Evaluating the Effectiveness of Various Truck Lane Restriction Practices in Florida—Phase II

Volume 1—Simulation Analysis of Interstate 95 Corridor with Truck Lane Restriction

Final Report

Project No. BD 543 RPWO 10

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November 2007

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METRIC CONVERSION FACTORS

1 ft = 0.3048 m
1 mph = 1.609 km/h

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.

4. Title and Subtitle	5. Report Date
Evaluating the Effectiveness of Various Truck Lane Restriction Practices in Florida—Phase II *Volume 1—Simulation Analysis of Interstate 95 Corridor with Truck Lane Restriction*	November 2007
	6. Performing Organization Code
7. Author(s) Ren Moses, Gary Price, and Saidi Siuhi	8. Performing Organization Report No.
9. Performing Organization Name and Address Department of Civil Engineering FAMU-FSU College of Engineering 2525 Pottsdamer Street, Room 129 Tallahassee, FL 32310	10. Work Unit No. (TRAIS)
	11. Contract or Grant No. BD-543-10 December 2004 to November 2007
12. Sponsoring Agency Name and Address Florida Department of Transportation 605 Suwannee St. MS 30 Tallahassee, Florida 32399 (850) 414-4615	13. Type of Report and Period Covered Final Report
	14. Sponsoring Agency Code

15. Supplementary Notes
Prepared in cooperation with the USDOT and FHWA

16. Abstract

This study reports on the analysis of the operational experience of an 83-mile corridor of Interstate 95 in South Florida that has both HOV and truck lane restrictions. The results of a field-validated VISSIM simulation model emulating the current policy of restricting trucks from using the inside lanes in this corridor showed that HOV vehicles and automobiles gained significantly more travel time savings and speeds on the restricted lanes than on the general lanes. Also, vehicle queue lengths around critical merging and diverging areas increased significantly as the percentage of trucks increased imposing severe disruption on freeway traffic flow and vehicle backups spilling into the major intersecting arterial streets. The results indicated that during peak traffic conditions right lanes had higher lane occupancy than left lanes whereas during off peak traffic conditions center lanes carried more vehicles per lane than the outermost lanes suggesting that congestion forces automobiles to use the left lanes. Furthermore, the results showed that the majority of lane changes occurred during peak traffic flow conditions—about twice that of off-peak—and appreciable speed differences existed between restricted and non-restricted lanes. The simulation results for off-peak traffic conditions did not show appreciable changes in traffic operating characteristics resulting from lane restriction strategies. Furthermore, simulation results showed that restricting trucks from using either center lane or the rightmost lane in lieu of the current policy of restricting trucks from using the inside lane would aggravate operational and safety problems in this corridor. Based on these results, it can fairly be concluded when trucks are restricted from the inside lanes on urban freeways, significant operational and safety benefits of the combined implementation of HOV and truck lane restrictions accrue during congested traffic conditions.

17. Key Word	18. Distribution Statement
Truck restriction, highway safety, crash modeling.	No restrictions

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	167	

Form DOT F 1700.7 (8_72)

ACKNOWLEDGEMENT

The authors wish to acknowledge the support and assistance of Project Manager Fred Heery of the FDOT Traffic Operations Office.

EXECUTIVE SUMMARY

Background

A Phase I study sponsored by the Florida Department of Transportation (FDOT), Traffic Operations Office evaluated the safety and operational impacts of restricting trucks from using the inside lane of the 6-lane section of Interstate 75 from Ocala to the Georgia state line. The results of the study indicated that a restriction policy is effective in improving operations and safety in this corridor. However, this section of interstate is primarily in a rural area with few interchanges and has a level of service B or better during most hours of the day. The Traffic Operations Office wanted Phase II of this project to extend the evaluation to urban freeways with six or more lanes of travel and where congestion is the norm during weekday peak periods.

The continuing increase in congestion and truck traffic on urban freeways in Florida is of major concern to many state and local government officials. To address these concerns requires a systematic approach to define which urban freeway lanes can be restricted from use by trucks and during what times of the day. Thus, this research project was aimed at expanding the base of knowledge on urban freeway truck lane restrictions. This additional knowledge then would be used by the Traffic Operations Office in developing a lane restriction policy for trucks on urban freeways. The results of this research are also needed for incorporating truck lane restrictions into the FDOT long range planning process; for predicting the volume of truck traffic in specific lanes for use in pavement design; and for determining safety benefits that could result from the implementation of a lane use restriction for trucks.

Objectives

The objective of this research project is to evaluate the operational effectiveness of restricting trucks from using the left, center or right lanes of an urban freeway. The restriction of trucks from using the left lane is currently being practiced on a number of Interstate freeway corridors in Florida. One of these corridors on Interstate 95 is chosen as a test bed for this study. The influences of geometric and traffic variables on the operational effectiveness of truck lane restrictions are quantified. Various truck lane restriction scenarios are evaluated by computer simulation. These results, coupled with a companion study on the safety experience of truck lane restrictions, are used to quantify potential advantages and disadvantages associated with the implementation of a lane use restriction for trucks.

Findings and Conclusions

The results of a field-validated VISSIM simulation model, emulating the current policy of restricting trucks from using the inside lane of the 83-mile Interstate 95 corridor in South Florida, showed that high occupancy vehicles and automobiles have significantly higher travel time savings and speeds on lanes restricted from use by trucks. Also, vehicle queue lengths near critical merging and diverging areas increased significantly as the percentage of trucks increased.

These increased lengths of vehicle queues impose severe disruption to freeway traffic flow. These vehicle queues also impact the arterial streets when they spill back into the intersection. The results indicate that during peak traffic conditions, the freeway right lanes have higher lane occupancies—defined as the number of vehicles per lane in a segment—than the center and left lanes. During off peak traffic conditions center lanes carried more vehicles per lane than the outermost lanes. This suggests that congestion forces automobiles to use the outside lanes, particularly the right outside lanes. Furthermore, the results show that the majority of lane changes occur during peak traffic flow conditions—about twice that of off-peak—and appreciable speed differences exist between restricted and non-restricted lanes. The simulation results for off-peak traffic conditions show no appreciable change in any traffic operational characteristic for any of the lane restriction strategies.

Furthermore, simulation results show that restricting trucks from using either the center lane or the outside lane, in lieu of the current policy of restricting trucks from using the inside lane, would exacerbate operational and safety problems in the corridor. Based on these results, it can be concluded that significant operational benefits accrue during congested traffic conditions when trucks are restricted from using the inside lane or lanes of an urban freeway. These benefits are obtained when only a lane use restriction for trucks is implemented on the urban freeway, and also, when a lane use restriction for trucks is implemented with HOV lanes.

Benefits

The results of this study can be used by the Florida Department of Transportation in developing a statewide policy for truck lane restrictions on urban freeways. This policy should consider interchange density, the number of through lanes available, and how signing for a truck lane restriction will be accomplished. The policy should continue the practice of restricting trucks from using the left lane or lanes of the facility. Where an HOV lane is present, truck restricted lanes should be added from the left. The uniformity of truck lane restriction signing across the state is very important. This study presents recommendations on the types of the signs to be used for implementing truck lane use restrictions on an urban freeways.

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CHAPTER ONE

INTRODUCTION

1.1 Background

A review of practice and literature revealed a number of strategies used by engineers to address the operational efficiency and safety of major urban highways (*1, 2, 3, 4*). One of these strategies involves lane use restrictions. Restrictions can be can be used to control (1) the types of vehicles allowed to use or not use specific lanes of a highway, and (2) the time periods these types of the vehicles are allowed to use or not use these specific lanes. Lane use restrictions are also used to prohibit individual vehicles from using, or requiring them to use, a specific lane or lanes based on their speed or weight. Many urban limited access highways in the United States have dedicated high occupancy vehicle (HOV) lanes. Typically, these lanes are limited to vehicles with two or more persons. In most cases, trucks - particularly tractor-trailer trucks, are not allowed to use this lane, even if there are two or more persons in the tractor cabin. Therefore, an HOV lane can be considered a truck restricted lane. On some urban limited access highways, trucks are further restricted from using an additional lane or lanes adjacent to the HOV lane.

The study location for this research is in Florida. Like many other states, Florida has both HOV and truck lane restrictions implemented individually or in combination on several urban limited access roadways. For instance, both an HOV lane and a truck restricted lane are on portions of Interstate 95 in South Florida. Roadways with truck restricted lanes only are on some sections of Interstate 75, Interstate 95, Interstate 295, and on Florida's Turnpike. Roadways with HOV lanes only are found on sections of Interstate 95 in South Florida. A review of lane use restrictions on Florida's urban limited access highways found that truck lane restrictions are currently imposed 24 hours a day. HOV lane use restrictions are imposed during peak hours only.

The most common safety and operational benefits cited by many state agencies, following the implementation of a lane use restriction for trucks, include reduced crashes, improved highway speeds, and improved safety in construction zones (*2, 5, 6, 7*). Furthermore, studies show some psychological benefits in restricting trucks to certain lanes. These studies found passenger car drivers feel intimidated and "squeezed in" when trucks are allowed to use all through lanes on the roadway. HOV lanes are implemented to move more people through the most congested urban areas by offering HOV lane users a faster and more reliable commute. The most prevalent benefits of implementing HOV lane restrictions are listed as travel time and operating cost savings, reduced fuel consumptions and emissions, and improved air quality (*8*). The report evaluating the HOV lane on Interstate 95 in South Florida concluded that speeds in the HOV lane were higher than in the general lanes with significant travel time savings (*8*). The report further found that the HOV lane in the peak hour periods carried significantly more people per lane than the general lanes.

The history of lane use restrictions for trucks on Interstate 95 in South Florida can be traced back to the early 1980s. A lane use restriction for trucks started as a one-year experiment on a 25 mile section of I-95 in Broward County. The evaluation of this experimental project concluded that limiting trucks to the two right lanes of the 3-lanes (in each direction) improved traffic operations and safety (*9*). Based on these positive results, this lane use restriction for trucks was permanently instituted in May 1983 from 7 a.m. to 7 p.m. This lane use restriction for trucks was extended into Palm Beach County in February 1990. Following the construction of HOV lanes in the median of I-95 in Broward and Palm Beach Counties in July 1995, trucks were restricted from using the two inside lanes. In November 2004, this lane use restriction for trucks in both counties was changed from 12 to 24 hours a day. The current reconstruction of Interstate 95 is designed to extend the HOV lane to Donald Ross Road by 2009 (*8*). In July 2005, a lane use restriction for trucks was implemented on a section of Interstate 95 in St. Johns County.

This brief history shows the use of both HOV and lane use restrictions for trucks to address operational and safety concerns on some urban limited access facilities in Florida. It is anticipated that these strategies will be expanded to other facilities in the future.

1.2 Objectives of the Study

Numerous studies have evaluated the operational efficiency of roadways with an HOV lane and of roadways with a lane restricted from use by trucks (*2, 6, 10*). The literature search did not reveal any study that evaluated an urban limited access highway with both an HOV lane and another lane restricted from use by trucks. The existence of both an HOV lane and another lane restricted from use by trucks pose interesting questions related to operations and safety. For example, what is the influence of truck volumes and HOV volumes on lane changes and on driver behavior in sections with both an HOV lane and a lane restricted from use by trucks? Also, on a roadway with an HOV lane, which additional lane or lanes should trucks be restricted from using in order to improve operations—left, right or center lanes? Therefore, the objective of this research study is to evaluate the operational efficiency and safety implications of the HOV lane and the lane restricted from use by trucks on an 83-mile study section of Interstate 95 in South Florida.

To accomplish this research objective, computer simulation was chosen as the primary tool for analyzing safety and operational implications of the HOV and lane use restriction for trucks that currently exist on this section of Interstate 95. The advantages of computer simulation include the ability to capture various measures of performance such as traffic distribution per lane; vehicle speeds per lane; the number of lane changes; travel times for automobiles and trucks; and traffic queue lengths at critical merge and diverge points. The review of literature indicated that microscopic simulation has been used widely to evaluate freeway operations (*6, 11, 12, 13, 14*). Three micro-simulation computer programs were initially identified to be capable of producing the operational and safety measures required for this study. These were VISSIM, CORSIM, and PARAMICS. Each program is capable of modeling freeway operations involving restricted lanes. However, VISSIM was chosen for its simplicity in modeling roadway segments, capability to visualize objects in a three-dimensional space,

ability to aggregate traffic performance measures per lane and for certain vehicle types. Additionally, this software was less expensive and about one-tenth the cost of PARAMICS (*15*).

1.3 VISSIM Simulation Model

VISual SIMulation (VISSIM) is a stochastic, time step and behavior-based microscopic simulation model using driver-vehicle units as single entities. It is capable of modeling typical passenger vehicles and trucks on freeways and arterials. Furthermore, it is capable of modeling truck and HOV lane use restrictions in multilane roadways (*11, 12, 15, 16, 17*). VISSIM uses links and connectors to build the roadway diagram, making it very flexible and accurate in modeling complex urban interchanges. In addition, it generates and aggregates simulation output results that allow for the evaluation of freeway traffic operating characteristics on a per lane basis and also by vehicle type, such as autos and trucks. In evaluating truck and HOV lane use restrictions, measures of effectiveness such as car-following and lane-changing logic are keys in replicating local driving behaviors.

The car-following model in VISSIM is based on the psycho-physical model developed by Wiedemann (*15*). The basic concept of this model is the driver of the faster moving vehicle starts to decelerate as the driver reaches his/her individual perception threshold to the slower moving vehicle. Since the driver cannot exactly determine the speed of that vehicle, the driver's speed will fall below the speed of the lead vehicle until the driver starts to slightly accelerate again after reaching another perception threshold. This results in an iterative process of acceleration and deceleration. This behavior creates four driving modes: free driving, approaching, following, and braking. In each driving mode, the driver behaves differently—either reacting to the perceived speed difference, following distance headway, or trying to attain a desired speed. In the free driving mode, no influence is imposed from front vehicles. In the approaching mode the driver decelerates because of the lower speed of the front vehicle and in order to maintain a safe distance. In the following mode, the driver follows the front vehicle and tries to keep a relatively constant safe distance by accelerating and decelerating. In the braking mode the driver applies medium to high deceleration rates if the perceived distance headway falls below the driver's desired safe distance. Figure 1 shows the graphical representation of car-following logic (*15*).

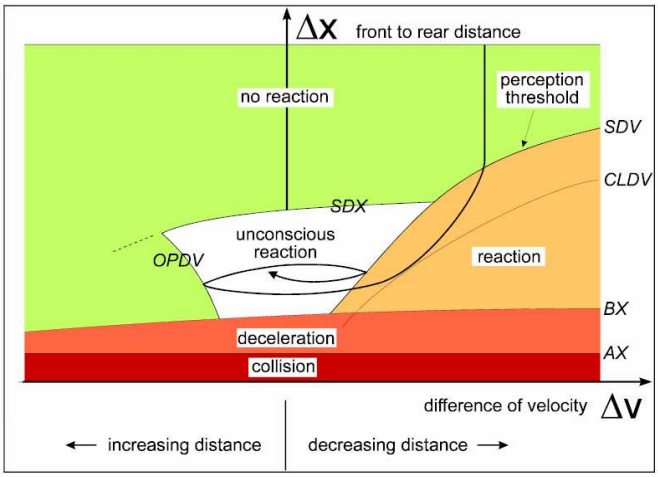


FIGURE 1 Car-following logic *(15)*.

There are two types of lane changes in VISSIM: (1) necessary lane change and (2) free lane change. The necessary lane change is performed in order to reach the intended destination. The free lane change is made because of available room or gap on a new destination lane, or to achieve a higher speed. The driving behavior parameters that affect the necessary lane change are the maximum acceptable decelerations for both the front vehicle and the trailing vehicle on the new lane. These decelerations are dependent on the distance to the last possible position for vehicles to change lanes in order to stay on their designated route. In both lane change types, when a driver tries to change lanes, the first step is to find a suitable gap (time headway) in the destination flow lane. The gap size is dependent on the speed of both the lane changing vehicle and the vehicle that "comes from behind" in the target lane. In addition, a necessary lane change also depends on the deceleration values of "aggressive" drivers.

CHAPTER TWO

REVIEW OF LITERATURE AND CURRENT PRACTICES

A comprehensive literature review on published and unpublished reports was conducted to obtain information on the operational and safety implications of truck restrictions on urban freeways. This review focused on the types of lane use restrictions for trucks found on urban freeways, the vehicles targeted by these restrictions, safety implications of the restriction, and the operational effects of these restrictions. The literature search was conducted through various sources including TRB publications, Science Direct, ITE publications, and other academic sources. The following sections explain in detail the results of the literature review.

2.1 Types of Truck Restrictions on Urban Freeways

The review of literature revealed four major truck restriction types used by many states in an attempt to improve the operational efficiency and safety of urban limited access highways. On urban freeways trucks are generally restricted by lane, route, time-of-day, speed, or weight. Lane restrictions generally target trucks with specified size or operating characteristics, and require them to use a particular lane or lanes of the freeway. For example, in Florida trucks with *'3 or more axles'* or trucks *'Over 6 wheels'* are restricted from the leftmost lane(s) on some sections of urban freeways.

A truck route restriction prohibits trucks with specified characteristics from traveling on a particular segment of roadway. Typically, truck route restrictions are used to detour through truck traffic from highly congested urban areas or trucks carrying hazardous materials. This type of restriction is an attempt to minimize problems that may occur if a crash or other incident occurs.

Time-of-day restrictions prohibit trucks with specified characteristics from a designated route or particular lane or lanes during certain times of day, usually peak hours. Speed restrictions are used to impose a lower speed limit for trucks on a designated route or particular lane or lanes. Weight limitations are used to restrict trucks exceeding a certain weight from using a designated route or particular lane or lanes. The implementation of a truck restriction on an urban freeway by a local jurisdiction or state agency is dictated, in most cases, by the type of problem being addressed, the degree to which the restriction will improve traffic flow and safety, and whether the restriction is a short or long term solution.

2.2 Vehicles Targeted by Truck Restrictions

A comprehensive review was conducted to identify the types of vehicles targeted by a truck restriction and the basis for this decision. This review was focused primarily on Florida Statutes and Rules of the Florida Department of Transportation (FDOT) that give FDOT and local jurisdictions the authority to implement truck restrictions on highways. The review did not find specific language in either the Florida Statutes or FDOT Rules that identified the types of vehicles a truck restriction can address or target. Therefore, a basis for targeting trucks with specified characteristics for any type of truck restriction does not exist. In Florida, it is

undefined as to whether a truck restriction targets vehicles based on the 'intimidation factor' of a large truck with an aggressive driver, the 'performance factor' of trucks relative to most passenger cars, the 'visibility factor' created for passenger cars by large trucks, a combination of these factors, or any other factor.

Despite the lack of a basis for targeting trucks with specified characteristics, the lane use restriction for trucks posted on Florida's freeway system would imply that FDOT is targeting large trucks in general. The truck restriction signing on Interstate 75 and Interstate 95 near Jacksonville targets trucks *'Over 6 wheels'*. On Interstate 95 in South Florida the signing targets trucks with *'3 or more axles'*. On the Homestead Extension of Florida's Turnpike the truck restriction signing simply targets *'Trucks.'* In essence, these lane use restrictions for trucks appear to be targeting vehicles based on characteristics related to both performance and size.

Generally, these types of trucks include multi-axle truck/trailer combinations, semi-trailer, tractor-trailer, and single unit trucks. Most of these have a high weight-to-horsepower ratio and a reduced deceleration and acceleration capability. These 'performance factors' make it difficult for these types of vehicles to maintain a consistent speed. This difficulty is most evident in a congested traffic stream of mixed vehicles where most of the other vehicles have significantly higher performance capabilities. Moreover, the physical dimensions of some of these types of trucks—i.e. length, width, and height—cause sight distance problems for both truck and passenger car drivers. By restricting these types of vehicles from using the inside or 'fast lanes', improved operations and safety on the freeway is expected.

This appears to be the primary reason most of the lane use restrictions for trucks on Florida's freeway system have been implemented. This review of truck restriction practices in Florida also found that some large vehicles, such as motor homes and buses, are exempted from these restrictions.

Additionally, this review found that in general the motoring public feels intimidated when large trucks use all available lanes on the freeway. Some aggressive truck drivers will tailgate smaller vehicles often operating at the legal speed limit in order to force them to either change lanes or face the constant presence of a large truck behind them. Fortunately, this unsafe practice is restricted to a small minority of truck drivers. Passenger car drivers feel daunted and physiologically unsafe when they get a feeling of being squeezed by large trucks in adjacent lanes, particularly when traveling at high speeds. Figure 2 shows a passenger car 'sandwiched' between two large trucks and is another reason that the general public considers as justification for implementing a lane use restriction for trucks.

FIGURE 2 A passenger car sandwiched by large trucks.

2.3 Benefits of Truck Restrictions on Urban Freeways

A comprehensive review effort was also directed at identifying and documenting the main reasons other states imposed truck restrictions on their urban freeways, particularly those involving large trucks. In 1986, the Federal Highway Administration conducted a survey covering 50 states plus the District of Columbia and Puerto Rico, to document reasons behind truck restrictions (*20*). The survey revealed that several states have lane use restrictions for trucks on their urban freeway systems. The study also found that the most prevalent reasons indicated by states for implementing lane use restrictions for trucks on urban freeways were to improve highway operations (14 states); increase the level of safety (8 states); equalize pavement wear (7 states); and improve safety in construction zones (7 states). In this same survey, some states indicated more than one reason for the restriction. Subsections below discuss in detail some of these reasons.

2.3.1 Improve Operations and Safety

The literature review revealed that most urban freeways are experiencing increased traffic congestion, particularly during peak commuting hours. Also, the percentage of trucks in the traffic stream on many urban freeways has increased (*5*). The majority of these large trucks include tractor trailers, semi-trailers, and other multi-axle truck/trailer combinations. These vehicles tend to be significantly heavier and longer than automobiles. Thus, large trucks have lower acceleration and deceleration capabilities leading to difficulty in maintaining speed more so than passenger cars, especially on upgrades. In addition, trucks have large physical dimensions—length, width, and height—which reduce the maneuverability of these vehicles when conditions require evasive actions. This becomes more critical during peak commuting hours. The interactions between vehicles with significant differences in operating characteristics on urban freeways can lead to increased travel time for automobiles and trucks, more traffic conflicts, and consequently, more crashes. Theoretically, if trucks and automobiles are on

separate lanes of an urban freeway, traffic operations will improve significantly while the number of traffic conflicts, crash frequency, and crash severity all decrease (*3*, *5*).

