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16. Abstract

According to recent studies, over 75% of the US-Mexico overland trade flows through Texas. International traffic is channelized through 18 border sectors, many of which experience congestion caused primarily by lack of effective interaction among inspection procedures and traffic management. This situation requires a case-study approach, which is conducive to efficient problem solving in complex situations.

This project reports the development of a computer simulation model of the first case study investigated in this study, namely the Zaragoza Bridge in El Paso, Texas. To achieve this objective, real time queuing data, such as interarrival times of vehicles and service times of inspectors, were sampled, collected, and tested. In addition to the actual case, three case studies were studied under current traffic volumes and under a 50 percent increase in volume.

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Traffic Simulation at the International Ports of Entry: El Paso-Mexico Case Study

by

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NAFTA IMPACTS ON OPERATIONS

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ABSTRACT

According to recent studies, over 75% of the US-Mexico overland trade flows through Texas. International traffic is channelized through 18 border sectors, many of which experience congestion caused primarily by lack of effective interaction among inspection procedures and traffic management. This situation requires a case-study approach, which is conducive to efficient problem solving in complex situations.

This project reports the development of a computer simulation model of the first case study investigated in this study, namely the Zaragoza Bridge in El Paso, Texas. To achieve this objective, real time queuing data, such as interarrival times of vehicles and service times of inspectors, were sampled, collected, and tested. In addition to the actual case, three case studies were studied under current traffic volumes and under a 50 percent increase in volume.

EXECUTIVE SUMMARY

Since the implementation of the North American Free Trade Agreement (NAFTA) in 1993, international commercial traffic has grown significantly. Since 1994, Texas has been the largest port of entry in terms of trade on the U.S.-Mexico border, accounting for approximately 75 percent of the trade on the border. Under NAFTA, the Federal Highway Administration predicts that trade through Texas could increase up to 120 percent in the following years. Texas has 18 border sectors with Mexico, many of which experience congestion caused primarily by lack of effective interaction among inspection procedures and traffic management or due to lack of adequate transportation planning.

The objective of this report is to document the development of a simulation model using a general-purpose industrial engineering simulation package and to determine the best alternative to prevent congestion at the ports of entry and the associated traffic operations impacts on the road network adjoining the international bridges, while maintaining an adequate inspection of commercial trucks. A case study of Ysleta- Zaragoza Bridge in El Paso is presented.

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CHAPTER 1

INTRODUCTON

1.1 Background

The enormous increase in US-Mexico trade, spurred by earlier Mexican trade initiatives and, more recently, by the North American Free Trade Agreement (NAFTA), has prompted new concerns regarding the Texas-Mexico border transportation infrastructure. Given that over 75 percent of the overland portion of this trade is currently routed by surface through Texas, there are fears that, without adequate traffic management in place, the economic blessings promised by NAFTA may not offset the problems caused by such massive traffic demand (*1*).

Under NAFTA, the Federal Highway Administration predicts trade through Texas could increase up to 120 percent in the following years. This is especially true for the border cities that are already overwhelmed by a traffic demand comprised of trade-related trucks and millions of autos, bicycles and pedestrians crossing the border at an average frequency of two or more times a week, which is causing some areas of the border to be in non-attainment of Clean Air Act standards (*1,2,3,4*). In most border cities, international traffic congestion starts with back-ups at inspection procedures. NAFTA is expected to increase and complicate, rather than decrease and simplify, the amount of customs inspections, due to the need to verify the origin of product components for taxation. A recent survey indicated that the staffing capabilities of both US and Mexican inspection agencies are limited, and this is expected to cause additional traffic problems (*2*). It is estimated that the additional congestion will be equivalent to $7.5 billion in user delay costs and will generate 200,000 metric tons of tailpipe emissions.

The City of El Paso accounts for 36 percent of Texas international shipments and is the largest port of entry in Texas according to US Customs. Three bridges exist within the city limits of Cd. Juarez-El Paso vehicle travel, but only two of them provide access to commercial trucks; The Bridge of the Americas and the Ysleta-Zaragoza Bridge. The majority of cargo shipped through the El Paso-Cd. Juarez Port Of Entry (POE) system is related to maquiladora activities. Over 85 percent of the commodities passing through El Paso-Cd. Juarez fall into product types related to maquiladora industries. Traditional trade represents only a small portion of the trade at this system

1.2 Report Objectives

The objective of this research is to determine the best alternative to prevent congestion at the ports of entry and the associated traffic operations impacts on the road network adjoining the international bridges, while maintaining an adequate inspection of commercial trucks. This report documents the development and results of a simulation model using a general-purpose industrial engineering simulation package of the first case study investigated in this study, namely the Zaragoza Bridge in El Paso, Texas. To achieve this objective, real time queuing data, such as interarrival times of vehicles and service times of inspectors will be sampled, collected, and tested. The report is organized in 6 chapters.

1.3 Report Organization

Chapter 1, "Introduction," presents a brief introduction and description of the research approach used in this study.

Chapter 2, "Case Study Description: The Zaragoza Bridge in El Paso, Texas," presents a detailed description of the international traffic flow and of the specific inspections and operations in this bridge. Thorough understanding of the traffic flows is the first and foremost step in modeling the process.

Chapter 3, "Traffic Data," presents a history of traffic growth in the particular bridge and a summary of new data obtained for the simulation developed in this project.

Chapter 4, "Model Development," discusses the simulation method selected for case study analysis, provides explanations on its fundamentals, and explains how the Zaragoza Bridge was modeled, using the information described in Chapter 2. Next, it presents the results of the model validation using the data described in Chapter 3.

Chapter 5, "Traffic Flow Analysis," discusses the rationale for analysis scenarios, their simulation, and the results. Then, these results are used to develop recommendations for keeping a smooth traffic flow in this Bridge.

Chapter 6 concludes the report with "Summary, Conclusions and Recommendations," which provides the reader with a brief overview of the major findings of this study.

1.4 Research Approach

This project report addresses the capacity and logistics of the Ysleta-Zaragoza Bridge to deal with the influx of truck traffic. The research approach is based on computer simulation modeling using the ARENA software, which is a general-purpose industrial engineering simulation package. The model was used to evaluate the existing conditions and future scenarios for the bridge and to provide alternative solutions for expected problems. In addition, the simulation may be used to evaluate any physical changes in the POE infrastructure before they are implemented.

CHAPTER 2

CASE STUDY DESCRIPTION: THE ZARAGOZA BRIDGE IN EL PASO, TEXAS

2.1 Introduction

El Paso, Texas has six international bridges: one non-commercial, one commercial, two commercial and non- commercial, and two rail. The existing Ysleta-Zaragoza border crossing facilities were last renovated in 1992 and is currently operating for commercial and non-commercial traffic six days a week. Traffic conditions are still quite good, although there is some congestion at the signalized intersection when the east tollbooth is closed for a shift in personnel. This usually happens around 11:30a.m. One unique characteristic of the Ysleta-Zaragoza Bridge is that it is composed of two bridge structures, one for passenger traffic and another for commercial traffic. Therefore, under no circumstances is it possible to have traffic of one type affecting the flow of private vehicles. Another characteristic of this bridge is that the facility used for commercial traffic is equipped to process used vehicles exported into Mexico as commodities. This requires the revision and stamping of export papers and removal of plates and stickers from the vehicles if not removed before.

2.2 Traffic Operations Process

International traffic flow follows the bridge rules described in Chapter 1; however, each international bridge has its own characteristics and the site-specific management and operations, which affect the overall traffic flow, are a typical characteristic of each bridge. The modeling process (described in subsequent chapters) requires thorough understanding of the specific traffic operations in the bridge.

Figure 2.1 show a flowchart of all the operations necessary to cross from US into Mexico (southbound). Figure 2.2 shows a schematic layout of the actual bridge. In Figure 2.1, each box corresponding to a physical location or a traffic operation procedure is tagged with a letter, which also appears in the corresponding locations in Figure 2.2. Figures 2.1 and 2.2 complement each other in depicting the southbound traffic flow on the bridge. These two figures are based on field observations and the Binational Study (5). Below is a detailed description of the southbound traffic operations, the direction responsible for congestion in El Paso. The reader should refer to Figures 2.1 and 2.2 while reading sections A through N, (which correspond to boxes A through N in Figure 2.1).

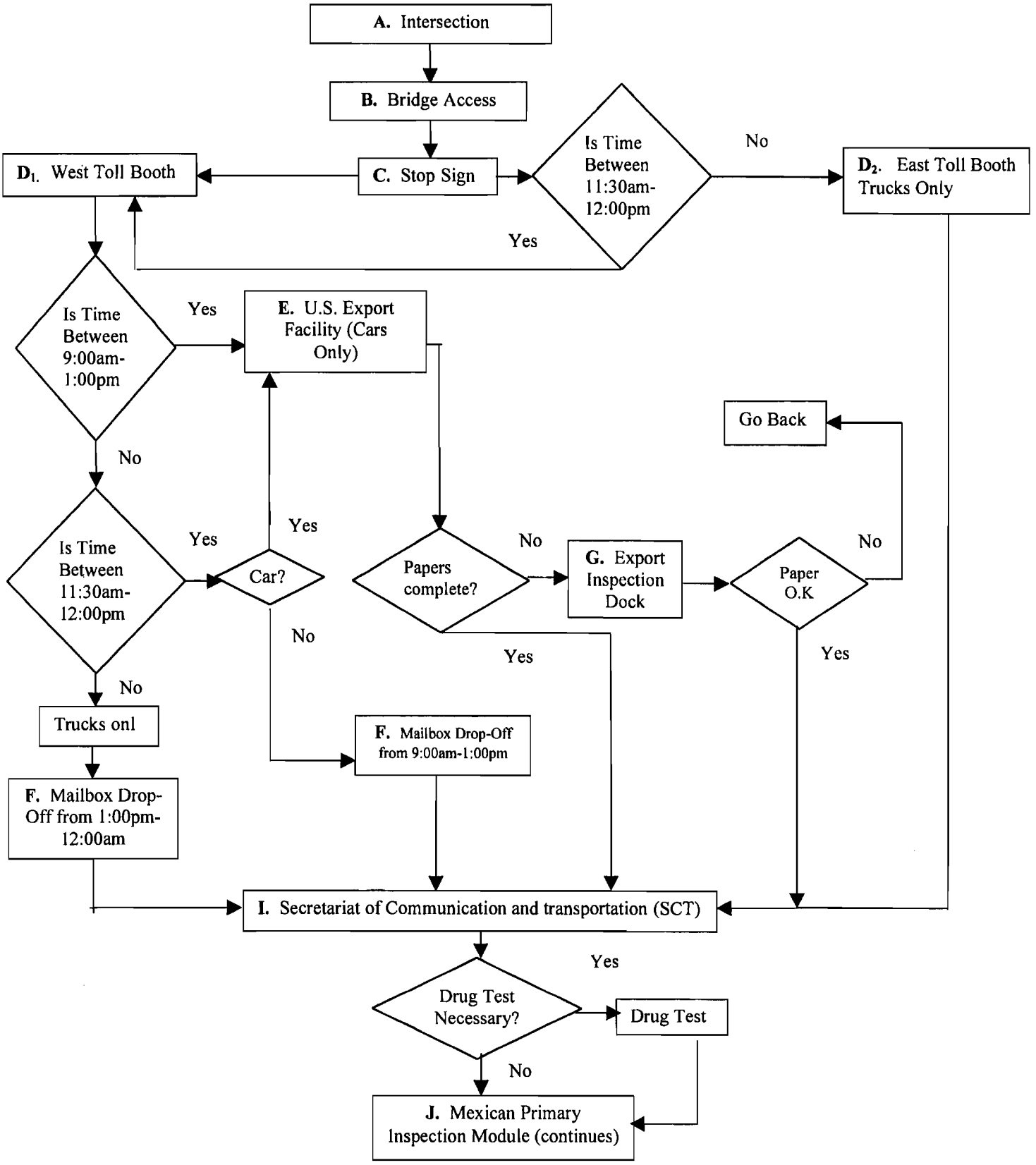

Figure 2.1 - Southbound Traffic Operations at Ysleta-Zaragoza

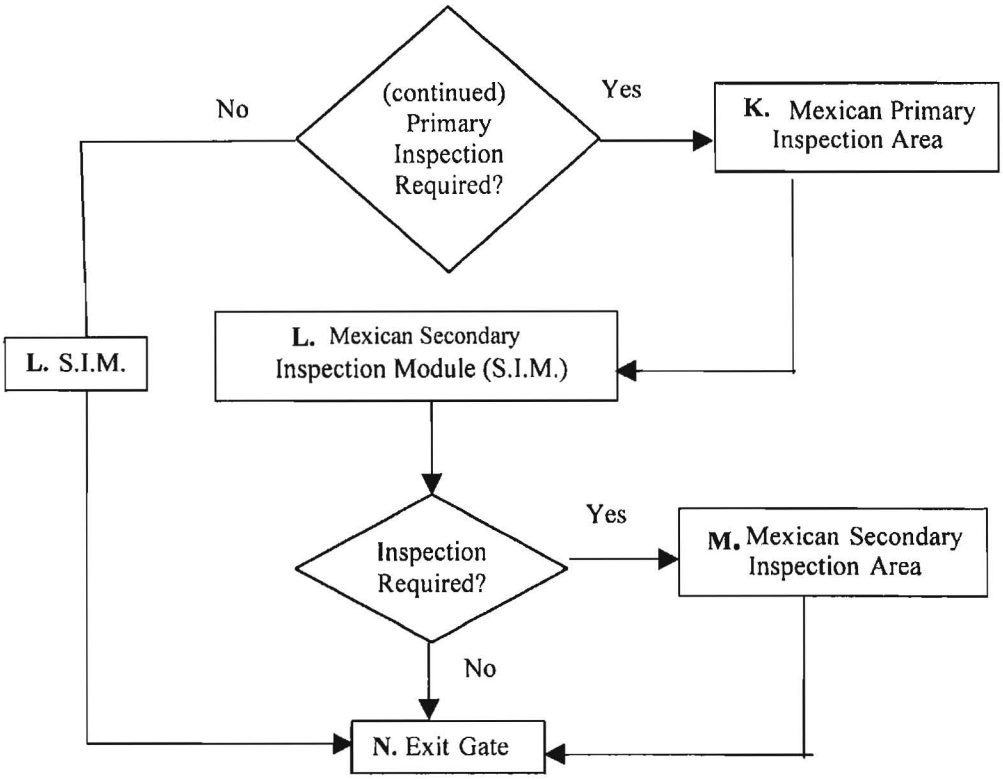

Figure 2.1-continued

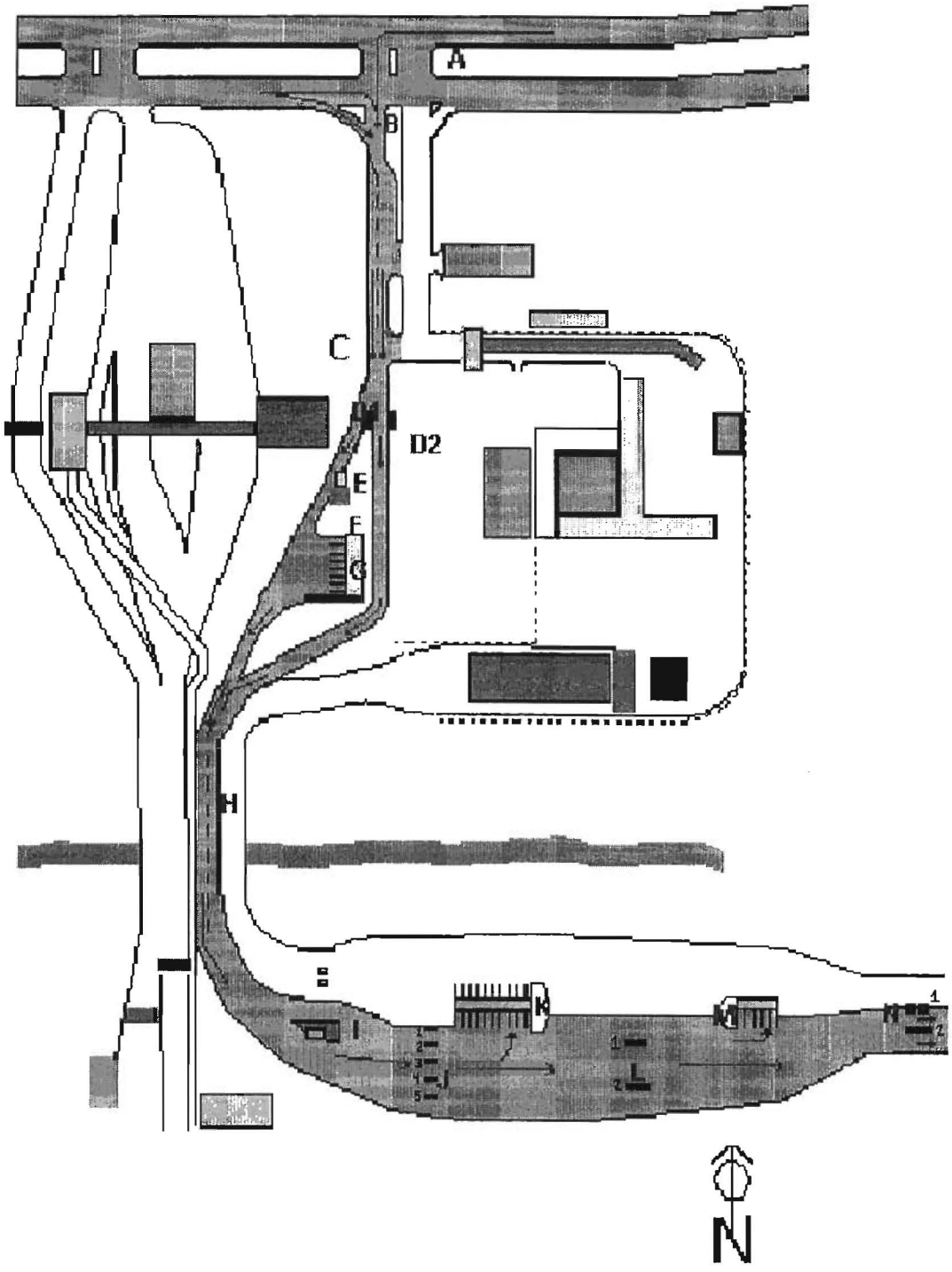

Figure 2.2 - Ysleta-Zaragoza Schematic Layout

2.3 Detailed Description of the Southbound Traffic Operations at Ysleta-Zaragoza

A. Intersection

The intersection that leads to the Zaragoza Bridge is a Diamond intersection. The Americas Avenue (North frontage road of Loop 375) and Border Highway (East frontage road of Loop 375) meet at this interchange below the highway, as shown in Figure 2.1. Trucks coming from the north and east frontage roads are controlled at the intersection by an actuated signal. Based on data provided by the toll booth operators, the peak days and hours are Thursdays and Fridays from 11:00 a.m. to 1:00 p.m. and from 6:00 p.m. to 8:00 p.m.

B. Bridge Access

The two-lane access road merges with the intersection with the U.S. Bridge tollbooth to force all commercial traffic over a weighing station (weight-in-motion, or WIM). Then it diverges into two lanes as it approaches the booths. The two-lane road is apparently narrowed to one lane to force the trucks go through the traffic counters (pads) placed only on the left side lane. However, it was observed that at peak hours trucks and cars do not obey the markings on the road and form two lanes.

C. Stop Sign

A stop sign forces all trucks and vehicles to stop at an approximate distance of two large trucks away from the tollbooth. After a complete stop, trucks and vehicles can go through either the east or west tollbooth.

D. Bridge Tollbooth.

There are two tollbooths managed by the city of El Paso. Both tollbooths are open from Monday through Saturday and closed on Sundays. Table 2.1 shows the operating schedules for these tollbooths.

D_1. East Toll Booth

The east tollbooth only operates for commercial trucks from 6:30 a.m. to 8:30 p.m. on weekdays. The weekend schedule follows the same procedure from 6:00 a.m. to 2:30 p.m., as shown in Table 2.1. At this booth, truck drivers drop their exportation papers along with the corresponding toll.

D_2. West Toll Booth

The west tollbooth operates on weekdays from 9:00 a.m. to 1:00 p.m. for used vehicles to be exported into Mexico as commodities and from 1:00 p.m. to 12:00 a.m. for commercial trucks only. On weekends, the west booth operates from 9:00 a.m. to 5:00 p.m. At this booth, drivers pay the corresponding toll only. Export paperwork from trucks is dropped in the mailbox drop-off as explained later in the following section.

Table 2.1 - Operation Schedule of Ysleta-Zaragoza Bridge

Booth	Type of Transportation	Day						
		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
East (D1)	Trucks	6:30am-8:30pm	6:30am-8:30pm	6:30am-8:30pm	6:30am-8:30pm	6:30am-8:30pm	6:30am-2:30pm	closed
	Cars	--	--	--	--	--	--	closed
West (D2)	Trucks	1:00pm-12:00am	1:00pm-12:00am	1:00pm-12:00am	1:00pm-12:00am	1:00pm-12:00am	9:00am-5:00pm	closed
	Cars	9:00am-1:00pm	9:00am-1:00pm	9:00am-1:00pm	9:00am-1:00pm	9:00am-1:00pm	--	closed

Source: Toll booth operator

E. U.S. Export Facility

The U.S. Export Inspection Facility operates from 9:00 a.m. to 1:00 p.m., which is the time allowed for vehicles to be exported as commodities. Two lanes are formed at this space with a capacity equivalent to four cars or one large truck on each lane. Only vehicles and trucks coming from the west tollbooth have to go through this facility. At this station, three U.S. Customs officials conduct the inspection. When demand is heavy, two National Guard officers supervise the Customs' work and assist with conducting inspections. In this inspection, the vehicle owners show the documentation displaying the seller to one official while the other one removes any U.S. traffic stickers and plates that have not been previously removed from the vehicle. The inspection of up to three cars is conducted when congestion develops.

At the shift exchange of the east tollbooth, the commercial trucks that proceed to the west tollbooth have to go through the U.S. Export Facility. At this time, all truck drivers turn in the paperwork to the officer conducting the inspection for vehicles. The officer will check the papers and drop them at the mailbox located at the side of the export inspection facility. (F, as described below).

F. Mailbox Drop-Off

From 1:00 p.m. to 12:00 a.m., trucks coming from the west tollbooth have to drop their paperwork at the mailbox drop-off. Truck drivers stop at a mailbox, get out of their vehicles, and place their export papers inside. There are two lanes in front of the mailbox that have a capacity for four passenger cars.

G. Export Inspection Dock

If there are questions about the legitimacy of an exported vehicle's papers, the driver must stop the car at the U.S. Export Inspection Dock located approximately 20 meters south of the from the U.S. Export Facility. At this facility, an officer reviews and checks all serial numbers on the vehicle while the driver who brought it remains under custody by the National Guard. According to information obtained from U.S. Customs, this type of incident usually happens on the average of twice a day. This incident does not affect traffic because, at this area, there is a parking yard with ten parking spaces.

H. Bridge structure

The commercial vehicles bridge structure consists of a four-lane bridge, two northbound lanes, and two southbound lanes. The bridge was designed to separate empty trucks on the right lane and cargo trucks on the left lane. However, at the time of the survey, we observed that empty and loaded trucks occupied only the left lane. The right lane was used by trucks that stopped for a short period of time to finalize their papers.

I. Secretariat of Communication and Transportation (SCT) Facility.

This Mexican facility has only one booth located between two lanes. It is open from 8:00 a.m. to 12:00 a.m. All vehicles coming from the bridge have to converge to the right lane, where they show the invoice papers at the booth. The invoice papers need to be stamped if the truck destination is beyond the border (i.e. truck will cross the inspection site at the Kilometer 30- the end of the commercial zone). Empty trucks also have to go through this booth, but since they do not show papers, empties stop only when selected for a drug test required by the SCT. Drivers are selected randomly by an SCT employee for a drug analysis. The selected driver is then asked to park his truck at the left side of the booth to prevent the truck from interfering with the traffic flow. This parking space has a capacity for two small trucks or one large truck. The drug test lasts between 15 and 20 minutes.

J. Mexican Primary Inspection (Module 1)

There are five booths at this module that operate from 8:00 a.m. up to 12:00 a.m. Three booths are used for loaded trucks, one for empty trucks, and the last one for North American Trade Agreement Prototype (NATAP) participants. However, four of the five booths are being used since the NATAP program is still in a prototype form. At the three booths for loaded truck, the drivers show the invoice of shipment. When the staff gets too busy checking invoices (up to 60 have been observed for only one truck), they close the lane. At the time of the survey and according to a Mexican Customs platform supervisor, about 10 to 12 percent of the trucks are randomly selected to unload the truck at this module (the primary inspection area).

K. Mexican Primary Inspection Yard

The Customs yard has a platform with a capacity for 65 trucks. It is wide enough to allow for the movement of the trucks to and from the platform without conflicting with those not requiring inspection.

L. Mexican Secondary Inspection (Module 2)

The Secondary Inspection module consists of two booths managed by a private firm. The procedure and schedule is the same as followed by the primary inspection module. Although only trucks selected for revision at the primary inspection module have the possibility to be selected again at the secondary inspection booth, all trucks have to show the shipment invoice papers to be stamped. According to the platform supervisor of the primary inspection, 10 to 12 percent of the trucks selected at the primary inspection module are randomly selected at this module for a secondary revision (which translates to 1% to 1.2% of all trucks going to secondary inspection).

M. Mexican Secondary Inspection Yard

The platform has a capacity for processing 5 trucks, and the yard is wide enough to cause no hindrance to traffic flow.

N. Exit Gate

Two lanes serve as the Exit Gate, but there is only one booth. (See figure 2.2). Two officials control the exit gate booth, supervised by one Mexican Customs official. At the exit booth, drivers show the shipment invoice to any of the two officers in charge, and they stamp the papers to certify that the trailer has been checked for any item not listed in the papers and/or any item that might be hidden in the driver's compartment. The officers are supposed to reverify the trailer's contents before stamping the papers to avoid any contraband of imported goods. However, they rarely perform this procedure; they only stamp the papers. It was observed, at the time of the survey, that only one of the two lanes was constantly open, and the other lane is open only when congestion increases. When this happens, each officer controls one lane. Between the secondary inspection booth and the exit gate, approximately eight commercial trucks can queue on each lane.

Approximately two meters away from the exit gate booth (Figure 2.2), there is another booth controlled by the Mexican Customs. At this booth, vehicles that have not previously paid the *Patio Fiscal fee* are required to stop. According to the personnel at this booth, most truck drivers pay this fee annually and place a sticker on the truck. Usually only small trucks and imported cars have to stop to pay this fee.

CHAPTER 3

TRAFFIC DATA

1.3 Background Data

The history of traffic volumes at the Ysleta-Zaragoza Bridge from past years was obtained from the city of El Paso. The southbound traffic volumes collected for a seven-year period are graphically shown in Figure 3.1. Since the North American Free Trade Agreement (NAFTA) was passed in 1993, there has been an obvious increase of commercial traffic crossing the border through this bridge. An approximate increase rate of 11 percent is observed yearly. Traffic growth at this particular bridge is expected to increase by 50 percent in five years and to double in approximately ten years. This means that approximately in the year 2009 a total of 568,038 vehicles will cross at the Ysleta-Zaragoza Bridge.

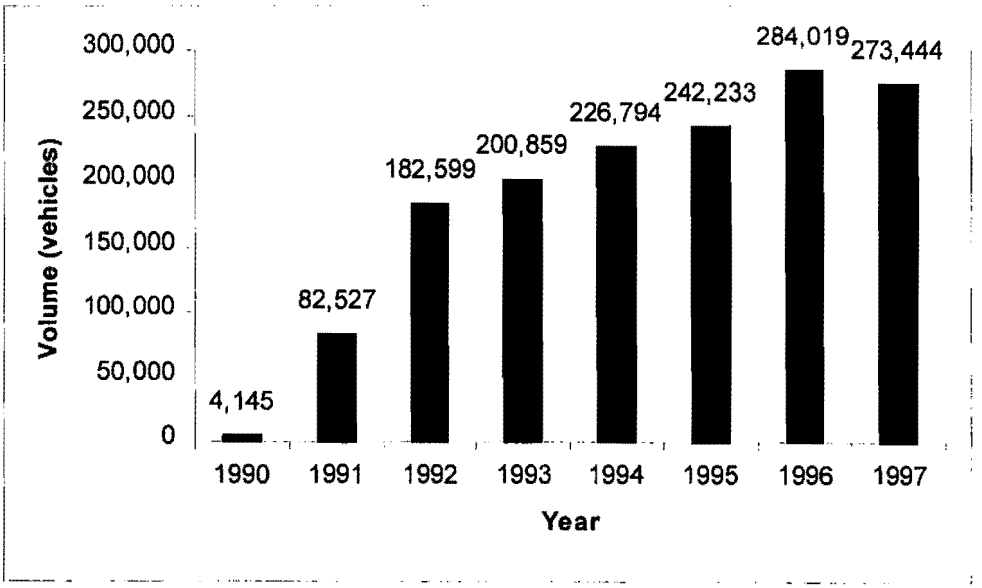

Figure 3.1 - Southbound Traffic Volume by Year

In addition, the U.S. Customs provided weekly and daily traffic data. Figures 3.2 and 3.3 show the data obtained for the week of April 20,1998 through April 25,1998. On this particular week, Friday shows the highest volume during the week with a total of 1244 vehicles.

