Grimmway Farms	Arvin	Farm	Newby Rubber Co.	Bakersfield	Rubber	Valley Propane Service	Bakersfield	Propane Sales
C & W Irrigation Inc.	Bakersfield	Farm Supply	Grimmway Farms	Bakersfield	Farm	Occidental Elk Hills		Oil Field Service	Ventura Directional Drilling	Bakersfield	Pipeline Contractor
C R England		Trucking	Grimmway Farms	Lamont	Farm	Ojeda Trucking	Arvin	Trucking	Virginia Ford Trucking, Inc.	Bakersfield	Warehouse and Trucking
Cal Organic Farms	Lamont	Grower-Shipper	Halliburton	Taft	Oil Field Service	Pacific Irrigation Inc.	Bakersfield	Farm Supply	Vulcan Materials Co.	Bakersfield	Building Material Sales
Calcot Ltd	Bakersfield	Cotton sales	Halliburton	Bakersfield	Oil Field Service	Pacific Pipeline System	Bakersfield	Pipeline Contractor	Walco International	Bakersfield	Car Sales
Caliente Farms	Arvin	Farm	Happie Bee Co.	Bakersfield	Beekeeper	Pacific Transport Refrigeration	Bakersfield	Trucking	West Valley Construction Co	Bakersfield	Pipeline Contractor
Calpi, Inc.		Oil Field Service	Henderson Trucking		Trucking	Paramount	Delano	Agribusiness	Western Nutrients Corp/Western Mixers	Bakersfield	Farm Supply
Calpine Containers	Lamont	Packaging Material	HPS Mechanical Inc.	Bakersfield	Pipeline Contractor	Penske Truck Rental	Bakersfield		Western Warehouse	Bakersfield	Warehouse
Cattani & Sons	Bakersfield	Farm	Hydratec	Arvin	Farm Supply	Pepsi bakersfield	Bakersfield		White Wolf Potato Co.	Arvin	Grower-Shipper
Central Valley Packaging	Bakersfield	Containers and Packaging	Hydril Co		Oil Field Service	Peter Deboer Dairy	Bakersfield	Containers and Packaging	Wholesale Fuel, Inc.	Bakersfield	Petroleum Products
Copart Salvage Auto Auctions	Bakersfield	Auto Dealer	Indoff inc	Bakersfield	Cargo and Freight Service	PIL			William Bolthouse Farms Inc	Bakersfield	Farm
Corotto Co.	Bakersfield	Farm	Inman Trucking		Trucking	Praxair			World Seed	Bakersfield	Farm Supply
Cox Petroleum Transport	Bakersfield	Trucking	ISD Transportation	Bakersfield	Trucking	Prime, Inc.		Trucking	Zack's Big Tree Nursery	Bakersfield	Nursery
CTI		Trucking	IWX		Trucking	Producers Dairy	Fresno				
Cummins West Inc	Bakersfield	Diesel Engines & Parts	J H Biotech Inc.	Bakersfield	Farm Supply	Progressive Farms	Bakersfield	Cotton sales			
David L Moore Farms	Bakersfield	Grower-Shipper	John Chrisner Trucking		Trucking	Quality Fabrics & Supply Co.	Bakersfield	Containers and Packaging			

Note:

The trucking companies that were interviewed for this study are highlighted in yellow.

Source: Tioga Group





5.2 Commercial Trucking Firms

There were a total of 29 commercial (for-hire) trucking firms contacted for the operator survey of commercial trucking firms. Of those contacted, 18 trucking companies provided time for interviews to take place. The companies interviewed were AC Trucking, Accu-trans, Apex Bulk, Ability Tri Modal, American Pacific, Brian Zinn Trucking, California Multi-modal, Chas. R. Diaz, Con-way Freight, Con-way Truckload, FedEx Freight, Indiana Western Express, Knight Transportation, Marten Transport, Oilfields Trucking, Swift Transportation, Sturgeon & Son, and Young's Commercial.

Table 5-1 provides a summary of the contact list and the companies that were interviewed.

5.2.1 Findings Specific to the Study Routes

Of the firms interviewed, none of the respondents had an operating base on these roads, but each had knowledge of related trucking operations located on or near one the survey routes, particularly equipment dealers and trucks serving the farming industry. Personnel at the headquarters of trucking companies that are not physically in Kern County have significantly less familiarity with these routes than they do with SR-99 and I-5. Local for-hire truckers have lesser familiarity with these routes than they do with SR-99 and I-5.

Of the four east-west routes, there is greater familiarity with SR-46 and SR-166. Many typical responses included "That's the route to the Coast", indicating that they commonly serve customers to the west of the Central Valley. A number of the respondents believe that there is more night time, weekend, refrigerated trucks, and eastbound truck traffic than what they consider to be normal trucking activity for the area.