Many states have implemented lane use restrictions for trucks to remove them from the 'fast lane or lanes'. Restricting trucks from using a certain freeway lane has the potential of attracting automobiles to this lane thereby relieving congestion in these lanes during peak commuting hours. Properly implemented and enforced lane use restrictions for trucks reduce total travel time. They also reduce lane changing for all vehicle types, i.e. automobiles and trucks. In addition, lane use restrictions for trucks relieve most automobile drivers of the stress, frustration, and intimidation which result when trucks are allowed to use all through lanes of an urban freeway. This reduction in driver stress, frustration, and intimidation is conducive to improved driving behavior by all drivers and a more comfortable and enjoyable driving experience. Improved driving behaviors make the urban freeways more efficient and safer (*7*).

2.3.2 Equalize Pavement Wear-and-Tear

The review of practice on urban freeways showed that many states, including Florida, require slow moving vehicles to use the rightmost lanes. This allows higher speed vehicles to use the leftmost or 'fast' lane or lanes. On urban freeways, it is common to see *'Slower traffic keep right'* signs. These signs indicate that it is unlawful for a slow moving vehicle to use the left or 'fast' lane or lanes. This requirement allows drivers who want to travel faster the opportunity to change lanes and pass a slower moving vehicle. Over the prolonged period of time that this requirement has been in effect, the majority of truck drivers has been indoctrinated to using the rightmost lanes. Many of the slower moving vehicles legally forced to use the rightmost lanes are large trucks with heavy wheel loads. This concentration of heavy wheel loads in the right lanes leads to a reduced pavement life in these lanes when compared with the pavement life of the remaining lanes. Urban freeway pavement management requirements are prompting state agencies to find ways to equalize pavement life across all lanes. One solution that some states have implemented is lane use restrictions for trucks lane (*7*).

The management of pavement life on an urban freeway through the use of lane restrictions for trucks has been attempted by several states. In general, this type of lane restriction attempts to equalize pavement "wear-and-tear" by prohibiting trucks from using the lane(s) that have experienced substantial failures. For example, the State of Arkansas in the mid-1980s implemented a statewide lane use restriction for trucks on their Interstate system with a goal to equalize pavement life across all lanes. To implement this lane use restriction, signs were erected at the weigh stations entering the state to encourage trucks to use the left lane. However, the restriction was not enforced and eventually removed due to lack of compliance. Several other states - Idaho, Nevada, North Carolina, and Wisconsin - have attempted to implement lane use restrictions which require trucks to use the leftmost lanes on some roadway sections. In all cases the lane use restrictions were voluntary and implemented in an attempt to equalize pavement life (*7*). The periodic shifting of lane use requirements for truck traffic to equalize pavement life may lead to the following (1) violate drive expectancy, (2) likely be unsuccessful for enforcement reasons, and (3) be difficult to assess the benefits. The quantification of benefits would require the lane use restriction to be actively enforced and the public to be effectively informed and educated (*7*).

2.4 Negative Impacts of Truck Restrictions on Urban Freeways

Prompted by increased economic activities and market trends, trucks are getting bigger and heavier and automobiles are getting smaller and lighter. The dramatic gap in vehicle sizes and operating characteristics between trucks and automobiles continues to widen. The implementation of truck restrictions particularly during peak commuting hours on congested urban freeways addresses this gap. However, attempts by local jurisdictions or state agencies to implement truck restrictions always raise serious concerns. Subsections below discuss in detail some of these concerns.

2.4.1 Traffic Operations and Safety

It is unquestionable that ramp merging and diverging vehicles face difficult maneuvers in order to enter or exit a freeway, particularly during peak hours when congestion is the highest. During these hours the presence of trucks only aggravates merging, weaving, and diverging maneuvers. Some studies have found that imposing lane use restrictions for trucks in areas with a high concentration of merging and diverging traffic can adversely affect operations and safety (*3*). For instance, imposing a left lane use restriction for trucks forces them to shift to the right lanes making it even more difficult for vehicles to enter or exit the freeway. These difficulties can lead to the formation of queues on the freeway entrance ramps. These entrance ramp queues are likely to spill over into the cross roads. At exit ramps, diverging vehicles not already in the outside lane may reduce their speed and force their way into the outside lane so they can exit. These types of maneuvers negatively impact the freeway mainline. Furthermore, restricting trucks from a certain lane or lanes will increase the occupancy and distribution of trucks on the non-restricted lanes. This may increase stress to drivers that desire or must travel on non-restricted lanes.

In addition, the imposition of lane use restrictions for trucks could lead to more vehicles changing lanes into the non-restricted lanes. This might result in more weaving and lane changing. Previous studies indicate that increased lane changing has the potential to increase vehicular crashes (*4*). In addition, imposing lane use restrictions for trucks might eventually increase the speeds on the restricted lane compared to the adjacent non-restricted lanes. This creates differential speeds between the restricted and non-restricted lanes, i.e. vehicles in one lane are moving faster than the vehicles in the adjacent lane or lanes. This also is likely to increase the potential for vehicular crashes (*4*).

As discussed earlier, trucks restricted from using the left lane of a freeway are now forced to use the right lanes. This intensifies the congestion near major interchange ramps, particularly during peak hours. These ramp areas are where a significant number of lane changes are anticipated. It is worth mentioning that since most ground mounted signs are posted along the roadside on the right, the crowding of trucks in the right lane or lanes can limit the ability of drivers in the left lane or lanes to read these signs.

In practice, most truck drivers try to avoid highly congested urban areas during peak hours. Studies have found that the peak hours for truck traffic do not necessarily coincide with

the typical commuter peak hours. In general, truck traffic tends to peak in the mid-morning between 9 a.m. and 11 a.m. and in the mid-afternoon between 12 noon and 3 p.m. (*4*). Furthermore, previous studies on the effectiveness of truck lane restrictions on some sections of urban freeways have shown contradictory results (*5*). While some sections of freeways with lane use restrictions for trucks had a decrease in the severity of crashes, other sections had an increased in crash rates. The review of literature showed in general that lane use restrictions for trucks have not impacted safety on urban freeways. However, most drivers and the general public perceive lane use restrictions for trucks as an effective way to reduce traffic conflicts and crashes on urban freeways (*7*).

2.4.2 Enforcement

The major problem associated with the enforcement of a lane use restriction for trucks on an urban freeway is the availability of sufficient space to safely stop the truck and write the citation. Typically, the median shoulder does not provide enough width for trucks to safely stop. Besides, using the inside shoulder during peak hours to issue a traffic citation creates an incident with possible detrimental impact that may far exceed the benefit of the citation. Additionally, large trucks are heavier and require a longer stopping distance. To pull over a large truck similar to one shown in Figure 3, which is violating a lane use restriction, may require a very long distance for the truck to change lanes multiple times and find sufficient space on the outside shoulder to safely stop.

FIGURE 3 A truck with 5 axles violating lane restriction.

During the peak hours of traffic flow, stopping the truck on the outside shoulder would create an incident that could affect the smooth flow of traffic on the freeway as it would attract

rubbernecking and gawking. Previous studies have indicated that non-separated lane restrictions, such as truck restricted lanes and high occupancy vehicle lanes, are virtually unenforceable particularly during peak hours (*4*). On freeway sections where trucks are restricted from the center or right outer lanes, interchanges require the demarcation of areas where trucks can legally travel in preparation to exit or following their entry. Demarcating and enforcing the limits of these areas pose serious challenges.

2.4.3 Pavement Wear and Rate of Deterioration

Pavement wear and the corresponding increase in the rate of deterioration of the roadway pavement are other drawbacks associated with the implementation of truck lane restrictions. Usually, Interstate roadways are designed to provide a specified depth and strength of pavement layers to accommodate heavy truckloads for the design life of the roadway pavement. The design life takes into account the number of axle load repetitions. Restricting trucks from one freeway lane forces them to shift to the non-restricted lanes. This results in a higher concentration of trucks and a higher rate of axle load repetitions on those lanes. Therefore, there is a high probability that the pavement in these lanes will deteriorate and wear out faster and the design life of the pavement will be reached sooner than expected. Because of this, non-restricted lanes are likely to experience a high rate of pavement deterioration compared to the restricted lane.

2.4.4 Economic Costs

The implementation of a truck lane restriction may or may not increase the travel time and delay for trucks. If travel time and delay for trucks increase, the cost of truck transportation might also increase. The trucking industry certainly would be forced to raise prices for services to account for any extra cost incurred by the increased travel time and delay they experience. However, one study showed that travel time and delay for trucks are not significantly affected by truck lane restrictions (*6*).

2.5 Effectiveness of Truck Restrictions on Urban Freeways

Numerous studies have evaluated the operational effectiveness and safety efficacy of truck lane restrictions implemented on urban limited access highways. Some of these research studies are discussed in detail in the subsections that follow.

2.5.1 Florida Lane Use Restrictions for Trucks

The review of literature revealed a number of studies that evaluated the operational and safety effectiveness of lane use restrictions for trucks implemented in urban areas, particularly on Interstate 95 in South Florida. In 1982, the Florida Department of Transportation evaluated the operational and safety implications resulting from a 6-month experimental truck lane restriction

study implemented on Interstate 95 in Broward County (*9*). The restriction prohibited trucks with 3 or more axles from using the left lane(s) or median lane from 7:00 a.m. to 7:00 p.m. The purpose of the study was to determine if there would be a significant reduction in the level of intimidation and stress among passenger car drivers with trucks prohibited from using the left lane(*9*). The restriction signs were erected prior to the experiment at various locations on the mainline in both directions and enforcement began on the first day of the experiment.

The study showed over 98 percent compliance rate among truck drivers. The traffic operations analysis indicated no appreciable changes in vehicle speeds for automobiles and trucks, thus the travel time of trucks was not significantly affected. Also, redistribution of traffic among lanes resulting from the truck restriction did not adversely affect the ability of drivers to enter the freeway and merge with the freeway traffic. Furthermore, an analysis of crashes was conducted based on the crash records collected for nine months before and after the implementation of the truck restriction. It was found that the overall crash rate decreased by 2.5 percent for the 24 hour-a-day period, but increased by 6.3 percent during the 12-hour period of the restriction, i.e. 7:00 a.m. to 7:00 p.m. In addition, the proportion of crashes involving trucks with three or more axle decreased by 3.3 percent during the hours of restriction.

In 1997, Reddy (*14*) conducted a before-and-after study to evaluate the crash reduction effectiveness of the truck restriction implemented on Interstate 95 in Palm Beach County. In this study, historical traffic and crash data were collected and statistical techniques were used to compare the crash experience of sections with the truck restriction to a control site without the truck restriction. The safety analysis indicated that truck crashes were reduced by 17.6 percent and 0.88 percent during restriction and non-restriction hours, respectively. Also, all vehicle crashes were reduced by 13.78 percent and 22.72 percent during restriction and non-restriction hours, respectively. The study concluded that the lane use restriction for trucks was effective in reducing truck crashes and ineffective in reducing non-truck crashes. Even though no potential operational benefits were evaluated in this study, it was recommended that the restriction be continued since it appeared that the existing truck restriction improved traffic flow and safety.

2.5.2 Illinois and Wisconsin Lane Restrictions

In 1990, Hanscom (*2*) evaluated the operational effectiveness of lane use restrictions for trucks in Illinois and Wisconsin. Two of the sites were located on sections with three lanes of travel in urban and suburban areas outside Chicago, Illinois. At these two sites trucks were restricted from the left lane. The purpose of the Chicago area lane use restrictions for trucks was to improve traffic flow and safety. The third site was located on a section with two lanes of travel in each direction in a rural Interstate section in Wisconsin. At this site trucks were restricted from the right lane because of the deterioration of the roadway pavement. Before-and-after studies were conducted. Sites with truck lane restrictions were matched with control sites without truck lane restrictions. The operational measures of effectiveness used for evaluating truck lane restrictions for the three sites included truck lane occupancy, delay to following vehicles, proportion of trucks impeding followers, and adjacent lane speed differential.

The before-and-after comparison indicated significant lane use shifts by trucks. In all three sites the results showed favorable truck compliance with the restriction. However, it was

found that there was a higher violation rate of 10.2 percent at the two-lane site compared to 0.9 and 5.7 percent for the two three-lane sites. The results for the two three-lane roadway sites indicated that fewer trucks were impeding vehicles. There were shorter following queue lengths at one of the three-lane roadway sites, thus traffic congestion was reduced. A comparison of all vehicle speeds indicated no speed differential occurred between restricted and adjacent non-restricted lanes. The results for the two-lane rural Interstate freeway site in Wisconsin indicated reduced speeds for impeded vehicles following trucks in the left lane. There were limited passing opportunities for these impeded vehicles because of other vehicles following slower trucks in the right lane. The study concluded that beneficial traffic flow effects, i.e., reduced congestion, was associated with the left lane truck restriction on the three-lane roadways. The study recommended the continued implementation of truck lane restriction in these areas.

2.5.3 Capital Beltway Lane Restrictions

The literature review revealed several studies that evaluated operational and safety benefits of lane use restrictions for trucks instituted on the Capital Beltway. In 1985, the Virginia Department of Transportation instituted a lane use restriction for trucks on the Interstate 95 section of the Capital Beltway between Interstate 395 west of the Woodrow Wilson Bridge (*21*). This restriction was imposed in an attempt to reduce crash problems. The objective of the study was to assess the impact of the truck restriction on safety and operations. Data were collected for one year prior to implementation of the restriction and periodically after implementation to determine the impact of the restrictions.

The comparison of before-and-after crash, speed, and traffic volume data found that the lane use restriction for trucks caused a redistribution of trucks to the non-restricted lanes with only a slight increase in the number of passenger vehicles using the left lane. The results showed that the number of crashes along the lane use restricted area of the Beltway remained unchanged. However, the crash rate declined slightly with the restriction. In the restricted area there was a 20 percent reduction in injury severity and an insignificant increase in property damage only crashes. An opinion survey of drivers was conducted as part of this project and the results indicated that the majority of the Beltway users supported the “truck free lane”. Based on the results that showed a slight reduction in accident rates and the overwhelming support by the public on the perceived benefits of the truck lane restriction, it was recommended that the truck lane restriction be continued.

Another study in the Capital Beltway area was conducted in 1987 by the Virginia Department of Transportation (*22*). The analysis of the results showed that the crash rate increased by 13.8 percent during the lane use restriction for trucks. No change was evident on fatal and injury severity. Further analysis of the data found traffic volume had increased by about 8 percent. The overall increase in crash rate during this period was primarily a result of higher crash occurrences at the interchanges on Interstate 95, Interstate 495, and Interstate 395. However, despite the increased crash rate, it was recommended that the restriction be retained based on unchanged fatal and injury crash severity levels and the public’s perceived favorable benefits of the lane use restriction for trucks.

In 1989, the Virginia Department of Transportation assessed the operational and safety impacts of restricting trucks from the inside median lane of an eight-lane section of the Capital Beltway (*23*). The objectives of the study were to identify and compare traffic volume trends and crash histories of three segments of Interstate 95, each with a different lane use restriction, against a control segment. The control segment was used as the baseline to compare operational and safety impacts on the other segments with a lane use restriction. In this study, a case/control approach was deployed because of the multiple determinants affecting the operation and safety of Interstate 95. The study area was divided into three segments: (1) a segment with a toll road, (2) a segment with an HOV/shoulder travel lane operation, and (3) a segment of the typical eight-lane section with a lane use restriction for trucks. The evaluation was conducted using traffic volumes and crash records collected from 1985 through 1987.

The evaluation indicated that the total number of crashes increased on segments where restrictions had been implemented and crashes tended to be lower where there were fewer restrictions. However, it was found that the severity of fatal and injury crashes did not change. Further, the results showed that the majority of truck crashes occurred on the right side of the roadway. The authors indicated that the initial reduction in crash rates might be attributed to the increased deployment of police enforcement during the early stages of the restrictions, and driver recognition and response to this higher level of police presence. In addition, it was found that the political and public perception of restricting trucks to the right lane in this corridor made the highway safer, but no additional restrictions should be considered. From these findings the authors recommended that truck lane restrictions for the segments without lane use restrictions for trucks, i.e. the HOV separated lanes, the control segments, and other toll road segments of Interstate 95 be left without restrictions. They also recommended that restrictions in force on the Beltway be removed.

2.6 Summary of the Literature Review

From the literature review and current practices, no specific language was found in Florida Statutes and FDOT Rules stipulating the types of vehicles targeted by lane use restriction on urban freeways. Also, there was no stated basis behind lane use restrictions for trucks, i.e. whether the restriction is predicated upon reducing the 'intimidation factor' of large trucks or removing vehicles with low performance characteristics from the 'faster' lanes. However, based on the posted lane use restriction signs found on Florida's freeway system indicating vehicles *'Over 6 wheels'* or with *'3 or more axles'*, it appears that FDOT is targeting trucks based on size and performance characteristics for these lane use restrictions.

Furthermore, studies evaluating lane use restrictions for trucks implemented on urban freeways have generally produced contradictory results in operations, safety, and pavement performance benefits. However, the literature review has indicated that the motoring public feels intimidated by unsafe tailgating practices by some drivers of trucks in the inside lane on urban freeways. This appears to be enough justification to warrant the exclusion of trucks from some lane on an urban freeway. In general, the driving public perceives lane use restrictions for trucks to be effective in making urban freeways more efficient and safer.

CHAPTER THREE

METHODOLOGY

3.1 Selection of the Study Corridor

A comprehensive review of site characteristics was undertaken to determine the freeway corridors in Florida where lane use restrictions for trucks exist. The review entailed driving through the entire interstate freeway system and conducting interviews with FDOT district traffic operations personnel. The purpose of this review was (1) to determine the history of lane use restrictions in Florida, (2) to determine the location of existing corridors with a lane use restriction for trucks, (3) to determine the beginning and ending mileposts of the corridors with these restrictions, and (4) to obtain the message design and sign placement used for the truck restriction signing on each corridor. With this information available, a corridor could be selected for detailed analysis in this study. Table 1 shows attributes of the existing truck lane restriction corridors.

TABLE 1 Characteristics of Truck Lane Restriction Corridors in Florida.

Freeway	*Beginning Milepost*	*Ending Milepost*	*Beginning Coordinates*	*Ending Coordinates*	*Length (miles)*	*Start Date*	*Sign Message*
I-75	202.46	263.46	Lat.: 28.0228 Long.: -82.3302	Lat.: 27.2233 Long.: -82.4505	61	May 2004	Trucks over 6 wheels must use 2 right lanes
I-75	Exit 328 (FL Tnpk)	Exit 467 (CR 143)	Lat.: 30.6258 Long.: -83.1708	Lat.: 28.8808 Long.: -82.0925	139	August 1998	
I-95	5.48	88.75	Lat.: 25.8216 Long.: -80.2062	Lat.: 26.9647 Long.: -80.1725	83.27	May 1983 in Broward County	No trucks with 3 or more axles left lane or left 2 lanes
I-95	298	333.4	Lat.: 29.6658 Long.: -81.2925	Lat.: 30.1025 Long.: -81.5025	35.4	July 2005	Trucks over 6 wheels must use 2 right lanes
I-95	363	382	Lat.: 30.4908 Long.: -81.6408	Lat.: 30.7442 Long.: -81.6542	19	May 2004	
HEFT	11	16	Lat.: 25.5841 Long.: -80.3672	Lat.: 25.6301 Long.: -80.3827	5	May 2005	No truck left lane
HEFT	19.5	39.5	Lat.: 26.6737 Long.: -80.3888	Lat.: 25.9511 Long.: -80.3486	20		

Note: HEFT—Homestead Extension of Florida's Turnpike

Figure 4 shows a map created as part of this study. This interactive map highlights the truck lane restriction corridors in Florida and is currently posted on the Florida Department of Transportation website. The characteristics of each truck lane restriction corridor are further discussed in detail in the following subsections.

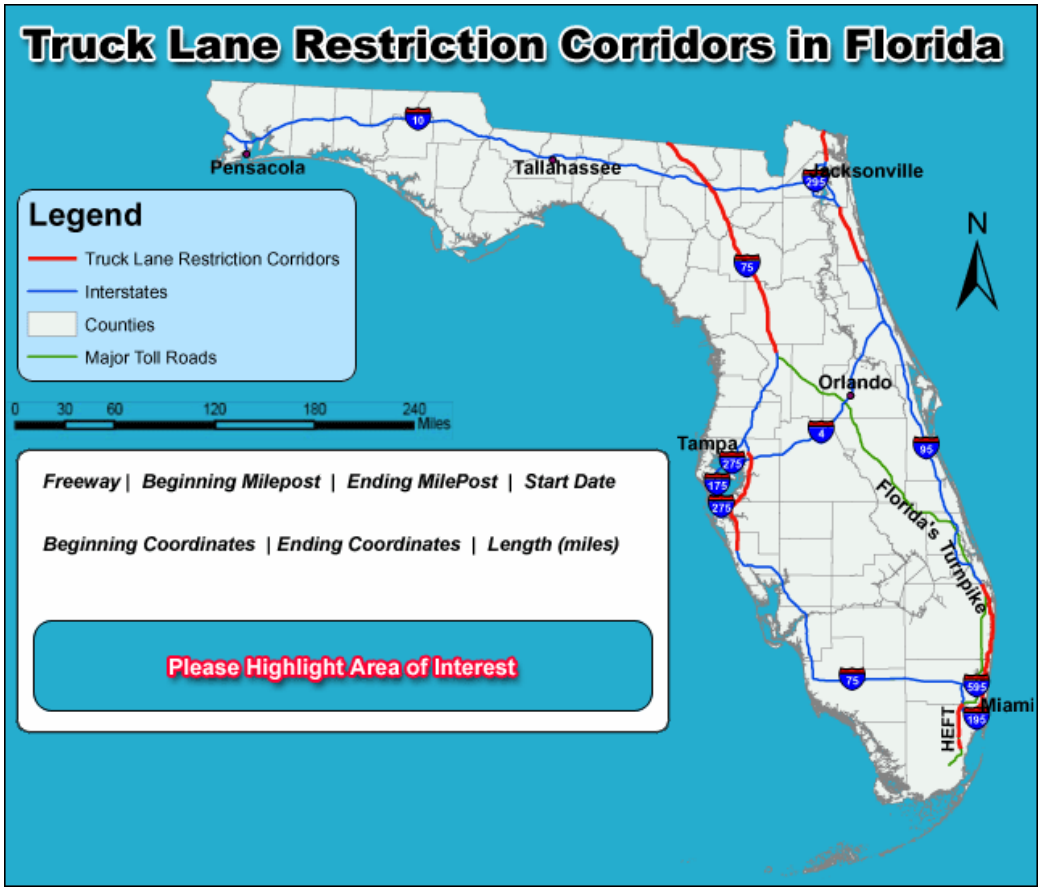


FIGURE 4 Truck lane restriction corridors in Florida.
(http://www.dot.state.fl.us/TrafficOperations/Traf_Incident/Truck-Lane-Restriction-Map.htm)

3.1.1 Truck Lane Restriction on Interstate 75

Interstate 75 is a major north-south Interstate freeway in the United States, originating in Miami, Florida and passing through six states before ending in Sault Ste. Marie in Ontario, Canada. In Florida, Interstate 75 has predominantly two lanes in each direction. However, there are three segments of I-75 that have three or more lanes in each direction. Two of these three segments currently have a lane use restriction for trucks in effect. The segment without a restriction is in Broward and Dade counties.