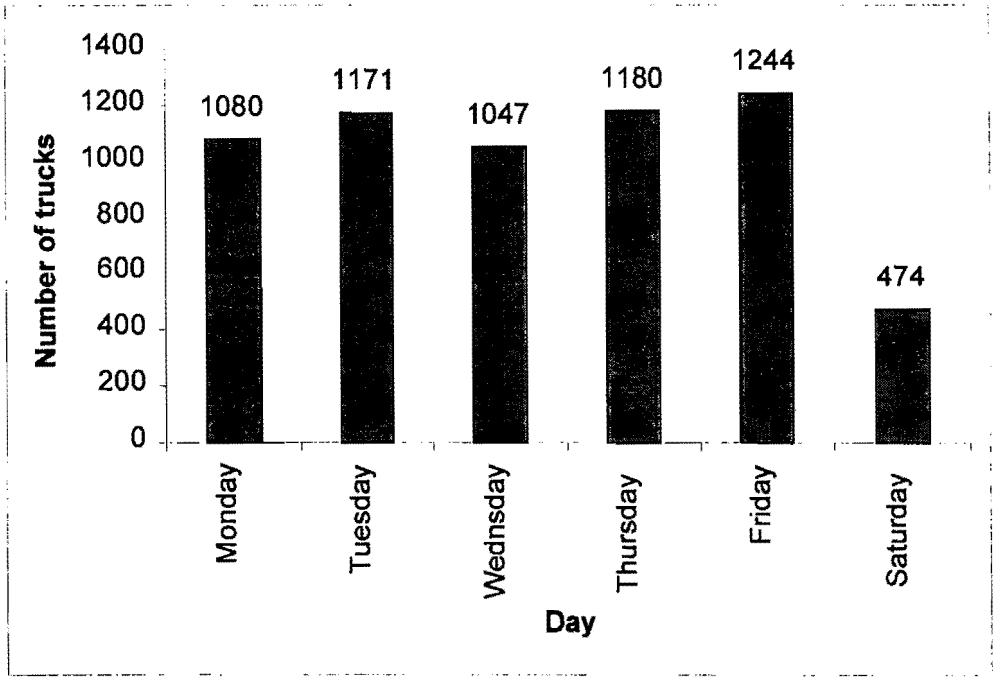

Figure 3.2 – Daily Truck Traffic

It is apparent from Figure 3.3 that the highest volume of trucks occurred around 5:00 p.m. on Thursday, with an approximated maximum of 100 vehicles per hour.

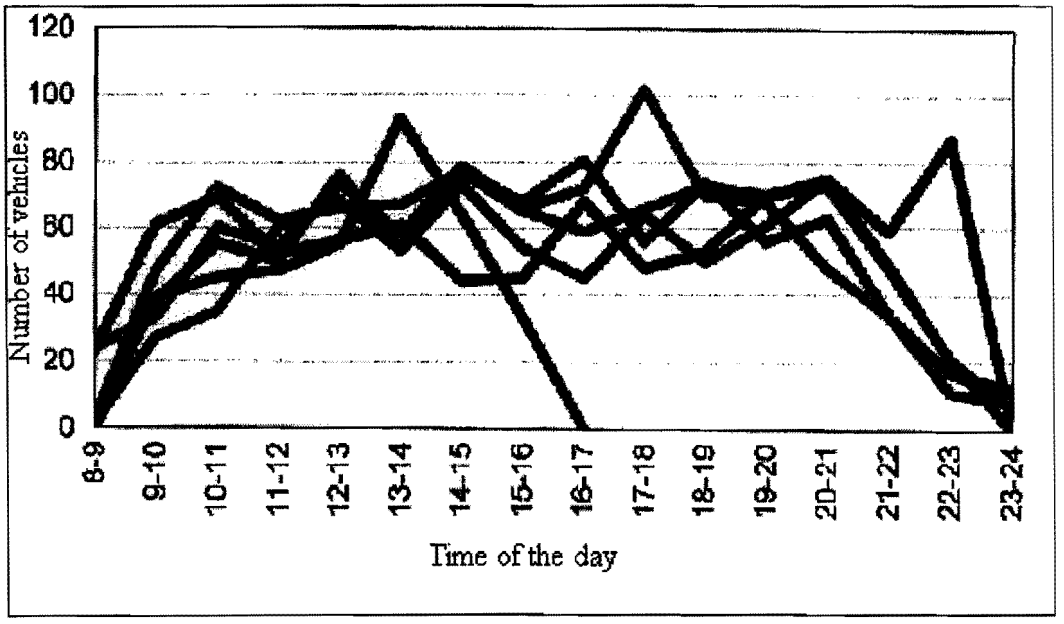

Figure 3.3. – Hourly Data Collection

3.2 Summary of new data

On site data collection of southbound traffic was conducted from May 19, 1998 through August 26, 1998. Data collection was based on a stopwatch technique and was collected four times a day for an approximate period of two hours each time. Data collection included the following:

- Traffic volume entering the crossing system at two locations: a) The north frontage road of loop 375 or Americas Avenue and b) the east frontage road of Loop 375 or Border Highway. This includes cars to be exported as commodities.
- Inter-arrival times at the same two locations above.
- Percentage of trucks.
- Processing rate (service times) at each location on both sides of the border.

Tables 3.1 through 3.3 summarize the obtained values at each location for the specified times and days.

Table 3.1 – Recorded Interarrival Times

Location	Date	Day	Time	Volume	Percent trucks	Avg. Interarrival time (sec)
	18-Jun-98	Th	9:00 AM - 11:00 AM	44	65.90%	136.25
Americas	20-May-98	W	11:30AM - 12:20 PM	39	84.61%	29.49
Ave.	16-Jun-98	T	1:30 PM - 3:00 PM	33	100%	89.35
	20-May-98	W	6:05 PM -7:15 PM	90	91.10%	21.93
	18-Jun-98	Th	9:00 AM - 11:00 AM	81	38.27%	74.22
Border	20-May-98	W	11:30AM - 12:20 PM	32	46.87%	36.88
High.	16-Jun-98	T	1:30 PM - 3:00 PM	56	100%	68.29
	20-May-98	W	6:05 PM -7:15 PM	77	90.90%	25.481

Arrival rates vary considerably during the day due to peak hours and local traffic. A second data collection of interarrival times was obtained for a continuous period of eleven hours and is further presented later in this chapter. Service times, on the other hand, do not vary as much as arrival times; therefore, the obtained values were analyzed to find the distribution that best fitted the data, which is presented further in Chapter 4. A summary of the recorded service times is presented on Tables 3.2 and 3.3

Table 3.2 – Recorded Service Times on US Facilities

Location	Date	Day	Time	Volume	Percent trucks	Average Service time (sec)
	19-Jun-98	F	9:00 AM - 11:00 AM	60	100%	38.65
East tollbooth	20-May-98	W	11:15 AM - 11:40 AM	25	100%	27.65
	19-May-98	T	1:05 PM- 2:00PM	47	97.90%	41.30
	20-May-98	W	6:10 PM- 7:15 PM	83	100%	37.83
	19-Jun-98	F	9:00 AM - 11:00 AM	49	-	57.110
West tollbooth	22-May-98	F	11:15:00 AM-12:17 PM	65	29.20%	43.838
	19-May-98	T	1:05 PM- 2:00PM	26	100%	35.445
	20-May-98	W	6:10 PM- 7:15 PM	70	100%	40.015
	6-Aug-98	Th	9:00 a.m-10:00 a.m	33	0%	178.21
Drop Box	27-May-98	W	11:00 AM - 12:05 PM	86	15.12%	75.12
	15-Jun-98	M	1:00 PM - 3:00 PM	77	100%	16.31
	26-Aug-98	T	6:00 PM - 8:00 PM	96	100%	24.47
	22-Jun-98	M	10:15 AM - 11:00 AM	17	100%	21.18
	22-May	F	11:00 AM-12:00 PM	134	-	24.19
SCT	22-Jun-98	M	1:00 PM - 2:40 PM	104	100%	13.51
	29-Jul-98	W	3:00 PM - 4:30 PM	103	100%	13.56
	16-Jun-98	T	6:15 PM -8:00 PM	158	100%	13.96

Table 3.3 – Recorded Service Times on Mexican Facilities

Location	Booth number	Date	Day	Time	Volume	Percent trucks	Avg Service time (sec)
	1	16-Jun-98	T	1:00 PM - 3:00 PM	88	52.20%	33.50
	1	26-May-98	T	6:25 PM - 7.40 PM	46	-	46.66
	2	11-Aug-98	T	10:00 AM- 11:00 AM	29	41%	43.47
	2	22-Jun-98	M	10:15 AM -11:00 AM	20	95%	34.02
Primary	2	11-Aug-98	T	11:00 AM- 12:00 AM	63	44.40%	40.42
Revision	2	16-Jun-98	T	1:00 PM - 3:00 PM	70	-	35.95
	2	26-May-98	T	6:25 PM - 7:40 PM	55	-	46.29
	3	11-Aug-98	T	9:00 AM- 11:00 AM	90	52%	45.40
	3	22-Jun-98	M	10:15 AM -11:00 AM	17	82.40%	44.74
	3	11-Aug-98	T	11:00 AM- 12:00 AM	56	63%	43.45
	3	26-May-98	T	6:25 PM - 7:40 PM	52	-	41.90
	4	11-Aug-98	T	9:40 AM.- 10:15 AM	13	100%	21.74
	1	17-Jun-98	W	1:30 PM -2:20 PM	35	100%	9.46
	1	15-Jun-98	M	6:45 PM -8:00 PM	76	100%	23.63
	1	11-Aug-98	T	10:50 AM-10:55 AM	7	14.30%	21.96
Secondary	2	11-Aug-98	T	10:00 AM-11:00 AM	75	49.30%	23.74
Revision	2	15-Jun-98	M	6:45 PM -8:00 PM	36	97.20%	31.43
	2	12-Aug-98	W	12:00 PM -1:10 PM	100	52%	38.87
	2	17-Jun-98	W	1:15 PM -3:00 PM	70	100%	15.03
	1	17-Jun-98	W	1:35 PM- 2:00 PM	28	-	16.06
	1	16-Jun-98	T	7:17 PM- 8:00 PM	21	100%	10.92
	1	28-Jul-98	T	7:35:00PM- 8:00 PM	30	100%	22.42
Exit Gate	2	12-Aug-98	W	10:45 AM - 11:45 AM	104	45.20%	41.59
	2	17-Jun-98	W	1:00 PM- 3:00 PM	69	100%	27.11
	2	16-Jun-98	T	6:42 PM- 8:00 PM	79	100%	12.83
	2	28-Jul-98	T	7:00 PM- 8:00 PM	89	100%	28.86

At the time of the first survey, the Bridge of the Americas was under construction, forcing more vehicles to cross through the Ysleta-Zaragoza Bridge. For this reason, a second data collection for a full workweek was conducted from January 4-9, 1999. Interarrival times were recorded continuously from 9:00 a.m. to 8:00 p.m., and total recorded volumes are presented on Table 3.4 including cars to be exported as commodities. The rough data collected at each location is presented on the appendix. In addition, the average number of vehicles per hour and the average interarrival times obtained from the recorded data are summarized in Table 3.5 for each arriving location.

It is apparent from Table 3.4 that the maximum number of vehicles occurred on Friday with a total of 1112 vehicles. This data is further analyzed and modified in order to use it as input for the simulation model as presented in the next chapter.

Table 3.4 - Daily Data collection from Jan 4, 1999 to Jan. 9,1999

Day	Volume		Total
	Border	Americas	Volume
Monday	208	374	582
Tuesday	386	526	912
Wednesday	567	469	1036
Thursday	495	534	1029
Friday	548	562	1110
Saturday	443	284	727

Table 3.5 - Hourly Data Collection from Jan 4, 1999 to Jan 9, 1999

	Border Highway		Americas Ave.	
Time of day	Average number of vehicles per hr.	Interarrival (sec)	Average number of vehicles per hr.	Interarrival (sec)
9AM-10AM	40	91	16	219
10AM-11AM	108	33	18	210
11PM-12PM	118	31	33	108
12PM-1PM	49	73	39	93
1PM-2PM	30	120	41	89
2PM-3PM	32	114	47	77
3AM-4AM	36	100	45	80
4AM-5AM	38	94	49	73
5PM-6PM	44	82	68	53
6PM-7PM	40	90	76	47
7PM-8PM	32	114	74	49

In addition, local interarrival times were also recorded at the Border Highway location in order to account for the traffic volume at the peak hours. Data was recorded for two consecutive days for a two-hour period from 5:30 p.m. to 7:30 p.m., which is the local traffic rush hour. Local traffic at this location was determined, from observation, to be an important factor of truck spill back because trucks entering the bridge and local traffic share the same roads. A summary of the data collected at the Border Highway location is presented in Table 3.6.

Table 3.6 - Local Traffic Data at Border Highway

Day	Right lane		Left Lane	
	Volume	Interarrival (sec)	Volume	Interarrival (sec)
April 14/1999 (Wed)	327	21.02	212	31.58
April 15/ 1999 (Th)	211	30.4	233	27.5

CHAPTER 4

MODEL DEVELOPMENT

Animated case study simulation is one of the many benefits of computer simulation modeling. Simulating case studies allows us to determine how a system will respond under existing and proposed conditions. The calibration and development of the Ysleta-Zaragoza model as well as the analysis of four case studies is presented in this chapter.

4.1 Modeling

The simulation software selected for case study analysis was ARENA, a commercially available simulation-modeling environment. ARENA provides the modeling elements for defining the entities, their attributes, the logical connections between activities, and the resource requirements for those activities as well as the required animation to simulate the system at the bridge and automated statistics collection. (6)

The Ysleta-Zaragoza Bridge was modeled following the flowchart of southbound traffic operations presented in Chapter 2. In addition, the following factors were considered in the simulation in order to represent the real life conditions at the border crossing:

1. A change of lanes at the access road primarily due to the process operation for exported cars.
2. A 20-min closing of the East tollbooth for a shift in personnel around 11:30 a.m. and 12:30 p.m. (At this time, a security guard controls the traffic allowing one car or truck at a time)
3. A high service time generated at the Drop Box or U.S. Export Facility due to the removal of plates and stickers.

Since these factors were determined to have a great impact on the spill back of commercial traffic, the case studies presented further in this chapter were based on changes made to these factors.

4.2 Input Values

After the data was analyzed statistically and validated, the interarrival and service time parameters and expressions were determined via the Input Analyzer. The Input Analyzer is an ARENA tool that fits a distribution to the data. The Input Analyzer estimates the distribution's parameters and calculates three measures of quality, the mean square error and two statistical goodness of fit tests. (6)

4.3 Interarrival Times

Interarrival times of vehicles entering the intersection were determined separately for each location. According to McShane and Roess, in Traffic Engineering, the vehicle arrivals are commonly represented by an exponential distribution, which may be the case for the Ysleta-Zaragoza Bridge. The vehicle arrival at the border crossing is highly variable over the course of

the day. In the model logic, the time between arrivals is controlled by an exponential distribution with a mean defined by an expression that changes every hour. These vehicle interarrival times are given in Table 4.1 for each location.

Table 4.1 - Input Interarrival Times

Time of day	Average inter arrival time (sec)	
	Border Highway	Americas Avenue.
9AM-10AM	91	219
10AM-11AM	33	210
11AM-12PM	31	108
12PM-1PM	73	93
1PM-2PM	120	89
2PM-3PM	114	77
3PM-4PM	100	80
4PM-5PM	94	73
5PM-6PM	82	53
6PM-7PM	90	47
7PM-8PM	114	49

For the local traffic at the Border Highway, a fitted exponential distribution was obtained for each lane. These expressions are shown in table 4.2

Table 4.2 - Input Arrival Expressions for Local Traffic

Lane	Distribution
Right	0.999 + EXPO(20)
Left	1 + EXPO(26.5)

4.4 Service Times

The Erlang distribution is frequently used in queuing systems to represent service-time distributions, according to Khoshnevis in Discrete Systems Simulation. The data recorded at each facility was summarized and tested for goodness of fit for Erlang and exponential distributions. The distribution with the lowest square error was selected and input into the simulation. It is visible from Table 4.3 that the Erlang distribution was the best one representing service times in all the locations, coinciding with Khoshenevis, which states that Erlang distributions represent the time required to complete a task. For the service times at the Primary and Secondary revision yards, a one-hour process time was assumed for each location.

Table 4.3 - Inputted Expressions for Service Times

Facility		Distribution
West Tollbooth		18+ERLA(11,2)
East Tollbooth		15+ERLA(11.4,2)
Drop Box		7+ERLA(8.74,2)
SCT		2+ERLA(5.98,2)
	Booth # 1	12+ERLA(10.7,2)
Primary	Booth # 2	8+ERLA(14,2)
Revision	Booth # 3	8+ERLA(9.35,4)
	Booth # 4	5 + ERLA(16.7, 1)
Secondary	Booth # 1	4+ERLA(11.6,3)
Revision	Booth # 2	6+ERLA(17.6,1)
Exit	Booth # 1	6+ERLA(17.8,2)
Gate	Booth # 2	10+ERLA(6.21,2)

4.5 Model Logic and Animation

The animation of arriving entities is controlled by an assumed discrete distribution. Entities are transferred between stations by the use of accumulating conveyors, which are characterized by synchronous movement of items at a constant velocity and able to create local blockages forcing the other entities to accumulate. Accumulating conveyors will allow us to simulate cars backed up on the bridge fairly close together like it happens in real life mostly to prevent some inconsiderate driver from sneaking in ahead of them.

The time between arrivals, for the vehicles entering the bridge, is controlled by an exponential distribution with a mean value defined by a variable named "InterArr Time." This variable, changes according to a schedule defined in the expressions module. Upon arrival, entities are transferred to an intersection controlled by a traffic light. The traffic light was simulated by the use of an Advance Server with a processing time of zero and a cyclical schedule that controls the green and red times by changing the number of resources available between zero and one. For the simulation of the shift in personnel at the East Tollbooth, the resource schedule is set to zero for a period of 30 minutes (1800 seconds), which represents the closing of the tollbooth. Refer to Appendix B for a better understanding.

At the Secretariat of Communication and Transportation facility (SCT), entities choose between five booths based on a probability. Twenty-three percent of the entities arriving at the primary revision facilities choose booth #1, thirty-nine percent choose booth #2, thirty-six percent choose booth # 3, only two percent choose booth # 4 and zero percent choose booth # 5. These probabilities were obtained by dividing the total number of vehicles recorded at these facilities by the number of vehicles recorded at each booth. The same steps are followed when entities are transferred to the secondary revision facilities and to the Exit Gate facilities. All probabilities are presented in Table 4.4. Booths are numbered from top to bottom as shown in Figure 2.2.

Table 4.4 - Booth Selection Probabilities

Facility		Probability
	Booth # 1	23%
Primary	Booth # 2	39%
Revision	Booth # 3	36%
	Booth # 4	2%
	Booth # 5	0%
Secondary	Booth # 1	72%
Revision	Booth # 2	28%
Exit	Booth # 1	81%
Gate	Booth # 2	19%

At the Primary Inspection facilities, entities are transferred either to the Inspection area or directly to the Secondary Inspection facilities. A probability of 10 percent is transferred to the Primary Inspection Yard, at this station. A value is assigned to the transferred entities. These marked entities will then have another 10 percent chance of being selected for revision at the Secondary Inspection Yard. All the other entities are transferred directly to the Exit Gate facilities. Ten and three resources were assumed to conduct the work at the Primary and Secondary Inspection Yards, respectively.

4.6 Model Validation

4.6.1 Validation Interarrival and Service times

Figure 4.1 shows the frequency histogram for the highest one-hour sample of interarrival times recorded at Border Highway. The distribution displays an exponential distribution with a corresponding interarrival average of 24.9 seconds. Comparisons were made with other statistical distributions but none fit better.

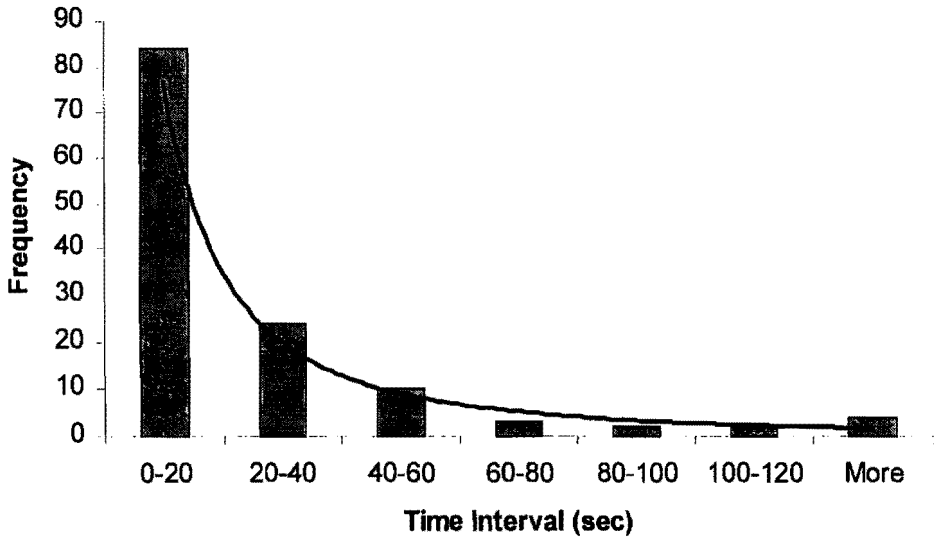

Figure 4.1 - Fitted Distribution for Interarrivals Recorded from 10 a.m. to 11 a.m.

Figure 4.2 shows the frequency histogram for the highest sample of service times collected. This particular distribution represents the values obtained at the Secretariat of Communication and Transportation (SCT) during the afternoon peak. The curve of the histogram appears to have a high peak skewed to the left suggesting the distribution to fit a log-normal distribution, Gamma or Erlang. From analysis, the expression was found to be Erlang, as shown in Table 4.3, with an average service time of 14 sec per vehicle.

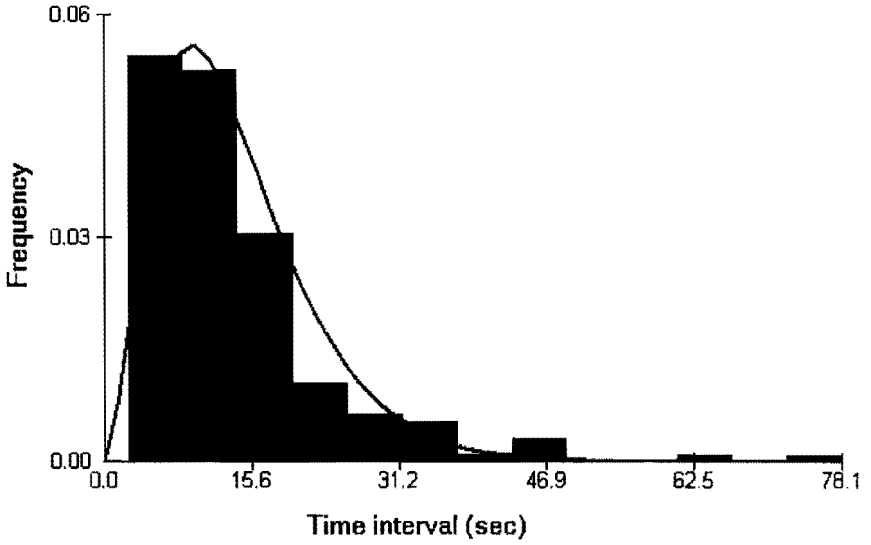

Figure 4.2 - Fitted Distribution for Service Time Values Recorded from 6 p.m. to 8 p.m.

4.6.2 Validation of the Simulation Results

Approximate distances obtained from pacing were converted into an estimate of the number of vehicles accumulated by using an assumed 54-ft truck length. The recorded queue length distances in feet and the corresponding conversion to number of vehicles are presented in Tables 4.5.and 4.6 for the morning and afternoon peak hours respectively. The comparison between the actual and predicted number of vehicles is presented in Chapter 5 for the simulation validation. The predicted number in queue was found by running the simulation for the actual conditions based on the traffic operations described in Chapter 2. Results are also presented in Chapter 5.

Table 4.5 - Data Recorded at the Morning Peak Hours from 11:00 a.m. to 1:00 p.m.

Location	Tuesday		Thursday		Friday		Avg. Number
	Distance in feet	Approx.Number of vehicles	Distance in feet	Approx.Number of vehicles	Distance in feet	Approx.Number of vehicles	of vehicles
US Side	1145.91	21	2005.3	37	953.6	18	25
Mexican Side	646.32	12	758.3	14	475.2	9	12

Table 4.6 - Data Recorded at the Afternoon Peak Hours from 5:00 p.m. to 7:00 p.m.

Location	Tuesday		Thursday		Friday		Avg. Number
	Distance in feet	Approx.Number of vehicles	Distance in feet	Approx.Number of vehicles	Distance in feet	Approx.Number of vehicles	of vehicles
US Side	450.18	8	929.88	17	179.58	3	10
Mexican Side	623.2	12	346.45	6	725.7	13	10

CHAPTER 5

TRAFFIC FLOW ANALYSIS

5.1 Introduction

The simulation model has been used to evaluate a series of scenarios corresponding to possible changes on the current infrastructure and/or the traffic operations at the Ysleta-Zaragoza Bridge. In addition to the base case (Case Study I), three scenarios have been explored. The scenarios were developed based on problems observed during the in-site survey and from recommendations made by the interested agencies such as the City of El Paso, the US Customs and the Mexican Customs. The four cases were studied under current traffic volumes and under a 50 percent increase in volume. The description of each case is presented below:

Case Study I.	The accumulation of vehicles under the existing traffic and operation conditions.
Case study II.	Accumulation of vehicles in case of reducing the time required for a shift in personnel at the east tollbooth to 10 min.
Case Study III.	Accumulation of vehicles in the case the shift in personnel of the East tollbooth is eliminated.
Case Study IV.	Accumulation of vehicles in case a third tollbooth was added.

Data was recorded from the simulation of each case and analyzed based on measures of performance.

5.2 Measures of Performance

The measures of performance of interest from running the simulation model are the number of vehicles accumulated on the Border Highway road, the Americas Avenue and the Bridge Structure. Spill back of vehicles to Interstate 10 and Loop 375 is expected to occur in the next few years.

The number of vehicles accumulated on the US side was determined by the accumulation on the border highway, which is the access road that is generating most of the traffic. To analyze the accumulation of vehicles in the Mexican side, the accumulation on the longest path of the bridge structure was selected.

Resource schedule timings at the East tollbooth were assigned differently for each scenario. All cases except Case III have a resource schedule running for the total simulation length. The time given for the number of resources available is different for each case.

5.1.1 Case Study I

The number of resources available varies between zero and one during the simulation length. When the resource is set to zero, a server failure is created representing the closing at the tollbooth for shift in personnel. The resource schedule timings are 1 ½ hr (9,000sec) with one resource available and 30 min (1,800 sec) with zero resources, and the last nine hours of simulation length are again set to one resource. During the time of closure, the West tollbooth handles all the traffic, this creates an obvious increase on the queue and congestion at the intersection as presented in figure 5.1.

5.1.2 Case Study II

In this case, the first hour and a half are the same as in case I, the only difference is that the time for the server failure is reduced to 10 minutes (600 sec). Likewise, the remaining simulation time is increased to be nine hours and twenty minutes (33,600 sec) and is assigned to have one resource available as well. All the other variables (service time, arrivals, etc.) remain the same.

5.1.3 Case Study III

The server is set to have a resource capacity of one for the whole simulation length. There is no change of schedule in this case study, the resource failure is eliminated; therefore, there is no closing of the East tollbooth. Entities use both tollbooths during the total eleven hours (39,600 sec) of simulation length.