Truckers that primarily use the north-south routes (I-5 and SR-99) and are based beyond the study area (particularly the Los Angeles and Central Valley areas) tend to use these five routes only if they have a customer on one of the routes.

The survey respondents that primarily operate to/from areas east of California, using SR-58 to the east of Bakersfield, have three tendencies in their operations:

- Primarily they only transit Kern County (not stopping at local industries) and prefer to use SR-58 when east of Bakersfield, SR-46 when west of Kern, and SR-166 much less often (and only to get to western points such as Santa Maria). In such cases they usually also use SR-99 for a short distance between east-west routes.
- Generally when traveling beyond Bakersfield to either the coastal counties or points north of Kern County truckers will use I-5 or SR-99.
- A primary focus in their operations is trips with refrigerated equipment.

Of the five routes, three routes stand out for unique reasons:

- Very little is known from the respondents regarding truck travel on SR-119 via Pumpkin Center.
- Only those that know of specific customers or trips that involve SR-65 know anything about

characteristics of this route, other than that “Wal-Mart is in Porterville”. They generally indicated that to get to Wal-Mart their drivers prefer to use SR-99.

- SR-223 is often viewed as “the way to go to avoid SR 99, particularly at its junction with SR-58 just south of Bakersfield, particularly at rush hour” by truckers that wish to transit the area.

Additional comments from the interviews included:

- “There are an awful lot of guys with a truck that serve that area (implying locally-serving trucks operated by other companies), whoever they are.”
- “Some of the county roads are important, too, because there are some big customers on them (Target on 7th Standard); a lot of trucks use them as a bypass (route), and you can avoid some traffic (congestion) by using them.”

5.2.2 Seasonality

There are seasonal factors involved in use of study routes. There is an assortment of unusual equipment being transported and/or towed on these routes for which most appear to be related to handling of field crops. When the device is not on its own wheels (i.e. loaded onto a trailer) often the trailer is a heavy haul or low bed trailer; sometimes it is a flatbed. A lot of agricultural goods move on flatbeds (platforms) e.g. hay, pallets/crates and in bins or tubs (sometimes called “transfer dumps” attached to flatbed trailers e.g. oranges, tomatoes).

5.2.3 Road Conditions

Regarding conditions on the road, truckers perceive the presence of safety issues on these roads for the following reasons:

- These are two-lane roads that allow relatively high truck speed.
- Many of the trucks using the routes just want to “get through Bakersfield without any hassle”.
- There is slower moving local and farm equipment vehicles on these roads.
- Many of the drivers are not local, and have insufficient awareness of the specific roadway issues that can cause incidents.

5.3 Regional Shippers, Receivers, and Other Local Truck Fleet Operators

Tioga interviewed 89 shippers, receivers, local truckers or servicers, 17 of whom reported using at least one of the study routes. The following is a list of companies interviewed: Baker Hughes, Burt’s Distributing, Calcot, Calpine, Central Valley Packaging, Cox Petroleum Transport, De La Garza Trucking, Eagle Trucking & Crane, Halliburton (McKittrick), HydriL, Johnston Vacuum Tank Service, Kimber Pallets, Maxco, Occidental Elk Hills, Quinn Pumps, Schlumberger, U.S. Oilfield Supply, and Wholesale Fuels.

Table 5-2 provides a summary of the contact list and companies that were interviewed.

5.3.1 Findings Specific to the Study Routes

Compared with the trucking companies interviewed, few of the local firms used SR-46 or SR-166 west of Maricopa. Those two routes are “the way out of Kern County”, according to some of the respondents. In contrast, most of the firms interviewed were delivering to or supplying Kern County area clients or customers.

The study routes serve areas with differing economic bases. SR-119, which is the primary route between Bakersfield and the Taft area, has a large amount of traffic related to petroleum production, since that is a major component of the Taft area economy. This includes several firms that provide services for the petroleum industry. A great many of these firms run specialized service vehicles, ranging from pickup trucks to large drilling rigs that are not common on the typical Central Valley rural road.

In addition, a great number of the oil field service and equipment firms are international in scope, but maintain offices near the oil fields. This includes, Schlumberger, Halliburton, Baker Hughes, and Quinn Pumps. Those local offices mainly service existing facilities. This involves smaller service vehicles rather than heavy duty trucks. When they ship large equipment to their customers, the shipments originate elsewhere and are trucked to the area either via SR-119 or via SR-58 West, which was not included in the study.

There was relatively less agricultural traffic reported on SR-119. The area around Taft is rather arid, and much more dominated by petroleum than much of the rest of Kern County.