The first of the two segments with a lane use restriction for trucks is 61-mile long between Milepost 202.46 and Milepost 263.46. This truck lane restriction was implemented in May 2004 following the completion of a road widening project to six lanes. Trucks are restricted from using the inside lane in both directions 24 hours a day.

The second segment is 139-mile long starting from Exit 328 (Florida's Turnpike) in the south and ending at Exit 467 (County Road 143) in the north. The lane use restriction practice for trucks on this 139-mile segment dates back to August 1998. This restriction was implemented following the FDOT study which showed the lane use restriction for trucks on Interstate 95 in Palm Beach County reduced the number of crashes involving heavy vehicles(*9*). Trucks on this segment are restricted from using the inside lane in both directions 24 hours a day.

The signs for the truck lane use restriction on these two Interstate 75 segments prohibit trucks over 6 wheels from the inside lane in both directions. The posted signs read *'Trucks over 6 wheels must use 2 right lanes'*. These signs are mounted overhead on bridges and ground mounted on posts in the median or outside shoulder. Recent changes to this signing have occurred along the FDOT District 2 portion of I-75. The signing for the restriction along this portion now reads, *'No Trucks Left Lane'*.

3.1.2 Truck Lane Restriction on Interstate 95

Interstate 95 originates in Miami, Florida and terminates in the City of Houlton in the State of Maine. Interstate 95 passes through 15 states and links major cities along the eastern coast of the United States. Interstate 95 has three or more basic lanes in each direction in three segments in Florida. The review of existing operations on Interstate 95 found lane use restriction for trucks on each of these three segments.

The first of these three segments is 83.27 miles long, and starts at Milepost 5.48 in Miami-Dade County and ends at Milepost 88.75 in Palm Beach County. Trucks are restricted from using the inside lane in both directions 24 hours a day. The characteristics of this truck lane use restriction on Interstate 95 in South Florida are discussed in detail in Section 1.1 and 3.2.

The second segment is about 35.4 miles long starting from Milepost 298 to Milepost 333.4 just south of Jacksonville. The truck lane use restriction on this corridor was implemented in July 2005. However, in February of 2006, the restriction in the southbound direction approaching CR 210 was revised to begin one mile south of CR 210. This change created an offset of 4.5 miles with the northbound restriction limit, but was considered necessary because of the excessive queuing on the southbound exit ramp at the CR 210 interchange. It was thought that restricting trucks to the outside lane in this area created unsafe driving conditions. Trucks are restricted from using the inside lane in both directions 24 hours a day.

The third segment of Interstate 95 with a lane use restriction for trucks is about 19 miles long starting at Milepost 363 north of Jacksonville and extending to the Georgia state line. The restriction on this corridor was implemented in May 2004. Trucks are restricted from using the inside lane in both directions 24 hours a day.

The truck lane use restriction signs on Interstate 95 south and north of Jacksonville prohibit trucks over 6 wheels from the inside lane in both directions. These signs read *'Trucks over 6 wheels must use 2 right lanes'*. These signs are mounted overhead on bridges and ground mounted on posts in the median or outside shoulder.

3.1.3 Truck Lane Restriction on Homestead Extension of Florida's Turnpike (HEFT)

Florida's Turnpike (SR 91) is a 265 mile-long limited access toll road that runs through 11 counties from Interstate 75 in Wildwood in Central Florida to Miami in South Florida. The 47-mile Homestead Extension of Florida's Turnpike (HEFT), also known as SR 821, extends from the junction with Florida's Turnpike at the Miami-Dade/Broward County line, through the western suburbs of Miami, to the City of Homestead. Some segments of the HEFT have two lanes in each direction, while others have three lanes in each direction. The truck lane use restriction on the HEFT went into effect in May 2005. Trucks are restricted from using the left lane in the 3-lane segments.

The first segment on the HEFT with a truck lane use restriction is five miles long extending from Exit 11 to Exit 16. The second segment is 20 miles long extending from Milepost 19.5 to Milepost 39.5. The implementation of these restrictions was based on a Florida Highway Patrol (FHP) investigation. This investigation found that some crashes occurring on the Turnpike were attributable to passenger car drivers making excessive lane changes to avoid slower moving truck traffic in the high speed lane (*24*). The restriction was implemented to improve overall traffic flow, reduce the number of traffic crashes, and provide a safer driving environment for all Turnpike customers.

The truck lane use restriction signs on the HEFT prohibit trucks from the inside lane in both directions 24 hours a day. These signs read *'No trucks left lane'*. Signs for the restriction are ground mounted on posts in the median or on the outside shoulder at periodic intervals in both directions.

3.1.4 Selection of Study Corridor

Based on the review of all existing freeway segments in Florida with a lane use restriction for trucks, the Interstate 95 segment in South Florida was selected as the study corridor for analysis in this study. This segment was chosen because it has a high occupancy vehicle lane and a truck lane use restricted lane, both of which are implemented individually and in combination with the other. In addition, this corridor is heavily congested with a high percentage of through trucks and it traverses highly urbanized areas with numerous lane additions and lane drops. This Interstate 95 study corridor also has many closely spaced interchanges.

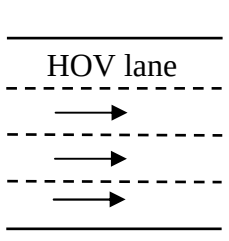
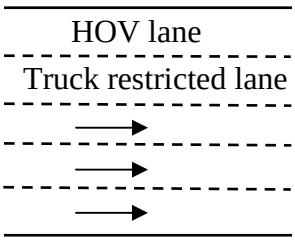
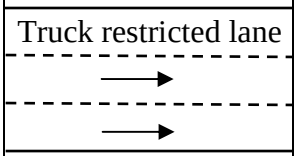
3.2 Description of the Study Corridor

The I-95 study corridor was divided into three segments, as shown in Figure 5, for simulation, and reflects the heterogeneity of the HOV and truck lane use restrictions along this 83-mile corridor. The length of each of these segments is based on the posted lane use restriction signing. The three segments are: Segment 1—section with a HOV lane restriction, but without an additional lane from which trucks are restricted; Segment 2—section with a HOV lane and an additional adjacent lane from which trucks are restricted; and Segment 3—section without a

HOV lane, but with one lane from which trucks are restricted. Table 2 shows the corridor characteristics of these three segments of the Interstate 95 study corridor.

This study corridor is one of the most congested and heavily traveled interstate freeways in the country. The 2005 Urban Mobility study ranked Miami as the fifth most congested urban area in the country on a travel time delay basis (*18*). Traffic volume information shows the 2005 average annual daily traffic (AADT) ranged from 75,000 to 314,000 vehicles per day with a fairly even directional split (*FDOT, 2006*). The FDOT data further showed that truck traffic was approximately 2% to 30% of the total AADT. A speed study conducted as part of this study indicated average travel speeds ranging from 23 mph during the peak hour to 71 mph during off-peak hours. During various site visits significant recurring congestion was observed in the peak morning and afternoon periods. The traffic data and geometric attributes along this corridor, such as the percent trucks and interchange density, show reasonable similarity with other freeways in major cities of the United States.

TABLE 2 Study Corridor Characteristics.

	Segment 1	Segment 2	Segment 3
			
Location	MP 5.48 – MP 17	MP 17 – MP 61	MP 61 – MP 88.75
Length (miles)	11.52	44.00	27.75
Avg. number of through lanes	4	5	3
Avg. no. of ramp lanes	1	1	1
Speed Limit	55	65	70
Interchanges per mile	0.83	0.66	0.52
Average AADT	283,300	221,740	120,500
Average truck percentage	4.20	6.36	9.08

The truck lane use restriction signs posted in this corridor prohibit trucks with three or more axles from the inside (leftmost) lane(s). These signs read '*No trucks with 3 or more axles left lane'* or '*No trucks with 3 or more axles left 2 lanes*' on sections with three or four through lanes, respectively. Through lanes are hereby defined as lanes that continue past the downstream interchange. The HOV lane restriction signs posted in this corridor read, *'High occupancy vehicles with 2 or more persons per vehicle'*. In addition, the HOV lane is marked by the diamond shaped preferential lane use marking symbol.

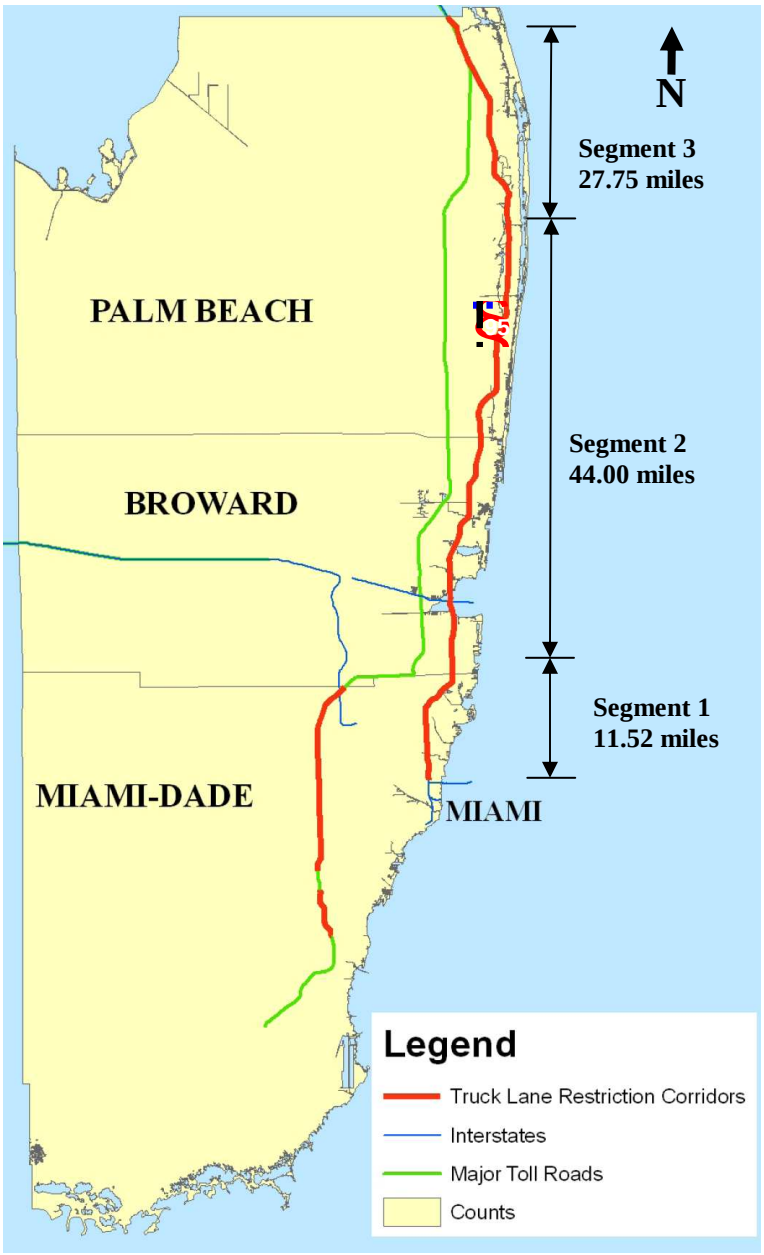


FIGURE 5 Segmentation of the study corridor.

3.3 Data Collection

Traffic data used in the simulation were acquired from FDOT. The freeway geometric data were extracted from the Roadway Characteristics Inventory (RCI) database and video logs of state-maintained roadways. The geometric attributes extracted were lane width, number of lanes, lengths of acceleration and deceleration lanes, grades, and the beginning and ending mileposts of different sections. The traffic attributes acquired were the annual average daily traffic (AADT), percentage of trucks, and on ramp and off ramp volumes. The data were used to determine historical trends, as well as, the peak-hour and off-peak hour volumes. Additional data were collected in the field and used to verify the existing freeway geometrics and traffic operating characteristics such as travel times and speeds. The freeway geometrics were captured

using a video camera and were later compared to the extracted RCI data. The floating car technique was used to collect travel times and speeds using a Global Positioning System (GPS) device. These data were used to calibrate and validate the simulation model.

Table 3 shows the summary of field collected travel times, speeds, and corridor limits. It should be noted that some sections of Segment 3 were under construction at the time, thus it was not necessary to perform multiple speed measurements in the field because they would not reflect actual operating speed values.

TABLE 3 Study Corridor Traffic Operating Characteristics

Northbound Traffic									
	Segment 1			Segment 2			Segment 3		
Run	Distance (miles)	Time (min.)	Average speed (mph)	Distance (miles)	Time (min.)	Average speed (mph)	Distance (miles)	Time (min.)	Average speed (mph)
1	11.20	10.55	66.12	40.25	35.45	70.38	28.13	26.98	66.10
2	11.25	13.80	50.75	40.21	37.15	67.02	-	-	-
3	11.24	10.97	63.59	40.19	35.27	70.63	-		-
4	11.27	24.15	29.05	40.20	43.73	57.02	-	-	-
5	11.26	10.85	64.66	40.20	34.62	71.92	28.13	30.50	58.50
Mean	11.24	14.06	54.83	40.21	37.24	67.39	28.13	28.74	62.30
Min	11.20	10.55	29.05	40.19	34.62	57.02	28.13	26.98	58.50
Max	11.27	24.15	66.12	40.25	43.73	71.92	28.13	30.50	66.10
Range	0.07	13.60	37.07	0.06	9.11	14.90	0.00	3.52	7.60
Std	0.03	5.79	15.67	0.02	3.74	6.08	0.00	2.49	5.37
Southbound Traffic									
1	11.36	11.08	63.74	42.69	38.47	68.60	28.13	27.4	60.76
2	11.24	12.57	55.80	41.24	49.98	51.05	-	-	-
3	11.35	29.83	23.59	41.24	44.97	56.84	-	-	-
4	11.31	11.73	59.88	41.23	39.07	65.32	-	-	-
5	11.34	29.87	23.45	41.23	38.05	67.16	-	-	-
Mean	11.32	19.016	45.292	41.526	42.108	61.794	28.13	27.4	60.76
Min	11.24	11.08	23.45	41.23	38.05	51.05	28.13	27.40	60.76
Max	11.36	29.87	63.74	42.69	49.98	68.60	28.13	27.40	60.76
Range	0.12	18.79	40.29	1.46	11.93	17.55	0.00	0.00	0.00
Std	0.05	9.90	20.07	0.65	5.22	7.54	0.00	0.00	0.00

Figure 6 shows the operating speed characteristics downloaded from the Permanent Telemetered Traffic Monitoring Site (TTMS # 0271) located near MP 83 in Palm Beach County. The descriptive statistic shows the 85^{th}, 50^{th}, and 15^{th} percentile speeds for all vehicle types were 79 mph, 72 mph, and 64 mph, respectively. The 10-mph pace for all vehicle types was 70 to 80 mph in the 70 mph speed limit section, indicating that approximately 50 percent of all vehicles

were within this range. Closer examination of the data indicated that about 60 percent of the drivers were traveling above the posted 70-mph speed limit.

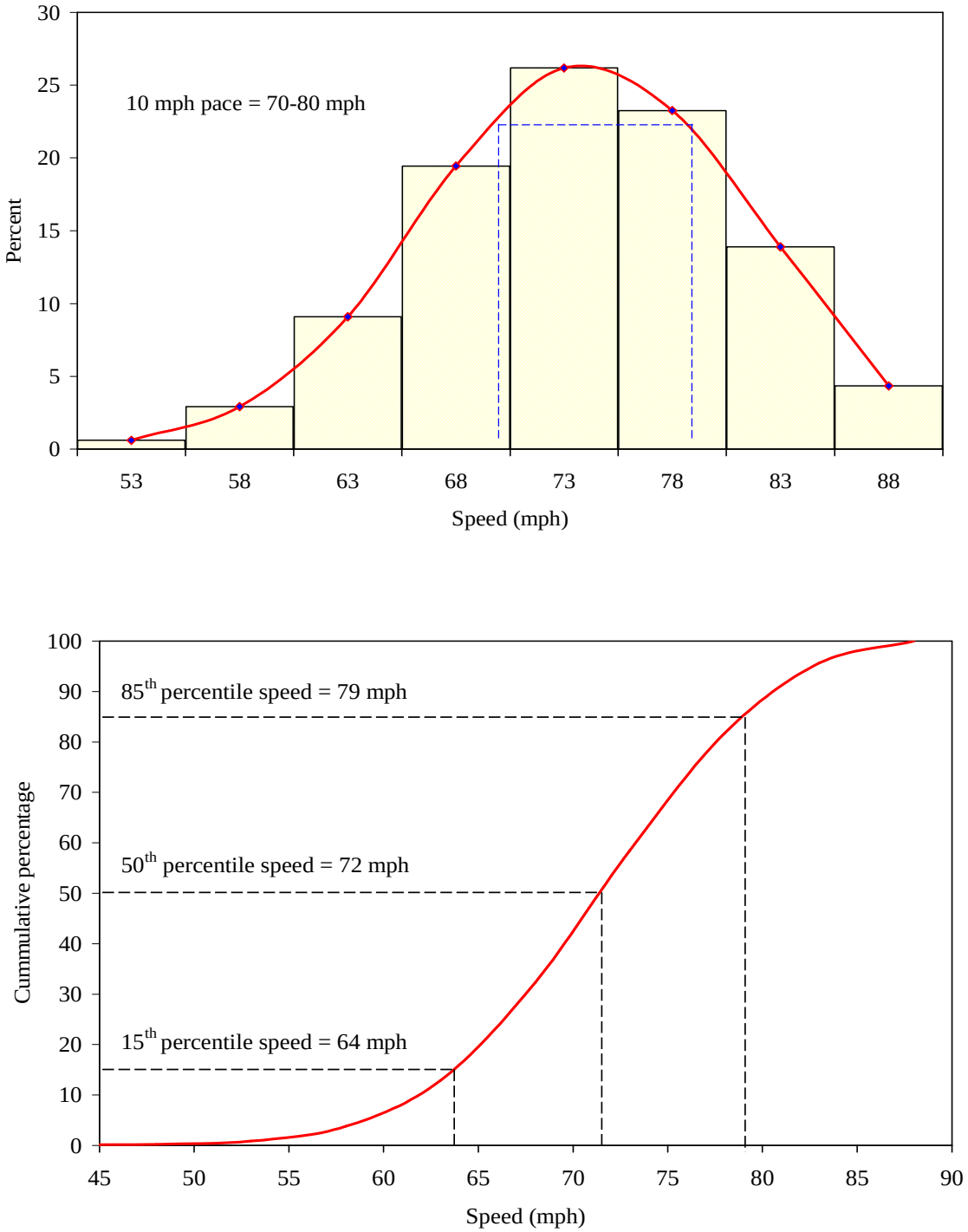


FIGURE 6 Operating speed characteristics at TTMS # 0217 in Palm Beach County.

Hourly speed variations per lane on the same location are shown in Figure 7. It is clear that speed differences exist among lanes. The trends indicate that the left lane that trucks are restricted from using had the highest speed (average 80 mph), followed by the middle lane (74 mph), and then the outside lane (68 mph). The speed difference was about 6 mph between the inside and middle lanes, and 6 mph between the middle lane and outside lanes.

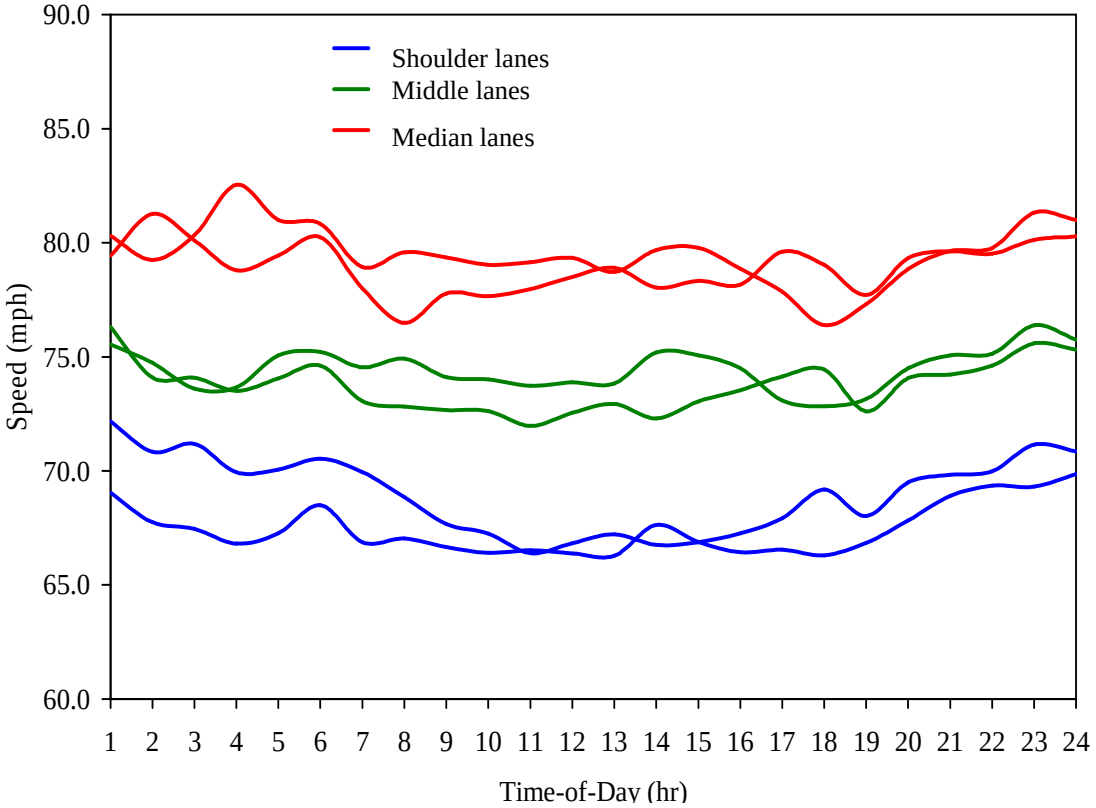


FIGURE 7 Hourly speed variations at TTMS # 0217 in Palm Beach County.