5.1.4 Case Study IV

The resource schedule is set with the same values for resource availability as in case I; the only difference is that the service time at the East tollbooth is reduced to one-half. This simulates the addition of a third tollbooth. In other words, the processing time will be reduced in half, processing twice as much entities as in case I.

For the purpose of this analysis we focused on the following statistics: the number of vehicles accumulated on the Border Highway and the number of vehicles accumulated on the Bridge Structure. We refer to the accumulation on the Border Highway, the access road that is generating most of the traffic, as the accumulation on the US side. In the same manner, the accumulation on the Mexican side is represented by the accumulation on the longest path of the bridge structure.

5.3 Analysis of Simulation Outputs

Comparing the simulation results with the actual accumulation from the previous chapter, it is observed that the obtained simulation values are closed enough to the actual number of vehicles accumulated on both the US and Mexican Sides. Accumulation on the US Side was observed to have an average of 25 vehicles, which is a difference of only three vehicles from the maximum value obtained at the morning peak hours from the simulation. Accumulation on the Mexican

side was observed to have an approximate number of 10 vehicles along the day; the same number was obtained from the simulation.

For these simulation experiments, we have assumed a maximum capacity of 38 vehicles on the U.S. side and 23 vehicles on the Mexican side. From the collected statistics, it can be observed that if a 50% increase in volume would occur, the existing capacity will not be able to accommodate all the vehicles, and the truck accumulation will spill back to Interstate 10 and Loop 375. A summary of the collected statistics obtained from the simulation is presented on Table 5.1.

Table 5.1 - Summary of Collected Statistics

Case Study	Location	Volume Description	Max No. of vehicles accumulated
Case I	U.S side	Actual	28
		50 % Increase	115
	Mexcan	Actual	10
	side	50 % Increase	10
Case II	U.S side	Actual	16
		50% Increase	62
	Mexcan	Actual	14
	side	50 % Increase	11
Case III	U.S side	Actual	16
		50% Increase	48
	Mexcan	Actual	6
	side	50 % Increase	9
Case IV	U.S side	Actual	27
		50% Increase	70
	Mexcan	Actual	20
	side	50 % Increase	23

The simulation results corresponding to the existing infrastructure and traffic operations are generating a vehicle accumulation on the US side ranging between 12 and 28 vehicles during the shift in personnel (See Figure 5.1). On the other hand, accumulation on the Mexican side presents a constant queue of 2 to 4 vehicles and reaches a maximum of only 10 vehicles at the time of the East tollbooth closure as observed in Figure 5.2. This is due to the bottleneck effect occurring primarily because the tollbooths are holding all the vehicles on the US side. Actual traffic flow is, for the most part, efficient and can handle the current traffic volume without any congestion or spill back. Nevertheless, if an increase of a 50 percent in volume would occur, the current infrastructure will not be able to handle the 115 vehicles predicted to accumulate at the access roads. It is also apparent from Figure 5.3 that the actual capacity will be exceeded for an approximate period of two hours.

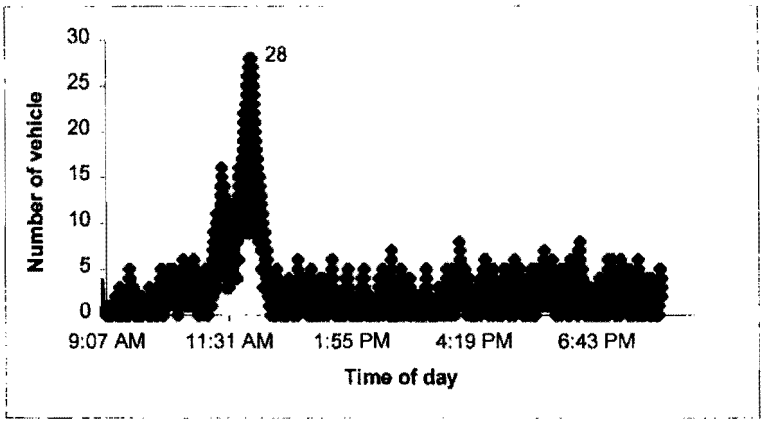

Figure 5.1 - Vehicle Accumulation on U.S. Side, Actual Volumes and Existing Conditions

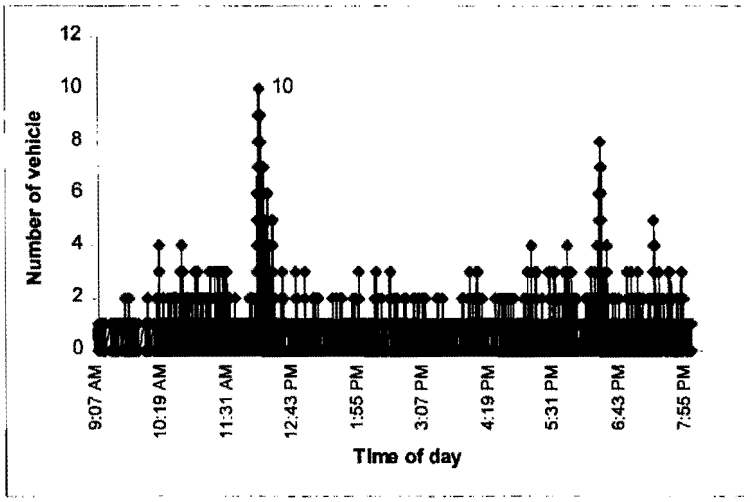

Figure 5.2 - Vehicle Accumulation on Mexican Side, Actual Volumes and Existing Conditions

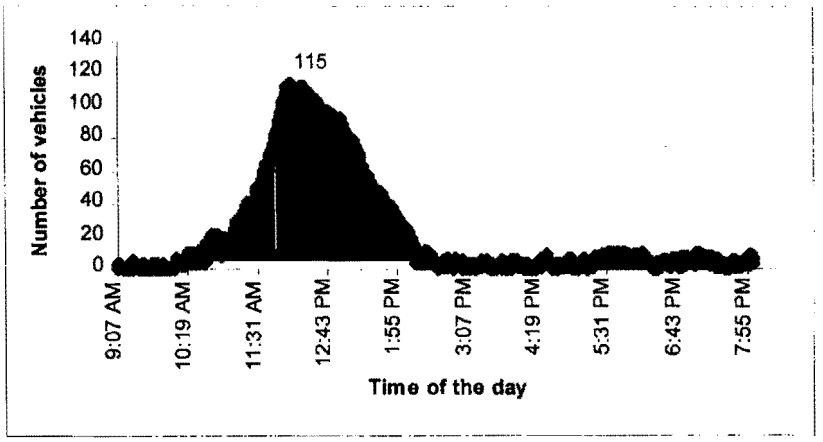

Figure 5.3 - Vehicle Accumulation on U.S. Side, 50% Increase in Volume and Existing Conditions

All the case scenarios were analyzed by looking at the impact on the vehicle accumulation with a 50% increase in volume. All cases except case IV present a reduction on the US side and almost no change on the Mexican side. Although, the current capacity is still exceeded and traffic congestion is not completely solved, there appears to be a big reduction on the time of congestion.

Case study II demonstrates that a ten-minute tollbooth closure can significantly reduce the predicted vehicle accumulation to 62 vehicles. The number of vehicles still exceeds the capacity, but the congested period is reduced to one hour, as shown in Figure 5.4.

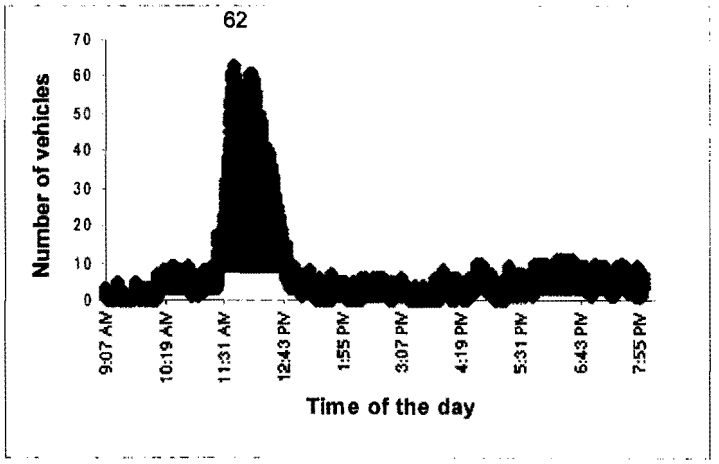

Figure 5.4 - Vehicle Accumulation on U.S. Side, 50 % Increase in Volume, 10 min Closure at East Tollbooth

In Case study III, the accumulation of vehicles will also be greater then the actual capacity, but the time of accumulation is reduced to be less than 30 minutes, as observed on Figure 5.5.

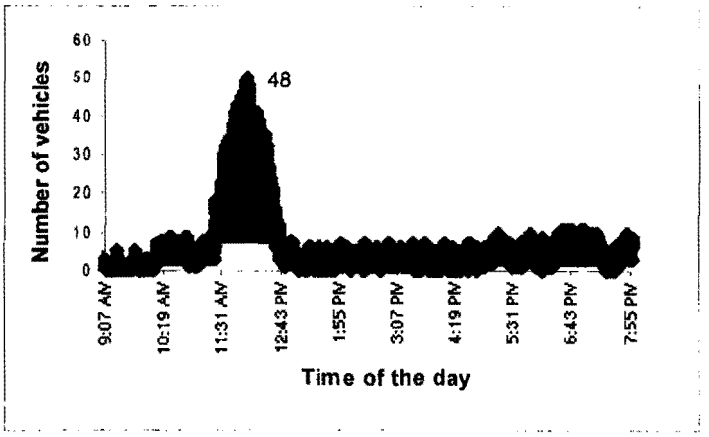

Figure 5.5 - Vehicle Accumulation on U.S Side, 50% Increase in Volume, Closure Elimination

If a third tollbooth is added, as in case IV, there will be an increase in the accumulation on the Mexican side because a reduction in service time sends more vehicles to the Mexican side (See Figure 5.6), creating congestion. Moreover, congestion will not be solved on the US side since a predicted number of 70 vehicles will accumulate as shown in Figure 5.7.

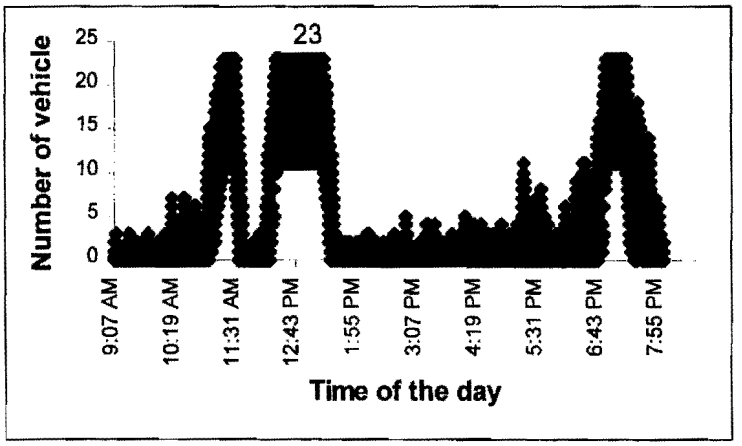

Figure 5.6 - Vehicle Accumulation on Mexican Side, 50% Increase in Volume, Adding a Third Tollbooth

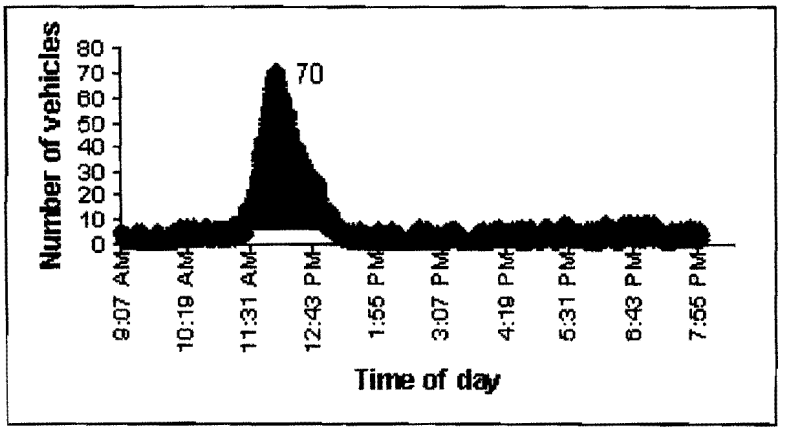

Figure 5.7 - Vehicle Accumulation on U.S Side, 50 % Increase in Volume, Adding a Third Tollbooth

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary and Conclusions

The existing southbound traffic flow procedure at the Ysleta-Zaragoza Bridge is, for the most part, efficient and can handle the current traffic volume without any congestion or spill back. Congestion and spill back were observed when the east tollbooth closes due to schedule changes. Another observation was that the procedure followed by exported cars at the Drop Box or the US Export Facility generates a long service time due to the removal of plates and stickers creating congestion at this location. A change of lanes between cars and trucks is necessary so they can gain access orderly to their corresponding tollbooth without creating congestion.

Actual traffic flow at the Ysleta-Zaragoza Bridge is working efficiently with the current infrastructure and traffic operation. However, the expected increase in volume in future years will generate a spill back into Interstate 10 and Loop 375. The preferred alternative is to eliminate the closure at the East tollbooth. If this is not possible, alternatives presented in case studies II and IV will contribute to at least 50 percent reduction of the congested period.

The general-purpose simulation modeling is an effective way of evaluation and planning of transportation facilities. We recommend that this tool be used more frequently in evaluating the performance of existing facilities or in the planning of new facilities in order to make better decisions.

REFERENCES

1. Weissmann, Angela J. and Robert Harrison, Texas Role as US-Mexico Trade Gateway. Center for Transportation Research, Research Report 2932-3F, December, 1995.
2. Weissmann, Angela J., M. Martello, R. Harrison and B.F. McCullough, Overview of the Texas-Mexico Border: Capacity, Demand and Revenue Analysis: Eagle Pass to El Paso. Center for Transportation Research, Research Report 1976-5, April 1994.
3. Weissmann, Angela J., M. Martello, R. Harrison and B.F. McCullough. Capacity Utilization of the Texas-Mexico Border Infrastructure. Journal of the Transportation Research Forum, (Volume 34, Number 2, 1995).
4. Weissmann, Angela J., Texas-Mexico Multimodal Transportation Data Base. Center for Transportation Research, Research Report 2932-1, November 1996.
5. Barton-Ashman, Inc., and Cal y Mayor Asocioados, S.C. Binational Study, 1998-1999.
6. Kelton, R. Sadowski, D. Sadowski, Simulation with Arena, WCB/Mc Graw-Hill, Inc., 1998.
7. McShane, Roess, Traffic Engineering, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1990.
8. Khoshenevis, Discrete Systems Simulation, McGraw-Hill, Inc., 1994.
9. Pinal, Jorge, Thesis: A Queuing Analysis At An International Port Of Entry, The University of Texas at El Paso, December, 1997.
10. Duttaroy, Probal, Thesis: A Computer Simulation Model to Determine the Effects of Bridge-Delays on Pollution, University of Texas at El Paso, December, 1992.

APPENDIX A
INTERARRIVAL DATA COLLECTION AT AMERICAS AVENUE AND BORDER HIGHWAY

Apendix A

A.1 Interarrival data collection at Americas Avenue.

8:00A.M-7:00P.M

Monday

DATE: 1/4/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1	9:20 AM	car	1822
2		car	157
3	9:30 AM	Truck	40
4		Truck	433
5		Truck	437
6	9:40 AM	car	360
7		Truck	49
8		Truck	149
9		Truck	199
10	9:50 AM	Truck	277
11		Truck	241
12		car	6
13		Truck	161
14	10:00 AM	Truck	106
15		Truck	6
16		Truck	188
17		Truck	250
18	10:10 AM	Truck	408
19		Truck	153
20		Truck	12
21	10:20 AM	Truck	207
22		Truck	347
23	10:30 AM	Truck	470
24		Truck	11
25		Truck	32
26		Truck	6927
27		Truck	668
28	10:40 AM	Truck	510
29		Truck	302
30		Truck	186
31	10:50 AM	Truck	453
32		Truck	171
33		Truck	761
34	11:00 AM	Truck	6
35	11:10 AM	Truck	200
36		Truck	78
37		Truck	151
38		Truck	4
39	11:20 AM	Truck	568
40		Truck	132

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	8
42	11:30 AM	Truck	10
43		Truck	80
44		Truck	3
45		Truck	377
46		Truck	4
47		Truck	68
48	11:40 AM	Truck	335
49		car	35
50		Truck	135
51		Truck	3
52	11:50 AM	Truck	72
53		Truck	76
54		Truck	50
55		Truck	49
56	12:00 PM	Truck	583
57		Truck	478
58		Truck	177
59		car	62
60		Truck	9
61		Truck	5
62	12:15 PM	Truck	31
63		Truck	4
64		Truck	85
65		car	71
66	12:20 PM	Truck	81
67		Truck	55
68		Truck	120
69		Truck	126
70		Truck	169
71		Truck	7
72		Truck	33
73	12:30 PM	car	96
74		Truck	296
75		Truck	7
76		Truck	15
77		Truck	118
78		Truck	194
79	12:40 PM	Truck	164
80		Truck	183

Interarrivals at Americas Avenue.
8:00A.M-7:00P.M
Monday
DATE: 1/4/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		Truck	57
82	12:50 PM	Truck	399
83	1:00 PM	Truck	448
84		Truck	147
85		Truck	16
86		Truck	157
87		Truck	188
88	1:10 PM	Truck	131
89		Truck	181
90		Truck	9
91		Truck	154
92	1:20 PM	Truck	133
93		Truck	85
94		Truck	13
95		Truck	5
96		Truck	81
97		Truck	8
98		Truck	8
99		Truck	67
100		Truck	4
101		Truck	30
102		Truck	45
103		Truck	43
104		Truck	13
105		Truck	15
106		Truck	15
107		Truck	37
108		Truck	49
109		Truck	13
110	1:30 PM	Truck	165
111		Truck	390
112		Truck	397
113		Truck	495
114	1:40 PM	Truck	225
115		Truck	98
116		Truck	155
117		Truck	162
118	1:50 PM	Truck	200
119		Truck	95
120		Truck	107

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		Truck	22
122		Truck	225
123		Truck	170
124		Truck	26
125		Truck	111
126		Truck	153
127		Truck	6
128	2:00 PM	Truck	135
129		Truck	75
130		Truck	112
131		Truck	120
132	2:10 PM	Truck	154
133		Truck	213
134		Truck	115
135		Truck	82
136		Truck	85
137		Truck	94
138		Truck	201
139	2:20 PM	Truck	209
140		Truck	117
141		Truck	185
142		Truck	190
143		Truck	195
144	2:30 PM	Truck	139.32
145		Truck	117.59
146		Truck	7.3
147		Truck	98.96
148		Truck	84.96
149		Truck	53.86
150		Truck	49.9
151		Truck	12.53
152		Truck	4.6
153		Truck	7.28
154		Truck	4.65
155		Truck	76.11
156		Truck	66.72
157	2:40 PM	Truck	1.98
158		Truck	12.34
159		Truck	40.67
160		Truck	9.1

Interarrivals at Americas Avenue.
8:00A.M-7:00P.M
Monday
DATE: 1/4/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		Truck	23.11
162		Truck	7.74
163	2:50 PM	Truck	54.46
164		Truck	57.47
165		Truck	290.15
166	3:00 PM	Truck	82.68
167		Truck	4
168		Truck	175.96
169	3:10 PM	Truck	10.39
170		Truck	157.52
171		Truck	62.77
172		Truck	2.5
173		Truck	78.29
174	3:20 PM	Truck	11.34
175		Truck	130.5
176		Truck	92.4
177		Truck	150.33
178		Truck	6.94
179		Truck	46.95
180		Truck	104.36
181		Truck	25.19
182		Truck	4.59
183	3:30 PM	Truck	10.41
184		Truck	96.77
185	3:40 PM	Truck	93.93
186		Truck	66.93
187		Truck	211.93
188	3:50 PM	Truck	315.47
189		Truck	141.11
190		Truck	241.27
191		Truck	7.06
192		Truck	140.45
193		Truck	9.44
194	4:00 PM	Truck	158.3
195		Truck	25.69
196		Truck	36.07
197		Truck	77.57
198		Truck	26.87
199		Truck	11.1
200		Truck	15.48

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Truck	86.62
202		Truck	4.44
203		Truck	3.36
204		Truck	5.95
205	4:10 PM	Truck	147.03
206		Truck	5.68
207		Truck	4.66
208		Truck	150.51
209		Truck	4.41
210		Truck	55.74
211		Truck	123.59
212	4:20 PM	Truck	166.01
213		Truck	68.56
214		Truck	47.33
215		Truck	169.7
216		Truck	82.63
217		Truck	213.43
218		Truck	46.97
219		Truck	0.66
220	4:30 PM	Truck	6.24
221		Truck	109.5
222		Truck	122.12
223		Truck	44.76
224		Truck	45.82
225	4:40 PM	Truck	66.02
226		Truck	7.34
227		Truck	184.27
228		Truck	9.76
229		Truck	169.09
230		Truck	134.36
231		Truck	140.39
232	4:50 PM	Truck	145.73
233		Truck	298.87
234		Truck	305.91
235		Truck	27.69
236		Truck	3.22
237		Truck	86.05
238		Truck	67.88
239		Truck	67.16
240		Truck	3.28

Interarrivals at Americas Avenue.
8:00A.M-7:00P.M
Monday
DATE: 1/4/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		Truck	71.19
242		Truck	12.2
243		Truck	131.37
244	5:00 PM	Truck	146.71
245		Truck	300.68
246		Truck	44
247		Truck	123.23
248		Truck	5.22
249		Truck	4.15
250		Truck	46.32
251		Truck	7.53
252	5:10 PM	Truck	15.78
253		Truck	243.31
254		Truck	10.22
255		Truck	42.36
256		Truck	4.44
257		Truck	79.09
258		Truck	113.6
259		Truck	4.43
260		Truck	117.32
261		Truck	4.16
262	5:20 PM	Truck	3.44
263		Truck	218.83
264		Truck	4.46
265		Truck	24.84
266		Truck	75.8
267		Truck	10.34
268		Truck	9
269		Truck	46.67
270		Truck	141.48
271		Truck	25.89
272		Truck	34.04
273		Truck	131.35
274		Truck	3.97
275		Truck	166.47
276	5:30 PM	Truck	174.27
277		Truck	9.22
278		Truck	110.79
279		Truck	2.44
280		Truck	3.4

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	51.16
282		Truck	3.47
283		Truck	2.57
284		Truck	57.54
285		Truck	7.22
286		Truck	5.47
287		Truck	41.25
288		Truck	115.21
289	5:40 PM	Truck	4.66
290		Truck	149.51
291		Truck	158.77
292		Truck	4.16
293		Truck	9.81
294		Truck	154.92
295		Truck	4.59
296		Truck	66.59
297		Truck	9.33
298	5:50 PM	Truck	63.61
299		Truck	3.53
300		Truck	9.53
301		Truck	30.83
302		Truck	24.47
303		Truck	92.64
304		Truck	7.79
305		Truck	96.66
306	5:55 PM	Truck	8.65
307		Truck	7.26
308		Truck	177.5
309		Truck	3.75
310		Truck	212.32
311		Truck	12.34
312	6:00 PM	Truck	84.15
313		Truck	168.06
314		Truck	6.47
315		Truck	9.84
316		Truck	32.75
317		Truck	29.85
318		Truck	14.77
319	6:10 PM	Truck	225.83
320		Truck	142.86

Interarrivals at Americas Avenue.
8:00A.M-7:00P.M
Monday
DATE: 1/4/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		Truck	4.52
322		Truck	139.49
323		Truck	6.94
324		Truck	139.59
325		Truck	78.71
326		Truck	6.51
327		Truck	65.13
328		Truck	31.56
329		Truck	38.57
330	6:20 PM	Truck	73.41
331		Truck	78.94
332		Truck	7.37
333		Truck	6.2
334		Truck	4.9
335		Truck	75.15
336		Truck	34.03
337		Truck	6.99
338		Truck	5.23
339		Truck	5.4
340		Truck	71.66
341		Truck	75.69
342		Truck	5.03
343		Truck	5.22
344		Truck	18.1
345		Truck	36.28
346	6:30 PM	Truck	16.69
347		Truck	142.84
348		Truck	14.84
349		Truck	52.97
350		Truck	58.6
351		Truck	3.82
352		Truck	9.62
353		Truck	3.15
354		Truck	22.54
355		Truck	141.82
356	6:40 PM	Truck	146.93
357		Truck	143.67
358		Truck	5.4
359		Truck	135.22
360		Truck	10.72

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361		Truck	5.22
362	6:50 PM	Truck	318.6
363		Truck	5.53
364		Truck	5.7
365		Truck	7.52
366		Truck	60.53
367		Truck	60.49
368		Truck	17.69
369		Truck	3.97
370		Truck	3.91
371		Truck	135.28
372		Truck	7.31
373		Truck	2.22
374	7:00 PM	Truck	287.38

Interarrivals at Americas Avenue.
9:00A.M-8:00A.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1	9:20 AM	Truck	460
2		Truck	507
3	9:30 AM	Truck	132
4	9:40 AM	Truck	55
5	9:50 AM	Truck	950
6		Truck	130
7		Truck	50
8		Truck	285
9		Truck	110
10		Truck	370
11	10:00 AM	Truck	65
12		Truck	330
13	10:10 AM	Truck	235
14		Truck	10
15		Truck	100
16		Truck	390
17	10:20 AM	car	120
18		car	10
19		Truck	3
20		Truck	4
21		Truck	8
22		Truck	90
23		Truck	145
24	10:30 AM	Truck	80
25		Truck	300
26		Truck	175
27		Truck	85
28		Truck	175
29	10:40 AM	Truck	100
30		Truck	5
31		Truck	75
32		Truck	100
33		Truck	30
34	10:50 AM	Truck	0
35		Truck	130.38
36		Truck	35.28
37		Truck	62.05
38		Truck	44.49
39		Truck	45.43
40		Truck	127.63

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	2.57
42		Truck	123.5
43		Truck	72.59
44		Truck	57.84
45		Truck	102.33
46		Truck	35.4
47		Truck	107.43
48		Truck	26.67
49	11:00 AM	Truck	173.96
50		Truck	161.14
51	11:20 AM	Truck	110.43
52	11:30 AM	Truck	667.48
53		Truck	193.33
54		Truck	199.22
55		Truck	305.55
56	11:40 AM	Truck	2.3
57		Truck	179.22
58		Truck	81.16
59		Truck	172.81
60		Truck	16.87
61		Truck	24.34
62	11:50 AM	Truck	189.17
63		Truck	36.77
64		Truck	32.01
65		Truck	48.81
66		Truck	43.69
67		Truck	104.52
68		Truck	67.57
69		Truck	260.67
70		Truck	5.52
71		Truck	6.33
72	12:00 PM	Truck	8.11
73		Truck	25.79
74		Truck	152.67
75		Truck	87.18
76		Truck	4.73
77		Truck	11.11
78		Truck	119.47
79		Truck	32.03
80		Truck	7.93

Interarrivals at Americas Avenue.
9:00A.M-8:00A.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		Truck	11.55
82	12:10 PM	Truck	117.86
83		Truck	73.69
84		Truck	110.22
85		Truck	3.69
86		Truck	137.97
87		Truck	171.74
88		Truck	9.41
89		Truck	11
90		Truck	3.88
91	12:20 PM	Truck	8.17
92		Truck	148.49
93		Truck	3.79
94		Truck	141.01
95		Truck	1.87
96		Truck	161.07
97		Truck	20.19
98		Truck	4.02
99	12:30 PM	Truck	5.03
100		Truck	296.66
101		Truck	5.97
102		Truck	158.49
103		Truck	15.17
104		Truck	126.37
105		Truck	20.97
106		Truck	2.37
107		Truck	16.1
108		Truck	135.16
109	12:40 PM	Truck	135.16
110		Truck	3.97
111		Truck	330
112		Truck	5
113		Truck	7
114		Truck	135
115	12:50 PM	Truck	11
116		Truck	152
117		Truck	387
118		Truck	83
119		Truck	84
120		Truck	2

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		Truck	30
122	1:00 PM	Truck	15
123		Truck	16
124		Truck	93
125		Truck	18
126		Truck	7
127		Truck	5
128		Truck	133
129		Truck	154
130		Truck	5
131		Truck	179
132	1:10 PM	Truck	2
133		Truck	8
134		Truck	128
135		Truck	13
136		Truck	1
137		Truck	293
138		Truck	5
139		Truck	11
140		Truck	6
141		Truck	133
142		Truck	7
143		Truck	1
144		Truck	58
145	1:20 PM	Truck	58
146		Truck	18
147		Truck	23
148		Truck	41
149		Truck	2
150		Truck	81
151		Truck	13
152		Truck	8
153		Truck	468
154	1:30 PM	Truck	11
155		Truck	307
156		Truck	20
157		Truck	157
158	1:40 PM	Truck	138
159		Truck	11
160		Truck	16