There were also several responders who use SR-166 to reach the Maricopa area. These were primarily also in the petroleum industry, although all of the agricultural packing material suppliers reported significant use as well. SR-166 was also reported as the fastest way from Taft/Maricopa to and from the Los Angeles area, but much this must be controlled from out of the area, because Tioga was unable to reach any personnel of local firms with any useful knowledge about these.

SR-223 is the primary route from Lamont, Arvin and Edison, either to SR-99 heading south or to SR-58 heading east. More than one respondent said that it was essentially the only option for moving commodities out, and “the only way to our customers.” This area is much more agricultural. Several of the suppliers of agricultural packaging materials to growers and shippers – particularly corrugated and Styrofoam containers – are located near Lamont, and use that as a distribution point for supplying customers throughout Kern County.

Overall, the only local firms contacted that reported using SR-46, or SR-166 beyond Maricopa, were local distributors. The oilfield suppliers and servicers did not use it, because it was not near any large production areas. Most of the agricultural users were either hauling product to growers and packers in the Kern County area, or to Los Angeles, rather than to the central coast.

Those interviewed who used SR-65 did so largely to supply customers near that highway. Although it is a more direct route to Porterville, Lindsay and Exeter, none reported making trips that far. Generally, it was used to reach smaller areas such as Terra Bella. One respondent was located on SR-65 near SR-99, so all of its trips used that route, at least in part. Most other respondents indicate that they do not normally assign a significant number of trucks to that route.

5.3.2 Seasonality

All of the packaging suppliers reported that their businesses experience significant seasonal variation, with the peak season largely being from early April through late October. This should be reflected by agricultural traffic, not all of which would be captured by using intercept data collected over a relatively brief period. In addition, individual farm owners and numerous small local truckers carry the large bulk of the agricultural traffic between growers and processors. These have proven difficult to locate and interview.

In addition, not all deliveries of unprocessed agricultural commodities go to destinations in Kern County. A trucker located in Lamont, who carries carrots from Grimmway Farms, reported that his shipments go to the Los Angeles region. His drivers use SR-223 as the means to get either to SR-58 East, or to SR-99 South, depending on traffic, weather, and destination. Interestingly, this trucker also reported that its peak season for carrot hauling was January through March. Again, this traffic would not show up in the intercept data, because of the time it was collected.

5.3.3 Road Conditions

Of this group, no one reported any particular safety issues with any of the roads in the study area. Many, if not most of these businesses run trucks on county roads designed for lighter-duty use. The state highways generally have shoulders, good paving, and less slow-moving agricultural traffic than the other rural roads on which they operate.

Several operators commented that the road surface on SR-119, to the west of Bakersfield, was a bit rough for the first few miles. No one commented on the condition of any of the other routes of the study.

5.4 Conclusions

The following conclusions have been made from the results of these operator interviews, regarding local use of the study routes:

- You have to talk to the “locals” to find out much about these routes. While they are used by regional and national carriers, central office operations staff know relatively little about the specifics of their operation using these routes unless they know of a specific movement that probably uses the route or a specific customer on or near the route. (This would involve a much more extensive survey effort, but each contacted firm would be generating very few truck trips of significance to the area)
- SR-223 is the main outlet for products from the Lamont, Arvin and Edison areas.
- SR-119 has a greater proportion of traffic related to the petroleum industry than any other of the study routes. SR-166 near Maricopa also has some petroleum-related traffic. Much of this is specialized service vehicles, smaller than heavy-duty trucks.
- SR-46 is the most important route for a number of reasons, including the most truck traffic, access to Monterey and San Luis Obispo Counties, domination by refrigerated trailers, safety considerations, and its bypass status for the avoidance of central Bakersfield on trips headed west or north of Bakersfield.

- SR-46 and, to a lesser extent, SR-166, have relatively less local truck traffic and relatively more through truck traffic.
- SR-65 is different than the other routes because it is a north-south route that is paralleled by the multi-lane divided highway of SR-99, which tends to attract trucks that can bypass SR-65, and it is not an east-west bypass of the City of Bakersfield. Respondents used SR-65 primarily as a way to get to customers located near that route, rather than as a through route.
- Relative to the number of truck trips on I-5 and SR-99, each of the study routes handles much lower truck traffic volumes. However, unlike I-5 but much like SR-99, there are local customers on each route. Truck traffic volumes are a function of the type and number of businesses on a given route and the hours of operation of those businesses.
- When both service trucks and work (vocational) trucks are accounted for, the number of freight trucks is only a fraction of the total.
- Much of the agricultural trucking is handled by relatively small businesses, and has been difficult to survey accurately as a result.
- Agribusiness uses each of the routes. This use is highly seasonal, making it difficult for intercept data compiled in a relatively brief period to capture a complete picture of agribusiness users.