Hourly volume variations per lane are shown in Figure 8 and indicate similar trends. The median or left lane that trucks are restricted from using carried more vehicles per lane, followed by the middle lane, and then the outside lane. These results also indicate that the southbound direction carried more vehicles per lane than the northbound direction. Additionally, in this corridor the morning and the evening peak hours occur between 7 a.m. and 9 a.m. and between 4 p.m. and 6 p.m., respectively

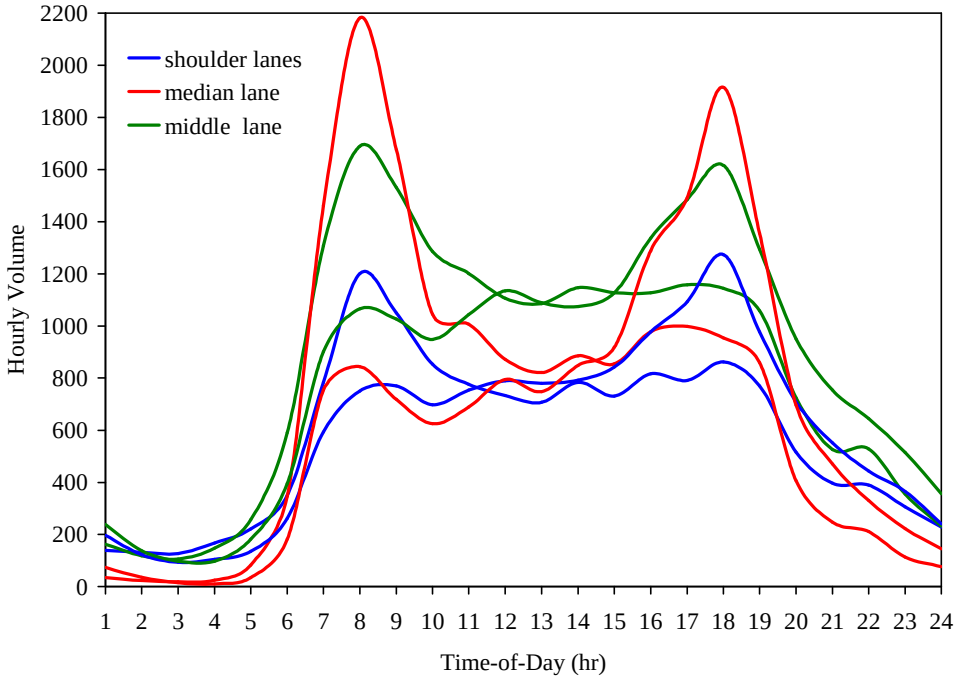


FIGURE 8 Hourly volume variations at TTMS # 0271 in Palm Beach County.

3.4 VISSIM Network Coding

A background image was created in the ArcGIS and imported into the VISSIM network. The background map was then properly scaled before coding freeway geometrics. Three types of links were created and each assigned different driver behavior parameters to emulate the local freeway local vehicle interaction behaviors. These links were basic freeway segments, merging areas, and diverging areas. For a more realistic traffic flow behavior, all entering vehicles from on ramps merged into the freeway traffic by changing lanes within the specified merging length and exited the freeway within the specified diverging length. It should be noted that merging and diverging lengths varied at each interchange ramp.

Three types of vehicles were defined: high occupancy vehicles (HOVs), cars using non-HOV lanes, and trucks. A static routing algorithm was created that allowed the user to specify a start routing point for vehicles to any of the specified destinations in the network. The vehicle routing information was estimated by a program written in Matlab, and is shown in Appendix A. In developing this vehicle routing algorithm, it was assumed that traffic volumes at each exit point were proportional to the upstream entrance volumes. The measures of effectiveness reported in this study are based on the average of five simulation runs performed with different number seeds to account for the stochastic variation of traffic.

3.5 Model Calibration, Verification and Validation

The VISSIM default parameters were used in trial simulation runs and for checking any coding errors. The simulation results showed that the default parameters were incorrectly emulating the existing traffic flow characteristics, as shown in Figure 9. Unrealistic traffic flow characteristics were produced, particularly at freeway merging and diverging areas. This was revealed by the improper lane changing maneuvers in the vicinity of the entrance and exit ramps. These maneuvers in the model caused long traffic queues thus necessitating calibration of the model by fine tuning car-following and lane changing parameters, while comparing simulation data with the field data. The fine-tuning process involved iterative parameter changing until simulated speeds closely matched speeds observed in the field.

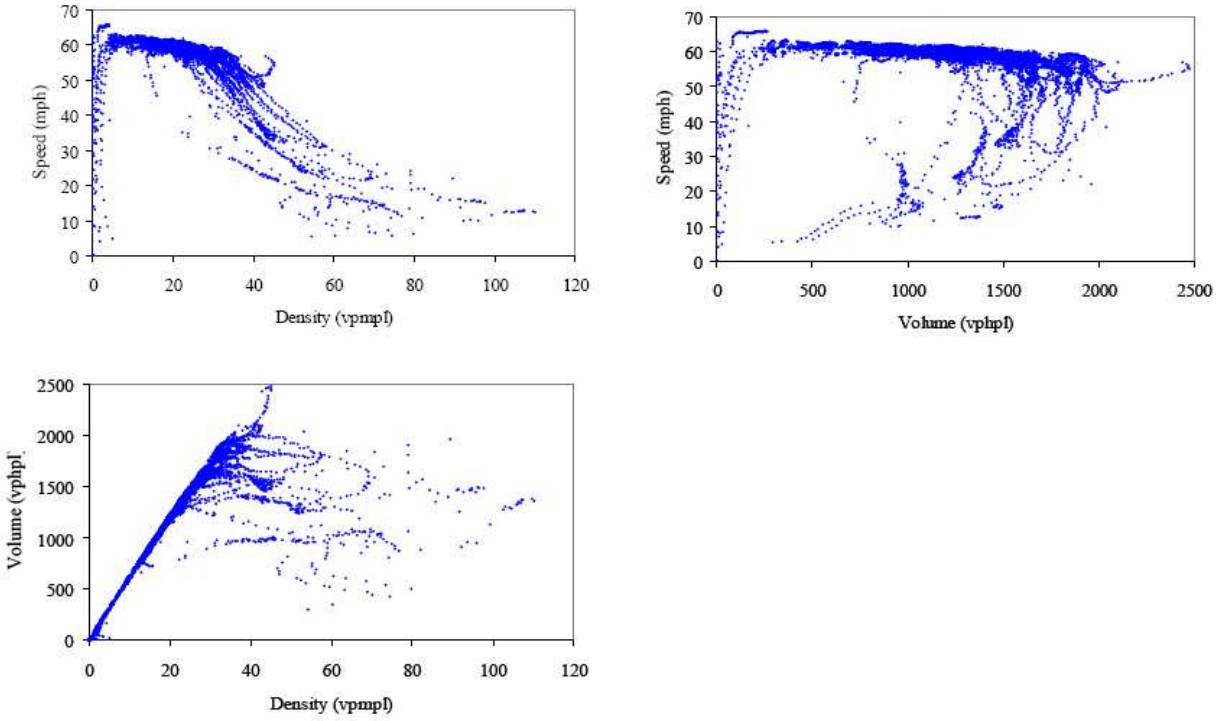


FIGURE 9 Fundamental traffic flow diagrams before model calibration.

Furthermore, the simulated values were verified against the observed field values as indicated in the fundamental flow diagrams shown in Figure 10. The simulated results in Figure 10 show good agreement with the observed field values.

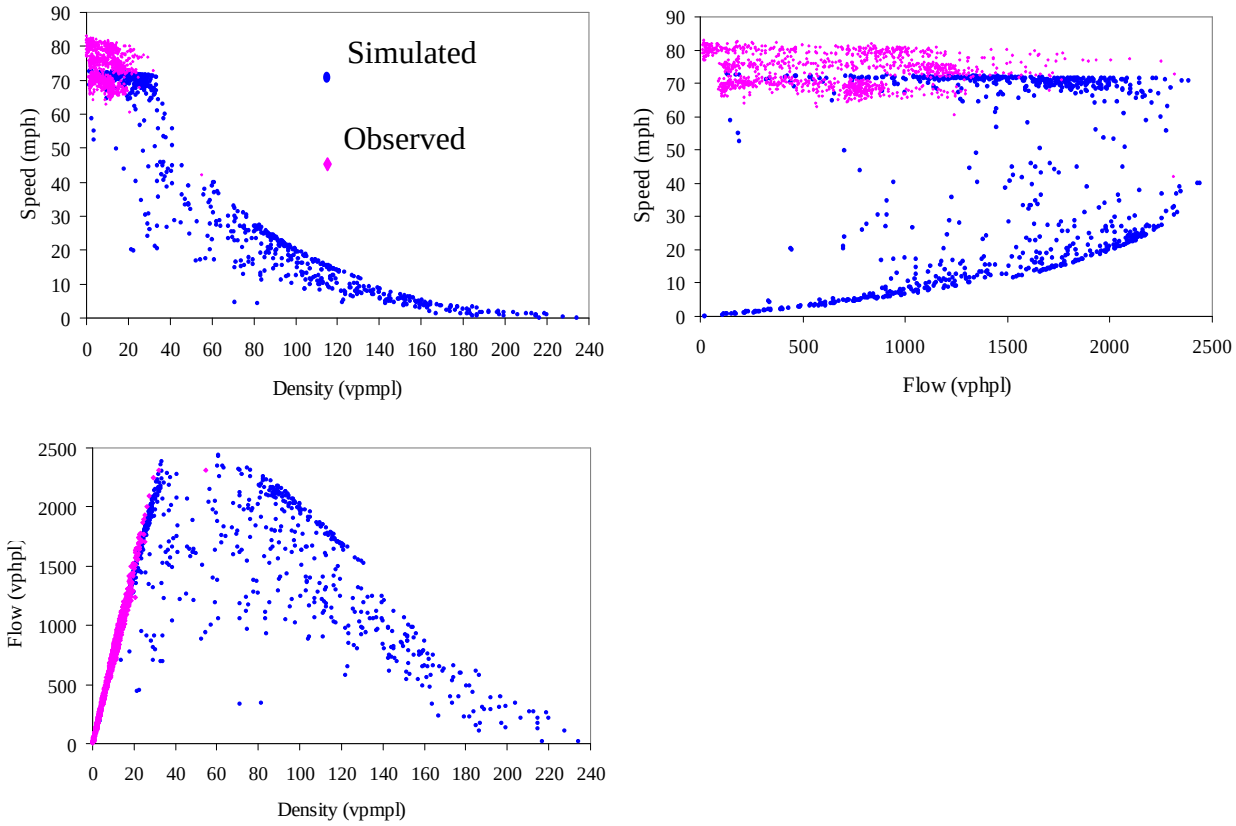


FIGURE 10 Fundamental traffic flow diagrams after model calibration.

CHAPTER FOUR

SIMULATION RESULTS AND DISCUSSION

The evaluation of performance for the combined impact of HOV and truck restricted lanes involved analyzing the traditional measures of performance and also simulation indicators of safety. The VISSIM outputs used to evaluate travel efficiency along the corridor were travel times for each vehicle type (high occupancy vehicles, cars on regular lanes, and trucks), travel speeds per lane, and traffic queue lengths near interchanges. The VISSIM outputs used as safety indicators were the number of lane changes and speed differences between restricted and non-restricted lanes. In addition, the effect of HOV and truck lane restrictions on the distribution of vehicles in the through lanes was analyzed. It is worth mentioning at this juncture that trucks were restricted in the VISSIM simulation model from traveling on the left lane(s) to emulate the existing restriction in this corridor. In addition, two other hypothetical truck lane use restriction scenarios involving center and right lanes were modeled. Each scenario was evaluated to determine the lane(s) for optimum implementation of truck lane use restriction on an urban freeway. The following sections discuss the operational and safety performance measure results in detail.

4.1 Evaluation of Travel Time

Table 4 shows the average travel times from the VISSIM simulation and those measured in the field. The field measured travel times are included in the table as a form of validation of the simulation results. It is worth noting that travel times in the field were collected using a GPS device in a "floating car" with driver trying to maintain an average speed. The results shown in Table 4 are for the truck lane use restriction on the left lane(s). These results are reported in seconds per mile in order to have a uniform basis of comparing the three different length segments. Only through vehicles, traversing the segment from the beginning to the end, were used in the travel time aggregation. Historical traffic trends indicated that truck traffic in this corridor varied from 2% to 30%. Therefore, it was decided to simulate truck traffic up to 30% in increment of 5%. The results in Table 4 show that the travel time on a per mile basis for all three vehicle types—high occupancy vehicles, cars on regular lanes, and trucks—increased as the percentage of trucks increased regardless of the type of restriction imposed. The results further show that during peak traffic conditions, travel time per mile savings was higher for high occupancy vehicles, followed by cars on general lanes, and then trucks. These results are consistent with the results of a study conducted in this corridor by Cambridge Systematics (*8*). Closer examination of Table 4 shows that travel time per mile was higher on the HOV only segment, followed by the HOV and truck restricted lane segment, and then the truck restriction lane only segment. The reason for this trend may be attributed to the amount of traffic each segment carries and the interchange density per mile that exists in the corridor as shown in Table 2. The HOV only segment had the highest daily traffic and the highest interchange density of the three segments analyzed.

TABLE 4 Travel Time Results for Peak Traffic Flow (seconds per mile)—Left Lane Restricted

Southbound Traffic								Field Measured
Simulated								
Truck percent		*5%*	*10%*	*15%*	*20%*	*25%*	*30%*	
Segment 1	HOVs	123	122	119	118	121	118	128
	Cars	166	170	175	184	187	191	
	Trucks	186	191	195	200	209	204	
Segment 2	HOVs	68	73	73	78	80	76	65
	Cars	75	84	84	85	88	93	
	Trucks	85	86	101	104	111	127	
Segment 3	Car	58	63	67	72	72	73	65
	Trucks	67	75	82	101	102	108	
Northbound Traffic								
Segment 1	HOVs	74	96	89	114	115	134	157
	Cars	85	116	115	142	151	176	
	Trucks	94	130	126	157	164	190	
Segment 2	HOVs	71	76	81	86	96	100	73
	Cars	80	90	98	100	106	109	
	Trucks	94	99	100	115	130	142	
Segment 3	Car	58	62	68	73	71	70	59
	Trucks	65	73	85	104	98	112	

The analysis of the simulation results for the southbound direction indicated that the travel times for all three vehicle types followed the trends similar to the northbound direction in all three segments. However, the comparison of travel times for northbound and southbound directions found that the southbound traffic exhibited longer travel times than the northbound traffic during peak traffic conditions. It is worthy of mentioning here, that simulated travel time results showed close agreement with field measured travel time values.

Table 5 displays simulation results for the off peak (9:00 a.m. to 16:00 p.m., and 20:00 p.m. to 22:00 p.m.) traffic flow conditions when trucks were restricted from the left lane(s) in the VISSIM simulation. This table also displays the travel times collected from the field. The simulation results for off peak traffic flow conditions did not show in any segment appreciable changes in travel times between high occupancy vehicles, cars on general lanes, and trucks. This is construed to mean that trucks and passenger vehicles tend to travel at the same speed during off-peak traffic flow conditions regardless of type of lane restriction imposed. In addition, results can be interpreted to mean that an increase in the number of trucks has minimum effect on travel times for all vehicle types during off peak traffic flow conditions. Also, it should be

noted that field measured speeds showed good agreement with the simulated speed values in this corridor.

TABLE 5 Travel Time Results for Off Peak Traffic Flow (seconds per mile)—Left Lane Restricted

Northbound Traffic								Field Measured
Simulated								
Truck percent		*5%*	*10%*	*15%*	*20%*	*25%*	*30%*	
Segment 1	HOVs	49	49	49	49	49	50	58
	Cars	49	49	49	49	49	50	
	Trucks	50	50	50	51	52	53	
Segment 2	HOVs	50	50	50	50	50	50	52
	Cars	50	50	50	50	50	50	
	Trucks	51	51	51	51	52	53	
Segment 3	Car	49	49	49	49	49	49	51
	Trucks	50	50	50	51	52	53	
Southbound Traffic								
Segment 1	HOVs	48	48	48	48	48	49	60
	Cars	49	49	49	49	49	49	
	Trucks	49	48	50	50	50	51	
Segment 2	HOVs	57	58	59	62	61	61	56
	Cars	62	64	66	67	69	67	
	Trucks	64	73	81	84	91	96	
Segment 3	Car	49	49	52	58	61	62	53
	Trucks	50	50	58	71	77	86	

Further analysis was conducted to evaluate travel times for high occupancy vehicles, cars on general lanes, and trucks when trucks were restricted from the other lanes, such as center or right lane, in lieu of the left lane restriction currently implemented in this corridor. Table 6 displays travel times for high occupancy vehicles, cars on general lanes, and trucks in a scenario with trucks restricted from using the center lane during peak traffic flow conditions. The simulation results show travel time trends similar to those of the left lane restriction. It is evident from these results that all vehicles types incurred longer travel times, particularly at higher trucks percentages than with the left lane restriction. These results might be interpreted to mean that lifting a truck lane restriction from the left lane and placing it on the center lane exacerbates travel times regardless of vehicle types. Also, it can be inferred from these results that the departure of trucks from the center lane did not entice non-restricted vehicles to shift to this lane and improve operations. As a result, no benefits in terms of travel times prevailed for high occupancy vehicles, cars on general lanes, or trucks.

TABLE 6 Travel Time Results for Peak Traffic Flow (seconds per mile)—Center Lane Restricted

Northbound Traffic							
Truck percent		*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
Segment 1	HOVs	122	140	140	141	143	144
	Cars	141	182	193	193	196	204
	Trucks	141	220	231	238	240	243
Segment 2	HOVs	107	118	125	133	142	158
	Cars	116	132	148	161	165	174
	Trucks	116	155	163	164	189	213
Segment 3	Car	61	79	82	93	95	98
	Trucks	61	92	94	110	139	134
Southbound Traffic							
Segment 1	HOVs	50	81	81	91	94	108
	Cars	51	96	99	113	117	132
	Trucks	51	118	126	149	162	185
Segment 2	HOVs	159	166	170	179	180	182
	Cars	178	195	199	206	208	228
	Trucks	178	200	215	221	221	238
Segment 3	Car	102	128	142	149	156	164
	Trucks	102	126	146	150	158	161

Table 7 indicates travel times for high occupancy vehicles, cars on general lanes, and trucks, where trucks were restricted from using the right lane during peak traffic flow conditions in all segments. The simulation results show a dramatic increase in travel times for high occupancy vehicles, cars on general lanes, and trucks compared to results presented in Table 4 and Table 6 for the left and center restriction for trucks, respectively. Although travel times for all vehicle types significantly increased, surprisingly, in Segment 1 and 2, the results show equal travel times for high occupancy vehicles and trucks. These results suggest that banning trucks from the right lane might entice more trucks to shift to the left lane and avoid lane changes and potential conflicts with other vehicles near interchange locations. Also, unlike right lanes which are subject to lane additions and lane drops between major interchanges, left lanes are in most cases continuous through interchanges. Hence, the left lane provides a smoother operation for trucks, particularly during peak commuting hours. During these hours sufficient gaps are unavailable for trucks due to their size and performance characteristics. Since no gains in travel times prevailed from right lane restriction for trucks compared to the left and center lane restriction, implementation of this lane restriction strategy might not be beneficial in terms of travel times for all vehicle types—high occupancy vehicles, cars on general lanes, and trucks.

TABLE 7 Travel Time Results for Peak Traffic Flow (seconds per mile)—Right Lane Restricted

Northbound Traffic							
Truck percent		*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
Segment 1	HOVs	291	330	352	373	381	393
	Cars	273	335	338	382	435	476
	Trucks	291	330	352	373	381	393
Segment 2	HOVs	127	144	154	163	167	172
	Cars	120	147	148	167	190	208
	Trucks	127	144	154	163	167	172
Segment 3	Car	78	91	99	107	115	119
	Trucks	83	94	102	108	115	125
Southbound Traffic							
Segment 1	HOVs	48	399	401	408	410	415
	Cars	49	432	509	514	544	575
	Trucks	49	463	526	540	558	587
Segment 2	HOVs	159	175	176	178	179	182
	Cars	178	189	223	225	238	252
	Trucks	178	203	230	234	243	257
Segment 3	Car	102	128	142	149	156	164
	Trucks	102	126	146	150	158	161

4.2 Evaluation of Travel Speeds

Table 8 shows travel speed per lane during peak traffic flow conditions for northbound and southbound directions when trucks were restricted from using the left lane. The results for the northbound traffic show speeds decreased with an increase in the percentage of trucks in all three segments. In Segment 1 the HOV lane had the highest travel speed, followed by center lanes, and then the outside lane. In Segment 2, the HOV lane had the highest travel speed, followed by the truck restricted center lane, and then the outside lane. In Segment 3, the travel speed was highest on the truck restricted lane (left lane), followed by the center lane, and then the outside lane. In general, travel speed decreased from the leftmost lane toward the rightmost lane. The simulation results showed that appreciable changes in vehicle speeds do occur as a result of imposing HOV and truck lanes restriction in this corridor.