Interarrivals at Americas Avenue.
9:00A.M-8:00A.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		Truck	130
162		Truck	133
163		Truck	41
164	1:50 PM	Truck	130.48
165		Truck	134.62
166		Truck	301.2
167		Truck	6.67
168	2:00 PM	Truck	6.69
169		Truck	175.6
170		Truck	4.9
171		Truck	6.73
172		Truck	130.75
173		Truck	4.52
174	2:10 PM	Truck	290.71
175		Truck	142.28
176		Truck	7.93
177		Truck	145.77
178		Truck	5.58
179		Truck	6.94
180		Truck	169.91
181	2:20 PM	Truck	156.18
182		Truck	63.83
183		Truck	98.26
184		Truck	4.87
185		Truck	146.16
186		Truck	9.12
187		Truck	8.29
188		Truck	153.04
189	2:30 PM	Truck	6.19
190		Truck	139.89
191		Truck	305.74
192		Truck	21.19
193		Truck	5.88
194		Truck	3.91
195	2:40 PM	Truck	115.93
196		Truck	43.59
197	2:40 PM	Truck	151.97
198		Truck	174.56
199		Truck	14.59
200		Truck	3.07

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Truck	179.02
202		Truck	17.61
203		Truck	2.66
204	2:50 PM	Truck	129
205		Truck	97.83
206		Truck	3.59
207		Truck	328.28
208		Truck	1.26
209		Truck	152.72
210	3:00 PM	Truck	4.12
211		Truck	5.45
212		Truck	135.88
213		Truck	5.66
214		Truck	3.55
215		Truck	4.19
216		Truck	3.59
217		Truck	9.53
218		Truck	55.52
219		Truck	26.39
220		Truck	54.93
221		Truck	11.85
222		Truck	7.03
223		Truck	119
224		Truck	19.83
225		Truck	151.8
226		Truck	15.75
227	3:10 PM	Truck	7.22
228		Truck	58.47
229		Truck	96.9
230		Truck	8.28
231		Truck	54.28
232		Truck	4.73
233		Truck	3.62
234		Truck	21.3
235		Truck	3.27
236		Truck	4.88
237		Truck	3.88
238		Truck	131.19
239		Truck	19.89
240		Truck	112.71

Interarrivals at Americas Avenue.
9:00A.M-8:00A.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		Truck	23.43
242		Truck	33.32
243		Truck	7.56
244		Truck	3.71
245	3:20 PM	Truck	1.93
246		Truck	36.49
247		Truck	99.2
248		Truck	148.36
249		Truck	170.47
250	3:30 PM	Truck	158.35
251		Truck	3.79
252		Truck	244.63
253		Truck	52.33
254		Truck	5.17
255		Truck	2.11
256		Truck	3.12
257		Truck	1.19
258		Truck	240
259	3:40 PM	Truck	88.17
260		Truck	161.95
261		Truck	119.72
262		Truck	189.1
263	3:50 PM	Truck	19.99
264		Truck	22.49
265		Truck	70.01
266		Truck	33.03
267		Truck	165.46
268		Truck	4.19
269		Truck	6.27
270		Truck	48.37
271		Truck	7.12
272		Truck	187.77
273	4:00 PM	Truck	66.82
274		Truck	41.46
275		Truck	68.08
276		Truck	50.78
277		Truck	44.69
278		Truck	276.31
279		Truck	7.91
280		Truck	7.61

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	62.85
282	4:10 PM	Truck	302.2
283		Truck	52.88
284		Truck	49.93
285		Truck	114.44
286		Truck	45.6
287		Truck	13.17
288		Truck	23.49
289	4:20 PM	Truck	61.13
290		Truck	25.27
291		Truck	85.54
292		Truck	110.95
293		Truck	59.57
294		Truck	27.51
295		Truck	115.24
296	4:30 PM	Truck	177.93
297		Truck	26.19
298		Truck	4.88
299		Truck	18.79
300		Truck	32.77
301		Truck	5.32
302		Truck	49.56
303		Truck	30.28
304		Truck	51.37
305		Truck	93.56
306		Truck	89.09
307		Truck	71.19
308		Truck	2.53
309		Truck	1.15
310		Truck	59.25
311	4:40 PM	Truck	6.09
312		Truck	34.48
313		Truck	31.67
314		Truck	14.96
315		Truck	101.56
316		Truck	1.43
317		Truck	112.09
318		Truck	74.59
319		Truck	30.54
320	4:50 PM	Truck	54.27

Interarrivals at Americas Avenue.
9:00A.M-8:00A.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		Truck	4.02
322		Truck	94.77
323		Truck	52.78
324		Truck	139.95
325		Truck	23.07
326		Truck	8.66
327		Truck	57.1
328		Truck	11.55
329		Truck	70.22
330		Truck	51.46
331		Truck	38.6
332		Truck	57.01
333		Truck	5.23
334		Truck	8.69
335		Truck	7.47
336	5:00 PM	Truck	118.02
337		Truck	13.12
338		Truck	8.4
339		Truck	6.35
340		Truck	86.53
341		Truck	3.36
342		Truck	92.86
343		Truck	148.75
344		Truck	3.34
345		Truck	2.23
346		Truck	1.15
347		Truck	114.49
348		Truck	1.31
349	5:10 PM	Truck	4.19
350		Truck	5.23
351		Truck	89
352		Truck	86.17
353		Truck	49.54
354		Truck	113.67
355	5:20 PM	Truck	89.03
356		Truck	62.53
357		Truck	149.16
358		Truck	15.97
359		Truck	17.92
360	5:24 PM	Truck	4.39

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361	5:24 PM	Truck	54.5
362		Truck	31.73
363		Truck	4.77
364		Truck	6.27
365		Truck	11.83
366		Truck	110.16
367		Truck	16.77
368		Truck	23.77
369	5:30 PM	Truck	90.09
370		Truck	33.7
371		Truck	308.09
372		Truck	3.66
373		Truck	2.15
374		Truck	134.34
375		Truck	3.8
376		Truck	3.12
377		Truck	112.49
378		Truck	45.18
379		Truck	52.92
380	5:40 PM	Truck	13.81
381		Truck	74.48
382		Truck	15.97
383		Truck	5.97
384		Truck	3.68
385		Truck	139.58
386		Truck	161.58
387	5:50 PM	Truck	174.66
388		Truck	140.12
389		Truck	22.84
390		Truck	5.93
391		Truck	149.09
392		Truck	12.93
393		Truck	16.03
394		Truck	106.39
395		Truck	6.84
396		Truck	5.16
397		Truck	5.29
398		Truck	6.34
399		Truck	59.13
400		Truck	4.69

Interarrivals at Americas Avenue.
9:00A.M-8:00A.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
401	6:00 PM	Truck	47.71
402		Truck	23.37
403		Truck	5.45
404		Truck	180.53
405		Truck	5.26
406		Truck	3.49
407		Truck	28.9
408		Truck	107.33
409		Truck	4.13
410		Truck	2.69
411		Truck	132.54
412		Truck	7.93
413		Truck	17.56
414		Truck	4.3
415		Truck	17.67
416	6:10 PM	Truck	115.48
417		Truck	4.52
418		Truck	4.5
419		Truck	93.83
420		Truck	6.03
421		Truck	128.72
422		Truck	9.8
423		Truck	167.93
424	6:20 PM	Truck	5.44
425		Truck	4.31
426		Truck	147.57
427		Truck	158.22
428		Truck	4.32
429		Truck	16.48
430		Truck	3.33
431		Truck	3.38
432		Truck	30.36
433		Truck	88.33
434		Truck	3.93
435		Truck	3.58
436		Truck	2.54
437		Truck	3.37
438		Truck	149.41
439		Truck	6.23
440	6:30 PM	Truck	9.63

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
441		Truck	136.53
442		Truck	3.76
443		Truck	4.8
444		Truck	171.93
445		Truck	119.01
446		Truck	14.45
447		Truck	17.52
448		Truck	138.54
449		Truck	2.71
450		Truck	122.79
451		Truck	5.05
452		Truck	10.03
453		Truck	10.86
454		Truck	135.99
455		Truck	23.08
456		Truck	2.67
457		Truck	2.42
458		Truck	3.29
459		Truck	5.34
460		Truck	37.59
461		Truck	90.1
462		Truck	6.41
463	6:50 PM	Truck	20.29
464		Truck	148.19
465		Truck	106.87
466		Truck	140.96
467		Truck	50.71
468		Truck	5.2
469		Truck	22.51
470		Truck	24.27
471		Truck	123.34
472	7:00 PM	Truck	40.79
473		Truck	97.72
474		Truck	23.63
475		Truck	3.59
476		Truck	4.69
477		Truck	134.4
478		Truck	8.48
479		Truck	146.23
480		Truck	15.47

Interarrivals at Americas Avenue.
9:00A.M-8:00A.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
481		Truck	13.23
482	7:10 PM	Truck	121.57
483		Truck	166.47
484		Truck	146.34
485		Truck	6.65
486		Truck	11.27
487		Truck	4.97
488		Truck	3.36
489		Truck	134.18
490		Truck	4.84
491		Truck	6.53
492		Truck	3.4
493		Truck	2.53
494		Truck	143.03
495		Truck	3.35
496		Truck	5.41
497		Truck	4.18
498	7:20 PM	Truck	141.57
499		Truck	8.3
500		Truck	93.19
501		Truck	48.6
502		Truck	18.25
503		Truck	14.98
504		Truck	29.03
505	7:30 PM	Truck	92.49
506		Truck	148.49
507		Truck	26.37
508		Truck	3.53
509		Truck	3.16
510		Truck	202.79
511		Truck	31.28
512		Truck	61.85
513		Truck	9.35
514		Truck	4.42
515		Truck	5.99
516		Truck	5.91
517		Truck	145.7
518	7:40 PM	Truck	128.68
519		Truck	31.92
520		Truck	299.25

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
521		Truck	5.67
522		Truck	158.12
523	7:50 PM	Truck	13.08
524		Truck	154.32
525		Truck	125.17
526	8:00 PM	Truck	11.88

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1		Truck	3316
2	9:10 AM	Truck	136
3		Truck	103
4		car	206
5		car	1
6		Truck	65
7		Truck	9
8	9:20 AM	Truck	161
9		Truck	405
10	9:30 AM	Truck	258
11		Truck	132
12		Truck	216
13		Truck	8
14		car	4
15	9:40 AM	Truck	149
16		Truck	162
17		Truck	57
18		car	80
19		car	2
20	9:50 AM	Truck	307
21		Truck	405
22		Truck	13
23		Truck	161
24		Truck	146
25		Truck	168
26		Truck	8
27	10:10 AM	Truck	319
28		car	26
29		Truck	69
30		Truck	91
31		Truck	134
32		Truck	33
33	10:20 AM	car	1
34		Truck	117
35		Truck	170
36		Truck	8
37		Truck	8
38		Truck	7
39	10:30 AM	Truck	390
40		Truck	70

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	17
42		Truck	146
43		Truck	4
44	10:40 AM	Truck	298
45		Truck	10
46		Truck	162
47		Truck	11
48		Truck	298
49	10:50 AM	Truck	161
50		Truck	164
51		Truck	53
52		Truck	96
53		Truck	1
54	11:00 AM	Truck	171
55		Truck	300
56		Truck	149
57	11:10 AM	Truck	13
58		car	1
59		Bus	29
60		Bus	1
61		Bus	1
62		Truck	10
63		Truck	77
64		Truck	4
65		car	183
66		Truck	294
67		Truck	2
68	11:20 AM	Truck	2
69		Truck	140
70		Truck	156
71		Truck	5
72		Truck	150
73		Truck	133
74		Truck	5
75		Truck	453
76	11:30 AM	Truck	11
77		Truck	135
78	11:40 AM	Truck	151
79		Truck	72
80		Truck	93

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle lasiffication	Arrival Time (sec)
81		car	259
82		Truck	57
83	11:50 AM	Truck	314
84		Truck	151
85	12:00 PM	Truck	159
86		Truck	75
87		Truck	84
88		Truck	174
89		Truck	70
90		Truck	2
91		Truck	108
92	12:10 PM	Truck	124
93		Truck	55
94		Truck	1
95		Truck	94
96		Truck	136
97		Truck	182
98	12:20 PM	Truck	143
99		Truck	183
100		Truck	160
101		car	139
102		Truck	15
103	12:30 PM	Truck	143
104		Truck	264
105		Truck	78
106		Truck	1
107		Truck	51
108		Truck	5
109	12:40 PM	Truck	232
110		Truck	23
111		Truck	154
112		Truck	2
113		Truck	145
114		Truck	150
115	12:50 PM	Truck	170
116		Truck	154
117		Truck	85
118		Truck	73
119		car	12
120		Truck	62

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		Truck	78
122	1:00 PM	Truck	141
123		Truck	5
124		Truck	146
125		Truck	25
126		Truck	132
127	1:10 PM	Truck	233
128		Truck	96
129		Truck	153
130		car	154
131		Truck	158
132		Truck	160
133	1:20 PM	Truck	148
134		Truck	60
135		Truck	45
136		Truck	72
137		Truck	61
138		Truck	82
139		Truck	87
140		Truck	39
141	1:30 PM	Truck	76
142		Truck	31
143		Truck	55
144		Truck	111
145	1:40 PM	Truck	618
146		Truck	50
147		Truck	22
148		Truck	1
149	1:50 PM	Truck	359
150		Truck	153
151		Truck	126
152		Truck	167
153	2:00 PM	Trucks	94
154		Trucks	274
155		Trucks	230
156	2:10 PM	Trucks	17
157		Trucks	125
158		Trucks	95
159		Trucks	165
160		Trucks	120

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		Trucks	35
162	2:20 PM	Trucks	324
163		Trucks	253
164		Trucks	3
165	2:30 PM	Trucks	53
166		Trucks	55
167		Trucks	150
168		Trucks	155
169		Trucks	53
170		Trucks	10
171		Trucks	34
172	2:40 PM	Trucks	34
173		Trucks	181
174		Trucks	140
175		Trucks	2
176		Trucks	65
177	2:50 PM	Trucks	11
178		Trucks	46
179		Trucks	117
180		Trucks	30
181		Trucks	46
182		Trucks	86
183		Trucks	86
184		Trucks	108
185		Trucks	50
186	3:00 PM	Trucks	87
187		Trucks	160
188		Trucks	76
189		Trucks	22
190	3:10 PM	Trucks	253
191	3:20 PM	Trucks	25
192		Trucks	92
193		Trucks	3
194		Truck	154
195		Truck	38
196	3:30 PM	Truck	65
197	3:30 PM	Truck	43.65
198		Truck	113.44
199		Truck	43.19
200		Truck	32.87

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Truck	205.59
202	3:40 PM	Truck	136.5
203		Truck	55.81
204		Truck	22.03
205		Truck	90.25
206		Truck	187.71
207	3:50 PM	Truck	7.32
208		Truck	275.12
209		Truck	23.81
210		Truck	73.85
211		Truck	115.62
212		Truck	14.82
213		Truck	71.97
214		Truck	71.56
215	4:00 PM	Truck	80.91
216		Truck	50.86
217		Truck	39.22
218		Truck	32.13
219		Truck	110.41
220		Truck	25.31
221		Truck	248.53
222		Truck	4.29
223		Truck	6.65
224		Truck	17.9
225		Truck	28.15
226	4:10 PM	Truck	34.46
227		Truck	205.24
228		Truck	124.12
229		Truck	57.87
230		Truck	30.21
231		Truck	179.91
232		Truck	3.03
233		Truck	2
234	4:20 PM	Truck	19.4
235		Truck	138.75
236		Truck	29.63
237	4:30 PM	Truck	51.19
238		Truck	474.03
239		Truck	61.31
240		Truck	8.78

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		Truck	174.19
242		Truck	40
243	4:40 PM	Truck	203
244		Truck	242.06
245		Truck	138.37
246		Truck	14.32
247		Truck	20.81
248		Truck	68.03
249	4:50 PM	Truck	24.31
250		Truck	72.87
251		Truck	38.78
252		Truck	53.16
253		Truck	55.5
254		Truck	29.91
255		Truck	4.22
256		Truck	43.75
257		Truck	161.62
258		Truck	6.37
259		Truck	7.97
260	5:00 PM	Truck	5.09
261		Truck	218.56
262		Truck	113.5
263		Truck	8.68
264		Truck	110.06
265		Truck	16.6
266		Truck	4
267		Truck	20.34
268		Truck	127.18
269		Truck	9.59
270		Truck	146.19
271		Truck	2.75
272		Truck	2.31
273		Truck	2.59
274	5:10 PM	Truck	2.14
275		Truck	164.91
276		Truck	156.84
277		Truck	78.38
278		Truck	67.31
279		Truck	7.16
280		Truck	3.18

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	7.75
282	5:20 PM	Truck	20.72
283		Truck	165.65
284		Truck	52.41
285		Truck	95.5
286	5:30 PM	Truck	65.12
287		Truck	326.37
288		Truck	7.47
289		Truck	43.4
290		Truck	69.75
291		Truck	20.53
292		Truck	54.06
293		Truck	84.87
294		Truck	144.87
295		Truck	43.13
296	5:40 PM	Truck	72.22
297		Truck	23
298		Truck	65.97
299		Truck	69.19
300		Truck	20.94
301		Truck	33.09
302		Truck	19.37
303		Truck	71.32
304		Truck	21.22
305		Truck	50.16
306		Truck	21.43
307		Truck	9.16
308		Truck	23.88
309		Truck	51.21
310		Truck	31.63
311		Truck	54.9
312	5:50 PM	Truck	41.25
313		Truck	141.28
314		Truck	20.78
315		Truck	24.13
316		Truck	68.53
317		Truck	34.85
318		Truck	28.19
319		Truck	19.31
320		Truck	66.19

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		Truck	22.94
322		Truck	44.47
323		Truck	5.93
324	6:00 PM	Truck	48.53
325		Truck	119.07
326		Truck	8.15
327		Truck	38.78
328		Truck	14.56
329		Truck	27.17
330		Truck	43.28
331		Truck	30.47
332		Truck	38.03
333		Truck	88.09
334		Truck	36.53
335		Truck	51.77
336		Truck	11.82
337		Truck	47.72
338	6:10 PM	Truck	40.97
339		Truck	37.31
340		Truck	49.62
341		Truck	6.59
342		Truck	65.82
343		Truck	104.94
344		Truck	15.53
345		Truck	21.44
346		Truck	11.5
347		Truck	113.09
348		Truck	22.25
349		Truck	23.41
350		Truck	36.72
351		Truck	58.46
352	6:20 PM	Truck	42.03
353		Truck	185.78
354		Truck	8.81
355		Truck	19.4
356		Truck	59.84
357		Truck	35.66
358		Truck	38.9
359		Truck	130.44
360		Truck	54.13

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361	6:30 PM	Truck	25.09
362		Truck	61.37
363		Truck	8.18
364		Truck	27.81
365		Truck	29.9
366		Truck	99.9
367		Truck	21
368		Truck	115.87
369		Truck	76.18
370		Truck	49.59
371	6:40 PM	Truck	40.94
372		Truck	83.93
373		Truck	117.06
374		Truck	71.34
375		Truck	146.38
376		Truck	7.53
377		Truck	54.84
378		Truck	34.03
379		Truck	3.94
380		Truck	3.09
381		Truck	3.47
382		Truck	9.72
383	6:50 PM	Truck	2.39
384		Truck	118.09
385		Truck	4.03
386		Truck	4.87
387		Truck	4.78
388		Truck	5.9
389		Truck	4.81
390		Truck	40.979
391		Truck	95.34
392		Truck	3.72
393		Truck	5.28
394		Truck	22.87
395		Truck	4.89
396		Truck	110.68
397		Truck	11.9
398		Truck	3.08
399	7:00 PM	Truck	8.31
400		Truck	156.94

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
401		Truck	7.29
402		Truck	3.09
403		Truck	11.29
404		Truck	119.53
405		Truck	7.5
406		Truck	80.56
407		Truck	38.37
408		Truck	7.97
409		Truck	180.27
410		Truck	4.93
411		Truck	5.66
412		Truck	8.59
413		Truck	4.6
414		Truck	5.88
415		Truck	4.16
416		Truck	113.16
417		Truck	4
418		Truck	6.97
419	7:10 PM	Truck	7.88
420		Truck	33.31
421		Truck	5.37
422		Truck	5.69
423		Truck	8.53
424		Truck	15.44
425		Truck	1.47
426		Truck	115.47
427		Truck	2
428		Truck	6.66
429		Truck	1.03
430		Truck	6.93
431		Truck	5
432	7:20 PM	Truck	298.19
433		Truck	146.38
434		Truck	190.71
435		Truck	6.97
436		Truck	140.63
437	7:30 PM	Truck	5.69
438		Truck	158.43
439		Truck	4.37
440		Truck	272.1

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
441		Truck	6.09
442		Truck	4.72
443		Truck	3.41
444		Truck	2.79
445		Truck	5.31
446	7:40 PM	Truck	174.53
447		Truck	74.32
448		Truck	73.13
449		Truck	3.87
450		Truck	73.93
451		Truck	80.71
452		Truck	26.72
453		Truck	3.72
454		Truck	40.47
455	7:50 PM	Truck	144.07
456		Truck	5.85
457		Truck	130.87
458		Truck	4.58
459		Truck	8.58
460		Truck	3.89
461		Truck	152.69
462		Truck	5.87
463		Truck	84.89
464		Truck	5.56
465		Truck	48.4
466		Truck	94.58
467		Truck	70.84
468	8:00 PM	Truck	85.38

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1	9:00 AM	Truck	280
2		Truck	7
3		Truck	6
4		Truck	80
5		Truck	81
6		Truck	64
7		Truck	2
8		Truck	74
9		Truck	55
10		Truck	621
11		Truck	72
12		Truck	11
13		Truck	2
14		Truck	597
15		Truck	191
16		Truck	492
17		Truck	534
18		Truck	25
19		Truck	160
20		Truck	5
21		Truck	2
22		Truck	4
23		Truck	1
24		Truck	79
25		Truck	234
26		Truck	178
27		Truck	9
28		Truck	107
29		Truck	65
30		Truck	2
31		Truck	78
32		Truck	3
33		Truck	356
34		Truck	139
35		Truck	15
36		Truck	1
37		Truck	1
38		Truck	329
39		Truck	22
40		Truck	1

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	1
42		Truck	82
43		Truck	2
44		Truck	59
45		Truck	1
46		Truck	443
47		Truck	3
48		Truck	65
49		Truck	406
50		Truck	237
51		Truck	305
52		Truck	1
53		Truck	11
54		Truck	10
55		Truck	8
56		Truck	49
57		Truck	64
58	11:00 AM	Truck	608
59		Truck	1
60		Truck	135
61		Truck	3
62		Truck	178
63	11:20 AM	Truck	303
64		Truck	51
65		Truck	279
66		Truck	4
67		Truck	27
68		Truck	8
69		Truck	124
70		Truck	2
71		Truck	309
72		Truck	2
73		Truck	4
74		Truck	59
75		Truck	80
76	11:40 AM	Truck	298
77		Truck	7
78		car	2
79		Truck	173
80		car	5

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		car	4
82		car	102
83		Truck	37
84		Truck	150
85	11:50 AM	Truck	5
86		Truck	19
87		Truck	23
88		Truck	99
89		Truck	21
90		Truck	135
91		Truck	2
92		Truck	2
93		Truck	2
94		Truck	2
95		Truck	21
96		Truck	2
97		Truck	119
98		Truck	12
99		Truck	153
100		Truck	3
101		Truck	158
102		Truck	15
103		Truck	3
104		Truck	3
105		Truck	152
106		Truck	165
107		Truck	3
108		Truck	201
109		Truck	101
110		Truck	179
111		Truck	138
112		Truck	2
113		Truck	6
114		Truck	8
115		Truck	47
116		Truck	78
117		Truck	1
118		Truck	3
119		Truck	153
120		Truck	1

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		Truck	18
122		Truck	1
123		Truck	167
124		Truck	50
125		Truck	153
126		Truck	96
127		Truck	163
128		Truck	37
129		Truck	151
130		Truck	169
131		Truck	67
132		Truck	70
133		Truck	5
134		Truck	13
135		Truck	132
136		Truck	19
137		Truck	5
138		Truck	60
139		Truck	4
140		Truck	96
141		Truck	242
142		Truck	102
143		Truck	107
144		Truck	17
145		Truck	48
146		Truck	81
147		Truck	14
148		Truck	11
149		Truck	144
150		Truck	140
151		Truck	34
152		Truck	5
153		Truck	294
154		Truck	6
155		Truck	16
156		Truck	65
157		Truck	162
158		Truck	37
159		Truck	100
160		Truck	89

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		Truck	2
162		Truck	105
163		Truck	59
164		Truck	3
165		Truck	199
166		Truck	79
167		Truck	132
168		Truck	1
169		Truck	158
170		Truck	3
171		Truck	56
172		Truck	25
173		Truck	70
174		Truck	17
175		Truck	144
176		Truck	2
177		Truck	8
178		Truck	304
179		Truck	216
180		Truck	94
181	2:00 PM	Trucks	1
182		Trucks	4
183		Trucks	10
184		Trucks	49
185		Trucks	166
186		Trucks	149
187		Trucks	12
188		Trucks	145
189		Trucks	24
190	2:10 PM	Trucks	98
191		Trucks	17
192		Trucks	12
193		Trucks	69
194		Trucks	79
195		Trucks	167
196		Trucks	151
197	2:20 PM	Trucks	300
198		Trucks	3
199	2:30 PM	Trucks	22
200		Trucks	105

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Trucks	63
202		Trucks	152
203		Trucks	36
204		Trucks	122
205	2:40 PM	Trucks	190
206		Trucks	2
207		Trucks	308
208		Trucks	5
209		Trucks	13
210		Trucks	8
211		Trucks	9
212	2:50 PM	Trucks	276
213		Trucks	146
214		Trucks	3
215		Trucks	151
216	3:00 PM	Trucks	43
217		Trucks	87
218		Trucks	14
219		Trucks	168
220		Trucks	141
221		Trucks	15
222	3:10 PM	Trucks	4
223		Trucks	22
224		Trucks	172
225		Trucks	6
226		Trucks	144
227		Trucks	5
228		Trucks	114
229		Trucks	16
230	3:20 PM	Trucks	69
231		Trucks	1
232		Trucks	2
233	3:30 PM	Truck	146.32
234		Truck	1.84
235		Truck	137.34
236		Truck	4.5
237		Truck	7.75
238		Truck	162.35
239		Truck	19.78
240		Truck	141.11

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		Truck	6.88
242	3:40 PM	Truck	164.1
243		Truck	162.94
244		Truck	225.66
245		Truck	134.78
246		Truck	4.62
247		Truck	161.63
248		Truck	5.81
249	3:50 PM	Truck	3.4
250		Truck	140.28
251		Truck	137.68
252		Truck	328.13
253	4:00 PM	Truck	136.09
254		Truck	161.62
255		Truck	6.84
256		Truck	17.13
257		Truck	139.5
258		Truck	18.84
259		Truck	29.07
260		Truck	60
261	4:10 PM	Truck	58.31
262		Truck	155.47
263		Truck	55.06
264		Truck	4.78
265		Truck	78.44
266		Truck	188.5
267		Truck	122.54
268		Truck	18.65
269	4:20 PM	Truck	3.44
270		Truck	154.35
271		Truck	5.28
272		Truck	167.78
273		Truck	146.75
274	4:30 PM	Truck	5.29
275		Truck	140.25
276		Truck	8.36
277		Truck	11.17
278		Truck	62.78
279		Truck	102.34
280		Truck	168.47

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	155.71
282		Truck	4.53
283	4:40 PM	Truck	265.25
284		Truck	20.22
285		Truck	3.31
286		Truck	150.03
287		Truck	12.9
288		Truck	5.81
289		Truck	71.25
290		Truck	82.53
291	4:50 PM	Truck	13.4
292		Truck	176.76
293		Truck	10.43
294		Truck	128.19
295		Truck	3.65
296		Truck	11.72
297		Truck	170.15
298		Truck	35.27
299		Truck	91.82
300		Truck	5.6
301	5:00 PM	Truck	22.25
302		Truck	8.78
303		Truck	59
304		Truck	72.09
305		Truck	10.81
306		Truck	5.28
307		Truck	55.47
308		Truck	29.37
309		Truck	25.97
310		Truck	39.68
311		Truck	3.34
312		Truck	8.78
313		Truck	4.28
314		Truck	130.25
315		Truck	10.15
316		Truck	2.69
317		Truck	47.25
318		Truck	5.06
319		Truck	3.69
320	5:10 PM	Truck	70.5

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		Truck	28.91
322		Truck	54.66
323		Truck	7.97
324		Truck	108.97
325		Truck	3.91
326		Truck	119.28
327		Truck	7.47
328		Truck	7.31
329		Truck	147.67
330	5:20 PM	Truck	173.22
331		Truck	6.69
332		Truck	3.63
333		Truck	144.81
334		Truck	3.97
335		Truck	59.62
336		Truck	146.84
337		Truck	5.09
338		Truck	120.53
339		Truck	8.37
340		Truck	19.19
341	5:30 PM	Truck	167.16
342		Truck	141.69
343		Truck	3.59
344		Truck	6
345		Truck	160.78
346		Truck	147.5
347	5:40 PM	Truck	29.62
348		Truck	136.6
349		Truck	4.78
350		Truck	145.12
351		Truck	4
352		Truck	4.84
353		Truck	3.53
354		Truck	2.67
355		Truck	142.25
356	5:50 PM	Truck	171.91
357		Truck	3.31
358		Truck	3.81
359		Truck	145.16
360		Truck	5.75

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361		Truck	82.19
362		Truck	89.59
363		Truck	10
364		Truck	15.06
365		Truck	18
366		Truck	123.44
367		Truck	8.18
368		Truck	2.62
369		Truck	8.87
370		Truck	6.94
371	6:00 PM	Truck	122.91
372		Truck	5.35
373		Truck	6.53
374		Truck	3.63
375		Truck	10.25
376		Truck	66.09
377		Truck	78.44
378		Truck	7.07
379		Truck	15.03
380		Truck	137.16
381		Truck	3.53
382		Truck	5.41
383		Truck	3.22
384		Truck	40.5
385		Truck	4.81
386		Truck	102.07
387		Truck	6.78
388	6:10 PM	Truck	145.43
389		Truck	3.97
390		Truck	14.9
391		Truck	135.16
392		Truck	10.12
393		Truck	10.81
394		Truck	136.28
395		Truck	5.9
396	6:20 PM	Truck	169.72
397		Truck	66.59
398		Truck	66.55
399		Truck	1.53
400		Truck	7.81

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
401		Truck	9.38
402		Truck	5.59
403		Truck	3.53
404		Truck	133.53
405		Truck	3.75
406		Truck	2.34
407		Truck	2.15
408		Truck	2.22
409		Truck	2.15
410		Truck	128.81
411		Truck	6.69
412		Truck	3.03
413		Truck	3.75
414		Truck	86.66
415	6:30 PM	Truck	41.97
416		Truck	39.85
417		Truck	2.6
418		Truck	15.81
419		Truck	3.72
420		Truck	36.78
421		Truck	51.62
422		Truck	3.25
423		Truck	6.91
424		Truck	4.63
425		Truck	3.6
426		Truck	5.09
427		Truck	159.87
428		Truck	3.44
429		Truck	4.56
430		Truck	150.13
431		Truck	26.63
432	6:40 PM	Truck	116.31
433		Truck	14.75
434		Truck	3.5
435		Truck	4.34
436		Truck	4.03
437		Truck	144.53
438		Truck	7.44
439		Truck	2.32
440		Truck	9.84

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
441		Truck	126.66
442		Truck	4.63
443		Truck	2.57
444		Truck	3.35
445		Truck	139.91
446		Truck	3.84
447		Truck	14.15
448	6:50 PM	Truck	141.22
449		Truck	20.29
450		Truck	62.81
451		Truck	7.78
452		Truck	4.13
453		Truck	165.31
454		Truck	4
455		Truck	72.71
456		Truck	137.25
457		Truck	19.9
458	7:00 PM	Truck	88.15
459		Truck	10.66
460		Truck	40.07
461		Truck	18.88
462		Truck	130.03
463		Truck	5.75
464		Truck	10.1
465		Truck	4.72
466		Truck	5.97
467		Truck	83.97
468		Truck	56.09
469		Truck	13
470	7:10 PM	Truck	136.81
471		Truck	6.97
472		Truck	4.78
473		Truck	8
474		Truck	7.12
475		Truck	3.54
476		Truck	3.1
477		Truck	105.43
478		Truck	22.15
479		Truck	3.94
480		Truck	16.56

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
481		Truck	3.73
482		Truck	124.91
483		Truck	22.56
484		Truck	2.75
485		Truck	5.03
486	7:20 PM	Truck	278.5
487		Truck	5.29
488		Truck	4.04
489		Truck	19.38
490		Truck	4.32
491		Truck	143.91
492		Truck	43.25
493		Truck	18.69
494		Truck	77.88
495		Truck	4.13
496		Truck	2.38
497		Truck	13.9
498		Truck	144.34
499		Truck	5.06
500	7:30 PM	Truck	64.85
501		Truck	84.31
502		Truck	78.13
503		Truck	79.35
504		Truck	163.88
505		Truck	8.31
506		Truck	159.97
507		Truck	5.16
508		Truck	4.52
509	7:40 PM	Truck	85.02
510		Truck	5.78
511		Truck	54.94
512		Truck	13.9
513		Truck	24.72
514		Truck	106.75
515		Truck	3.53
516		Truck	2.56
517		Truck	2.57
518		Truck	13.6
519		Truck	151.22
520		Truck	84.19

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
521	7:50 PM	Truck	62.09
522		Truck	8.72
523		Truck	6.65
524		Truck	3.63
525		Truck	2.94
526		Truck	11.13
527		Truck	14.47
528		Truck	47.78
529		Truck	3.56
530		Truck	11.37
531		Truck	78.47
532		Truck	219.87
533		Truck	5.14
534	8:00 PM	Truck	10.22

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1	9:00 AM	Truck	3
2		Truck	5
3		Truck	72
4		Truck	30
5		Truck	306
6		Truck	10
7		Truck	367
8		Truck	228
9		Truck	12
10		Truck	149
11		Truck	126
12		Truck	12
13		Truck	6
14		Truck	265
15		Truck	232
16		Truck	150
17		Truck	152
18		Truck	177
19		Truck	10
20		Truck	196
21		Truck	246
22		Truck	20
23		Truck	22
24		Truck	461
25		Truck	406
26		Truck	1
27		Truck	104
28		Truck	28
29		Truck	100
30		Truck	42
31		Truck	81
32		Truck	128
33		Truck	23
34		Truck	563
35		Truck	1
36		Truck	68
37		Truck	76
38		Truck	72
39	10:30 AM	Truck	150
40		Truck	13

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	2
42		Truck	2
43		Truck	125
44		Truck	4
45		Truck	165
46		Truck	166
47		Truck	170
48		Truck	3
49		Truck	169
50		Truck	4
51		Truck	4
52		Truck	4
53		Truck	2
54		Truck	201
55		Truck	78
56		Truck	158
57		Truck	3
58		Truck	13
59		Truck	132
60		Truck	16
61		Truck	7
62		Truck	145
63		Truck	135
64		Truck	22
65		Truck	3
66		Truck	50
67		Truck	255
68		Truck	88
69	11:10 AM	Truck	139
70		Truck	104
71		Truck	16
72		Truck	5
73		Truck	2
74		Truck	1
75		Truck	121
76		Truck	5
77		Truck	174
78		Truck	308
79		Truck	313
80	11:30 AM	Truck	1

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		Truck	70
82		Truck	76
83		Truck	14
84		Truck	198
85		Truck	72
86		Truck	20
87		Truck	12
88		Truck	147
89		Truck	6
90		Truck	152
91		Truck	1
92		Truck	1
93		Truck	17
94		Truck	320
95		Truck	265
96		Truck	26
97		Truck	12
98		Truck	134
99		Truck	26
100		Truck	262
101		Truck	16
102		Truck	2
103		Truck	71
104		Truck	3
105		Truck	75
106		Truck	137
107		Truck	161
108		Truck	154
109		Truck	2
110		Truck	158
111		Truck	146
112		Truck	37
113		Truck	105
114		Truck	19
115		Truck	21
116		Truck	1
117	12:20 PM	Truck	25
118		Truck	387
119		Truck	3
120		Truck	14

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		Truck	19
122		Truck	65
123		Truck	14
124		Truck	534
125		Truck	146
126		Truck	11
127		Truck	22
128		Truck	284
129		Truck	10
130		Truck	2
131		Truck	94
132		Truck	72
133		Truck	27
134		Truck	42
135		Truck	16
136		Truck	51
137		Truck	10
138		Truck	148
139		Truck	8
140		Truck	2
141		Truck	143
142		Truck	170
143		Truck	139
144		Truck	4
145		Truck	4
146		Truck	4
147		Truck	319
148		Truck	5
149		Truck	141
150		Truck	10
151		Truck	5
152		Truck	323
153		Truck	52
154		Truck	43
155		Truck	41
156		Truck	186
157		Truck	69
158		Truck	61
159		Truck	90
160		Truck	12

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		Truck	64
162		Truck	5
163		Truck	163
164		Truck	5
165		Truck	2
166		Truck	5
167		Truck	128
168		Truck	8
169		Truck	158
170		Truck	12
171		Truck	79
172		Truck	5
173		Truck	59
174		Truck	8
175		Truck	8
176		Truck	108
177		Truck	11
178		Truck	9
179		Truck	5
180		Truck	4
181		Truck	7
182		Truck	40
183		Truck	417
184		Truck	63
185		Truck	90
186		Truck	167
187		Truck	4
188		Truck	158
189		Truck	7
190		Truck	150
191		Truck	6
192		Truck	72
193		Truck	6
194	2:00 PM	Trucks	95
195		Trucks	63
196		Trucks	5
197		Trucks	62
198		Trucks	5
199		Trucks	17
200		Trucks	2

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Trucks	31
202		Trucks	108
203	2:10 PM	Trucks	104
204		Trucks	170
205		Trucks	181
206		Trucks	67
207		Trucks	26
208	2:20 PM	Trucks	150
209		Trucks	10
210		Trucks	159
211		Trucks	65
212		Trucks	78
213		Trucks	13
214		Trucks	9
215	2:30 PM	Trucks	6
216		Trucks	6
217		Trucks	30
218		Trucks	3
219		Trucks	2
220		Trucks	142
221		Trucks	2
222		Trucks	12
223		Trucks	5
224		Trucks	156
225		Trucks	12
226		Trucks	116
227		Trucks	7
228		Trucks	2
229		Trucks	12
230		Trucks	6
231		Trucks	63
232	2:40 PM	Trucks	74
233		Trucks	126
234		Trucks	37
235		Trucks	161
236		Trucks	79
237	2:50 PM	Trucks	42
238		Trucks	20
239		Trucks	34
240		Trucks	186

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		Trucks	144
242		Trucks	16
243		Trucks	30
244		Trucks	73
245	3:00 PM	Trucks	1
246		Trucks	109
247		Trucks	149
248		Trucks	17
249		Trucks	4
250		Trucks	110
251	3:10 PM	Trucks	340
252		Trucks	6
253		Trucks	44
254		Trucks	128
255		Trucks	4
256	3:20 PM	Trucks	221
257	3:30 PM	Truck	28.84
258		Truck	123.62
259		Truck	438.12
260		Truck	4.13
261		Truck	7.19
262		Truck	62.03
263	3:40 PM	Truck	5.47
264		Truck	131.68
265		Truck	15.25
266		Truck	137.22
267		Truck	3.25
268		Truck	156.47
269	3:50 PM	Truck	150.22
270		Truck	84.59
271		Truck	2.9
272		Truck	2.25
273		Truck	83.43
274		Truck	148.04
275		Truck	3.18
276		Truck	4.22
277		Truck	174.91
278	4:00PM	Truck	143.13
279		Truck	4.69
280		Truck	121.78

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	4.16
282		Truck	151.15
283		Truck	154.34
284		Truck	3.07
285		Truck	2.69
286		Truck	41.56
287	4:10PM	Truck	148.97
288		Truck	138.53
289		Truck	5.41
290		Truck	147.72
291		Truck	3.69
292		Truck	3.19
293		Truck	20.08
294		Truck	134.91
295		Truck	10.7
296		Truck	4.84
297	4:20 PM	Truck	144
298		Truck	9.19
299		Truck	3.4
300		Truck	4.9
301		Truck	303.12
302		Truck	2.53
303	4:30PM	Truck	286.91
304		Truck	84.25
305		Truck	118.84
306		Truck	138.53
307	4:40 PM	Truck	144.07
308		Truck	3.56
309		Truck	3.44
310		Truck	147.65
311		Truck	4.2
312		Truck	146.03
313		Truck	19.56
314		Truck	24.87
315		Truck	113.2
316		Truck	9.12
317	4:50 PM	Truck	217.75
318		Truck	5.09
319		Truck	4.19
320		Truck	155.82

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		Truck	92.06
322		Truck	203.72
323		Truck	3.41
324	5:00 PM	Truck	164.42
325		Truck	5.72
326		Truck	4.02
327		Truck	3.75
328		Truck	2.87
329		Truck	61.1
330		Truck	64.81
331		Truck	15.75
332		Truck	40.91
333		Truck	8.16
334		Truck	112.57
335		Truck	3.71
336		Truck	4.85
337	5:10 PM	Truck	148.13
338		Truck	3.69
339		Truck	32.53
340		Truck	109.81
341		Truck	4.91
342		Truck	3.22
343		Truck	150.54
344		Truck	4.44
345		Truck	3.22
346		Truck	2.6
347		Truck	2.5
348		Truck	2.03
349		Truck	2.19
350		Truck	2.12
351		Truck	55.32
352		Truck	77.53
353		Truck	3.22
354		Truck	2.68
355		Truck	2.81
356		Truck	4.25
357		Truck	122.96
358		Truck	8.44
359		Truck	5.47
360		Truck	6.1

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361	5:20 PM	Truck	153.32
362		Truck	3.87
363		Truck	163.25
364		Truck	135.16
365		Truck	3.97
366	5:30 PM	Truck	174.56
367		Truck	306
368		Truck	14.22
369		Truck	86.53
370		Truck	201.53
371		Truck	4.75
372		Truck	100.63
373	5:40 PM	Truck	102.16
374		Truck	123.55
375		Truck	3.47
376		Truck	5.05
377		Truck	145.37
378		Truck	9
379		Truck	5.13
380		Truck	61.44
381		Truck	54.69
382		Truck	4.44
383		Truck	9.65
384		Truck	5.63
385		Truck	4.81
386		Truck	2.57
387		Truck	50.12
388		Truck	28.31
389		Truck	15.28
390	5:50 PM	Truck	30.28
391		Truck	20.75
392		Truck	3.84
393		Truck	5.28
394		Truck	5.44
395		Truck	38.31
396		Truck	13.75
397		Truck	93.37
398		Truck	5.1
399		Truck	4.75
400		Truck	5.16

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
401		Truck	9.87
402		Truck	93.09
403		Truck	15.91
404		Truck	3.47
405		Truck	155.44
406		Truck	10.75
407	6:00 PM	Truck	149.15
408		Truck	31.5
409		Truck	3.16
410		Truck	133.22
411		Truck	3.75
412		Truck	161.78
413		Truck	6.76
414		Truck	131.94
415		Truck	6.54
416		Truck	9.68
417		Truck	2.47
418		Truck	163.08
419		Truck	5.66
420		Truck	3.37
421		Truck	125.81
422		Truck	6.26
423		Truck	147.75
424		Truck	7.25
425		Truck	2.96
426		Truck	8.69
427		Truck	107.53
428		Truck	13.81
429		Truck	2.81
430		Truck	4.16
431		Truck	177.78
432		Truck	17.46
433		Truck	81.38
434		Truck	54.44
435		Truck	5.37
436		Truck	2.75
437		Truck	2.44
438		Truck	140.75
439		Truck	4.72
440		Truck	2.28

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
441		Truck	2.1
442		Truck	6.16
443		Truck	2.97
444		Truck	2.82
445		Truck	131.91
446		Truck	3.66
447		Truck	24.62
448		Truck	138.81
449		Truck	3.16
450		Truck	49.63
451		Truck	101.5
452		Truck	3.68
453		Truck	2.76
454		Truck	2.36
455		Truck	232.41
456		Truck	74.09
457		Truck	7.76
458		Truck	133.6
459		Truck	4.91
460		Truck	23.41
461		Truck	7.75
462		Truck	4.15
463		Truck	116.34
464		Truck	17.35
465		Truck	7.44
466		Truck	7.25
467		Truck	2.63
468		Truck	126.91
469		Truck	3.65
470		Truck	25.54
471		Truck	120.06
472		Truck	3.41
473		Truck	2.23
474		Truck	1.93
475		Truck	49.44
476		Truck	115.87
477		Truck	158.84
478		Truck	4.88
479		Truck	41
480		Truck	6.91

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
481		Truck	14.5
482		Truck	204
483		Truck	76.28
484		Truck	25.25
485		Truck	9.55
486		Truck	129.94
487		Truck	6.72
488		Truck	4.4
489		Truck	6.37
490		Truck	3.56
491		Truck	142.31
492		Truck	3.63
493		Truck	2.16
494		Truck	139.16
495		Truck	15.25
496		Truck	5.22
497		Truck	11.66
498		Truck	4.82
499		Truck	70
500		Truck	219.44
501		Truck	10.16
502		Truck	10.29
503		Truck	6.56
504		Truck	125.44
505		Truck	2.91
506		Truck	16.16
507		Truck	142.47
508		Truck	8.76
509		Truck	11.82
510		Truck	3.15
511		Truck	3.25
512		Truck	3.38
513		Truck	115.08
514		Truck	4.12
515		Truck	3.84
516		Truck	6.08
517		Truck	5.75
518		Truck	94.47
519		Truck	35.5
520		Truck	7.4

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
521		Truck	10.72
522		Truck	9.34
523		Truck	47.94
524		Truck	15.94
525		Truck	24.28
526		Truck	10.72
527		Truck	73.94
528		Truck	35.76
529		Truck	67.53
530		Truck	15.07
531		Truck	13.05
532		Truck	5.15
533		Truck	4
534		Truck	132.46
535		Truck	3.53
536		Truck	3.81
537		Truck	313.5
538		Truck	4.62
539		Truck	6.97
540		Truck	4.44
541		Truck	153.6
542		Truck	10.1
543		Truck	53.66
544		Truck	77.03
545		Truck	161.12
546		Truck	7.06
547		Truck	72
548		Truck	24.94
549		Truck	63.94
550		Truck	10.25
551		Truck	23
552		Truck	63.03
553		Truck	49.22
554		Truck	7.53
555		Truck	5.93
556		Truck	2.07
557		Truck	3.94
558		Truck	2.16
559		Truck	3.19
560		Truck	63.65

Interarrivals at Americas Avenue.
9:00A.M-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
561		Truck	6.35
562		Truck	41.37

Interarrivals at Americas Avenue.
9:00A.M-5:30P.M
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1	9:10 AM	Truck	1130
2	9:20 AM	car	727
3	9:40 AM	Truck	690
4		Truck	298
5		Truck	560
6		Truck	428
7		Truck	11
8		Truck	3
9		Truck	131
10		Truck	22
11		Truck	144
12		Truck	8
13		Truck	66
14		Truck	2
15		Truck	170
16		Truck	134
17		Truck	965
18		Truck	160
19		Truck	22
20		Truck	85
21		Truck	77
22		Truck	5
23		Truck	327
24		Truck	132
25		Truck	779
26		Truck	149
27		Truck	645
28		Truck	6
29		Truck	78
30		Truck	15
31		Truck	205
32		Truck	308
33		Truck	177
34		Truck	60
35		Truck	10
36		Truck	108
37		Truck	134
38		Truck	11
39		Truck	17
40		Truck	134

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	334
42		Truck	144
43		Truck	9
44		Truck	8
45		Truck	63
46		Truck	79
47		Truck	164
48		Truck	215
49		Truck	227
50		Truck	6
51		Truck	175
52		Truck	68
53		Truck	87
54		Truck	137
55		Truck	50
56		Truck	137
57		Truck	12
58		Truck	39
59		Truck	8
60		Truck	88
61		Truck	1
62		Truck	4
63		Truck	155
64		Truck	17
65		Truck	1
66		Truck	190
67		Truck	7
68		Truck	3
69		Truck	1
70		Truck	86
71		Truck	84
72		Truck	129
73		Truck	9
74		Truck	157
75		Truck	630
76		Truck	3
77		Truck	1
78		Truck	11
79		Truck	3
80		Truck	107

Interarrivals at Americas Avenue.
9:00A.M-5:30P.M
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle lasIffication	Arrival Time (sec)
81		Truck	538
82		Truck	144
83		Truck	451
84		Truck	34
85		Truck	31
86		Truck	3
87		Truck	103
88		Truck	17
89		Truck	14
90	1:00 PM		271.5
91			31.5
92			41.28
93			3.37
94			2.8
95			12.94
96			12.11
97			149.69
98			16.13
99			6.97
100			310.47
101			4.75
102			6.16
103			90.3
104			8.28
105			158.97
106			7.84
107			138.63
108			16.94
109			5.9
110			2.26
111			148.44
112			319.31
113			3.26
114			152.72
115			3.46
116			29.57
117			109.44
118			4.22
119			4.6
120			152.32

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121			2.13
122			4.9
123			10.16
124			73.37
125			50.72
126			5.91
127			4.34
128			156.5
129			5.72
130			17.87
131			147.09
132			3.25
133			3.31
134			19.44
135			137.91
136			6.56
137			4.14
138			3.56
139			141.22
140			17.13
141			9.75
142			98.43
143			48.19
144			125.13
145			6.81
146			2.47
147			9.53
148			4
149			11.97
150			2.9
151			116.68
152			15.5
153			8.21
154			127.84
155			12.32
156			3.69
157			62.34
158			96.25
159			3.34
160			3

Interarrivals at Americas Avenue.
9:00A.M-5:30P.M
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161			5.72
162			145.79
163			3.97
164			5.06
165			6.68
166			238.16
167			19.87
168			47.59
169			165
170			3.78
171			2.72
172			4
173			2.47
174			5.25
175			135.25
176			5.18
177			5.15
178			12.65
179			127.19
180			10.22
181			4.59
182			8.28
183			91.13
184			53.84
185			8.81
186			8.53
187			130.59
188			4.97
189			14.63
190			46.09
191			101.5
192			3.75
193			5.06
194			18.87
195			131.34
196			3.12
197			5.38
198			2.5
199			3.06
200			2.57

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201			84.59
202			22.16
203			21.84
204			2.34
205			3.84
206			2.66
207			2.37
208			2.28
209			2.84
210			156.94
211			6.9
212			133.57
213			6.31
214			2.69
215			16.25
216			132.19
217			11.67
218			154.56
219			5.5
220			151.22
221			6.56
222			59.5
223			45.06
224			36.59
225			3.63
226			11.22
227			158.59
228			139.4
229			3.16
230			29.19
231			127.96
232			15.47
233			148.53
234			156.43
235			7.06
236			166.47
237			69.63
238			42.97
239			2.91
240			12.38

Interarrivals at Americas Avenue.
9:00A.M-5:30P.M
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241			3.71
242			16
243			108.53
244			5.22
245			2.97
246			8.34
247			125.5
248			177.13
249			1.12
250			160.19
251			11.5
252			146.56
253			17.09
254			154.03
255			5.72
256			136
257			11.93
258			148.44
259			5.66
260			14.94
261			152.75
262			161
263			148.94
264			146.34
265			4.75
266			8.98
267			324.91
268			169.97
269			585.1
270			149.19
271			1.81
272			556.16
273			430.28
274			87.72
275			230.85
276			305.78
277			156.54
278			299.35
279			312.43
280			795.4

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281			788.12
282			22.91
283			301.94
284			638.09

A.2 Interarrival data collection at Border Highway.
12:20P.M-7:00P.M
Monday
DATE: 1/4/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1	12:20 PM	Truck	68.47
2		car	297.05
3	12:30 PM	Truck	333.48
4		car	117.33
5		Truck	278.06
6		Truck	102.37.
7		car	1.53
8	12:40 PM	Truck	130.13
9		car	3.12
10		Truck	1.23
11		car	75.83
12		Truck	361.22
13		Truck	73.38
14		car	17.1
15		car	1.21
16	12:50 PM	car	186.17
17	1:00 PM	Truck	718.19
18	1:10 PM	Truck	720.77
19		Truck	58.81
20		Truck	7.09
21		Truck	148.83
22	1:20 PM	Truck	110.06
23		Truck	312.89
24		Truck	12.27
25		Truck	151.43
26		Truck	9.47
27		Truck	1.12
28		Truck	49.33
29	1:30 PM	Truck	149.54
30		Truck	262.04
31		Truck	17.8
32		Truck	4.94
33		Truck	100.98
34		Truck	8.35
35		Truck	78.25
36		Truck	117.1
37		Truck	430.06
38	1:50 PM	Truck	3.48
39		Truck	47.93
40		Truck	347.09

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41	2:00 PM	Truck	4.48
42		Truck	105.48
43	2:10PM	Truck	827.15
44	2:20 PM	Truck	124.48
45		Truck	110.24
46		Truck	6.83
47	2:30 PM	Truck	431.23
48		Truck	3.49
49		Truck	111.29
50		Truck	352.23
51	2:40 PM	Truck	103.29
52		Truck	242.64
53		Truck	96.54
54		Truck	182.46
55	2:50 PM	Truck	265.15
56		Truck	7.83
57		Truck	57.49
58		Truck	4.53
59	3:00 PM	Truck	338.59
60		Truck	262.05
61		Truck	6.29
62		Truck	7.37
63		Truck	91.68
64	3:10 PM	Truck	222.04
65		Truck	82.73
66		Truck	13.6
67		Truck	27.6
68		Truck	96.52
69		Truck	191.63
70		Truck	1.13
71		Truck	4.92
72	3:20 PM	Truck	223.03
73		Truck	97.78
74		Truck	12.97
75		Truck	296.66
76	3:30 PM	Truck	136.11
77	3:40 PM	Truck	530.19
78		Truck	106.33
79		Truck	12.82
80		Truck	94.87

Interarrivals at Border Highway
12:20P.M-7:00P.M
Monday
DATE: 1/4/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		Truck	3.29
82		Truck	339.83
83		Truck	13.79
84	3:50 PM	Truck	60.68
85		Truck	37.9
86		Truck	81.23
87		Truck	1.06
88		Truck	5.28
89		Truck	9.03
90		Truck	6.28
91		Truck	78.44
92		Truck	4.25
93		Truck	218.73
94		Truck	76.09
95	4:00 PM	Truck	40.15
96		Truck	38.54
97		Truck	80.17
98		Truck	29.64
99		Truck	9.1
100		Truck	186.35
101		Truck	29.31
102		Truck	84.39
103	4:10 PM	Truck	198.61
104		Truck	486.73
105		Truck	92.34
106		Truck	100.07
107		Truck	11.86
108		Truck	28.83
109		Truck	81.47
110		Truck	243.72
111		Truck	4.98
112	4:30 PM	Truck	87.6
113		Truck	344.44
114		Truck	113.1
115		Truck	118.95
116	4:40 PM	Truck	220.44
117		Truck	233.27
118		Truck	6.69
119	4:50 PM	Truck	348.46
120		Truck	127.41

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		Truck	115.43
122		Truck	1.33
123	5:00 PM	Truck	129.59
124		Truck	2.72
125		Truck	213.57
126		Truck	5.19
127		Truck	4.13
128		Truck	3.35
129		Truck	101.83
130		Truck	40.89
131	5:10 PM	Truck	193.39
132		Truck	128.17
133		Truck	23.66
134		Truck	5.09
135		Truck	92.79
136		Truck	116.57
137		Truck	5.87
138	5:20 PM	Truck	245.39
139		Truck	118.23
140		Truck	8.06
141		Truck	45.91
142		Truck	77.86
143		Truck	116.58
144		Truck	4.58
145	5:30 PM	Truck	345.17
146		Truck	2.66
147		Truck	104.55
148		Truck	111.8
149	5:40 PM	Truck	226.01
150		Truck	239.43
151		Truck	90.82
152		Truck	4.23
153		Truck	3.24
154		Truck	125.83
155		Truck	106.92
156		Truck	19.58
157		Truck	79.51
158		Truck	15.23
159		Truck	101.47
160		Truck	207.73