Furthermore, analysis of simulation results for the southbound direction show vehicle speed characteristic trends similar to that of the northbound traffic in all three segments. In Segments 1 and 2, the HOV lane had the highest travel speed, followed by center lane and then the outside lane, i.e., the lane closest to the shoulder. In Segment 3, the travel speed was highest on the truck restricted lane (left lane), followed by the center lane and then the outside lane.

Again, simulation results showed significant changes in vehicle speeds do occur as a result of imposing HOV and truck lanes restriction in this corridor.

TABLE 8 Travel Speeds per Lane for Peak Traffic Flow (mi/hr)—Left Lane Restricted

Northbound Traffic						
Segment 1						
Percent trucks	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
HOV lane	43.7	43.7	43.2	41.6	39.3	39.7
Left lane	36.3	33.6	31.3	28.7	25.2	25.0
Center lane	34.9	33.1	30.9	28.2	24.2	23.7
Right lane	31.3	29.2	26.3	24.3	21.8	21.0
Segment 2						
HOV lane	56.9	55.1	54.5	51.7	52.2	53.3
Left lane	54.0	51.9	51.0	47.4	46.0	44.1
Center lane	50.6	46.8	44.7	38.9	34.1	30.0
Right lane	48.6	44.9	42.8	36.7	31.5	27.4
Segment 3						
Left lane	72.0	67.5	65.0	63.5	63.4	58.3
Center lane	70.9	65.4	61.5	59.0	57.8	49.5
Right lane	69.6	63.6	59.6	56.9	55.5	46.4
Southbound Traffic						
Segment 1						
HOV lane	63.5	62.1	57.6	49.9	46.6	47.8
Left lane	57.8	54.2	47.2	38.8	33.6	34.7
Center lane	56.2	52.5	45.0	36.5	31.3	32.0
Right lane	51.9	48.5	40.8	32.5	27.3	28.1
Segment 2						
HOV lane	36.0	34.9	34.6	35.1	37.5	40.5
Left lane	30.1	29.4	29.2	29.5	30.5	30.4
Center lane	23.7	22.1	21.1	19.8	18.9	17.3
Right lane	20.3	18.9	17.9	16.6	15.6	14.4
Segment 3						
Left lane	72.0	67.5	65.0	63.5	63.4	58.3
Center lane	70.9	65.4	61.5	59.0	57.8	49.5
Right lane	69.6	63.6	59.6	56.9	55.5	46.4

Table 9 shows travel speeds per lane during off peak traffic flow conditions when trucks were restricted from using the left lane(s) in all segments. The simulation results show no significant difference in speeds between restricted and non-restricted lanes for high occupancy vehicles, cars on general lanes, and trucks in all segments. Furthermore, results for northbound traffic indicate an increase in the number of trucks does not cause any significant reduction in travel speeds in all segments regardless of the type of lane restriction imposed. The off peak simulation results show significant reductions in travel speeds per lane occurred at the higher trucks percentage for the southbound traffic in all segments. This reduction in speeds is probably

associated with the higher traffic volumes that the southbound direction carries as revealed by the directional split and field data shown in Figure 8.

TABLE 9 Travel Speeds per Lane for Off Peak Traffic Flow (mi/hr)—Left Lane Restricted

Northbound Traffic						
Segment 1						
Percent trucks	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
HOV lane	75	75	75	75	74	74
Left lane	75	75	75	73	73	72
Center lane	74	74	74	73	72	71
Right lane	74	74	74	72	72	70
Segment 2						
HOV lane	73	73	73	73	73	73
Left lane	72	72	72	72	72	72
Center lane	72	72	72	71	71	71
Right lane	71	71	71	71	70	70
Segment 3						
Left lane	75	75	74	74	74	73
Center lane	74	74	73	73	72	71
Right lane	73	73	72	72	70	69
Southbound Traffic						
Segment 1						
HOV lane	77	77	76	76	76	76
Left lane	75	75	75	75	74	74
Center lane	75	75	74	74	74	73
Right lane	74	74	73	73	73	72
Segment 2						
HOV lane	65	64	63	62	61	61
Left lane	62	62	60	59	58	56
Center lane	60	60	57	55	52	49
Right lane	59	58	56	53	50	47
Segment 3						
Left lane	74	74	71	69	67	66
Center lane	74	73	69	66	63	60
Right lane	73	72	68	65	61	58

Table 10 shows travel speed per lane during peak traffic flow conditions for northbound and southbound directions when trucks were restricted from using the center lane in lieu of the left lane. The northbound direction results showed similar trends as indicated by the left lane restriction for trucks. In Segments 1 and 2, the HOV lane had the highest travel speed, followed by center lane—restricted from trucks, left lanes and then the outside lane, i.e., the lane closest to the shoulder. In Segment 3, the center lane had the highest travel speed followed by the left lane, and then the shoulder lane. The simulation results showed that appreciable changes in vehicle speeds do occur as a result of restricting the center lane from use by trucks in this corridor. On

the other hand, the southbound direction results showed travel speed characteristics similar to that of the northbound direction but with lower speeds per lane than northbound traffic. The analysis of the field data presented in Figure 8 showed that during peak traffic flow conditions, the southbound direction carried more traffic than northbound traffic. Hence, lower speeds for the southbound direction are primarily responsible for this phenomenon. Further analysis showed that restricting trucks from the center lane in lieu of the left lane caused significant reductions in speeds per lane in Segments 1 and 3 for both directions. However, in Segment 2, results showed that speeds remained almost unchanged by this lane restriction in all segments and in both directions.

TABLE 10 Travel Speeds per Lane for Peak Traffic Flow (mi/hr)—Center Lane Restricted

Northbound Traffic						
Segment 1						
Percent trucks	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
HOV lane	36.0	37.0	37.6	38.0	39.4	39.7
Left lane	27.7	27.5	27.0	26.8	27.5	26.8
Center lane	28.8	29.3	29.0	28.8	28.8	28.1
Right lane	25.3	24.3	23.9	23.2	22.8	21.7
Segment 2						
HOV lane	58.4	56.5	53.3	49.2	46.2	44.1
Left lane	53.3	49.3	44.2	39.8	36.5	34.1
Center lane	53.6	50.3	45.7	42.2	39.6	38.0
Right lane	49.7	45.6	40.2	36.3	33.5	31.4
Segment 3						
Left lane	51.1	46.5	42.0	38.3	37.6	35.1
Center lane	51.6	47.9	44.1	42.3	42.2	39.3
Right lane	46.2	40.8	35.9	33.9	32.2	29.1
Southbound Traffic						
Segment 1						
HOV lane	62.8	61.5	53.8	52.7	49.7	48.2
Left lane	56.6	52.9	43.4	42.1	37.9	34.1
Center lane	55.9	52.3	42.2	40.2	35.8	32.1
Right lane	51.3	46.4	35.8	33.3	28.6	24.1
Segment 2						
HOV lane	36.1	34.9	34.7	34.7	34.5	34.2
Left lane	28.2	26.3	24.9	23.8	22.0	18.3
Center lane	26.7	25.6	24.8	24.2	23.5	19.6
Right lane	20.6	19.3	18.3	17.4	16.1	12.0
Segment 3						
Left lane	34.0	25.5	19.8	17.2	17.2	16.7
Center lane	34.1	26.5	20.3	17.7	16.9	16.8
Right lane	26.1	18.0	11.0	8.5	7.2	6.8

Table 11 shows travel speeds per lane for northbound and southbound traffic when the right lane was restricted from use by trucks during peak traffic flow conditions in all segments. The northbound results show vehicle speeds decreased as the percentage of trucks increased in all segments. The simulation results showed no significant changes in vehicle speeds per lane occurred as a result of restricting trucks from using the right lane in this corridor. The results indicated that restricting trucks from using the right lane systematically equalized travel speeds per lane on general lanes in all three segments.

TABLE 11 Travel Speeds per Lane for Peak Traffic Flow (mi/hr)—Right lane Restricted

Northbound Traffic						
Segment 1						
Percent trucks	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
HOV lane	43.2	43.2	43.3	43.2	43.2	40.4
Left lane	34.5	34.5	32.9	30.2	30.2	24.7
Center lane	33.9	33.9	32.4	29.2	29.2	24.1
Right lane	32.6	32.6	31.8	30.2	30.2	26.0
Segment 2						
HOV lane	58.9	56.0	56.0	51.9	48.0	46.9
Left lane	53.0	48.1	48.1	40.2	35.9	33.8
Center lane	52.1	47.3	47.3	39.3	35.1	33.0
Right lane	50.6	46.6	46.6	39.0	35.0	32.8
Segment 3						
Left lane	51.8	44.5	42.7	40.3	38.1	37.3
Center lane	50.9	43.7	41.6	39.5	37.4	36.5
Right lane	50.3	43.7	41.8	39.6	37.7	36.8
Southbound Traffic						
Segment 1						
HOV lane	72.2	72.2	72.3	72.2	72.2	72.3
Left lane	68.3	68.3	68.7	68.0	68.0	66.3
Center lane	67.3	67.3	67.8	67.2	67.2	65.4
Right lane	66.6	66.6	68.0	67.5	67.5	66.4
Segment 2						
HOV lane	33.8	33.0	32.0	31.0	31.5	32.2
Left lane	24.4	22.8	21.8	20.8	20.7	20.7
Center lane	23.6	22.3	21.1	20.3	20.0	19.9
Right lane	20.8	20.0	19.0	18.5	18.4	18.5
Segment 3						
Left lane	34.9	26.4	22.2	17.2	13.4	12.1
Center lane	34.4	25.5	21.8	16.8	13.3	11.9
Right lane	33.2	25.6	21.8	16.9	13.4	12.3

These results suggest that lower vehicle speeds on the right lane perhaps was influenced by the presence of trucks in the adjacent lane. Large trucks require more space to maneuver. Such large distance headways are scarce particularly when the freeway is congested. The

probability of a large truck accepting a gap and changing lanes during peak traffic flow conditions is very low, hence trucks are inclined to use the right lane. The presence of many trucks on the right lane might increase the likelihood of trucks hindering lane changing maneuvers for vehicles preparing to exit or merge into the freeway. The formation of long traffic queues near interchanges might be associated with trucks traveling on this lane while waiting for acceptable gaps and move to the desired lane. Further analysis showed the characteristics of travel speeds per lane for southbound traffic were similar to those of northbound traffic except speeds were lower.

Furthermore, simulation results showed that restricting trucks from traveling on the left lane results in the highest travel speeds per lane, followed by restricting center lane use, and then restricting right lane use. It can be inferred from these simulation results that the departure of trucks from the right lane increased the probabilities of acceptable gap for vehicles changing lanes to exit or merge into the freeway near on and off ramps. On the contrary, restricting trucks from either the left or middle lanes virtually forces trucks to use other non-restricted lanes including the right lane, which carries the majority of exiting and entering vehicles. In general, trucks are less maneuverable than passenger vehicles. Their large physical size and operating characteristics on the right lane reduce the availability of acceptable gaps for vehicles exiting or entering the freeway and results in lower speeds in this lane.

4.3 Traffic Queue Length

The analysis of the simulation results indicated that freeway entrance and merging areas were critical, and tended to reduce the operational efficiency in all segments. The analysis of the exit areas near major interchanges did not indicate any significant traffic queue lengths. However, since major intersecting arterial streets were not part of the freeway simulation network, the case might not be true for the diverging areas. Analysis of peak traffic flow conditions showed the ability of drivers to enter the freeway and merge into the outside through lane was adversely affected by traffic in this outside lane. It was found that increasing the percentage of through trucks produced longer vehicle queues on the freeway mainline and on intersecting arterials roadways. It was observed that the unavailability of suitable gaps for merging vehicles during peak traffic flow condition was the major problem. On the contrary, off peak simulation results indicated insignificant disruption was imposed on the freeway traffic by the lane restriction strategies, and no appreciable vehicle queues were formed at major entrance and exit points.

Analysis of the simulation results, in which the center lane and right lane were truck restricted, did not indicate any improvements on traffic queue lengths formed close to the major interchange locations. The results indicated that an increase in trucks corresponded to an increase in traffic queue lengths, regardless of type of lane restriction. Furthermore, the results indicated that maximum traffic queue lengths were formed upstream of merging areas. Merging vehicles severely disrupted freeway mainstream traffic flow, resulting in the formation of long queues upstream of major merging areas. This was associated primarily with the unavailability of acceptable gaps for vehicles to merge into the freeway outside through lane. On the other hand, no excessive queues and disruptions of traffic flow on the through freeway lanes were observed upstream or downstream of exit points in all segments. This finding indicates that merging areas

are prone to more traffic conflicts than diverging areas in this corridor, thus increasing the likelihood of traffic crashes. Also, field observations in this corridor showed that extensive queues form on some of the major interchange ramps particularly during peak periods.

4.4 Number of Lane Changes

Figure 11 displays the number of lane changes per mile occurring in Segment 1, 2, and 3 during peak traffic conditions for various truck lane use restrictions scenarios. The simulation results show that the number of lane changes increased as the percentage of trucks increased. These results are consistent for all restriction scenarios. The results further show that the number of lane changes, made during peak traffic flow conditions, either remained unchanged or decreased slightly when the percentage of trucks was 25% of the total traffic or more. Furthermore, Segment 1 results indicated restricting trucks from the left lane had the highest number of lane changes, followed by center lane, and then the right lane. In Segments 2 and 3, restricting trucks from the center lane resulted in the highest number of lane changes, followed by the right lane, and then the left lane. The number of lane changes is a good predictor of the potential for vehicular conflicts that could result in traffic crashes. The reduction in the number of lane changes, when the percentage of trucks is high, i.e., more than 25%, may suggest that traffic crashes are less likely to occur under these conditions. In addition, the results for the left lane restriction showed the number of lane changes made during peak traffic conditions were about twice the off peak traffic flow conditions in all segments.

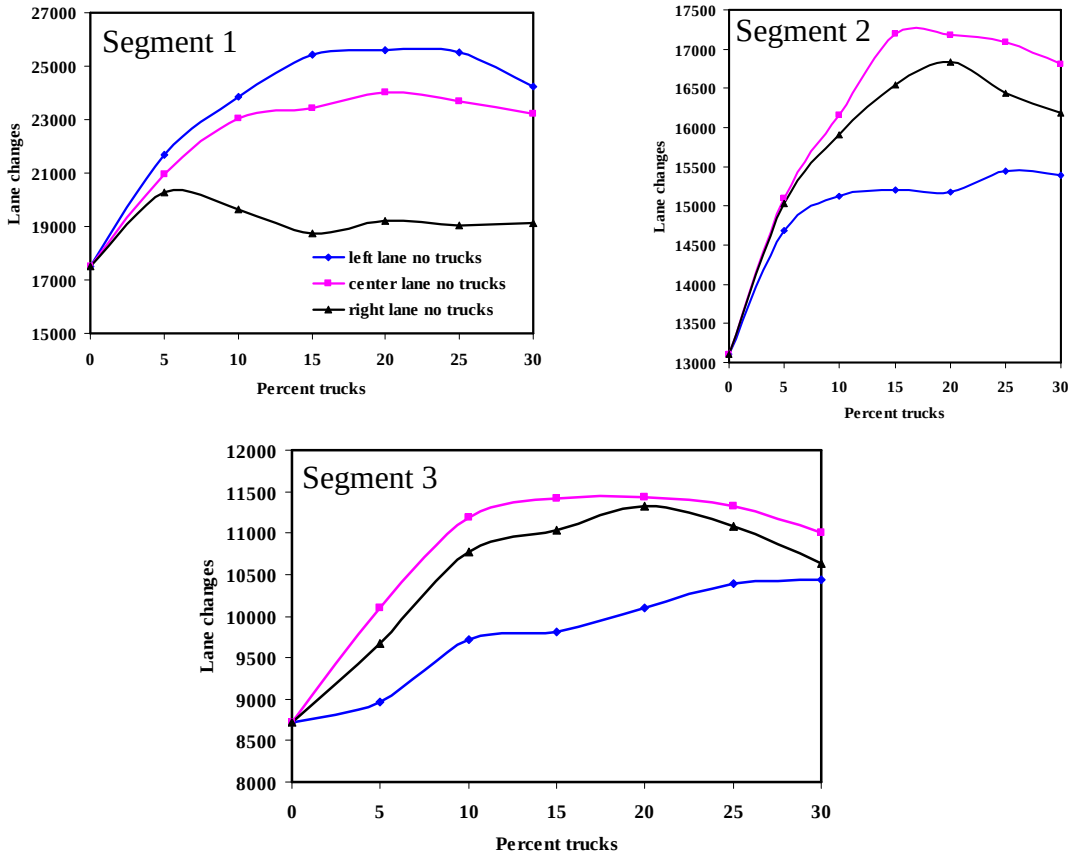


FIGURE 11 Number of lane changes versus percent trucks.

Further analysis of simulation results revealed that Segment 1 had the highest number of lane changes, followed by Segment 2, and then Segment 3. Additional analysis was conducted to determine possible factors contributing to this lane changing behavior. The analysis showed two attributes were associated with this lane changing behavior—traffic volumes and interchange density. Only interchange density was considered for further analysis because interchange densities and traffic volumes are correlated in this corridor, i.e. a section with higher interchange density also had higher traffic volumes and vice versa. Figure 12 shows a plot of the number of lane changes per mile versus interchange density for trucks restricted from using the left lane. From the graph, it is clear that the total number of lane changes per mile depends on interchange density. The increase in interchange density corresponds to an increase in the number of lane changes and vice versa.

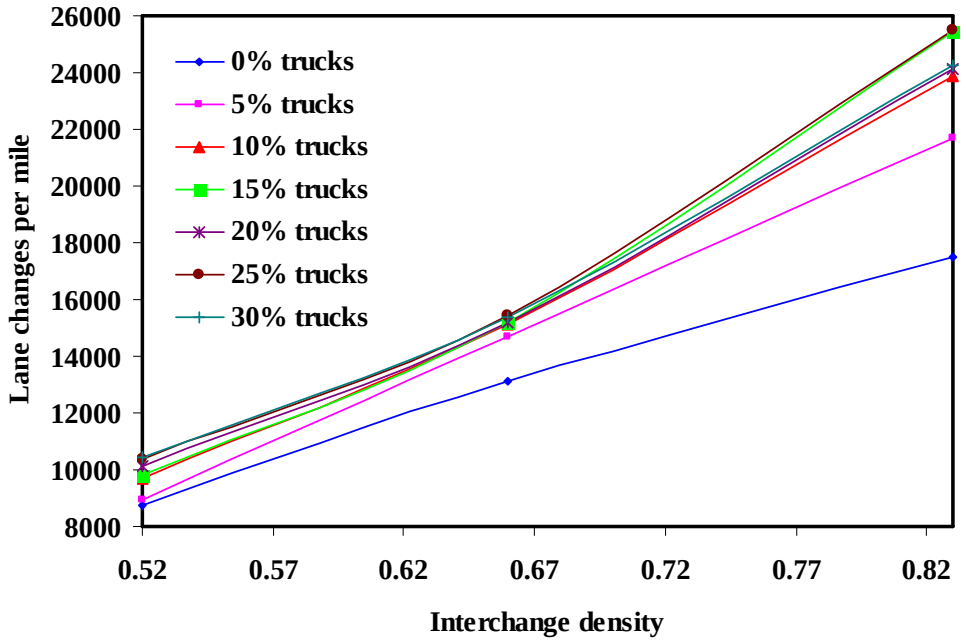


FIGURE 12 Number of lane changes versus interchange density.

4.5 Speed Differences Among Lanes

The results reported previously in Table 8 showed travel speeds per lane when trucks were restricted from using the left lane(s). The results indicated the northbound traffic exhibited larger speed difference between lanes than the southbound traffic. The general tendency of results indicated that speed differences between lanes increased with an increase in truck percentage for all segments regardless of the direction of travel. The northbound results in Segments 1 and 2 showed that there were speed differences between restricted and non-restricted lanes. In Segment 1, the maximum speed difference occurred between the HOV lane and the adjacent lane. For example, at 10% trucks, a maximum speed difference of 10.1 mph occurred between the HOV lane and the adjacent lane, followed by a 3.9 mph difference between the center and right lane, and then a 0.5 mph difference between the left and center lanes. These results suggest there are likely to be more vehicle interactions and lane changes between the

HOV lane and the adjacent lane as shown in Table 8. In Segment 2, the maximum speed difference occurred between the left lane and the adjacent center lane. The maximum speed difference of 5.1 mph occurred between the truck restricted lane and center lane, followed by 3.2 mph difference between the HOV lane and the truck restricted lane, and then a 1.9 mph difference between the center and right lanes. These results, also suggest, there will be more vehicle interactions and lane changing between a truck restricted lane and the adjacent center lane. In Segment 3, the results showed no significant difference in speeds between restricted and non-restricted lanes. A similar analysis of speed variance was performed for the southbound traffic and the same pattern was found.

Although different lanes exhibited different speed characteristics, speeds of automobiles and trucks within a particular lane were very similar, indicating there was no tendency for either type of vehicle to have a higher speed than the other. However, unlike south Florida with a relatively flat terrain, speeds between automobiles and trucks could be different on hilly and mountainous terrains. Analysis of off peak simulation results showed no appreciable differences in speeds between restricted and non-restricted lanes for both northbound and southbound traffic in all three segments.

Additional analysis was conducted to evaluate speed differences when the center lane or right lane is restricted in lieu of the left lane. Table 10 and Table 11 showed travel speeds per lane when trucks were restricted from using the center lane or right lane, respectively. It was found that restricting the center lane from use by trucks resulted in speed differences in all segments being very similar to those of a left lane restriction. Also, the simulation results indicated that restricting the right lane from trucks had a positive impact on speed differences. It was found that the departure of trucks from the right lane almost equalized speeds among lanes; hence, a negligible speed variance occurred in all lanes.