Interarrivals at Border Highway
12:20P.M-7:00P.M
Monday
DATE: 1/4/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161	5:50 PM	Truck	6.62
162		Truck	5.61
163		Truck	8.53
164		Truck	3.1
165		Truck	183.1
166		Truck	113.47
167		Truck	11.78
168	6:00 PM	Truck	120.04
169		Truck	233.67
170		Truck	5.91
171		Truck	323.97
172		Truck	5.91
173	6:10 PM	Truck	7.13
174		Truck	106.76
175		Truck	4.82
176		Truck	2.36
177		Truck	190.03
178		Truck	223.25
179		Truck	96.92
180		Truck	240.49
181		Truck	208.47
182		Truck	111.39
183		Truck	4.32
184		Truck	2.27
185		Truck	14.13
186		Truck	258.38
187		Truck	5.22
188		Truck	3.57
189		Truck	99.03
190		Truck	40.89
191	6:40 PM	Truck	64.95
192		Truck	16.04
193		Truck	82.57
194		Truck	8.13
195		Truck	9.09
196		Truck	145.29
197		Truck	97.64
198		Truck	12.33
199		Truck	6.17
200		Truck	2.54

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Truck	111.49
202	6:50 PM	Truck	112.59
203		Truck	109.52
204		Truck	12.21
205		Truck	89.78
206		Truck	7.18
207		Truck	110.86
208	7:00 PM	Truck	25.08

Interarrivals Border Highway
9:00A.M-8:00P.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1	9:10 AM	car	401
2	9:20 AM	Truck	763
3	9:50 AM	car	1329
4	10:00 AM	Truck	595
5		car	63
6	10:10 AM	Truck	345
7		Truck	36
8		Truck	72
9		Truck	108
10		Truck	171
11		car	83
12		car	187
13		Truck	36
14		Truck	8
15		car	310
16		Truck	61
17		Truck	5
18		Truck	7
19		Truck	5
20	10:30 AM	Truck	96
21		Truck	7
22		Truck	4
23		Truck	7
24		Truck	62
25		Truck	11
26		car	45
27		car	11
28		Truck	30
29		Truck	5
30		Truck	11
31		Truck	91
32		Truck	2
33		Truck	3
34		car	79
35		Truck	19
36		car	52
37	10:40 AM	car	161
38		Truck	100
39		car	57
40		car	6

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	5
42		Truck	5
43		Truck	4
44		Truck	101
45		Truck	7
46	10:50 AM	Truck	205
47		car	52
48		Truck	48
49		car	210
50		car	36
51		car	2
52		car	2
53		Truck	54
54		Truck	81
55	11:00 AM	car	111
56		Truck	3
57		Truck	5
58		Truck	13
59		Truck	85
60		car	5
61		car	4
62		car	8
63		car	37
64		Truck	117
65		car	2
66		car	5
67	11:10 AM	Truck	720
68		Truck	11
69		Truck	18
70	11:20 AM	Truck	36
71		Truck	6
72		Truck	124
73		Truck	4
74		car	2
75		car	5
76		car	45
77		Truck	40
78		Truck	297
79	11:30 AM	Truck	111
80		Truck	428

Interarrivals at Border Highway
9:00A.M-8:00P.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		Truck	25
82	11:40 AM	car	217
83		car	66
84		car	115
85		car	96
86		car	2
87		Truck	179
88	11:50	car	2
89		car	195
90		Truck	174
91		Truck	4
92		Truck	4
93		Truck	2
94		car	6
95		car	7
96	12:00 PM	Truck	224
97		Truck	5
98		Truck	4
99		Truck	18
100		car	443
101	12:10 PM	Truck	52
102		car	13
103		Truck	28
104		car	68
105		Truck	125
106		Truck	5
107		Truck	207
108		Truck	4
109		Truck	6
110		Truck	39
111	12:20 PM	car	115
112		Truck	40
113		Truck	45
114		Truck	18
115		Truck	90
116		car	30
117		car	5
118		car	10
119		Truck	137
120		Truck	5

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		car	191
122		Truck	204
123	12:30 PM	Truck	114
124		car	36
125		Truck	76
126		Truck	10
127		car	30
128		Truck	171
129		Truck	1
130		Truck	91
131	12:40 PM	Truck	221
132		Truck	79
133		Truck	130
134		Truck	20
135		car	5
136	12:50 PM	Truck	305
137		Truck	62
138		Truck	14
139		Truck	125
140		car	46
141		car	115
142		Truck	104
143		Truck	5
144	1:00 PM	car	86
145		Truck	330
146		Truck	12
147	1:10 PM	Truck	245
148		Truck	169
149		Truck	111
150		Truck	2
151		Truck	15
152		Truck	30
153		Truck	6
154	1:20	Truck	327
155		Truck	102
156		Truck	191
157	1:30 PM	Truck	165
158		Truck	5
159		Truck	113
160		Truck	165

Interarrivals at Border Highway
9:00A.M-8:00P.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		Truck	207
162	1:40 PM	Truck	213
163		Truck	214
164		Truck	100
165		car	110
166		car	303
167	1:50 PM	Truck	22
168		Truck	190
169		Truck	5
170	2:00 PM	Truck	85
171		Truck	10
172		Truck	107
173		Truck	4
174	2:07 PM	Truck	212
175	2:08 P.M	Truck	101
176		Truck	7
177		Truck	4
178		Truck	8
179	2:10 PM	Truck	511
180		Truck	2
181	2:20 PM	Truck	59
182		Truck	270
183		Truck	10
184	2:30 PM	Truck	419
185		Truck	2
186		Truck	4
187		Truck	22
188		Truck	60
189		Truck	59
190	2:40 PM	Truck	131
191		Truck	99
192		Truck	130
193		Truck	106
194		Truck	2
195	2:50 PM	Truck	6
196		Truck	4
197		Truck	10
198		Truck	78
199		Truck	211
200		Truck	4

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Truck	223
202		Truck	98
203	3:00 PM	Truck	290
204		Truck	12
205		Truck	2
206		Truck	4
207		Truck	4
208		Truck	112
209		Truck	4
210	3:10 PM	Truck	120
211		Truck	50
212		Truck	21
213		Truck	92
214		Truck	98
215		Truck	5
216		Truck	107
217	3:20 PM	Truck	117
218		Truck	2
219		Truck	98
220		Truck	111
221		Truck	123
222		Truck	98
223	3:30 PM	Truck	317
224	3:40 PM	Truck	8
225		Truck	1
226		Truck	3
227		Truck	67
228		Truck	206
229		Truck	123
230		Truck	106
231	3:50 PM	Truck	74
232		Truck	107
233		Truck	21
234		Truck	115
235	4:00 PM	Truck	59
236		Truck	229
237	4:10 PM	Truck	7
238		Truck	117
239		Truck	32
240		Truck	76

Interarrivals at Border Highway
9:00A.M-8:00P.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		Truck	7
242		Truck	200
243		Truck	4
244	4:20 PM	Truck	58
245		Truck	107
246	4:30 PM	Truck	140
247		Truck	7
248		Truck	5
249		Truck	12
250		Truck	92
251		Truck	10
252		Truck	105
253		Truck	7
254	4:40 PM	Truck	31
255		Truck	4
256		Truck	110
257		Truck	118
258		Truck	118
259		Truck	4
260		Truck	158
261		Truck	29
262		Truck	101
263		Truck	5
264	4:50 PM	Truck	62
265		Truck	105
266		Truck	3
267		Truck	243
268		Truck	92
269	5:00 PM	Truck	30
270		Truck	121
271		Truck	71
272		Truck	7
273		Truck	29
274		Truck	129
275		Truck	119
276		Truck	3
277		Truck	2
278		Truck	3
279	5:10 PM	Truck	34
280		Truck	6

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	112
282		Truck	56
283		Truck	97
284		Truck	77
285		Truck	107
286	5:20 PM	Truck	19
287		Truck	3
288		Truck	4
289		Truck	115
290	5:27 AM	Truck	96.82
291		Truck	9.39
292		Truck	3.63
293	5:30 PM	Truck	98.47
294		Truck	4.39
295		Truck	98.59
296		Truck	8.97
297		Truck	9.16
298	5:40 PM	Truck	330.95
299		Truck	2.04
300		Truck	96.75
301		Truck	6.96
302		Truck	11.43
303		Truck	97.99
304		Truck	5.76
305		Truck	2.89
306		Truck	121.47
307		Truck	11.18
308		Truck	7.67
309		Truck	101.99
310		Truck	10.27
311		Truck	3.91
312		Truck	4.83
313		Truck	6.42
314	5:50 PM	Truck	209.98
315		Truck	114.4
316		Truck	214.18
317		Truck	17.41
318		Truck	99.92
319		Truck	8.67
320		Truck	4.6

Interarrivals at Border Highway
9:00A.M-8:00P.M
Tuesday
DATE: 1/5/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		Truck	3.54
322	6:00 PM	Truck	95.13
323		Truck	122.6
324		Truck	379.8
325	6:10 AM	Truck	106.83
326		Truck	356.1
327		Truck	128.13
328		Truck	8.42
329		Truck	5.43
330		Truck	4.59
331		Truck	4.76
332	6:20 PM	Truck	81.36
333		Truck	130.48
334		Truck	337.26
335		Truck	103.82
336		Truck	3.37
337	6:30 PM	Truck	413.45
338		Truck	22.39
339		Truck	6.88
340		Truck	1.29
341		Truck	2.57
342		Truck	112.49
343		Truck	32.61
344	6:40 PM	Truck	97.65
345		Truck	381.82
346		Truck	52.27
347	6:50 PM	Truck	176.77
348		Truck	180.81
349		Truck	71.33
350		Truck	144.36
351	7:00 PM	Truck	2.33
352		Truck	98.1
353		Truck	17.06
354		Truck	138.94
355	7:10 PM	Truck	258.97
356		Truck	5.13
357		Truck	6.95
358		Truck	6.14
359		Truck	7.03
360		Truck	99.73

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361		Truck	75.92
362	7:20 PM	Truck	191.23
363		Truck	13.76
364		Truck	95.97
365		Truck	5.93
366		Truck	362.77
367	7:30 PM	Truck	118.45
368		Truck	97.7
369		Truck	9.83
370		Truck	4.44
371		Truck	3.99
372	7:33 PM	Truck	41.64
373		Truck	5.3
374		Truck	8.71
375		Truck	89.75
376		Truck	88.73
377		Truck	54.37
378		Truck	65
379	7:40 PM	Truck	94.89
380		Truck	447.44
381		Truck	16.47
382		Truck	5.37
383	7:50 PM	Truck	112.79
384		Truck	40.03
385		Truck	289.58
386	8:00 PM	Truck	287.99

Interarrivals Border Highway
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1		Truck	331
2	9:10 AM	Truck	91
3		Truck	235
4		Truck	326
5	9:20 AM	Truck	24
6		car	471
7	9:30 AM	car	74
8		car	76
9		car	8
10		car	205
11	9:40 AM	Truck	133
12		Truck	3
13		car	224
14	9:50 AM	Truck	20
15		car	540
16		car	74
17		car	46
18		car	30
19	10:00 AM	car	30
20		car	30
21		car	25
22		car	70
23		car	26
24		car	1
25		car	304
26		car	1
27	10:00 AM	car	212
28		car	16
29		car	42
30		car	17
31		car	21
32		Truck	11
33		car	140
34		car	147
35	10:20 AM	Truck	157
36		Truck	6
37		Truck	3
38		car	17
39		car	17
40		car	43

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41	10:27 AM	Truck	31
42		car	19
43		car	23
44		car	62
45		car	2
46	10:30 AM	car	34
47		car	86
48		Truck	20
49		car	2
50		car	2
51		Truck	9
52		Truck	2
53		car	14
54		car	295
55		car	33
56	10:40 AM	Truck	6
57		car	52
58		Truck	59
59		Truck	3
60		car	50
61		car	1
62		car	25
63		car	3
64		Truck	28
65		Truck	8
66		car	4
67		car	48
68		Truck	38
69		Truck	8
70		Truck	4
71		Truck	30
72		car	45
73		car	12
74		car	14
75		car	6
76		car	1
77		Truck	61
78		Truck	11
79	10:50 AM	car	24
80		car	14

Interarrivals at Border Highway
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		car	7
82		car	6
83		car	3
84		car	80
85		car	33
86		car	4
87		car	17
88		car	32
89		car	1
90		car	1
91		car	16
92		Truck	30
93		car	4
94		car	1
95		car	30
96		car	4
97		car	113
98		car	48
99		Truck	32
100		car	27
101		car	2
102		car	77
103	11:00 AM	car	10
104		car	1
105		car	4
106		car	22
107		car	8
108		car	30
109		Truck	83
110		car	43
111		car	15
112		car	12
113		car	7
114		car	6
115		Truck	19
116		Truck	4
117		Truck	4
118		car	5
119		Truck	1
120		car	16

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		Truck	77
122		car	1
123		car	16
124		car	32
125		car	1
126	11:10 AM	Truck	55
127		car	45
128		car	34
129		car	1
130		car	1
131		car	1
132		car	6
133		car	79
134		car	31
135		Truck	96
136		car	60
137		car	1
138		car	3
139		car	2
140		car	3
141		car	1
142	11:20 AM	car	272
143		car	1
144		car	86
145		car	52
146		car	29
147		Truck	1
148		car	1
149		car	38
150	11:30 AM	car	6
151		Truck	46
152		Truck	83
153		car	84
154		Truck	24
155		car	26
156		car	5
157		car	42
158		car	21
159		car	82
160		car	25

Interarrivals at Border Highway
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161	11:40 AM	car	1
162		Truck	77
163		car	20
164		car	27
165		Truck	56
166		car	146
167		car	135
168		car	74
169		car	6
170	11:50 AM	Truck	54
171		car	97
172		Truck	11
173		car	4
174		car	10
175		Truck	1
176		car	69
177		Truck	37
178		Truck	2
179		Truck	9
180		car	10
181		car	42
182		car	18
183		car	3
184		Truck	5
185		car	1
186		Truck	24
187		Truck	20
188		car	119
189		car	1
190		car	5
191	12:00PM	car	9
192		Truck	3
193		car	33
194		Truck	43
195		car	2
196		car	111
197		Truck	4
198		car	65
199		car	30
200		Truck	32

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Truck	57
202		car	44
203		car	26
204		car	6
205		Truck	8
206		car	5
207		car	27
208	12:10 PM	Truck	28
209		car	218
210		car	7
211		car	4
212		car	22
213		car	1
214		car	177
215		Truck	2
216		Truck	4
217	12:20 PM	car	405
218		Truck	20
219		car	10
220		car	60
221	12:30 PM	car	109
222		car	133
223		Truck	114
224		Truck	1
225		Truck	62
226		car	29
227		car	16
228		car	66
229		car	10
230		Truck	12
231	12:40 PM	Truck	70
232		Truck	2
233		Truck	95
234		Truck	14
235		car	79
236		car	12
237		car	8
238		Truck	16
239		Truck	92
240	12:50 PM	Truck	124

Interarrivals at Border Highway
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		Truck	5
242		Truck	200
243		Truck	22
244		Truck	186
245		Truck	1
246		Truck	2
247		Truck	6
248		car	2
249	1:00 PM	Truck	270
250		Truck	95
251		Truck	13
252		car	31
253		Truck	163
254		Truck	3
255		Truck	5
256		Truck	4
257	1:10 PM	Truck	85
258		Truck	15
259		Truck	109
260		Truck	2
261		Truck	189
262		Truck	5
263		Truck	225
264	1:20 PM	Truck	60
265		Truck	103
266		Truck	5
267		Truck	2
268		Truck	3
269		Truck	109
270		Truck	104
271		Truck	123
272		Truck	1
273	1:30 PM	Truck	110
274		Truck	6
275		Truck	82
276		Truck	215
277		Truck	5
278		Truck	86
279	1:40 PM	Truck	14
280		Truck	11

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	34
282		Truck	78
283		Truck	352
284	1:50 PM	Truck	35
285		Truck	15
286		Truck	17
287		Truck	175
288		Truck	174
289		Truck	9
290		Truck	16
291	2:00 PM	Truck	15
292		Truck	2
293		Truck	2
294		Truck	118
295		Truck	3
296		Truck	26
297		Truck	252
298		Truck	103
299	2:10 PM	Truck	241
300		Truck	3
301		Truck	29
302		Truck	6
303		Truck	67
304		Truck	19
305		Truck	85
306		Truck	8
307		Truck	4
308	2:20 PM	Truck	41
309		Truck	59
310		Truck	37
311		Truck	321
312		Truck	99
313		Truck	1
314	2:30 PM	Truck	91
315		Truck	6
316		Truck	102
317		Truck	133
318		Truck	7
319		Truck	12
320		Truck	89

Interarrivals at Border Highway
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		Truck	89
322		Truck	4
323		Truck	2
324		Truck	3
325	2:40 PM	Truck	54
326		Truck	5
327		Truck	8
328		Truck	7
329		Truck	8
330		Truck	96
331		Truck	272
332		Truck	41
333		Truck	89
334	2:50 PM	Truck	110
335		Truck	128
336		Truck	12
337		Truck	3
338		Truck	96
339		Truck	177
340	3:00 PM	Truck	37
341		Truck	4
342		Truck	3
343		Truck	2
344		Truck	4
345		Truck	336
346	3:10 PM	Truck	6
347		Truck	4
348		Truck	15
349		Truck	74
350		Truck	15
351		Truck	112
352		Truck	7
353		Truck	96
354	3:20 PM	Truck	100
355		Truck	9
356		Truck	91
357		Truck	101
358	3:30 PM	Truck	398.04
359		Truck	2.43
360		Truck	1.16

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361		Truck	139.06
362		Truck	79.06
363		Truck	4.43
364		Truck	5.44
365	3:40 PM	Truck	101.68
366		Truck	187.76
367		Truck	5.53
368		Truck	418.35
369		Truck	4.83
370	3:50 PM	Truck	177.5
371		Truck	48.68
372		Truck	38.5
373		Truck	77.02
374		Truck	5.73
375		Truck	139.43
376		Truck	10.17
377		Truck	78.47
378		Truck	117.64
379		Truck	27.69
380	4:00 PM	Truck	194.23
381		Truck	13.02
382		Truck	3.49
383		Truck	7.45
384		Truck	4.29
385		Truck	120.38
386		Truck	96.47
387		Truck	11.05
388		Truck	120.02
389		Truck	12.36
390		Truck	101.97
391		Truck	8.18
392		Truck	30.97
393		Truck	78.07
394		Truck	82.82
395		Truck	3.32
396		Truck	103.94
397		Truck	4.83
398		Truck	100.72
399	4:20 PM	Truck	135.23
400		Truck	4.89

Interarrivals at Border Highway
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
401		Truck	19.01
402		Truck	3.91
403		Truck	82.86
404		Truck	221.82
405	4:30 PM	Truck	336.54
406		Truck	112.99
407		Truck	232.33
408		Truck	127.53
409		Truck	6.4
410	4:40 PM	Truck	114.26
411		Truck	96.44
412		Truck	7.3
413		Truck	89.12
414		Truck	132.53
415		Truck	3.52
416		Truck	109.83
417		Truck	5.74
418		Truck	8.9
419		Truck	7.12
420	4:50 PM	Truck	90.7
421		Truck	7.46
422		Truck	119.73
423		Truck	19.69
424		Truck	86.8
425		Truck	4.3
426		Truck	1.97
427		Truck	27.85
428		Truck	3.52
429		Truck	76.84
430		Truck	10.94
431		Truck	108.8
432		Truck	36.81
433		Truck	14.2
434	5:00 PM	Truck	100.55
435		Truck	179.03
436		Truck	3.57
437		Truck	35.17
438		Truck	178.16
439		Truck	53.11
440	5:10 PM	Truck	70.17

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
441		Truck	2.15
442		Truck	341.66
443		Truck	102.88
444		Truck	5.01
445	5:20 PM	Truck	117.51
446		Truck	5.68
447		Truck	110.22
448		Truck	22.49
449		Truck	198.91
450		Truck	27.85
451		Truck	9.38
452		Truck	5.48
453		Truck	24.7
454		Truck	72.89
455		Truck	3.94
456		Truck	5.26
457		Truck	5.12
458		Truck	1.81
459		Truck	3.52
460	5:30 PM	Truck	101.86
461		Truck	10.98
462		Truck	3.97
463		Truck	113.11
464		Truck	163.59
465		Truck	238.16
466		Truck	1.56
467		Truck	28.72
468	5:40 PM	Truck	83.19
469		Truck	52.89
470		Truck	63.49
471		Truck	214.93
472		Truck	133.19
473		Truck	3.49
474	5:50 PM	Truck	89.83
475		Truck	4.56
476		Truck	43.73
477		Truck	73.95
478		Truck	40.03
479		Truck	76.17
480		Truck	21.72

Interarrivals at Border Highway
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
481		Truck	84.82
482		Truck	7.02
483		Truck	93.74
484		Truck	116.26
485	6:00 PM	Truck	98.93
486		Truck	38.28
487		Truck	4.97
488		Truck	73.21
489		Truck	5.35
490		Truck	117.56
491		Truck	107.4
492		Truck	128.03
493	6:10 PM	Truck	115.59
494		Truck	112.9
495		Truck	120.99
496		Truck	165.75
497		Truck	4.07
498		Truck	62.01
499		Truck	32.27
500	6:20 PM	Truck	83.19
501		Truck	218.21
502		Truck	3.05
503		Truck	5.17
504		Truck	4.21
505		Truck	2.66
506		Truck	3.89
507		Truck	3.53
508		Truck	3.46
509		Truck	21.89
510		Truck	4.06
511		Truck	66.73
512		Truck	114.78
513	6:30 PM	Truck	470.48
514		Truck	115.67
515		Truck	25.24
516	6:40 PM	Truck	69.47
517		Truck	7.37
518		Truck	111.54
519		Truck	28.67
520		Truck	169.03

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
521		Truck	2.29
522		Truck	99.66
523		Truck	5.94
524		Truck	3.27
525		Truck	1.51
526		Truck	6.77
527	6:50 PM	Truck	93.66
528		Truck	119.23
529		Truck	41.22
530		Truck	70.52
531		Truck	3.59
532		Truck	2.97
533		Truck	6.13
534		Truck	103.2
535		Truck	4.67
536		Truck	81.49
537		Truck	5.43
538		Truck	3.88
539		Truck	2.74
540		Truck	3.69
541	7:00 PM	Truck	218.19
542		Truck	8.17
543		Truck	97.05
544		Truck	4.87
545		Truck	2.09
546		Truck	126.49
547		Truck	9.52
548		Truck	4.27
549		Truck	82.27
550		Truck	1.88
551		Truck	3.56
552		Truck	100.23
553	7:10 PM	Truck	3.53
554		Truck	96.1
555	7:20 PM	Truck	631.07
556		Truck	282.75
557		Truck	3.81
558		Truck	87.07
559	7:30 PM	Truck	41.79
560		Truck	88.63

Interarrivals at Border Highway
9:00A.M-8:00P.M
Wednesday
DATE: 1/6/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
561		Truck	188.64
562		Truck	219.79
563	7:40 PM	Truck	564.23
564		Truck	4.07
565		Truck	10.04
566	7:50 PM	Truck	6.71
567	8:00 PM	Truck	893.25

Interarrivals Border Highway
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1		Truck	157
2		Truck	20
3		Truck	60
4		car	119
5		Truck	184
6		car	107
7	9:10 AM	car	15
8		car	80
9		car	457
10		car	24
11		car	20
12	9:20 AM	car	142
13		Truck	104
14		car	94
15		car	137
16	9:30 AM	car	195
17		Truck	2
18		car	478
19		Truck	17
20		car	67
21		car	29
22		Truck	2
23		Truck	6
24	9:40 AM	car	265
25		car	15
26		car	18
27		car	49
28		car	109
29		car	30
30		car	134
31		car	101
32	9:50 AM	car	46
33		car	27
34		Truck	350
35		car	22
36		car	5
37		Truck	14
38		car	23
39		car	6
40	10:00 AM	car	184

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	65
42		Truck	14
43		car	100
44		car	55
45		car	50
46		car	4
47		car	65
48		car	30
49		car	47
50		Truck	33
51		Truck	4
52	10:10 AM	car	128
53		car	1
54		car	33
55		car	106
56		car	7
57		Truck	42
58		Truck	17
59		car	60
60		car	2
61		car	3
62		Truck	24
63		car	78
64		car	2
65		car	19
66		car	35
67		car	47
68	10:20 AM	car	8
69		car	40
70		car	130
71		Truck	42
72		car	3
73		Truck	2
74		Truck	3
75		car	11
76		car	28
77		Truck	41
78		Truck	10
79	10:30 AM	Truck	49
80		car	5

Interarrivals at Border Highway
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		Truck	93
82		Truck	1
83		Truck	109
84		Truck	97
85		Truck	6
86		Truck	5
87		car	25
88		car	59
89		car	1
90		Truck	15
91		car	22
92		car	66
93	10:40 AM	car	6
94		car	54
95		Truck	49
96		Truck	86
97		car	23
98		Truck	152
99		car	87
100		car	78
101		car	14
102		Truck	17
103		car	7
104		car	1
105		car	1
106	10:50 AM	car	29
107		car	2
108		Truck	49
109		car	40
110		car	155
111		Truck	29
112		car	2
113		car	66
114		Truck	28
115		car	20
116		car	23
117		car	38
118		car	8
119		Truck	44
120		Truck	3

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121	11:00 AM	car	42
122		car	43
123		car	177
124		car	38
125		Truck	28
126		car	21
127		car	41
128		car	32
129		Truck	44
130		Truck	32
131		car	1
132		car	1
133		car	17
134		car	29
135		car	7
136		car	11
137	11:10 AM	Truck	19
138		car	2
139		car	2
140		car	1
141		Truck	4
142		Truck	15
143		car	8
144		car	3
145		car	1
146		car	4
147		car	2
148		car	24
149		Truck	10
150		car	32
151		car	1
152		car	2
153		car	11
154		car	54
155		Truck	14
156		car	120
157		car	2
158		car	2
159		car	1
160		car	1

Interarrivals at Border Highway
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		car	1
162		car	56
163		car	43
164		car	3
165		car	24
166		car	47
167	11:20 AM	car	20
168		car	45
169		car	59
170		Truck	1
171		car	93
172		car	1
173		car	1
174		car	30
175		Truck	70
176		car	11
177		car	65
178		car	19
179		car	29
180		car	14
181		car	115
182	11:30 AM	Truck	10
183		Truck	3
184		car	76
185		car	54
186		car	34
187		car	95
188		car	6
189		car	37
190		car	79
191		car	2
192		car	80
193	11:40 AM	Truck	7
194		car	152
195		Truck	5
196		Truck	5
197		car	138
198		car	16
199		car	4
200		car	59

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201	11:50 AM	Truck	18
202		car	1
203		car	26
204		car	44
205		Truck	2
206		car	3
207		Truck	1
208		Truck	94
209		car	8
210		car	1
211		Truck	2
212		Truck	4
213		car	122
214	12:00 PM	Truck	87
215		Truck	5
216		car	231
217		car	35
218		car	108
219		Truck	5
220		car	50
221		Truck	24
222		car	20
223	12:10 PM	car	1
224		car	96
225		car	79
226		Truck	11
227		car	81
228		car	4
229		Truck	21
230		Truck	93
231		Truck	4
232	12:20 PM	Truck	162
233		Truck	47
234		car	10
235		Truck	4
236		Truck	3
237		Truck	103
238		car	2
239		Truck	73
240		car	10

Interarrivals at Border Highway
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		car	1
242		car	2
243		Truck	25
244		Truck	1
245	12:30 PM	car	15
246		car	310
247		Truck	5
248		car	211
249		Truck	14
250	12:40 PM	car	58
251		car	485
252		car	42
253	12:50 PM	Truck	41
254		Truck	91
255		Truck	228
256		Truck	4
257		Truck	6
258		Truck	109
259		car	1
260	1:00 PM	Truck	79
261		Truck	91
262		Truck	3
263		Truck	2
264		Truck	16
265		car	76
266		Truck	10
267		Truck	100
268		Truck	2
269		Truck	87
270		Truck	116
271		Truck	2
272	1:10 PM		
273	1:20 PM	Truck	3
274		Trucks	83
275		Trucks	103
276		Trucks	1
277		Trucks	1
278		Trucks	80
279		Trucks	20
280	1:30 PM	Trucks	1

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Trucks	1
282		Trucks	1
283		Trucks	99
284		Trucks	102
285		Trucks	315
286		Trucks	11
287		Trucks	48
288	1:40 PM	car	314
289		Trucks	158
290	1:50 PM	Trucks	69
291		Trucks	211
292		Trucks	201
293		Trucks	90
294	2:00 PM	Trucks	171
295		Trucks	5
296		Trucks	418
297	2:10 PM	Trucks	10
298		Trucks	93
299		Trucks	40
300		Trucks	60
301		Trucks	6
302	2:20 PM	Trucks	76
303		Trucks	142
304		Trucks	122
305		Trucks	72
306		Trucks	31
307	2:30 PM	Trucks	32
308		Trucks	101
309		Trucks	100
310		Trucks	25
311		Trucks	79
312	2:40 PM	Trucks	217
313		Trucks	116
314		Trucks	113
315	2:50 PM	Truck	1
316		Truck	193
317		Truck	112
318		Truck	221
319		Truck	7
320		Truck	6

Interarrivals at Border Highway
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321	3:00 PM	Truck	27
322		Truck	120
323		Truck	4
324		Truck	13
325		Truck	189
326		Truck	118
327	3:10 PM	Truck	101
328		Truck	116
329		Truck	62
330		Truck	126
331	3:20 PM	Truck	1
332		Truck	66
333		Truck	149
334		Truck	9
335		Truck	14
336		Truck	8
337		Truck	84
338		Truck	1
339		Truck	110
340		Truck	8
341		Truck	101
342	3:30 PM	Truck	80
343		Truck	68
344		Truck	15
345		Truck	9
346	3:30 PM	Truck	205.12
347		Truck	5.35
348		Truck	124.95
349		Truck	75.5
350		Truck	203.33
351	3:50 PM	Truck	372.4
352		Truck	70.33
353		Truck	14.613.72
354		Truck	236.87
355	4:00 PM	Truck	195.84
356		Truck	4.49
357		Truck	17.19
358		Truck	92.85
359		Truck	105.03
360		Truck	34.22

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361		Truck	196.97
362		Truck	112.33
363		Truck	3.31
364		Truck	99.88
365		Truck	412.74
366		Truck	5.43
367		Truck	216.01
368		Truck	142.32
369		Truck	75.42
370	4:30 PM	Truck	335.12
371		Truck	94.31
372		Truck	14.59
373		Truck	350.28
374		Truck	14.16
375		Truck	5.48
376		Truck	205.89
377		Truck	47.04
378		Truck	189.77
379	4:50 PM	Truck	73.87
380		Truck	8.97
381		Truck	124.77
382		Truck	1.3
383		Truck	3.33
384		Truck	109.11
385		Truck	106.35
386		Truck	11.78
387		Truck	96.77
388		Truck	4.5
389	5:00 PM	Truck	116.99
390		Truck	221.61
391		Truck	160.79
392		Truck	77.41
393	5:10 PM	Truck	67.26
394		Truck	20.83
395		Truck	12.69
396		Truck	2.75
397		Truck	103.13
398		Truck	42.71
399		Truck	72.19
400		Truck	5.07

Interarrivals at Border Highway
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
401		Truck	3.06
402		Truck	2.22
403		Truck	164.88
404		Truck	58.38
405	5:20 PM	Truck	218.35
406		Truck	4.74
407		Truck	109.83
408		Truck	11.1
409		Truck	3.98
410		Truck	157.69
411	5:30 PM	Truck	243.98
412		Truck	4.49
413		Truck	112.32
414		Truck	104.99
415		Truck	3.44
416		Truck	106.17
417		Truck	1.13
418	5:40 PM	Truck	293.96
419		Truck	5.99
420		Truck	31.89
421		Truck	78.67
422		Truck	5.17
423		Truck	3.46
424		Truck	166.65
425		Truck	88.65
426	5:50 PM	Truck	106.67
427		Truck	5.15
428		Truck	3.27
429		Truck	3.3
430		Truck	2.6
431		Truck	3.97
432		Truck	18.22
433		Truck	74.17
434		Truck	5.08
435		Truck	11.53
436		Truck	109.97
437		Truck	236.84
438		Truck	9.81
439	6:00 PM	Truck	113.91
440		Truck	3.93

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
441		Truck	2.7
442		Truck	103.54
443		Truck	114.41
444		Truck	140.81
445		Truck	102.93
446	6:10 PM	Truck	242.48
447		Truck	124.73
448		Truck	310.25
449		Truck	4.8
450	6:20 PM	Truck	201.84
451		Truck	230.27
452	6:30 PM	Truck	207.97
453		Truck	105.46
454		Truck	3.84
455		Truck	40.99
456		Truck	62.22
457		Truck	220.93
458	6:40 PM	Truck	156.69
459		Truck	2.81
460		Truck	103.32
461		Truck	4.77
462		Truck	107.5
463		Truck	9.39
464		Truck	1.93
465		Truck	1.57
466	6:50 PM	Truck	309.47
467		Truck	93.97
468		Truck	308.42
469		Truck	104.06
470	7:00 PM	Truck	182.51
471		Truck	13.83
472		Truck	7.44
473		Truck	96.75
474		Truck	121.4
475		Truck	288.23
476	7:10 PM	Truck	152.62
477		Truck	65.91
478		Truck	288.17
479		Truck	73.99
480	7:20 PM	Truck	101.73

Interarrivals at Border Highway
9:00A.M-8:00P.M
Thursday
DATE: 1/7/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
481		Truck	6.33
482		Truck	3.87
483		Truck	379.46
484		Truck	3.49
485	7:30 PM	Truck	121.82
486		Truck	129.87
487		Truck	3.43
488	7:40 PM	Truck	490.09
489		Truck	87.84
490		Truck	193.12
491		Truck	16.96
492		Truck	83.83
493		Truck	96.83
494		Truck	9.06
495	7:50 PM	Truck	94.66

Interarrivals Border Highway
9:00A.M.-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1		car	263
2		car	52
3		Truck	25
4		car	4
5		car	147
6	9:10 AM	car	81
7		car	2
8		car	19
9		car	58
10		car	3
11	9:20 AM	car	177
12		car	202
13		Truck	94
14		car	15
15		car	46
16		car	27
17		car	147
18		car	53
19		car	13
20	9:30 AM	car	4
21		car	32
22		car	5
23		car	207
24		car	11
25		car	11
26		car	61
27		car	14
28		car	167
29		car	50
30	9:40 AM	car	126
31		car	78
32		car	1
33		car	147
34		car	17
35		car	10
36		car	7
37		car	2
38		car	108
39	9:50 AM	car	99
40		car	13

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		Truck	6
42		Truck	5
43		car	63
44		car	22
45		Truck	8
46	10:00 AM	car	92
47		car	2
48		car	41
49		car	202
50		car	37
51		car	9
52		car	32
53		car	7
54		car	3
55	10:10 AM	Truck	5
56		car	335
57		car	2
58		car	148
59		car	10
60		car	40
61		car	6
62		car	9
63		car	5
64		car	32
65		car	34
66		car	13
67		car	18
68		Truck	21
69		car	12
70		car	1
71		car	1
72		car	10
73		car	14
74		car	25
75		car	4
76		car	5
77		car	24
78		car	14
79	10:20 AM	car	7
80		car	1

Interarrivals at Border Highway
9:00A.M.-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		car	99
82		car	58
83		car	1
84		car	1
85		car	2
86		car	58
87		car	23
88		car	165
89		car	28
90		car	45
91		car	35
92		car	3
93		car	3
94		car	1
95		car	3
96		car	30
97	10:30 AM	car	116
98		car	78
99		Truck	2
100		car	6
101		car	2
102		Truck	5
103		Truck	18
104		car	72
105		Truck	4
106		car	11
107		car	65
108		Truck	2
109		Truck	5
110		car	7
111		car	35
112		car	21
113		car	17
114		car	4
115		car	2
116		car	2
117		car	10
118		car	14
119		car	3
120		car	5

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		car	2
122		car	1
123		car	8
124		car	1
125		car	1
126		car	1
127		car	10
128		car	1
129		car	1
130	10:40 AM	car	37
131		car	26
132		car	1
133		car	1
134		car	6
135		car	27
136		car	1
137		car	29
138		car	6
139		car	55
140		Truck	8
141		Truck	3
142		Truck	11
143		car	2
144		car	1
145		car	36
146		car	17
147		Truck	16
148		car	38
149		Truck	6
150		Truck	2
151		Truck	9
152		Truck	9
153		car	18
154		car	1
155	10:50 AM	car	11
156		car	2
157		Truck	35
158		car	43
159		car	114
160		car	2

Interarrivals at Border Highway
9:00A.M.-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		car	40
162		Truck	52
163		car	43
164		car	3
165		car	2
166		car	14
167		car	41
168		car	21
169		car	49
170		car	27
171		Truck	1
172		Truck	1
173		car	15
174		car	20
175	11:00 AM	car	7
176		Truck	33
177		car	10
178		car	2
179		car	14
180		car	7
181		car	27
182		Truck	31
183		Truck	10
184		Truck	5
185		car	1
186		car	11
187		car	41
188		car	25
189		Truck	16
190		Truck	5
191		Truck	8
192		car	1
193		Truck	4
194		car	1
195		car	27
196		car	1
197		car	62
198		Truck	1
199		car	1
200		car	72

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		Truck	23
202		car	17
203		car	4
204		car	1
205		car	28
206		car	30
207		car	16
208		car	3
209		car	7
210	11:10 AM	car	14
211		car	2
212		car	12
213		car	8
214		car	37
215		car	6
216		Truck	2
217		car	11
218		car	1
219		car	1
220		Truck	6
221		car	9
222		car	36
223		car	2
224		car	26
225		car	1
226		car	2
227		car	7
228		car	34
229		Truck	68
230		Truck	4
231		Truck	11
232		car	21
233		car	17
234		car	5
235		Truck	57
236		car	109
237	11:20 AM	car	134
238		car	30
239		car	89
240		car	64

Interarrivals at Border Highway
9:00A.M.-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		car	91
242	11:30 AM	car	13
243		car	39
244		Truck	16
245		Truck	7
246		car	13
247		Truck	885
248		Truck	1
249		car	10
250		Truck	98
251		Truck	26
252		Truck	98
253		car	2
254		Truck	11
255		car	23
256	11:40 AM	Truck	3
257		car	33
258		Truck	466
259		Truck	1
260		Truck	2
261		Truck	1
262	11:50 AM	Truck	40
263		Truck	3
264		car	88
265		car	69
266		Truck	53
267		Truck	1
268		car	54
269		car	103
270		car	1
271		car	57
272		car	1
273		car	2
274		car	17
275		car	1
276		car	1
277		car	11
278	12:00 PM	Truck	13
279		Truck	1
280		Truck	1

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	4
282		car	22
283		Truck	83
284		Truck	3
285		car	50
286		Truck	65
287		car	85
288		car	2
289		car	16
290		car	47
291		car	55
292		car	38
293		car	34
294	12:10 PM	car	5
295		car	4
296		car	9
297		Truck	50
298		car	18
299		Truck	64
300		car	61
301		Truck	47
302		car	14
303		Truck	87
304		car	52
305		car	39
306		Truck	9
307		car	52
308		car	30
309		Truck	29
310		Truck	3
311	12:20 PM	car	2
312		Truck	36
313		car	40
314		car	6
315		car	41
316		Truck	10
317		car	46
318		car	6
319		Truck	47
320		car	154

Interarrivals at Border Highway
9:00A.M.-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		car	63
322	12:30 PM	Truck	42
323		Truck	1
324		Truck	5
325		Truck	4
326		car	35
327		car	5
328		car	87
329		Truck	14
330		Truck	36
331		Truck	171
332		car	3
333		car	44
334		car	82
335	12:40 PM	Truck	40
336		Truck	5
337		Truck	228
338		Truck	128
339		car	6
340		Truck	51
341	12:50 PM	car	392
342	1:00 PM	Truck	5
343		Truck	218
344		Truck	5
345		Truck	179
346	1:10 PM	Truck	361
347		Truck	45
348	1:20 PM	Truck	48
349		Truck	4
350		Truck	183
351		Truck	102
352		Truck	8
353		Truck	128
354	1:30 PM	Truck	50
355		Truck	9
356		Truck	112
357		Truck	4
358		Truck	4
359		Truck	152
360		Truck	132

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361	1:40 PM	Truck	223
362		Truck	233
363	1:50 PM	Truck	57
364		Truck	12
365		Truck	301
366		Trucks	97
367	2:00 PM	Trucks	128
368		Trucks	432
369	2:10 PM	Trucks	415
370		Trucks	116
371	2:20 PM	Trucks	334
372		Trucks	271
373		Trucks	7
374		Trucks	39
375	2:30 PM	Trucks	56
376		Trucks	120
377		Trucks	300
378		Trucks	119
379	2:40 PM	Trucks	375
380		Trucks	6
381	2:50 PM	Trucks	64
382		Trucks	7
383		Trucks	17
384		Trucks	202
385	3:00 PM	Trucks	8
386		Trucks	17
387		Trucks	91
388		Trucks	202
389		Trucks	10
390		Trucks	3
391	3:10 PM	Trucks	372
392		Trucks	4
393		Trucks	8
394	3:20 PM	Trucks	116
395		Trucks	6
396		Trucks	111
397		Trucks	11
398		Trucks	7
399		Trucks	313
400	3:30 PM	Trucks	258

Interarrivals at Border Highway
9:00A.M.-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
401	3:40 PM	Truck	217.77
402		Truck	220.99
403		Truck	4.1
404	3:50 PM	Truck	355.05
405		Truck	3.89
406		Truck	117.87
407		Truck	5.23
408		Truck	96.93
409		Truck	6.97
410	4:00 PM	Truck	225.77
411		Truck	230.17
412		Truck	4.54
413		Truck	106.99
414		Truck	192.33
415		Truck	10.08
416	4:10 PM	Truck	120.13
417		Truck	92.57
418		Truck	136.03
419		Truck	39.16
420		Truck	207.24
421	4:20 PM	Truck	374.3
422		Truck	72.32
423		Truck	2.59
424		Truck	3.88
425		Truck	26.38
426	4:30 PM	Truck	177.96
427		Truck	262.12
428		Truck	10.37
429		Truck	136.04
430		Truck	126.33
431		Truck	32.26
432	4:40 PM	Truck	60.67
433		Truck	117.03
434		Truck	128.23
435		Truck	100.93
436		Truck	127.77
437	4:50 PM	Truck	40.3
438		Truck	79.66
439		Truck	117.69
440		Truck	40.26

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
441		Truck	80.38
442		Truck	45.09
443		Truck	92.67
444		Truck	120.33
445	5:00 PM	Truck	237.27
446		Truck	4.33
447	5:10 PM	Truck	437.88
448		Truck	34.49
449		Truck	87.38
450		Truck	11.42
451		Truck	5
452	5:20 PM	Truck	744.86
453		Truck	5.23
454		Truck	19.81
455		Truck	112.54
456		Truck	107.9
457		Truck	4.23
458		Truck	7.07
459	5:30 PM	Truck	38.97
460		Truck	81.91
461		Truck	263.52
462		Truck	7.03
463	5:40 PM	Truck	236.89
464		Truck	105.99
465		Truck	114.45
466		Truck	4.75
467		Truck	115.81
468	5:50 PM	Truck	460.54
469		Truck	5.77
470		Truck	213.27
471		Truck	122.89
472	6:00 PM	Truck	122.69
473		Truck	6.46
474		Truck	3.83
475		Truck	229.76
476		Truck	31.92
477		Truck	87.27
478		Truck	4.77
479		Truck	5.02
480		Truck	4.41

Interarrivals at Border Highway
9:00A.M.-8:00P.M
Friday
DATE: 1/8/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
481	6:10 PM	Truck	97.73
482		Truck	4.34
483		Truck	4.18
484		Truck	216.3
485		Truck	6.05
486		Truck	3.01
487		Truck	4.77
488		Truck	25.2
489		Truck	73.01
490		Truck	159.43
491	6:20 PM	Truck	66.87
492		Truck	4.2
493		Truck	2.39
494		Truck	197.85
495		Truck	5.33
496		Truck	3.18
497		Truck	107.24
498		Truck	61.61
499	6:30 PM	Truck	242.97
500		Truck	81.67
501		Truck	6.22
502		Truck	3.51
503		Truck	58.5
504		Truck	50.11
505		Truck	104.5
506		Truck	35.52
507		Truck	55.84
508		Truck	4.27
509		Truck	2.96
510	6:40 PM	Truck	114.93
511		Truck	8.77
512		Truck	89.36
513		Truck	309.87
514	6:50 PM	Truck	210.98
515		Truck	13.69
516		Truck	508.19
517		Truck	7.17
518	7:00 PM	Truck	453.43
519		Truck	1.66
520		Truck	100.81

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
521		Truck	9.23
522	7:10 PM	Truck	104.6
523		Truck	2.33
524		Truck	185.29
525		Truck	127.03
526		Truck	88
527		Truck	28.3
528	7:20 PM	Truck	203.84
529		Truck	123.61
530		Truck	107.29
531	7:30 PM	Truck	262.56
532		Truck	7.71
533		Truck	3.38
534		Truck	1.59
535		Truck	1.21
536		Truck	257.18
537		Truck	91.27
538	7:40 PM	Truck	261.34
539		Truck	189.23
540		Truck	7.95
541		Truck	218.02
542		Truck	3.97
543		Truck	2.68
544		Truck	83.34
545	7:50 PM	Truck	307.99
546		Truck	76.29
547		Truck	63.06
548	8:00 PM	Truck	4.09

Interarrivals Border Highway
8:00 AM - 5:30 PM
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
1	8:00 AM	car	361
2		car	11
3	8:10 AM	car	117
4	8:20 AM	car	151
5		car	8
6	8:30 AM	car	83
7		car	220
8		car	2
9		car	2
10	8:50 AM	car	72
11		car	8
12	9:00 AM	car	94
13		car	111
14		car	8
15		car	7
16		car	2
17		car	126
18		car	11
19		car	16.07
20		car	84.59
21	9:10 AM	car	139.29
22		car	86.38
23		car	16.08
24		car	62.9
25		car	126.59
26		car	62.28
27	9:20 AM	car	80.24
28		car	1.69
29		car	1.36
30		car	0.99
31		car	4
32		car	82.16
33		car	38.19
34		car	83.38
35		car	61.67
36		car	16
37		car	77.67
38	9:30 AM	car	141.07
39		car	63.99
40		car	2.35

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
41		car	112.89
42		car	8.47
43		car	74.01
44		car	93.92
45		car	47.17
46	9:40 AM	car	128.92
47		car	65.49
48		car	78.99
49		car	4.27
50		car	68.08
51		car	4.59
52		car	2.6
53		car	42.64
54		car	2.34
55		car	57.5
56		car	14.33
57	9:50 AM	car	19.78
58		car	6.98
59		car	55.38
60		car	11.87
61		car	9.45
62		Truck	23.97
63		car	14.62
64		car	45.91
65		car	2.09
66		Truck	35.61
67		car	46.96
68		car	12.67
69		car	10.62
70		car	119.22
71		car	51.66
72		car	7.13
73		car	1.27
74		car	73.13
75	10:00 AM	car	29.19
76		car	1.43
77		car	1.22
78		car	125.09
79		car	22.79
80		car	12.75

Interarrivals at Border Highway
8:00 AM - 5:30 PM
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
81		car	3.09
82		car	1
83		car	5.18
84		car	37.89
85		car	9.07
86		car	7.37
87		car	3.03
88		car	14.03
89		car	195.65
90	10:10 AM	car	56.38
91		car	31.97
92		car	34.57
93		car	85.24
94		car	91.17
95		car	36.47
96		car	30.8
97		car	131.99
98	10:20 AM	car	10
99		car	28.29
100		car	58.97
101		car	13.71
102		car	1.57
103		car	43.84
104		car	80.15
105		car	6.67
106		car	7.51
107		car	4.45
108		car	38.21
109		car	13.35
110		car	56.84
111		car	39.17
112		car	1.22
113		car	43.67
114		car	5.13
115		car	62.63
116		car	1.21
117		car	1.63
118		car	6.15
119	10:30 AM	car	54.58
120		car	18.89

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
121		car	85.17
122		car	4.97
123		car	72.23
124		Truck	1.93
125		car	3.09
126		car	25.37
127		car	22.07
128		Truck	56.24
129		car	47.94
130		car	31.645
131		Truck	12.65
132		car	2.25
133		Truck	1.81
134		Truck	3.01
135		car	4.67
136		Truck	95.61
137		Truck	3.87
138	10:40 AM	car	62.79
139		car	51.56
140		Truck	78.85
141		Truck	6.41
142		car	6.04
143		car	16.01
144		car	29.13
145		car	46.83
146		car	12.17
147		car	16.97
148		car	3.97
149		car	0.93
150		car	38.83
151		car	11.93
152		Truck	32.71
153		car	11.5
154		car	1.19
155		car	44
156		car	34.48
157		Truck	23.52
158	10:50 AM	car	51.35
159		car	12.69
160		car	10.06

Interarrivals at Border Highway
8:00 AM - 5:30 PM
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Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
161		car	54.26
162		car	46.86
163		car	1.14
164		car	105.85
165		car	1.59
166		car	82.38
167		car	17.77
168		car	66.07
169		car	28.47
170		car	54.77
171		Truck	30.42
172		car	7.64
173	11:00 AM	car	82.19
174		car	7.66
175		car	43.18
176		car	17.5
177		car	9.11
178		car	78.95
179		car	23.35
180		car	21.89
181		car	8.47
182		car	23.99
183		car	8.3
184		car	26.97
185		car	13.62
186		car	19.33
187		car	13.41
188		car	20.5
189		car	1.35
190		car	15.05
191		car	17.43
192		car	21.26
193		car	7.7
194		car	19.93
195		car	35.8
196		car	14.44
197		car	11.44
198		car	4.61
199		car	6.96
200	11:10 AM	car	6.5

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
201		car	19.35
202		car	41.02
203		car	75.68
204		Truck	15.95
205		car	33.94
206		car	3.66
207		car	19.85
208		car	4.05
209		car	1.58
210		car	19.27
211		car	1.5
212		Truck	10.07
213		car	4.97
214		car	25.94
215		car	8.17
216		car	12.24
217		car	5.79
218		car	2.25
219		car	51.73
220		Truck	4.43
221		car	8.25
222		car	45.22
223		car	8.03
224		car	12.76
225		car	14.32
226		car	18.44
227		car	4.86
228		car	1.47
229		car	5.78
230		car	46.48
231		car	9.34
232		Truck	16.73
233		car	39.75
234	11:20 AM	car	6.97
235		car	82.22
236		car	10.83
237		car	10.41
238		car	6.51
239		car	18.33
240		car	56.03

Interarrivals at Border Highway
8:00 AM - 5:30 PM
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
241		car	67.87
242		car	1.57
243		Truck	34.11
244		car	80.35
245		car	1.35
246		car	1.15
247		car	35.35
248		car	10.71
249		car	4.73
250		Truck	62.49
251		Truck	5.3
252	11:30 AM	car	61.32
253		car	12.47
254		car	86.11
255		Truck	28.3
256		Truck	5.26
257		Truck	2.2
258		car	10.69
259		car	23.03
260		Truck	64.49
261		car	41.8
262		car	13.84
263		car	82.12
264		car	75.79
265		Truck	17.79
266		car	14.82
267		car	55.26
268	11:40 AM	car	28.57
269		Truck	36.89
270		Truck	4.34
271		Truck	22.87
272		car	17.29
273		car	48.47
274		car	19.13
275		Truck	16.97
276		car	9.58
277		car	25.49
278		car	45.08
279		car	38.07
280		car	61.13

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
281		Truck	16.57
282		car	8.48
283		car	37.64
284		car	15.89
285		car	35.8
286		car	20.78
287		car	22.43
288	11:50 AM	car	10.81
289		car	21.51
290		car	14.27
291		car	14.87
292		car	62.84
293		car	11.63
294		Truck	17.65
295		car	12.04
296		car	14.29
297		car	27.91
298		car	38.79
299		Truck	13.14
300		car	56.77
301		car	22.02
302		car	12.44
303		car	31.99
304		Truck	3.45
305		car	12.85
306		car	9.39
307		car	102.61
308		car	15.68
309		car	1.05
310	12:00 PM	Truck	20.13
311		Truck	3.4
312		car	98.42
313		car	58.84
314		car	48.23
315		car	36.04
316		car	8.96
317		car	27.92
318		car	19.78
319		Truck	17.77
320		car	37.45

Interarrivals at Border Highway
8:00 AM - 5:30 PM
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
321		car	26.17
322		car	79.54
323		car	47.28
324	12:10 PM	car	48.29
325		Truck	13.99
326		Truck	233.99
327		Truck	6.22
328		Truck	41.44
329		car	19.55
330		Truck	11.18
331		Truck	100.65
332		car	37.19
333		Truck	25.51
334	12:20 PM	Truck	56.13
335		car	49.65
336		car	9.7
337		Truck	49.33
338		car	140.36
339		car	12.57
340		car	38.9
341		car	1.8
342	12:30 PM	car	7.51
343		car	14.17
344		car	94.2
345		Truck	113.99
346		car	100.68
347		Truck	12.79
348		Truck	130.43
349		car	103.05
350	12:40 PM	car	449.03
351	12:50 PM	car	232.99
352		car	36.69
353		Truck	40.97
354		Truck	50.98
355		Truck	68.2
356		car	87.23
357		car	43.27
358	1:00 PM	car	75.83
359		Truck	105.13
360		Truck	208.68

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
361	1:10 PM	Truck	194.99
362		Truck	5.55
363		Truck	120.07
364		Truck	92.07
365	1:20 PM	Truck	100.33
366	1:30 PM	Truck	649.77
367		Truck	104.29
368		Truck	6.71
369		Truck	3.87
370		Truck	109.59
371		Truck	3.82
372		Truck	209.59
373	1:40 PM	Truck	354.63
374	1:50 PM	Truck	538.45
375		Truck	323.19
376		Truck	38.85
377	2:00 PM	Truck	497.54
378		Truck	124.57
379		Truck	2.69
380		Truck	3.56
381	2:10 PM	Truck	394.89
382		Truck	39.82
383	2:20 PM	Truck	224.02
384		Truck	2.39
385		Truck	5.11
386		Truck	3.13
387		Truck	30.69
388		Truck	331.04
389		Truck	121.71
390	2:30 PM	Truck	111.28
391		Truck	3.96
392		Truck	95.95
393		Truck	17.56
394		Truck	212.91
395		Truck	6.53
396		Truck	223.59
397		Truck	4.91
398		Truck	5.86
399		Truck	8.52
400		Truck	2.37

Interarrivals at Border Highway
8:00 AM - 5:30 PM
Saturday
DATE: 1/9/1999

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
401		Truck	1.52
402	2:40 PM	Truck	116.07
403		Truck	2.59
404		Truck	106.48
405		Truck	2.34
406		Truck	81.93
407		Truck	119.12
408	2:50 PM	Truck	120.83
409		Truck	100.57
410		Truck	112.06
411		Truck	58.89
412		Truck	51.29
413		Truck	218.99
414		Truck	15.62
415	3:00 PM	Truck	221.8
416		Truck	1.66
417		Truck	5.24
418		Truck	209.04
419		Truck	1.06
420		Truck	183.92
421		Truck	6.73
422		Truck	4.21
423	3:10 PM	Truck	218
424		Truck	178.92
425		Truck	3.15
426	3:20 PM	Truck	548.34
427		Truck	167.84
428		Truck	20.2
429	3:30 PM	Truck	636.29
430	3:40 PM	Truck	87.67
431		Truck	96.67
432	3:50 PM	Truck	5.19
433	4:00 PM	Truck	1029.16
434		Truck	98.54
435		Truck	244.34
436		Truck	117.54
437	4:10 PM	Truck	206.27
438	4:40 PM	Truck	267.96
439	4:50PM	Truck	1891.89
440	5:00 PM	Truck	1208.91

Number of Vehicle	Time (hr)	Vehicle Clasiffication	Arrival Time (sec)
441	5:10 PM	Truck	664.69
442	5:20 PM	Truck	445.2
443	5:30 PM	Truck	121.64

APPENDIX B
MODELING WITH ARENA

Appendix B

Modeling with ARENA

This appendix contains a brief description of the model logic development for the Ysleta-Zaragoza Bridge, using ARENA 3.0 simulation software. ARENA software utilizes a graphical, one step approach, similar to describing the process in the form of a flow chart. In ARENA, each one of these steps can be though of as a modeling construct, called a module. Each module contains logic, data, animation, and/or statistics and is composed of a module handle and an animation object. The next diagram shows some sample modules (Arrive, Conveyor, Segment, Advanced Server) and its corresponding animation object.