4.6 Vehicle Distribution

The effect of HOV and truck lane use restrictions on the distribution of vehicles in the through lanes was analyzed. Table 12 shows the ratios of lane occupancies when trucks were restricted from using the left lane during peak traffic flow conditions. Lane occupancy is defined as the proportion of the length of a lane occupied by vehicles in a specific time frame. The results show restricting trucks from the leftmost lanes attracted more automobiles into those lanes. In Segments 1 and 2, the results show vehicles were unevenly distributed among lanes with lane occupancy increasing from the leftmost lane to the rightmost lane. On Segment 3, the results show vehicles were fairly evenly distributed among lanes.

TABLE 12 Lane Occupancy Ratios for Peak Hour—Left Lane Restricted

Northbound Traffic						
Segment 1						
Percent trucks	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.4	1.4	1.4	1.4	1.3	1.4
Center lane	1.4	1.5	1.5	1.5	1.4	1.5
Right lane	1.6	1.6	1.6	1.6	1.5	1.5
Table 12 (Cont'd)						
Segment 2						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.3	1.3	1.2	1.2	1.2	1.3
Center lane	1.5	1.5	1.4	1.3	1.4	1.6
Right lane	1.8	1.6	1.5	1.5	1.5	1.8
Segment 3						
Left lane	1.0	1.0	1.0	1.0	1.0	1.0
Center lane	1.1	1.1	1.1	1.1	1.0	1.0
Right lane	1.1	1.1	1.1	1.1	1.1	1.2
Southbound Traffic						
Segment 1						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.5	1.5	1.5	1.5	1.4	1.4
Center lane	1.5	1.5	1.5	1.6	1.5	1.5
Right lane	1.7	1.7	1.7	1.7	1.6	1.6
Segment 2						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.3	1.2	1.2	1.2	1.3	1.3
Center lane	1.6	1.5	1.4	1.4	1.5	1.5
Right lane	1.9	1.7	1.6	1.5	1.7	1.7
Segment 3						
Left lane	1.0	1.0	1.0	1.0	1.0	1.0
Center lane	1.1	1.1	1.1	1.1	1.1	1.1
Right lane	1.2	1.1	1.1	1.1	1.1	1.1

On the contrary, the analysis of off peak traffic conditions showed automobiles were not overrepresented in the truck restricted lanes with most of them favoring to use the center lanes. Table 13 displays simulation results of lane occupancy ratios for northbound traffic during off peak conditions. These results also show a corresponding shift, of automobiles into the leftmost lanes from the center and shoulder lane, did not materialize during off peak periods despite the fact trucks were restricted from using the left lane . This could be an indication that drivers do not perceive the leftmost lanes to be the safest and most efficient lanes to use during off-peak period. This driving behavior is evident in the simulation, and it can be surmised that most drivers favor the center lanes to avoid lane changing in the vicinity of lane additions (and lane drops) and interactions with the merging and exiting vehicles at interchanges.

TABLE 13 Lane Occupancy Ratios for Off Peak Northbound Traffic—Left Lane Restricted

Segment 1						
Percent trucks	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.7	1.7	1.7	1.6	1.6	1.5
Center lane	1.9	1.9	1.9	1.8	1.7	1.6
Right lane	1.9	1.8	1.8	1.7	1.6	1.5
Segment 2						
Table 13 (Cont'd)						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.8	1.6	1.5	1.4	1.4	1.3
Center lane	1.9	1.8	1.6	1.5	1.5	1.5
Right lane	2.0	1.8	1.6	1.5	1.5	1.5
Segment 3						
Left lane	1.0	1.0	1.0	1.0	1.0	1.0
Center lane	1.1	1.1	1.1	1.1	1.1	1.1
Right lane	1.0	1.0	1.1	1.1	1.1	1.1

Table 14 shows the ratios of lane occupancies when trucks were restricted from using the center lane during peak traffic flow conditions. In Segment 1 and 2, the results show vehicles were unevenly distributed among lanes with lane occupancy increasing from the leftmost lane to the rightmost lane regardless of the direction of travel. On Segment 3, the results show vehicles were fairly evenly distributed between lanes. Generally, the simulation results have not shown any significant difference in vehicle distributions between the center lane restriction and the left lane restriction as shown in Table 12.

TABLE 14 Lane Occupancy Ratios for Peak Hour—Center Lane Restricted

Northbound Traffic						
Segment 1						
Percent trucks	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.3	1.3	1.3	1.3	1.2	1.2
Center lane	1.3	1.3	1.4	1.4	1.4	1.3
Right lane	1.5	1.4	1.4	1.3	1.3	1.3
Segment 2						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.4	1.4	1.4	1.3	1.3	1.2
Center lane	1.4	1.4	1.4	1.3	1.3	1.2
Right lane	1.6	1.5	1.4	1.3	1.3	1.2
Segment 3						
Left lane	1.0	1.0	1.0	1.0	1.0	1.0
Center lane	1.0	1.0	1.0	1.0	1.0	1.0
Right lane	1.2	1.1	1.1	1.0	1.1	1.1

Table 14 (Cont'd)						
Southbound Traffic						
Segment 1						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.5	1.4	1.4	1.4	1.3	1.4
Center lane	1.5	1.4	1.5	1.5	1.4	1.4
Right lane	1.6	1.6	1.6	1.6	1.6	1.6
Segment 2						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.3	1.3	1.3	1.6	1.3	1.3
Center lane	1.5	1.4	1.4	1.7	1.3	1.3
Right lane	1.9	1.6	1.5	1.7	1.3	1.3

Table 15 shows the ratios of lane occupancies when trucks were restricted from using the right lane during peak traffic flow conditions. The simulation results consistently showed similar patterns of lane occupancy ratios, as previously indicated in Table 12 and Table 14 for left and center lane truck restriction, respectively. In Segments 1 and 2, the results show vehicles were unevenly distributed between lanes with lane occupancy increasing from the leftmost lane to the rightmost lane regardless of the direction of travel. On Segment 3, the results show vehicles were fairly evenly distributed between lanes. Simulation results did not indicate any significant shift in vehicle distributions between lanes occurring as a result of the right lane restriction. These results suggest that the departure of trucks from the right lane did not relieve traffic congestion on this lane as anticipated. This may be associated with an early shift into the right lane as drivers approach the exit locations to their intended destinations, or when drivers merging into the freeway have been forced to travel in this lane while waiting for a suitable gap in the adjacent lane so they can change lanes.

TABLE 15 Lane Occupancy Ratios for Peak Hour—Right Lane Restricted

Northbound Traffic						
Segment 1						
Percent trucks	*5%*	*10%*	*15%*	*20%*	*25%*	*30%*
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.8	1.3	1.3	1.3	1.3	1.3
Center lane	1.9	1.4	1.4	1.4	1.4	1.4
Right lane	1.9	1.5	1.5	1.5	1.5	1.4
Segment 2						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.4	1.4	1.4	1.4	1.4	1.4
Center lane	1.5	1.4	1.4	1.4	1.4	1.4
Right lane	1.6	1.6	1.6	1.6	1.6	1.6
Segment 3						
Left lane	1.0	1.0	1.0	1.0	1.0	1.0
Center lane	1.1	1.0	1.1	1.1	1.1	1.1
Right lane	1.2	1.1	1.2	1.2	1.2	1.2

Table 15 (Cont'd)						
Southbound Traffic						
Segment 1						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.5	1.5	1.7	1.8	1.8	1.8
Center lane	1.6	1.6	1.8	1.9	1.9	1.8
Right lane	1.6	1.6	1.8	1.8	1.8	1.6
Segment 2						
HOV lane	1.0	1.0	1.0	1.0	1.0	1.0
Left lane	1.4	1.4	1.4	1.3	1.3	1.3
Center lane	1.5	1.5	1.4	1.4	1.4	1.3
Right lane	1.9	1.8	1.8	1.7	1.7	1.7
Segment 3						
Left lane	1.0	1.0	1.0	1.0	1.0	1.0
Center lane	1.0	1.0	1.0	1.0	1.0	1.0
Right lane	1.1	1.1	1.1	1.2	1.2	1.2

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research study was to evaluate the operational efficiency and safety implications associated with the combined use of HOV and truck lane use restrictions. The study corridor was Interstate 95 in south Florida and is approximately 83 miles. Trucks with 3 or more axles are restricted from using the leftmost lane(s) on both northbound and southbound directions 24 hours a day. This corridor has, at a minimum, three through lanes in both directions. Within the study corridor limits the HOV lane restriction, which is not a truck lane restriction per se, is implemented for a distance of approximately 56 miles. The HOV lane restriction is operational only during the morning peak (7 a.m. to 9 a.m.) and evening peak (4 p.m. to 6 p.m.). The operational efficiency measures used in this study were (1) travel time and speeds for high occupancy vehicles, (2) the number of cars using non-HOV lanes, (3) the number of trucks using non-restricted lanes, and (4) traffic queue lengths around entrance ramps. The safety implications of the HOV and truck lane use restrictions were evaluated using the number of lane changes and speed differences among vehicle types and between lanes. In addition, the effect of HOV and truck lane use restrictions on the distribution of vehicles in the through lanes was analyzed.

The study corridor was divided into three segments: Segment 1—section with HOV lane restriction, but without an additional lane from which trucks are restricted; Segment 2—section with HOV lane and an additional adjacent lane from which trucks are restricted; and Segment 3—section without a HOV lane, but with one lane from which trucks are restricted. Various truck lane restriction scenarios were built in the VISSIM simulation model for the evaluation of operational efficiency and safety. In the VISSIM simulation model, trucks were restricted from the left lane(s) to emulate the existing restricting of trucks from using the HOV lane and the adjacent left lane in this corridor. Simulations were performed for peak periods (6 a.m. to 9 a.m. and 4 p.m. to 6 p.m.) and off peak periods (9 a.m. to 4 p.m. and 6 p.m. to 8 p.m.). Two other truck lane use restriction scenarios, involving center lane and right lane restrictions, were simulated to determine which lanes of an urban freeway should be restricted to improve operations and safety.

The simulation results showed that during peak traffic flow conditions, high occupancy vehicles (HOVs) and automobiles gained significantly more travel time savings due to the restriction of trucks from using the leftmost lanes. Essentially, the amount of truck traffic present in the traffic stream dictated the magnitude of these travel time savings in this corridor. The analysis of travel speeds per lane indicated that the leftmost lanes, from which trucks are restricted, had higher speeds compared to non-restricted lanes. Also, vehicle queue lengths in the vicinity of critical merging areas, increased significantly as the percentage of trucks increased. The simulation results showed maximum traffic queue lengths formed upstream of major merging areas. These queues were associated primarily with the unavailability of acceptable gaps for merging into the freeway during peak traffic conditions. This finding also indicates that merging areas have a higher potential for vehicular conflicts and traffic crashes than diverging areas. The distribution of vehicles between lanes showed higher lane occupancy on the rightmost lanes than on the leftmost lanes.

The simulation of off peak traffic flow conditions did not show any noticeable changes in traffic operating characteristics resulting from the different lane restriction scenarios. The travel time of trucks was also not affected appreciably during off peak periods. It should be noted that during off peak periods, non-restricted vehicles did not shift to the leftmost lanes, even though fewer trucks were in those lanes. This phenomenon indicates that vehicles could still travel at higher speeds using the regular lanes. Furthermore, off peak simulation results showed center lanes carried more vehicles than the outermost lanes on a per lane basis.

The frequency of lane changes and speed differences between lanes and among different vehicle types were used as surrogate measures of safety associated with the HOV and truck lane restrictions. The results showed the majority of lane changes occurred during peak traffic conditions and appreciable speed differences existed between restricted and non-restricted lanes. Although different lanes exhibited different speed characteristics, speeds of automobiles and trucks within a particular lane were very similar, indicating no general tendency for either type of vehicle to outpace the other. Off peak traffic simulation results showed fewer lane changes—about half that of peak traffic conditions—occurred in all three segments. The results of the analysis of lane occupancies confirmed that congestion forces automobiles to use the left lanes more frequently.

In addition, simulation results showed that restricting trucks from using either the center or right lanes, in lieu of the left lane restriction, aggravated traffic operations and safety. When compared with the left lane restriction, the center and right lane restrictions showed, consistently in all segments, higher travel time for all vehicle types, lower travel speeds per lane, a higher number of lane changes, and longer traffic queue lengths. However, speed differences between restricted and non-restricted lanes and vehicle distributions between lanes were similar to those obtained from the left lane restriction. These results show that restricting trucks from using either the center lane or right lane, in lieu of the current policy of left lane restriction, would exacerbate traffic operations and safety in this corridor, and therefore, should not be implemented.

A truck lane restrictions on the center or right lane was easy to implement in the VISSIM simulation model. These truck lane use control strategies, however, suffer serious deficiencies when implemented to solve real world operational and safety problems. Some of these deficiencies include: (1) the design of word messages that are clear and concise, (2) the placement of signs to properly demarcate the legal limits of truck lane use restrictions near interchanges, and (3) the identification of the restricted lane in areas where auxiliary lanes or lane additions/drops might create confusion for truck drivers.

Based on these simulation results, it can be concluded that significant operational and safety benefits accrue with the combined implementation of HOV and truck lane use restrictions on urban freeways during congested traffic conditions. Also, it is beneficial to implement a truck lane use restriction on an urban limited access highway with three or more through lanes, when trucks are less than 25 percent of all vehicles and interchange spacing is at least 1.5 miles.

Further research should study factors for the optimization of operational efficiency and safety, such as determining how many through lanes of a certain freeway should be restricted and

at what specific time and location. The application of Intelligent Transportation Systems (ITS)—i.e. ramp metering, can be incorporated into the simulation to improve merging and weaving capacity, and safety on urban freeways. Furthermore, simulation of real time urban freeways operations and traffic incidents, which severely degrade operations, should be included in the simulation. Simulation of an area wide network should be modeled to include and replicate the effects imposed by the intersecting arterial streets on freeway operations and safety. However, to quantify and predict safety benefits associated with truck lane userestrictions require the analysis of before-and-after crash data records, which was the focus of a parallel study reported in Volume 2 of this report.

APPENDIX A: Vehicle Routing Algorithm

```
clc;
clear all;
close all;

 % vehicle data entry at each entrance point
Data95
n=length(DataAll);
 for i=1:length(DataAll)
        for j=1:2
        D(i,j)= DataAll(i,j);
        end
end
for i=1:n
        for j=1:n
        Qmain(i,j)=0;
        Qout(i,j)=0;
         end
end

 % estimation of vehicles at each exit point
 for i=1:length(DataAll)
        Qmain(i,i)=D(i,1)+ Qmain(i,i);
        Qtotal=0;
        for j=1:i
              Qtotal=Qtotal + Qmain(i,j);
        end
        for j=1:i
            Q(i,j)=D(i,2)/Qtotal;
            Qout(i,j)=Qmain(i,j)*Q(i,j);
        end
        for j=1:i
        Qmain(i+1,j)=Qmain(i,j)-Qout(i,j);
        end
  end

 for j=1:length(DataAll)
     Qout(length(DataAll)+1, j)=Qmain(i+1,j);
 end

 for k=1:length(DataAll)
     Qsee(k)=Qout(k,1);
 end
```

```
%view and copy one exit/onramp-off-ramp after another
for z=1:length(DataAll)
  zstring=int2str(z);
  qq=[zstring '' '.xls'];

   x = 1:1:length(DataAll)+1;
    testformat='%10.4f\n';
   fid = fopen('result1column.m','w');
   fid = fopen(qq,'w');
   dd=[Qout(x,z)];
   fprintf(fid,testformat,dd);
   status = fclose(fid);
end
```

APPENDIX B: Field Data used for Calibrating the Model
TABLE 16 TTMS # 0217 Data

Lane 1-3 NB: lane 1—outside, lane 2—center lane, lane 3—inside lane
Lane 4-6 SB: lane 4—inside lane, lane 5—center lane, and lane 6—outside lane

Date	*Lane*	*Hour*	*volume*	*speed*	*Date*	*Lane*	*Hour*	*volume*	*speed*
1/16/2006	1	1	193	70.8	1/16/2006	4	7	1085	79.9
1/16/2006	2	1	279	76.9	1/16/2006	5	7	1119	74.3
1/16/2006	3	1	81	82.0	1/16/2006	6	7	651	69.0
1/16/2006	4	1	82	81.6	1/16/2006	1	8	711	69.0
1/16/2006	5	1	237	77.1	1/16/2006	2	8	1026	75.3
1/16/2006	6	1	196	70.6	1/16/2006	3	8	832	80.5
1/16/2006	1	2	106	69.0	1/16/2006	4	8	1498	80.2
1/16/2006	2	2	157	75.6	1/16/2006	5	8	1356	74.1
1/16/2006	3	2	42	80.3	1/16/2006	6	8	858	68.8
1/16/2006	4	2	54	81.8	1/16/2006	1	9	714	68.0
1/16/2006	5	2	173	77.0	1/16/2006	2	9	977	75.3
1/16/2006	6	2	170	71.1	1/16/2006	3	9	692	80.5
1/16/2006	1	3	89	68.3	1/16/2006	4	9	1153	81.0
1/16/2006	2	3	113	74.8	1/16/2006	5	9	1350	75.1
1/16/2006	3	3	16	78.0	1/16/2006	6	9	896	68.5
1/16/2006	4	3	29	81.4	1/16/2006	1	10	715	67.4
1/16/2006	5	3	138	77.2	1/16/2006	2	10	1014	75.1
1/16/2006	6	3	141	69.7	1/16/2006	3	10	761	80.1
1/16/2006	1	4	103	69.9	1/16/2006	4	10	1003	80.3
1/16/2006	2	4	122	75.5	1/16/2006	5	10	1238	74.8
1/16/2006	3	4	20	81.3	1/16/2006	6	10	823	69.4
1/16/2006	4	4	27	82.1	1/16/2006	1	11	785	67.5
1/16/2006	5	4	129	75.9	1/16/2006	2	11	1095	74.8
1/16/2006	6	4	144	70.4	1/16/2006	3	11	857	79.5
1/16/2006	1	5	114	67.7	1/16/2006	4	11	938	80.6
1/16/2006	2	5	172	75.2	1/16/2006	5	11	1196	74.7
1/16/2006	3	5	43	80.9	1/16/2006	6	11	802	68.3
1/16/2006	4	5	83	82.0	1/16/2006	1	12	794	67.6
1/16/2006	5	5	254	75.8	1/16/2006	2	12	1109	75.2
1/16/2006	6	5	243	69.5	1/16/2006	3	12	921	79.6

TABLE 16 Continued

1/16/2006	1	6	222	69.8	1/16/2006	4	12	1040	80.0
1/16/2006	2	6	377	75.9	1/16/2006	5	12	1246	74.2
1/16/2006	3	6	181	80.9	1/16/2006	6	12	822	67.9
1/16/2006	4	6	316	81.1	1/16/2006	1	13	809	67.3
1/16/2006	5	6	549	75.9	1/16/2006	2	13	1129	75.6
1/16/2006	6	6	359	69.8	1/16/2006	3	13	886	79.6
1/16/2006	1	7	579	69.1	1/16/2006	4	13	987	80.7
1/16/2006	2	7	889	75.0	1/16/2006	5	13	1230	74.7
1/16/2006	6	13	801	68.4	1/16/2006	6	20	565	72.8
1/16/2006	1	14	805	67.3	1/16/2006	1	21	482	70.1
1/16/2006	2	14	1122	74.8	1/16/2006	2	21	684	76.7
1/16/2006	3	14	945	79.4	1/16/2006	3	21	466	80.9
1/16/2006	4	14	1052	80.5	1/16/2006	4	21	370	82.2
1/16/2006	5	14	1217	74.6	1/16/2006	5	21	608	76.7
1/16/2006	6	14	809	69.1	1/16/2006	6	21	415	72.1
1/16/2006	1	15	882	68.5	1/16/2006	1	22	402	69.5
1/16/2006	2	15	1167	74.9	1/16/2006	2	22	600	76.4
1/16/2006	3	15	982	79.5	1/16/2006	3	22	361	80.8
1/16/2006	4	15	1112	78.2	1/16/2006	4	22	253	82.4
1/16/2006	5	15	1253	73.1	1/16/2006	5	22	517	77.3
1/16/2006	6	15	794	67.7	1/16/2006	6	22	368	72.9
1/16/2006	1	16	939	66.7	1/16/2006	1	23	323	70.3
1/16/2006	2	16	1376	73.5	1/16/2006	2	23	451	76.9
1/16/2006	3	16	1311	77.8	1/16/2006	3	23	213	80.4
1/16/2006	4	16	1196	78.8	1/16/2006	4	23	179	82.5
1/16/2006	5	16	1290	73.9	1/16/2006	5	23	427	77.9
1/16/2006	6	16	871	68.1	1/16/2006	6	23	299	71.7
1/16/2006	1	17	1085	69.3	1/16/2006	1	24	237	70.6
1/16/2006	2	17	1495	75.9	1/16/2006	2	24	361	76.6
1/16/2006	3	17	1420	80.1	1/16/2006	3	24	129	81.8
1/16/2006	4	17	1113	80.4	1/16/2006	4	24	87	81.4
1/16/2006	5	17	1242	75.2	1/16/2006	5	24	292	77.0
1/16/2006	6	17	892	69.4	1/16/2006	6	24	222	71.3
1/16/2006	1	18	1136	69.8	1/17/2006	1	1	171	68.7