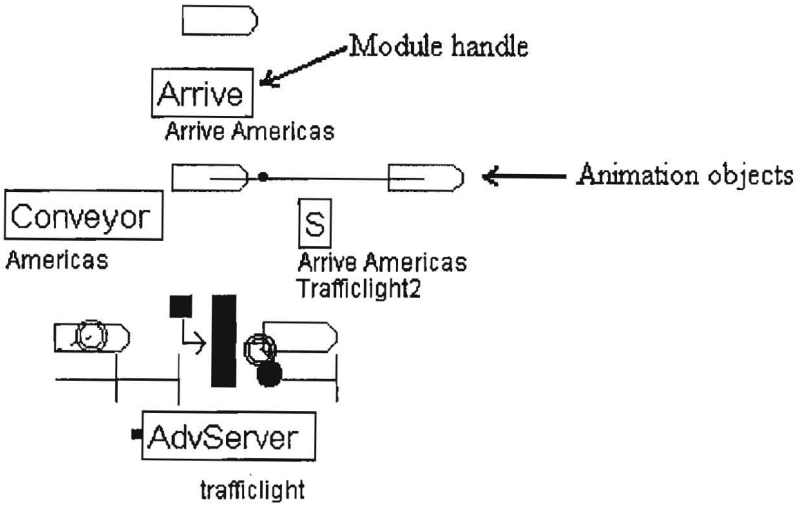


Figure B-1. Example of ARENA Module handles and animation object.

ARENA provides several dialog boxes to customize the module information corresponding to the simulation logic required. (To open the dialog boxes, double-click on the module). In addition, ARENA contains a picture library that can be used to customize animation objects. The main modules used for the development of this simulation were:

- Simulation Module
- Arrive Module
- Conveyor and Segment Modules
- Advance Server Module
- Depart Module
- Statistics Module

B.1 Simulation Module

The simulate module will control the running of the model. Things like run length and number of replications are set in this module (Figure B-2).

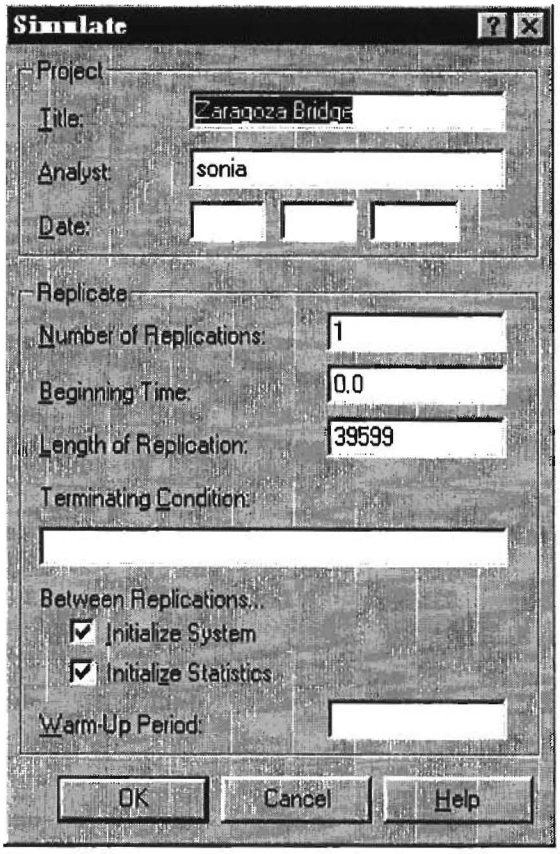


Figure B-2. The Simulate Main Dialog

As presented in chapter 4, the simulation was run for eleven hours based on the obtained data collection from 9:00AM to 8PM. The simulation run length units were seconds as presented in the simulate dialog box.

B.2 Arrive Module

The arrive module is used to generate the arriving entities. In this case, the entities generated are vehicles (trucks and cars). The arrive module is made up of three sections: Enter Data, Arrive Data and leave Data (Figure B-3) In this case, four arrive modules were required to generate the vehicles entering the bridge and local traffic. For the purpose of this example, only the logic and values of the vehicles generated at the Americas Avenue will be presented.

At the Enter Data section, only the default station name was changed corresponding to the arrive location, as presented in figure B-3. In the Arrival Data

section, the time between arrivals is controlled by an exponential distribution with a mean value defined by a variable named "InterArrTime".

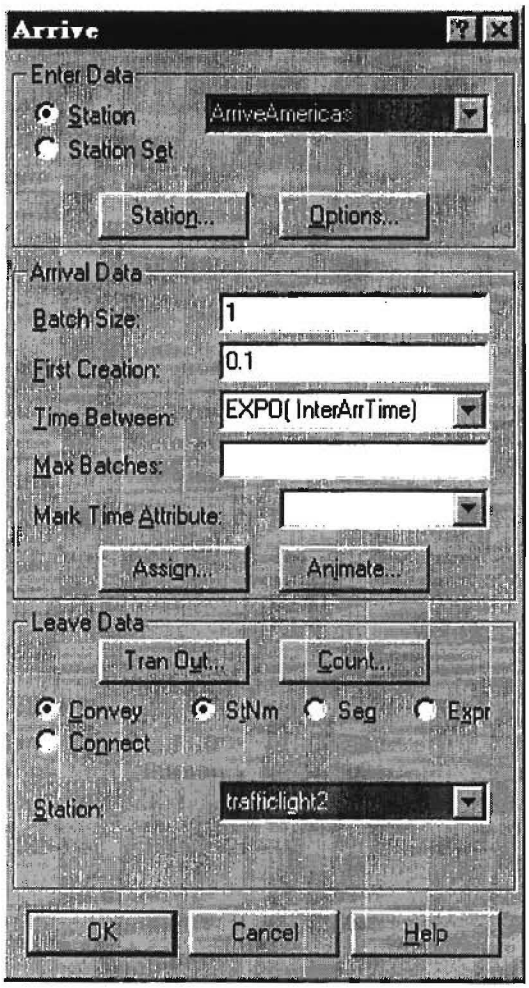


Figure B-3. The Arrive Main Dialog

Every hour (3600sec) the "InterArrTime" variable is created at a separate arrive module with station name Freq Sched (Figure B-4). This variable, changes according to a scheduled defined in the expressions module (Figure B-5) which values correspond to the mean interarrival times presented in Table 4.1.

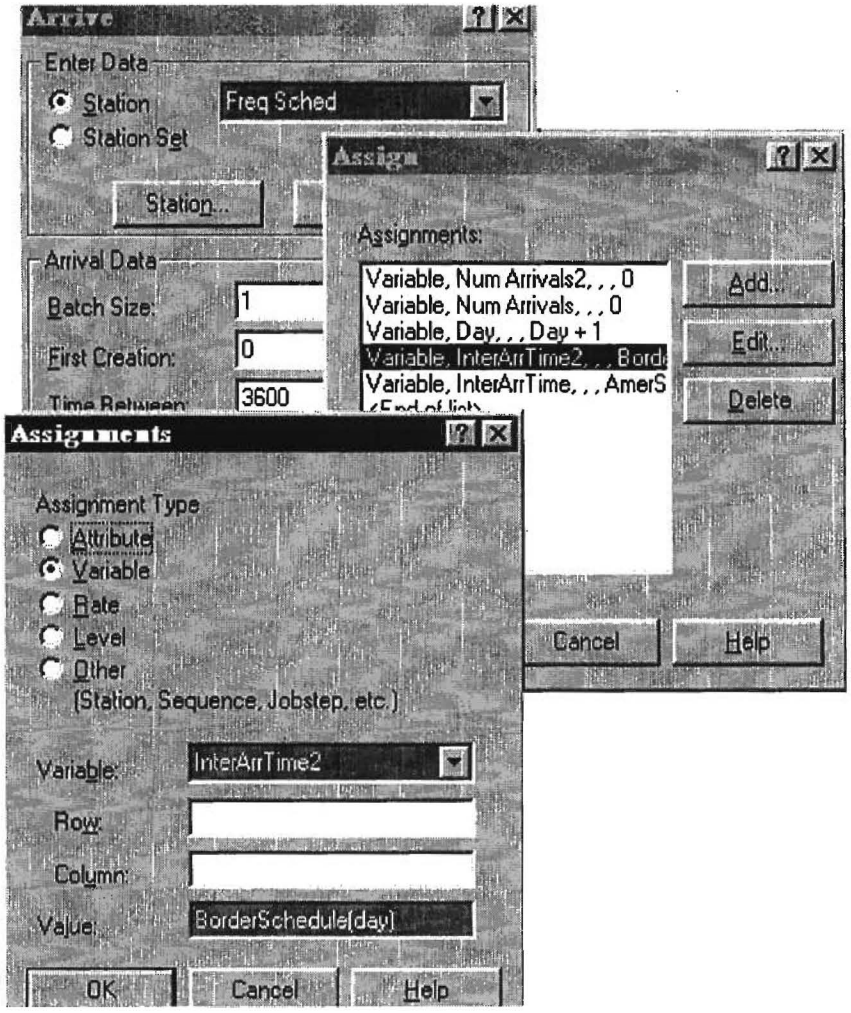


Figure B-4. The Arrive Main Dialog, Variable creation.

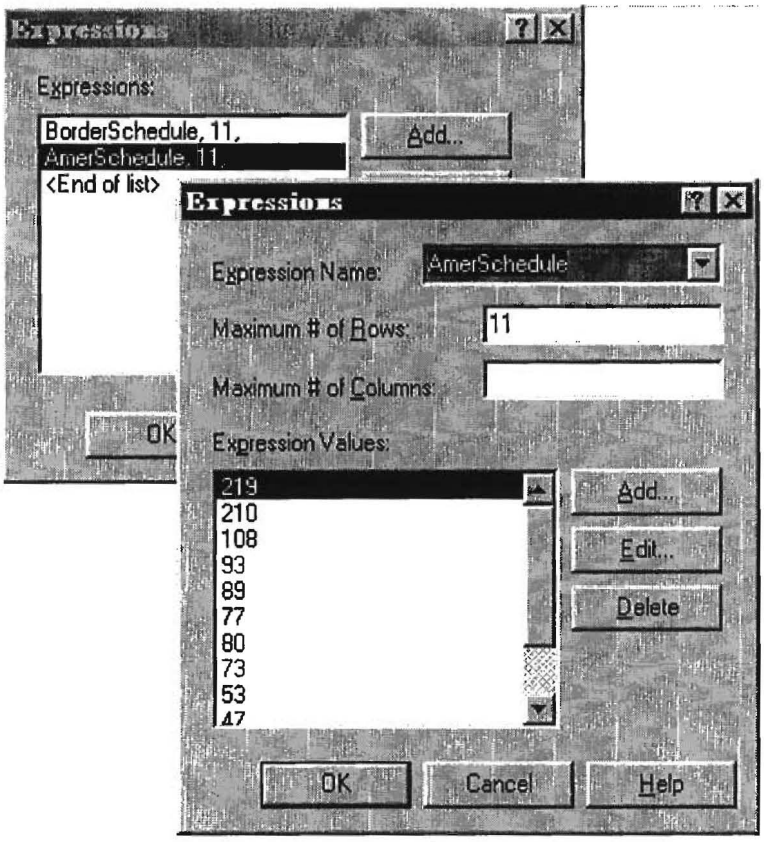


Figure B-5. The Expressions Module Dialog.

In addition, at the left corner of the entity arrival section, an action button called Animate can be used to activate an additional module dialog (Figure B-6). The initial entity picture is replaced from the default picture to simulate the vehicles.

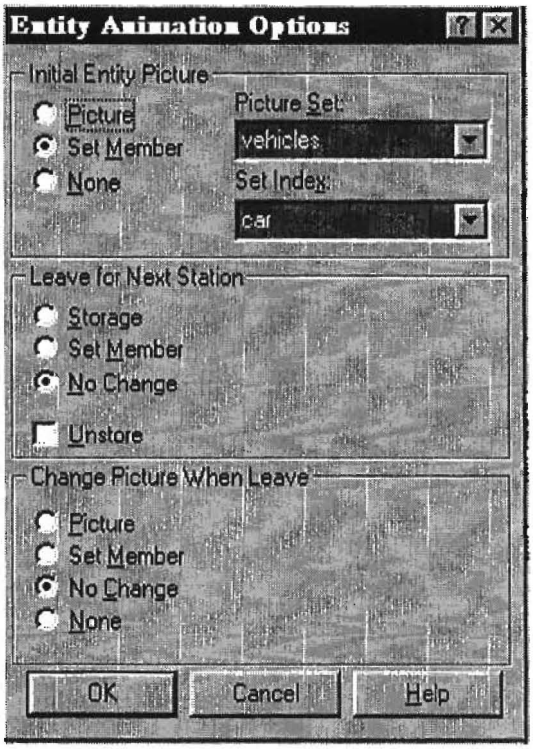


Figure B-6. The Entity Animation Options Module Dialog.

Information on how and where the entities are being transferred after they are generated at the arrive module, is set at the Leave Data section. The station name of the next module is replaced from the default name in this case; entities will be transferred to a station named "trafficlight2". From the actions button named Tran Out, the following dialog box is activated to determine how are the entities going to be transferred, in this case, entities access a conveyor named "Americas".

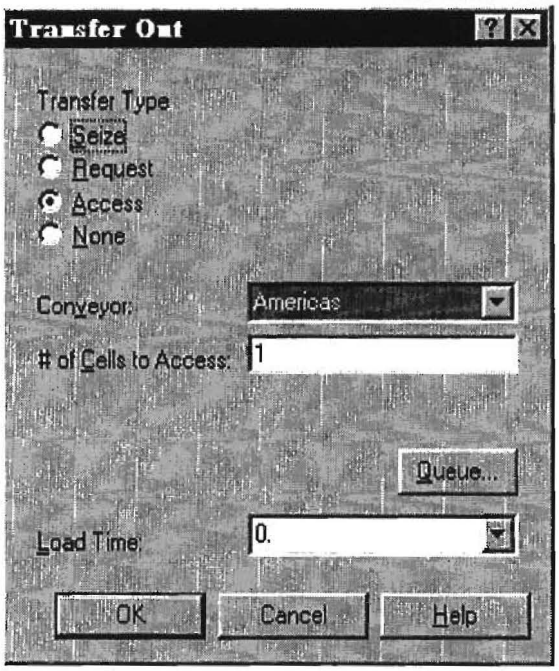


Figure B-7. The Transfer Out Module Dialog.

B-3 Conveyor and Segment Modules

In addition to the Arrive Module, a Conveyor Module is essential to be able to transfer the entities from one station to another. The conveyor module (Figure B-7) provides the operating parameters for a single Arena conveyor. It is required for each conveyor that is to be included in an Arena model. It names the conveyor, identifies the associated segments, gives an initial conveyor velocity, and defines the conveyor type (accumulating or non-accumulating). The Conveyor module also specifies the size of each cell on the conveyor and the maximum number of cells occupied by entities on the conveyor.

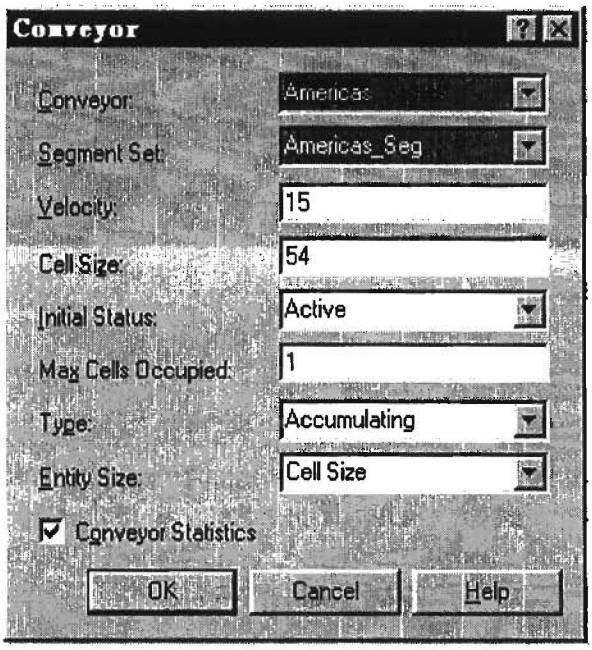


Figure B-8. The Conveyor Main Dialog.

For this simulation matter, accumulating conveyors were used to simulate the local blockages behind which other entities accumulate. The cell size was set to 54 ft, which is the maximum vehicle length (truck size), and the specified velocity was 15 ft/sec (10mph). The segment corresponding to this conveyor is the Americas_Seg (Figure B-9), the beginning and ending stations are provided in this module. Vehicles beginning at the "ArriveAmericas" station will be transferred to the "trafficlight2" station. The length of this segment was set to 810ft; this will allow only 15 vehicles of a size of 54ft to fit in this segment.

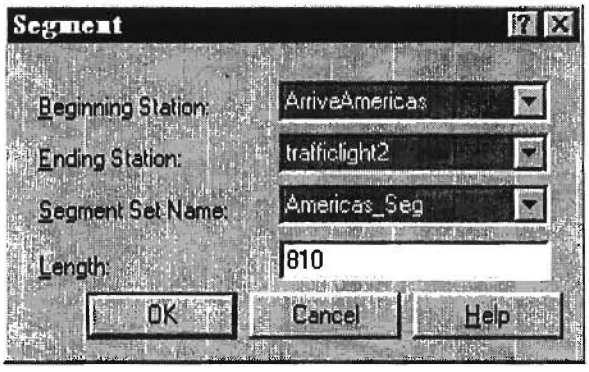


Figure B-9 The Segment Module Dialog.

B.4 Advanced Server Module

The Advanced Server (AdvServer) module combines an Enter module, Process module, and Leave module. As the name implies, the Advanced Server has all the

capabilities of a regular server, plus several advanced features. Figure B-10 shows the data entries required to complete this module. The Advanced Server Module was used to simulate the traffic light blockage creation. A zero processing time is selected so vehicles arriving at this station won't stop unless the server has failed or has zero resource capacity. This was achieved by setting a cyclical resource schedule named "Signal2" which controls the green and red times by changing the number of resources available between zero and one for a duration of 100 sec each.

At the Leave Data section, only the convey option is selected so that the vehicles will be transferred by using a conveyor, and the name of the next station is set to be "m1". In this case no conveyor is accessed because the same conveyor named "Americas" will be used.

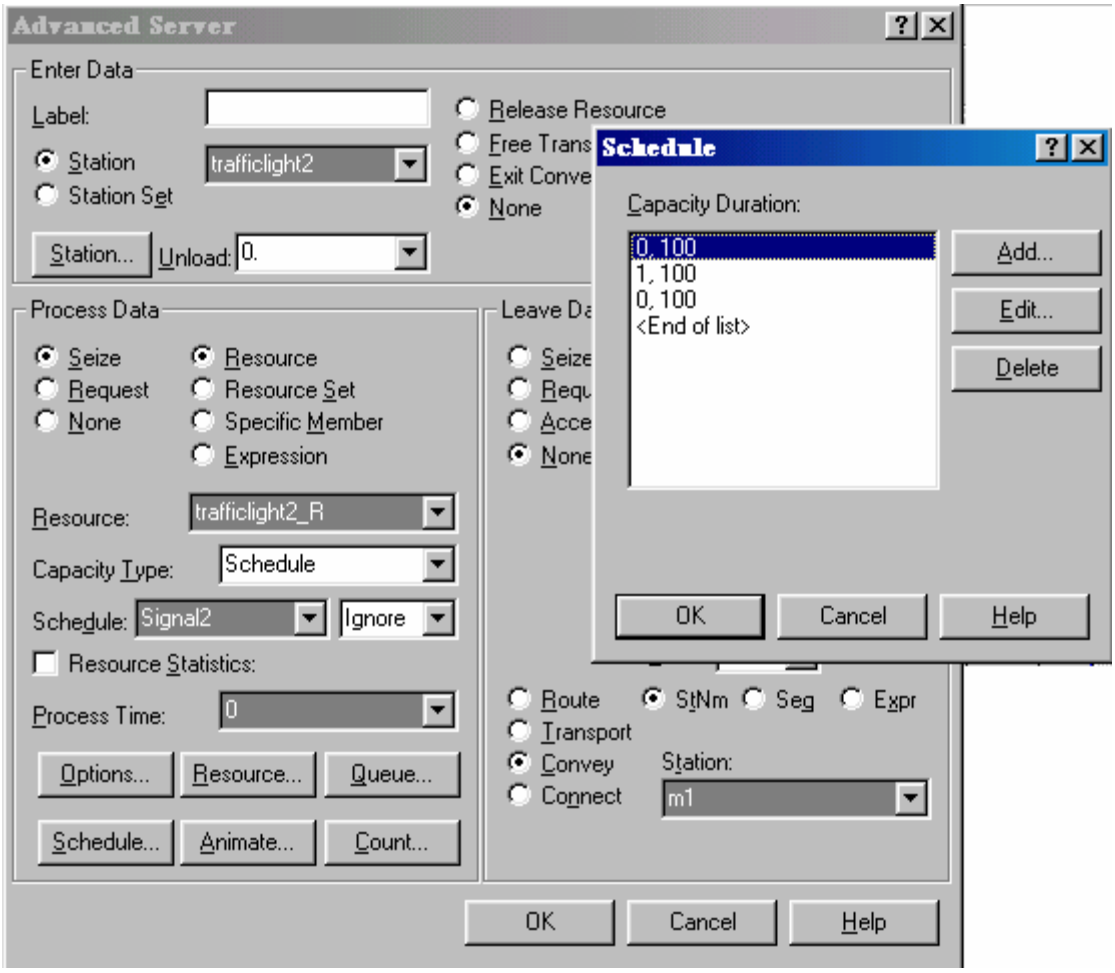


Figure B-10 The Advanced Server Main Dialog, Selecting a Resource Schedule.

B. 5 Depart Module

The Depart module removes entities from the system and collects statistics. It defines a station to which entities can be transferred when they have completed all of the activities required of them in the model, in this example the station name is “exitright”. Within the Depart module, the entity can optionally exit the conveyor at the Transfer In additional module (Figure B-11). Also, statistics can be collected about the entity, such as counting the number of entities that have left the model or tallying information like the flowtime for each entity (no statistics were collected at this particular module).

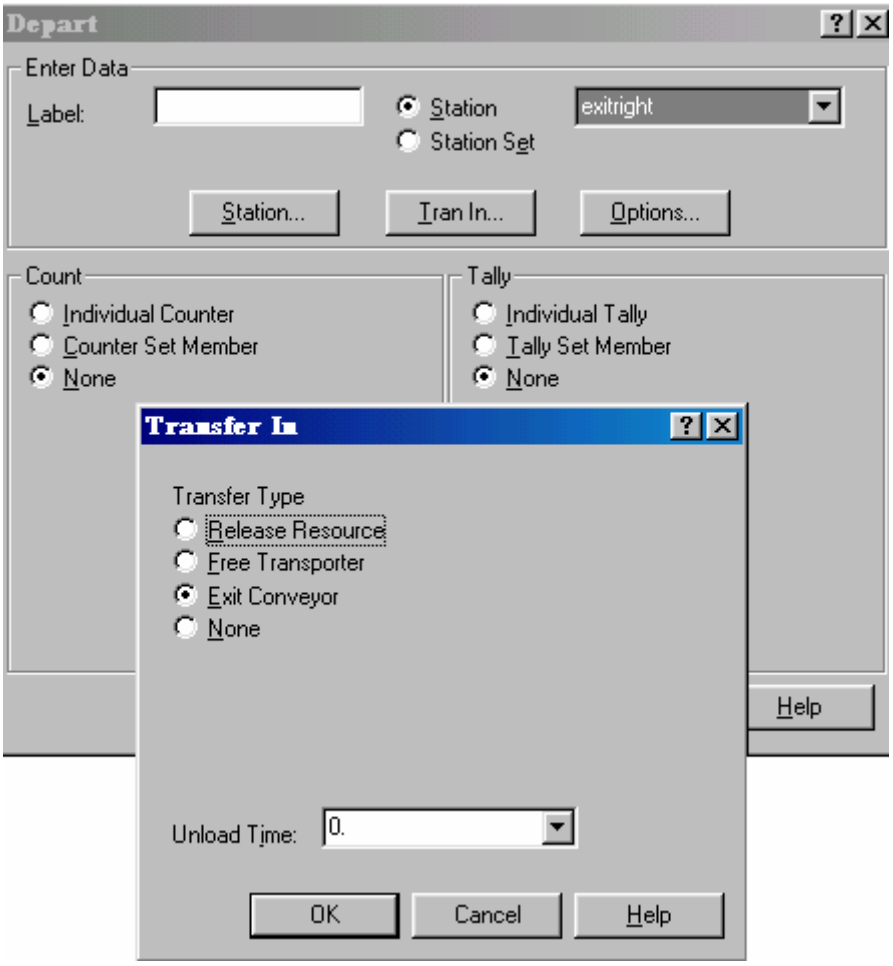


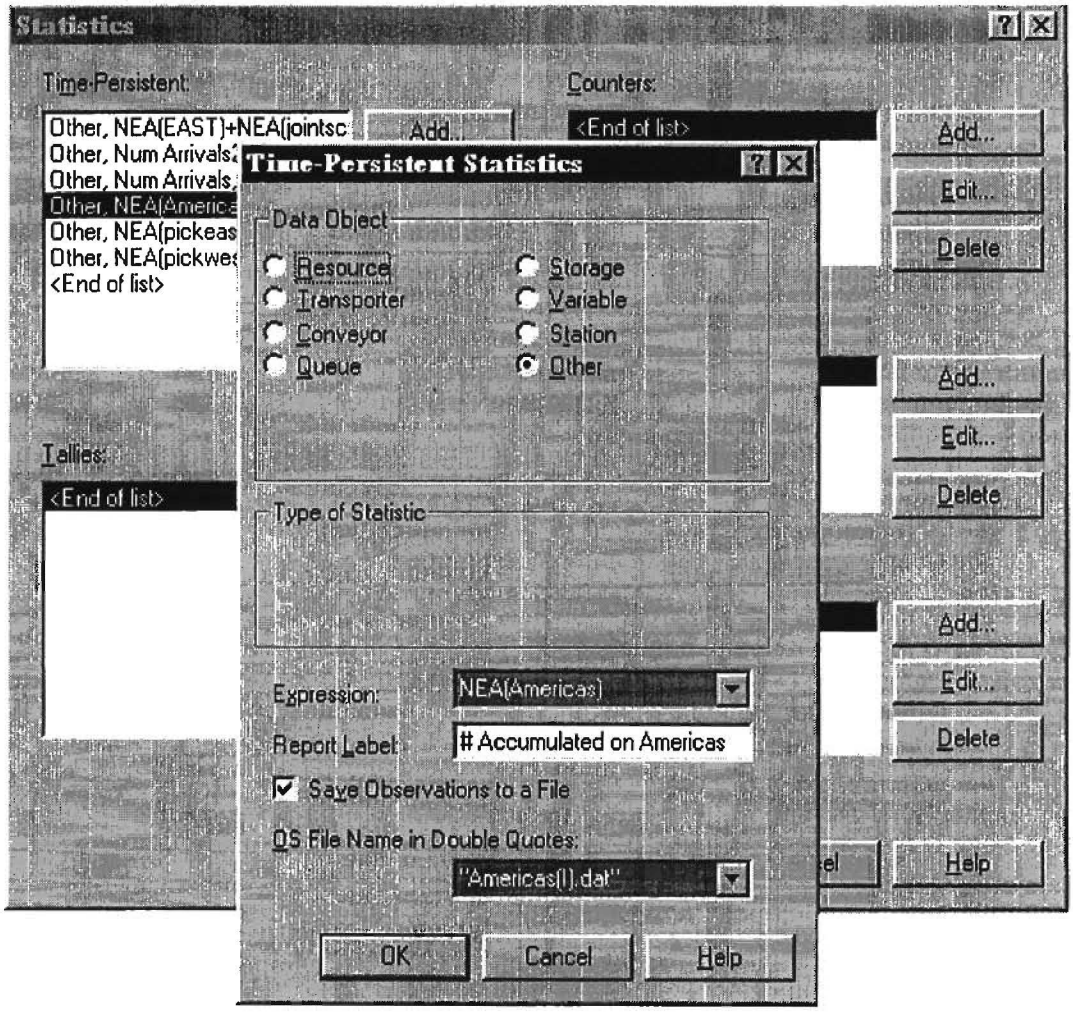
Figure B-11 The Depart Main Dialog, Transfer In.

B. 6 Statistics Module

The Statistics module defines additional statistics to be collected, as well as specifying which data will be saved to files. The statistics dialog is made up of five sections: Time-Persistent (or Discrete-Change), Tallies, Counter, Out-puts, and

Frequencies. In this simulation, only Time-Persistent Statistics where collected (Figure B-12). The number of entities accumulated in the conveyor along the simulation were recorded and saved in a file named "Americas (1).dat". The saved data files are binary, but can easily be read by the Arena Output Analyzer or exported and imported into another software (ex. Excel).

For more information on the ARENA simulation modules, refer to the Simulation with Arena book *(4)* or to the ARENA user's guide.



B-12 The Main Statistics Dialog, Time-Persistent Statistic.