TABLE 16 Continued

1/16/2006	2	18	1513	76.4	1/17/2006	2	1	242	75.9
1/16/2006	3	18	1630	80.0	1/17/2006	3	1	70	80.6
1/16/2006	4	18	1116	80.3	1/17/2006	4	1	64	80.2
1/16/2006	5	18	1234	75.4	1/17/2006	5	1	184	77.5
1/16/2006	6	18	888	69.7	1/17/2006	6	1	174	70.4
1/16/2006	1	19	841	69.3	1/17/2006	1	2	114	68.9
1/16/2006	2	19	1224	75.6	1/17/2006	2	2	116	75.7
1/16/2006	3	19	1122	79.8	1/17/2006	3	2	21	78.0
1/16/2006	4	19	1007	80.0	1/17/2006	4	2	27	81.9
1/16/2006	5	19	1171	74.7	1/17/2006	5	2	141	75.5
1/16/2006	6	19	804	70.0	1/17/2006	6	2	153	69.5
1/16/2006	1	20	584	70.5	1/17/2006	1	3	121	66.4
1/16/2006	2	20	862	76.7	1/17/2006	2	3	112	75.3
1/16/2006	3	20	585	80.8	1/17/2006	3	3	10	79.0
1/16/2006	4	20	562	81.0	1/17/2006	4	3	26	80.9
1/16/2006	5	20	792	76.0	1/17/2006	5	3	118	75.9
1/17/2006	6	3	134	69.8	1/17/2006	6	10	879	66.1
1/17/2006	1	4	103	67.6	1/17/2006	1	11	781	68.5
1/17/2006	2	4	114	75.5	1/17/2006	2	11	1088	75.8
1/17/2006	3	4	22	80.7	1/17/2006	3	11	778	80.5
1/17/2006	4	4	37	80.6	1/17/2006	4	11	937	78.0
1/17/2006	5	4	158	74.7	1/17/2006	5	11	1199	72.2
1/17/2006	6	4	168	68.7	1/17/2006	6	11	765	67.0
1/17/2006	1	5	112	68.3	1/17/2006	1	12	779	67.6
1/17/2006	2	5	161	75.2	1/17/2006	2	12	1083	75.7
1/17/2006	3	5	27	81.7	1/17/2006	3	12	797	80.4
1/17/2006	4	5	82	81.1	1/17/2006	4	12	896	78.9
1/17/2006	5	5	281	74.2	1/17/2006	5	12	1186	72.4
1/17/2006	6	5	216	70.1	1/17/2006	6	12	709	66.1
1/17/2006	1	6	257	70.2	1/17/2006	1	13	770	68.4
1/17/2006	2	6	407	76.0	1/17/2006	2	13	1057	76.1
1/17/2006	3	6	208	80.9	1/17/2006	3	13	723	81.3
1/17/2006	4	6	353	80.7	1/17/2006	4	13	834	79.2
1/17/2006	5	6	628	74.8	1/17/2006	5	13	1111	73.3

TABLE 16 Continued

1/17/2006	6	6	355	69.8	1/17/2006	6	13	758	67.4
1/17/2006	1	7	646	68.6	1/17/2006	1	14	782	68.9
1/17/2006	2	7	913	75.5	1/17/2006	2	14	1090	75.0
1/17/2006	3	7	779	79.8	1/17/2006	3	14	773	80.8
1/17/2006	4	7	1523	78.4	1/17/2006	4	14	852	79.2
1/17/2006	5	7	1346	73.6	1/17/2006	5	14	1135	73.6
1/17/2006	6	7	747	69.8	1/17/2006	6	14	724	67.6
1/17/2006	1	8	743	69.1	1/17/2006	1	15	805	67.8
1/17/2006	2	8	1093	76.2	1/17/2006	2	15	1170	74.8
1/17/2006	3	8	853	81.4	1/17/2006	3	15	920	79.7
1/17/2006	4	8	2309	42.2	1/17/2006	4	15	859	77.5
1/17/2006	5	8	1765	71.0	1/17/2006	5	15	1106	72.2
1/17/2006	6	8	1242	66.9	1/17/2006	6	15	755	66.7
1/17/2006	1	9	758	68.2	1/17/2006	1	16	1016	67.8
1/17/2006	2	9	1063	75.8	1/17/2006	2	16	1448	74.5
1/17/2006	3	9	720	80.7	1/17/2006	3	16	1266	79.0
1/17/2006	4	9	1700	77.1	1/17/2006	4	16	978	77.0
1/17/2006	5	9	1556	71.7	1/17/2006	5	16	1174	72.1
1/17/2006	6	9	1090	66.5	1/17/2006	6	16	811	66.5
1/17/2006	1	10	741	68.7	1/17/2006	1	17	1162	68.1
1/17/2006	2	10	1021	75.9	1/17/2006	2	17	1589	74.8
1/17/2006	3	10	690	81.0	1/17/2006	3	17	1612	78.8
1/17/2006	4	10	1153	77.8	1/17/2006	4	17	985	79.5
1/17/2006	5	10	1323	71.8	1/17/2006	5	17	1165	74.2
1/17/2006	6	17	836	67.8	1/17/2006	6	24	225	70.0
1/17/2006	1	18	1248	68.9	1/18/2006	1	1	205	70.0
1/17/2006	2	18	1685	75.4	1/18/2006	2	1	240	75.0
1/17/2006	3	18	1739	78.9	1/18/2006	3	1	52	79.3
1/17/2006	4	18	1001	79.6	1/18/2006	4	1	43	80.0
1/17/2006	5	18	1121	74.6	1/18/2006	5	1	161	75.1
1/17/2006	6	18	874	69.5	1/18/2006	6	1	158	69.7
1/17/2006	1	19	908	69.7	1/18/2006	1	2	138	68.9
1/17/2006	2	19	1133	75.5	1/18/2006	2	2	132	75.5
1/17/2006	3	19	1006	79.4	1/18/2006	3	2	21	79.9

TABLE 16 Continued

1/17/2006	4	19	855	78.2	1/18/2006	4	2	22	79.6
1/17/2006	5	19	1054	73.6	1/18/2006	5	2	113	75.1
1/17/2006	6	19	781	68.4	1/18/2006	6	2	126	69.0
1/17/2006	1	20	777	68.9	1/18/2006	1	3	110	67.5
1/17/2006	2	20	1109	74.7	1/18/2006	2	3	112	75.7
1/17/2006	3	20	934	78.6	1/18/2006	3	3	9	80.2
1/17/2006	4	20	439	79.4	1/18/2006	4	3	20	77.0
1/17/2006	5	20	750	73.8	1/18/2006	5	3	119	73.5
1/17/2006	6	20	522	69.2	1/18/2006	6	3	125	68.3
1/17/2006	1	21	530	70.8	1/18/2006	1	4	108	68.3
1/17/2006	2	21	744	76.3	1/18/2006	2	4	126	74.6
1/17/2006	3	21	461	80.3	1/18/2006	3	4	12	81.8
1/17/2006	4	21	319	79.1	1/18/2006	4	4	29	78.3
1/17/2006	5	21	595	73.3	1/18/2006	5	4	152	75.1
1/17/2006	6	21	410	69.0	1/18/2006	6	4	159	69.1
1/17/2006	1	22	490	70.6	1/18/2006	1	5	118	67.6
1/17/2006	2	22	662	76.2	1/18/2006	2	5	141	74.3
1/17/2006	3	22	342	80.5	1/18/2006	3	5	27	79.7
1/17/2006	4	22	224	79.6	1/18/2006	4	5	79	80.5
1/17/2006	5	22	472	74.5	1/18/2006	5	5	278	74.9
1/17/2006	6	22	352	69.7	1/18/2006	6	5	229	69.9
1/17/2006	1	23	290	70.0	1/18/2006	1	6	212	64.2
1/17/2006	2	23	429	76.4	1/18/2006	2	6	369	69.9
1/17/2006	3	23	156	80.2	1/18/2006	3	6	173	73.9
1/17/2006	4	23	139	79.2	1/18/2006	4	6	370	78.1
1/17/2006	5	23	382	76.0	1/18/2006	5	6	574	72.1
1/17/2006	6	23	301	70.6	1/18/2006	6	6	349	67.2
1/17/2006	1	24	249	69.9	1/18/2006	1	7	567	62.9
1/17/2006	2	24	352	76.6	1/18/2006	2	7	861	69.3
1/17/2006	3	24	131	80.3	1/18/2006	3	7	758	74.2
1/17/2006	4	24	81	80.0	1/18/2006	4	7	1568	76.5
1/17/2006	5	24	257	75.7	1/18/2006	5	7	1288	71.0
1/18/2006	6	7	754	67.0	1/18/2006	6	14	700	69.2
1/18/2006	1	8	708	66.1	1/18/2006	1	15	820	66.0

TABLE 16 Continued

1/18/2006	2	8	996	73.4	1/18/2006	2	15	1195	73.1
1/18/2006	3	8	814	77.8	1/18/2006	3	15	943	77.7
1/18/2006	4	8	2312	72.8	1/18/2006	4	15	835	80.3
1/18/2006	5	8	1703	67.8	1/18/2006	5	15	1097	74.2
1/18/2006	6	8	1239	60.7	1/18/2006	6	15	728	68.8
1/18/2006	1	9	756	65.4	1/18/2006	1	16	1010	65.8
1/18/2006	2	9	1019	72.9	1/18/2006	2	16	1364	72.3
1/18/2006	3	9	801	77.2	1/18/2006	3	16	1266	77.1
1/18/2006	4	9	1771	79.0	1/18/2006	4	16	938	80.2
1/18/2006	5	9	1506	73.0	1/18/2006	5	16	1132	75.2
1/18/2006	6	9	1080	68.8	1/18/2006	6	16	849	69.5
1/18/2006	1	10	674	65.1	1/18/2006	1	17	1163	65.8
1/18/2006	2	10	928	72.3	1/18/2006	2	17	1564	72.5
1/18/2006	3	10	590	77.1	1/18/2006	3	17	1737	76.8
1/18/2006	4	10	1197	79.5	1/18/2006	4	17	945	79.7
1/18/2006	5	10	1326	73.7	1/18/2006	5	17	1187	74.7
1/18/2006	6	10	884	68.6	1/18/2006	6	17	790	69.6
1/18/2006	1	11	723	64.9	1/18/2006	1	18	1242	66.3
1/18/2006	2	11	952	72.6	1/18/2006	2	18	1639	72.7
1/18/2006	3	11	627	76.7	1/18/2006	3	18	1931	76.9
1/18/2006	4	11	984	80.4	1/18/2006	4	18	1033	79.7
1/18/2006	5	11	1223	74.5	1/18/2006	5	18	1147	74.8
1/18/2006	6	11	794	69.5	1/18/2006	6	18	886	69.9
1/18/2006	1	12	807	65.3	1/18/2006	1	19	991	66.7
1/18/2006	2	12	1149	72.5	1/18/2006	2	19	1300	72.5
1/18/2006	3	12	877	77.1	1/18/2006	3	19	1305	76.7
1/18/2006	4	12	905	80.3	1/18/2006	4	19	901	79.2
1/18/2006	5	12	1175	74.1	1/18/2006	5	19	1071	74.9
1/18/2006	6	12	777	70.1	1/18/2006	6	19	814	70.7
1/18/2006	1	13	785	65.3	1/18/2006	1	20	651	67.8
1/18/2006	2	13	1082	72.7	1/18/2006	2	20	896	74.8
1/18/2006	3	13	784	76.7	1/18/2006	3	20	662	78.6
1/18/2006	4	13	809	80.5	1/18/2006	4	20	459	80.4
1/18/2006	5	13	1166	75.0	1/18/2006	5	20	717	76.1

TABLE 16 Continued

1/18/2006	6	13	741	70.0	1/18/2006	6	20	549	71.5
1/18/2006	1	14	724	65.5	1/18/2006	1	21	569	68.4
1/18/2006	2	14	1123	71.8	1/18/2006	2	21	762	74.8
1/18/2006	3	14	805	76.9	1/18/2006	3	21	529	79.5
1/18/2006	4	14	802	79.7	1/18/2006	4	21	258	82.1
1/18/2006	5	14	1122	74.0	1/18/2006	5	21	525	76.4
1/18/2006	6	21	415	71.5	1/19/2006	1	4	233	71.9
1/18/2006	1	22	503	68.0	1/19/2006	1	5	195	68.9
1/18/2006	2	22	674	74.6	1/19/2006	2	5	243	75.6
1/18/2006	3	22	410	79.1	1/19/2006	3	5	68	79.2
1/18/2006	4	22	232	81.1	1/19/2006	4	5	36	80.6
1/18/2006	5	22	485	76.3	1/19/2006	5	5	162	75.7
1/18/2006	6	22	356	71.3	1/19/2006	6	5	159	69.3
1/18/2006	1	23	337	69.7	1/19/2006	1	6	126	67.9
1/18/2006	2	23	452	75.3	1/19/2006	2	6	139	74.7
1/18/2006	3	23	210	79.3	1/19/2006	3	6	34	79.3
1/18/2006	4	23	139	79.9	1/19/2006	4	6	34	82.1
1/18/2006	5	23	395	75.5	1/19/2006	5	6	156	74.6
1/18/2006	6	23	290	70.3	1/19/2006	6	6	157	69.9
1/18/2006	1	24	228	70.4	1/19/2006	1	7	98	68.1
1/18/2006	2	24	328	75.7	1/19/2006	2	7	113	75.3
1/18/2006	3	24	97	80.8	1/19/2006	3	7	15	79.0
1/18/2006	4	24	78	80.4	1/19/2006	4	7	16	83.0
1/18/2006	5	24	258	74.8	1/19/2006	5	7	139	74.5
1/18/2006	6	24	211	69.9	1/19/2006	6	7	158	68.8
1/19/2006	1	1	211	71.7	1/19/2006	1	8	105	66.0
1/19/2006	1	1	139	70.2	1/19/2006	2	8	123	74.1
1/19/2006	1	1	112	69.1	1/19/2006	3	8	18	77.4
1/19/2006	1	1	109	69.7	1/19/2006	4	8	27	78.0
1/19/2006	1	1	120	69.2	1/19/2006	5	8	151	74.3
1/19/2006	1	1	211	65.8	1/19/2006	6	8	168	69.3
1/19/2006	1	2	560	64.2	1/19/2006	1	9	133	66.3
1/19/2006	1	2	707	67.7	1/19/2006	2	9	180	75.4
1/19/2006	1	2	759	66.8	1/19/2006	3	9	29	79.7

TABLE 16 Continued

1/19/2006	1	2	675	66.5	1/19/2006	4	9	74	79.1
1/19/2006	1	2	717	66.5	1/19/2006	5	9	267	73.7
1/19/2006	1	2	811	66.8	1/19/2006	6	9	235	69.4
1/19/2006	1	3	781	66.3	1/19/2006	1	10	240	66.5
1/19/2006	1	3	732	66.9	1/19/2006	2	10	435	74.5
1/19/2006	1	3	815	67.4	1/19/2006	3	10	169	79.2
1/19/2006	1	3	1001	66.9	1/19/2006	4	10	385	80.1
1/19/2006	1	3	1155	67.1	1/19/2006	5	10	605	74.9
1/19/2006	1	3	1231	67.4	1/19/2006	6	10	372	69.6
1/19/2006	1	4	1003	68.3	1/19/2006	1	11	593	66.0
1/19/2006	1	4	651	69.0	1/19/2006	2	11	913	73.3
1/19/2006	1	4	574	69.7	1/19/2006	3	11	804	78.8
1/19/2006	1	4	504	69.8	1/19/2006	4	11	1431	77.8
1/19/2006	1	4	343	70.6	1/19/2006	5	11	1290	73.0
1/19/2006	6	11	760	68.9	1/19/2006	6	18	750	68.5
1/19/2006	1	12	778	66.7	1/19/2006	1	19	836	65.8
1/19/2006	2	12	1032	74.4	1/19/2006	2	19	1215	73.1
1/19/2006	3	12	861	79.4	1/19/2006	3	19	1013	78.4
1/19/2006	4	12	2249	76.8	1/19/2006	4	19	866	78.2
1/19/2006	5	12	1711	72.1	1/19/2006	5	19	1159	73.0
1/19/2006	6	12	1271	67.7	1/19/2006	6	19	767	68.3
1/19/2006	1	13	776	66.0	1/19/2006	1	20	963	66.1
1/19/2006	2	13	1035	73.9	1/19/2006	2	20	1414	72.4
1/19/2006	3	13	791	79.3	1/19/2006	3	20	1375	77.7
1/19/2006	4	13	1650	78.4	1/19/2006	4	20	973	78.3
1/19/2006	5	13	1519	73.1	1/19/2006	5	20	1173	74.0
1/19/2006	6	13	1053	68.8	1/19/2006	6	20	825	67.9
1/19/2006	1	14	705	65.6	1/19/2006	1	21	1132	66.9
1/19/2006	2	14	992	73.4	1/19/2006	2	21	1587	73.5
1/19/2006	3	14	713	78.8	1/19/2006	3	21	1779	77.6
1/19/2006	4	14	1171	79.1	1/19/2006	4	21	1008	78.7
1/19/2006	5	14	1252	73.1	1/19/2006	5	21	1155	73.7
1/19/2006	6	14	836	68.1	1/19/2006	6	21	826	69.0
1/19/2006	1	15	717	64.4	1/19/2006	1	22	1207	66.0

TABLE 16 Continued

1/19/2006	2	15	1050	73.5	1/19/2006	2	22	1658	73.0
1/19/2006	3	15	744	78.7	1/19/2006	3	22	1895	76.6
1/19/2006	4	15	944	77.7	1/19/2006	4	22	1108	78.8
1/19/2006	5	15	1217	72.1	1/19/2006	5	22	1187	74.0
1/19/2006	6	15	762	66.6	1/19/2006	6	22	883	68.3
1/19/2006	1	16	774	64.8	1/19/2006	1	23	921	66.1
1/19/2006	2	16	1113	72.8	1/19/2006	2	23	1237	73.3
1/19/2006	3	16	811	78.3	1/19/2006	3	23	1307	77.7
1/19/2006	4	16	880	78.9	1/19/2006	4	23	895	77.6
1/19/2006	5	16	1212	73.2	1/19/2006	5	23	1052	73.2
1/19/2006	6	16	738	67.2	1/19/2006	6	23	786	68.6
1/19/2006	1	17	735	65.0	1/19/2006	1	24	685	68.0
1/19/2006	2	17	1168	72.1	1/19/2006	2	24	968	74.4
1/19/2006	3	17	736	76.3	1/19/2006	3	24	715	78.7
1/19/2006	4	17	869	79.4	1/19/2006	4	24	465	79.6
1/19/2006	5	17	1126	73.5	1/19/2006	5	24	743	74.5
1/19/2006	6	17	750	67.8	1/19/2006	6	24	553	69.7
1/19/2006	1	18	804	65.6	1/20/2006	1	1	554	68.2
1/19/2006	2	18	1107	73.1	1/20/2006	2	1	826	74.8
1/19/2006	3	18	907	78.2	1/20/2006	3	1	519	79.0
1/19/2006	4	18	859	79.2	1/20/2006	4	1	270	80.5
1/19/2006	5	18	1066	73.5	1/20/2006	5	1	573	75.2
1/20/2006	6	1	399	70.7	1/20/2006	1	8	261	70.3
1/20/2006	1	2	498	67.7	1/20/2006	1	9	215	69.0
1/20/2006	2	2	688	74.1	1/20/2006	2	9	297	75.6
1/20/2006	3	2	381	78.6	1/20/2006	3	9	109	80.6
1/20/2006	4	2	254	78.9	1/20/2006	4	9	53	79.8
1/20/2006	5	2	509	73.0	1/20/2006	5	9	191	74.7
1/20/2006	6	2	392	70.1	1/20/2006	6	9	183	70.1
1/20/2006	1	3	338	68.3	1/20/2006	1	10	145	68.4
1/20/2006	2	3	511	75.7	1/20/2006	2	10	186	76.2
1/20/2006	3	3	206	80.0	1/20/2006	3	10	40	78.5
1/20/2006	4	3	158	79.8	1/20/2006	4	10	32	81.8
1/20/2006	5	3	396	74.6	1/20/2006	5	10	135	75.0

TABLE 16 Continued

1/20/2006	6	3	281	71.1	1/20/2006	6	10	158	70.3
1/20/2006	1	4	265	69.3	1/20/2006	1	11	103	66.9
1/20/2006	2	4	388	75.1	1/20/2006	2	11	121	76.3
1/20/2006	3	4	169	79.7	1/20/2006	3	11	19	82.2
1/20/2006	4	4	106	79.9	1/20/2006	4	11	29	80.6
1/20/2006	5	4	318	74.3	1/20/2006	5	11	133	74.3
1/20/2006	6	4	237	69.8	1/20/2006	6	11	136	69.6
1/20/2006	1	5	195	70.4	1/20/2006	1	12	113	66.3
1/20/2006	1	5	127	68.6	1/20/2006	2	12	113	75.0
1/20/2006	1	5	99	69.6	1/20/2006	3	12	23	81.5
1/20/2006	1	5	107	68.4	1/20/2006	4	12	33	79.4
1/20/2006	1	5	132	68.8	1/20/2006	5	12	177	72.7
1/20/2006	1	5	238	67.3	1/20/2006	6	12	191	68.5
1/20/2006	1	6	595	67.6	1/20/2006	1	13	127	68.5
1/20/2006	1	6	770	68.1	1/20/2006	2	13	163	75.2
1/20/2006	1	6	785	67.0	1/20/2006	3	13	33	79.7
1/20/2006	1	6	702	67.2	1/20/2006	4	13	62	80.5
1/20/2006	1	6	722	66.7	1/20/2006	5	13	273	74.5
1/20/2006	1	6	772	67.5	1/20/2006	6	13	211	68.8
1/20/2006	1	7	730	66.6	1/20/2006	1	14	254	68.8
1/20/2006	1	7	801	67.0	1/20/2006	2	14	413	75.8
1/20/2006	1	7	837	67.2	1/20/2006	3	14	199	80.5
1/20/2006	1	7	962	67.3	1/20/2006	4	14	336	80.2
1/20/2006	1	7	1133	68.1	1/20/2006	5	14	569	74.4
1/20/2006	1	7	1205	67.4	1/20/2006	6	14	380	69.6
1/20/2006	1	8	919	67.6	1/20/2006	1	15	576	66.3
1/20/2006	1	8	700	69.5	1/20/2006	2	15	901	73.7
1/20/2006	1	8	554	69.8	1/20/2006	3	15	781	78.1
1/20/2006	1	8	495	68.8	1/20/2006	4	15	1388	77.8
1/20/2006	1	8	345	70.1	1/20/2006	5	15	1265	72.7
1/20/2006	6	15	758	68.7	1/20/2006	6	22	754	67.9
1/20/2006	1	16	737	67.1	1/20/2006	1	23	897	66.7
1/20/2006	2	16	1103	74.4	1/20/2006	2	23	1281	72.9
1/20/2006	3	16	912	79.5	1/20/2006	3	23	1191	78.4

TABLE 16 Continued

1/20/2006	4	16	2094	77.3	1/20/2006	4	23	1092	79.0
1/20/2006	5	16	1704	72.4	1/20/2006	5	23	1229	73.2
1/20/2006	6	16	1188	67.6	1/20/2006	6	23	800	67.5
1/20/2006	1	17	763	66.7	1/20/2006	1	24	1034	66.2
1/20/2006	2	17	995	73.9	1/20/2006	2	24	1442	73.1
1/20/2006	3	17	801	78.8	1/20/2006	3	24	1428	77.4
1/20/2006	4	17	1652	79.0	1/20/2006	4	24	1121	78.5
1/20/2006	5	17	1479	73.3	1/20/2006	5	24	1244	73.0
1/20/2006	6	17	1069	68.2	1/21/2006	6	24	879	67.4
1/20/2006	1	18	752	66.7	1/21/2006	1	1	1178	66.6
1/20/2006	2	18	1016	73.8	1/21/2006	2	1	1611	73.3
1/20/2006	3	18	770	78.8	1/21/2006	3	1	1868	77.1
1/20/2006	4	18	1073	79.4	1/21/2006	4	1	1157	79.0
1/20/2006	5	18	1248	73.6	1/21/2006	5	1	1261	73.8
1/20/2006	6	18	812	67.8	1/21/2006	6	1	918	68.2
1/20/2006	1	19	762	66.6	1/21/2006	1	2	1294	66.8
1/20/2006	2	19	1078	74.2	1/21/2006	2	2	1717	73.2
1/20/2006	3	19	820	79.0	1/21/2006	3	2	2003	77.0
1/20/2006	4	19	1008	79.3	1/21/2006	4	2	1129	79.4
1/20/2006	5	19	1221	73.3	1/21/2006	5	2	1219	74.1
1/20/2006	6	19	773	67.5	1/21/2006	6	2	894	68.7
1/20/2006	1	20	814	66.9	1/21/2006	1	3	982	65.6
1/20/2006	2	20	1113	74.1	1/21/2006	2	3	1331	72.2
1/20/2006	3	20	857	78.5	1/21/2006	3	3	1430	75.7
1/20/2006	4	20	954	80.2	1/21/2006	4	3	989	77.9
1/20/2006	5	20	1236	72.8	1/21/2006	5	3	1148	72.9
1/20/2006	6	20	801	67.6	1/21/2006	6	3	822	67.9
1/20/2006	1	21	835	66.8	1/21/2006	1	4	784	66.1
1/20/2006	2	21	1183	73.3	1/21/2006	2	4	1108	73.9
1/20/2006	3	21	975	78.5	1/21/2006	3	4	965	77.8
1/20/2006	4	21	963	80.7	1/21/2006	4	4	660	79.0
1/20/2006	5	21	1158	73.1	1/21/2006	5	4	926	74.4
1/20/2006	6	21	771	67.5	1/21/2006	6	4	640	69.1
1/20/2006	1	22	873	67.0	1/21/2006	1	5	575	67.6

TABLE 16 Continued

1/20/2006	2	22	1204	73.2	1/21/2006	2	5	859	74.7
1/20/2006	3	22	1084	78.1	1/21/2006	3	5	637	79.1
1/20/2006	4	22	978	79.2	1/21/2006	4	5	463	80.6
1/20/2006	5	22	1163	73.3	1/21/2006	5	5	747	75.1
1/21/2006	6	5	514	71.1	1/21/2006	1	12	383	70.5
1/21/2006	1	6	532	67.7	1/21/2006	1	13	271	69.0
1/21/2006	2	6	742	75.7	1/21/2006	2	13	396	76.6
1/21/2006	3	6	465	80.1	1/21/2006	3	13	173	81.3
1/21/2006	4	6	428	80.1	1/21/2006	4	13	102	80.4
1/21/2006	5	6	633	75.2	1/21/2006	5	13	269	75.5
1/21/2006	6	6	450	69.9	1/21/2006	6	13	203	70.1
1/21/2006	1	7	474	67.1	1/21/2006	1	14	209	69.1
1/21/2006	2	7	720	75.5	1/21/2006	2	14	244	76.4
1/21/2006	3	7	387	80.0	1/21/2006	3	14	89	79.9
1/21/2006	4	7	293	78.9	1/21/2006	4	14	56	79.5
1/21/2006	5	7	536	72.9	1/21/2006	5	14	160	75.3
1/21/2006	6	7	321	70.2	1/21/2006	6	14	154	69.9
1/21/2006	1	8	370	68.3	1/21/2006	1	15	148	70.3
1/21/2006	2	8	541	75.8	1/21/2006	2	15	185	76.3
1/21/2006	3	8	275	80.0	1/21/2006	3	15	55	81.4
1/21/2006	4	8	181	77.4	1/21/2006	4	15	37	79.1
1/21/2006	5	8	437	73.4	1/21/2006	5	15	157	75.0
1/21/2006	6	8	256	69.7	1/21/2006	6	15	128	70.1
1/21/2006	1	9	217	70.9	1/21/2006	1	16	117	67.6
1/21/2006	1	9	152	69.5	1/21/2006	2	16	162	76.2
1/21/2006	1	9	107	68.2	1/21/2006	3	16	46	81.7
1/21/2006	1	9	115	69.1	1/21/2006	4	16	31	81.9
1/21/2006	1	9	123	69.9	1/21/2006	5	16	134	73.5
1/21/2006	1	9	252	70.2	1/21/2006	6	16	107	69.6
1/21/2006	1	10	570	67.4	1/21/2006	1	17	136	69.1
1/21/2006	1	10	733	67.9	1/21/2006	2	17	178	76.6
1/21/2006	1	10	762	67.6	1/21/2006	3	17	50	81.3
1/21/2006	1	10	754	67.9	1/21/2006	4	17	39	80.7
1/21/2006	1	10	762	67.4	1/21/2006	5	17	168	75.1

TABLE 16 Continued

1/21/2006	1	10	803	67.9	1/21/2006	6	17	123	69.9
1/21/2006	1	11	840	68.0	1/21/2006	1	18	208	69.3
1/21/2006	1	11	875	68.5	1/21/2006	2	18	302	76.2
1/21/2006	1	11	884	68.0	1/21/2006	3	18	119	80.5
1/21/2006	1	11	1034	67.6	1/21/2006	4	18	127	79.4
1/21/2006	1	11	1172	67.9	1/21/2006	5	18	315	75.1
1/21/2006	1	11	1293	68.1	1/21/2006	6	18	239	69.9
1/21/2006	1	12	996	67.0	1/21/2006	1	19	375	68.3
1/21/2006	1	12	783	68.7	1/21/2006	2	19	607	75.2
1/21/2006	1	12	580	70.2	1/21/2006	3	19	404	80.1
1/21/2006	1	12	531	70.2	1/21/2006	4	19	444	80.1
1/21/2006	1	12	477	69.6	1/21/2006	5	19	715	75.1
1/21/2006	6	19	411	70.9	1/22/2006	6	2	754	69.7
1/21/2006	1	20	560	69.9	1/22/2006	1	3	832	68.9
1/21/2006	2	20	811	77.0	1/22/2006	2	3	1198	75.4
1/21/2006	3	20	532	81.4	1/22/2006	3	3	949	80.0
1/21/2006	4	20	662	81.2	1/22/2006	4	3	960	80.8
1/21/2006	5	20	948	76.4	1/22/2006	5	3	1163	75.4
1/21/2006	6	20	601	71.0	1/22/2006	6	3	731	69.9
1/21/2006	1	21	626	69.1	1/22/2006	1	4	819	69.4
1/21/2006	2	21	947	76.3	1/22/2006	2	4	1178	75.5
1/21/2006	3	21	686	81.0	1/22/2006	3	4	959	80.2
1/21/2006	4	21	674	81.0	1/22/2006	4	4	969	80.8
1/21/2006	5	21	1000	75.4	1/22/2006	5	4	1200	75.5
1/21/2006	6	21	640	69.7	1/22/2006	6	4	803	70.0
1/21/2006	1	22	721	68.9	1/22/2006	1	5	778	69.5
1/21/2006	2	22	1022	75.9	1/22/2006	2	5	1152	76.0
1/21/2006	3	22	726	80.2	1/22/2006	3	5	1001	80.8
1/21/2006	4	22	880	79.9	1/22/2006	4	5	1014	80.7
1/21/2006	5	22	1110	73.9	1/22/2006	5	5	1212	75.5
1/21/2006	6	22	718	69.0	1/22/2006	6	5	884	70.5
1/21/2006	1	23	807	68.8	1/22/2006	1	6	778	69.5
1/21/2006	2	23	1146	74.6	1/22/2006	2	6	1061	76.2
1/21/2006	3	23	922	79.5	1/22/2006	3	6	888	80.3

TABLE 16 Continued

1/21/2006	4	23	913	80.7	1/22/2006	4	6	968	80.5
1/21/2006	5	23	1202	73.9	1/22/2006	5	6	1185	75.8
1/21/2006	6	23	748	69.1	1/22/2006	6	6	796	71.1
1/21/2006	1	24	824	68.4	1/22/2006	1	7	699	68.7
1/21/2006	2	24	1218	75.0	1/22/2006	2	7	1003	74.9
1/21/2006	3	24	976	79.8	1/22/2006	3	7	742	78.5
1/21/2006	4	24	1095	79.3	1/22/2006	4	7	909	79.8
1/21/2006	5	24	1310	73.3	1/22/2006	5	7	1114	74.9
1/21/2006	6	24	855	68.3	1/22/2006	6	7	758	70.0
1/22/2006	1	1	843	68.2	1/22/2006	1	8	615	67.8
1/22/2006	2	1	1157	74.5	1/22/2006	2	8	862	75.1
1/22/2006	3	1	1009	79.5	1/22/2006	3	8	606	79.1
1/22/2006	4	1	1108	80.2	1/22/2006	4	8	568	79.1
1/22/2006	5	1	1312	74.5	1/22/2006	5	8	844	75.2
1/22/2006	6	1	819	69.8	1/22/2006	6	8	587	70.5
1/22/2006	1	2	785	68.5	1/22/2006	1	9	468	67.9
1/22/2006	2	2	1154	75.2	1/22/2006	2	9	708	75.3
1/22/2006	3	2	905	80.3	1/22/2006	3	9	459	79.8
1/22/2006	4	2	969	80.7	1/22/2006	4	9	394	80.1
1/22/2006	5	2	1219	74.5	1/22/2006	5	9	687	75.5
1/22/2006	6	9	476	70.7	1/22/2006	1	16	363	71.7
1/22/2006	1	10	467	68.7	1/22/2006	1	17	286	71.3
1/22/2006	2	10	643	75.4	1/22/2006	2	17	413	77.4
1/22/2006	3	10	383	79.0	1/22/2006	3	17	169	80.9
1/22/2006	4	10	302	79.8	1/22/2006	4	17	64	80.3
1/22/2006	5	10	600	75.1	1/22/2006	5	17	237	75.4
1/22/2006	6	10	462	71.1	1/22/2006	6	17	177	70.7
1/22/2006	1	11	437	70.0	1/22/2006	1	18	182	69.4
1/22/2006	2	11	646	76.2	1/22/2006	2	18	261	76.1
1/22/2006	3	11	315	79.7	1/22/2006	3	18	85	79.9
1/22/2006	4	11	269	80.7	1/22/2006	4	18	52	79.9
1/22/2006	5	11	502	75.8	1/22/2006	5	18	187	75.2
1/22/2006	6	11	401	71.0	1/22/2006	6	18	140	71.1
1/22/2006	1	12	360	70.5	1/22/2006	1	19	136	70.4

TABLE 16 Continued

1/22/2006	2	12	518	76.1	1/22/2006	2	19	200	75.9
1/22/2006	3	12	247	80.6	1/22/2006	3	19	61	78.3
1/22/2006	4	12	189	81.4	1/22/2006	4	19	38	79.2
1/22/2006	5	12	431	75.4	1/22/2006	5	19	127	76.2
1/22/2006	6	12	320	71.6	1/22/2006	6	19	93	68.9
1/22/2006	1	13	273	71.0	1/22/2006	1	20	146	72.2
1/22/2006	1	13	209	70.8	1/22/2006	2	20	186	77.9
1/22/2006	1	13	149	71.0	1/22/2006	3	20	47	79.9
1/22/2006	1	13	120	68.3	1/22/2006	4	20	19	77.2
1/22/2006	1	13	135	70.6	1/22/2006	5	20	106	75.5
1/22/2006	1	13	205	70.4	1/22/2006	6	20	86	70.8
1/22/2006	1	14	375	69.5	1/22/2006	1	21	113	70.0
1/22/2006	1	14	555	71.0	1/22/2006	2	21	164	75.9
1/22/2006	1	14	626	70.2	1/22/2006	3	21	43	80.6
1/22/2006	1	14	725	69.8	1/22/2006	4	21	21	81.8
1/22/2006	1	14	807	69.9	1/22/2006	5	21	94	75.8
1/22/2006	1	14	813	69.8	1/22/2006	6	21	91	71.4
1/22/2006	1	15	849	69.6	1/22/2006	1	22	143	70.4
1/22/2006	1	15	778	69.7	1/22/2006	2	22	212	76.1
1/22/2006	1	15	827	70.5	1/22/2006	3	22	43	81.1
1/22/2006	1	15	820	70.6	1/22/2006	4	22	43	79.5
1/22/2006	1	15	785	70.9	1/22/2006	5	22	205	75.7
1/22/2006	1	15	781	70.7	1/22/2006	6	22	144	70.3
1/22/2006	1	16	704	69.8	1/22/2006	1	23	219	69.6
1/22/2006	1	16	611	69.8	1/22/2006	2	23	338	75.9
1/22/2006	1	16	472	70.6	1/22/2006	3	23	124	80.7
1/22/2006	1	16	457	70.8	1/22/2006	4	23	128	80.5
1/22/2006	1	16	440	71.1	1/22/2006	5	23	356	75.6
1/22/2006	6	23	260	70.8	1/23/2006	6	6	786	70.4
1/22/2006	1	24	336	72.1	1/23/2006	1	7	753	69.4
1/22/2006	2	24	440	78.1	1/23/2006	2	7	1053	75.6
1/22/2006	3	24	219	81.6	1/23/2006	3	7	856	80.4
1/22/2006	4	24	172	82.4	1/23/2006	4	7	869	79.6
1/22/2006	5	24	402	76.7	1/23/2006	5	7	1157	75.7

TABLE 16 Continued

1/22/2006	6	24	337	72.2	1/23/2006	6	7	791	69.8
1/23/2006	1	1	422	70.5	1/23/2006	1	8	736	69.4
1/23/2006	2	1	621	77.4	1/23/2006	2	8	1126	75.5
1/23/2006	3	1	301	81.4	1/23/2006	3	8	844	80.6
1/23/2006	4	1	227	81.0	1/23/2006	4	8	874	79.2
1/23/2006	5	1	563	75.9	1/23/2006	5	8	1138	75.7
1/23/2006	6	1	392	71.7	1/23/2006	6	8	729	70.1
1/23/2006	1	2	513	70.0	1/23/2006	1	9	734	70.2
1/23/2006	2	2	791	76.1	1/23/2006	2	9	1034	76.9
1/23/2006	3	2	398	81.0	1/23/2006	3	9	846	81.3
1/23/2006	4	2	495	81.4	1/23/2006	4	9	918	80.4
1/23/2006	5	2	877	75.4	1/23/2006	5	9	1113	75.9
1/23/2006	6	2	555	70.1	1/23/2006	6	9	792	70.4
1/23/2006	1	3	634	69.1	1/23/2006	1	10	670	70.3
1/23/2006	2	3	943	75.6	1/23/2006	2	10	982	76.4
1/23/2006	3	3	715	80.2	1/23/2006	3	10	748	80.4
1/23/2006	4	3	660	81.2	1/23/2006	4	10	939	80.4
1/23/2006	5	3	1044	75.4	1/23/2006	5	10	1137	76.5
1/23/2006	6	3	655	70.1	1/23/2006	6	10	732	70.7
1/23/2006	1	4	733	68.8	1/23/2006	1	11	630	68.4
1/23/2006	2	4	1109	75.6	1/23/2006	2	11	944	75.4
1/23/2006	3	4	822	79.8	1/23/2006	3	11	722	79.0
1/23/2006	4	4	782	80.8	1/23/2006	4	11	776	79.7
1/23/2006	5	4	1119	74.6	1/23/2006	5	11	1017	74.9
1/23/2006	6	4	716	69.4	1/23/2006	6	11	671	70.3
1/23/2006	1	5	768	69.1	1/23/2006	1	12	554	68.0
1/23/2006	2	5	1038	75.6	1/23/2006	2	12	826	74.8
1/23/2006	3	5	782	80.6	1/23/2006	3	12	618	78.9
1/23/2006	4	5	835	81.9	1/23/2006	4	12	694	80.1
1/23/2006	5	5	1148	74.8	1/23/2006	5	12	928	75.3
1/23/2006	6	5	772	69.3	1/23/2006	6	12	605	71.0
1/23/2006	1	6	763	69.1	1/23/2006	1	13	447	69.7
1/23/2006	2	6	1157	75.4	1/23/2006	2	13	675	76.6
1/23/2006	3	6	976	80.0	1/23/2006	3	13	446	80.3

APPENDIX C: Left Lane Restriction Peak Hour Simulation Results

TABLE 17 Segment 1—Trucks=5%

Southbound Traffic												
	HOV Lane			Left Lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
479	24.3	35.4	858.4	87.4	23.3	2036.6	85.5	23.7	2025.1	109.6	14.9	1635.6
481	20.9	70.5	1476.3	22.3	70.8	1575.1	23.6	69.6	1642.6	24.3	35.4	858.4
482	61.6	35.6	2189.4	85.5	20.0	1710.6	95.7	16.8	1607.9	17.7	70.3	1242.4
488	63.1	33.7	2121.8	102.7	15.7	1613.6	110.5	13.8	1527.0	133.4	7.6	1007.2
489	85.6	24.3	2080.2	103.0	16.6	1707.5	95.7	19.6	1875.9	135.2	8.5	1151.9
490	13.1	73.1	956.7	28.9	71.1	2054.2	26.9	72.2	1942.2	103.8	16.2	1684.8
492	28.1	69.0	1938.8	30.9	63.3	1953.4	32.6	58.6	1909.3	24.3	72.3	1755.9
495	16.7	73.0	1219.7	25.4	71.6	1819.7	30.1	68.6	2065.5	35.6	55.3	1965.4
500	17.7	75.0	1328.4	24.4	72.9	1781.6	26.1	72.5	1890.9	23.8	71.1	1693.1
501	10.2	69.8	714.9	44.9	49.8	2234.6	45.0	45.7	2055.4	25.9	72.1	1869.6
503	18.5	74.4	1373.1	25.4	72.0	1829.1	26.3	71.7	1886.5	58.2	38.2	2223.9
504	19.1	70.4	1348.0	29.3	62.2	1823.6	33.0	57.5	1898.2	26.4	71.8	1897.9
506	22.7	73.3	1661.2	27.6	70.5	1948.6	26.4	70.0	1846.1	38.2	48.5	1851.6
508	19.5	73.6	1434.0	25.2	72.0	1811.7	25.3	70.8	1787.9	24.1	69.8	1681.3
512	19.8	73.4	1452.2	26.3	72.7	1910.1	26.1	72.6	1897.8	26.5	69.2	1834.4
514	19.3	73.4	1414.4	25.5	73.4	1867.7	24.9	73.5	1833.7	24.6	72.6	1785.2

TABLE 17 Continued

516	26.3	70.5	1856.1	27.0	71.2	1918.2	24.1	71.3	1715.9	22.6	73.4	1658.1
517	25.2	72.3	1823.7	26.3	71.9	1894.7	24.5	71.5	1750.8	19.6	71.1	1396.6
518	15.4	70.8	1090.5	30.5	64.4	1965.8	30.1	56.5	1700.7	22.5	71.4	1603.9
519	23.9	69.1	1652.2	31.1	62.7	1948.0	30.4	57.4	1744.0	54.1	35.1	1902.7
523	12.1	76.1	916.6	23.5	73.3	1721.2	25.8	71.9	1852.8	30.9	53.4	1649.5
524	16.3	74.4	1214.2	25.2	71.1	1788.9	27.1	70.1	1898.7	26.6	71.1	1888.2
526	24.8	67.5	1672.5	32.5	60.4	1962.1	32.9	58.7	1929.4	29.4	68.4	2010.4
Northbound Traffic												
553	91.1	23.4	2133.1	118.5	12.6	1498.1	124.1	11.7	1446.5	33.1	55.7	1842.5
557	74.7	29.1	2175.0	116.9	12.8	1492.5	122.3	11.8	1443.5	139.9	8.8	1237.3
559	86.0	25.4	2186.7	114.7	13.7	1575.9	121.2	12.4	1507.1	134.7	9.4	1271.2
563	83.5	25.8	2156.7	117.2	13.2	1540.1	117.8	13.2	1551.8	139.6	8.8	1228.1
566	82.1	26.7	2193.2	110.3	15.0	1651.9	114.2	14.3	1632.0	130.5	10.3	1345.3
568	80.0	26.5	2116.0	121.5	11.7	1416.7	128.5	10.3	1327.0	130.8	10.4	1366.2
570	69.4	31.8	2204.9	110.7	14.4	1591.1	115.1	13.4	1545.3	142.3	7.7	1099.2
571	83.0	26.0	2156.7	118.4	12.8	1513.0	113.0	14.6	1652.3	123.6	11.3	1392.7
572	95.9	21.2	2028.7	117.9	13.1	1544.8	115.6	14.0	1615.6	123.1	11.8	1456.0
574	79.0	24.8	1959.2	100.7	15.3	1544.3	99.9	15.7	1569.4	124.1	11.4	1412.7
575	68.7	31.8	2183.1	105.3	15.6	1643.4	103.2	16.5	1705.1	107.0	13.6	1449.6
576	100.2	19.7	1976.1	117.8	13.2	1555.2	114.7	14.3	1645.2	79.0	24.8	1959.2
577	84.9	21.4	1818.4	97.7	16.0	1559.7	88.0	19.2	1688.8	108.0	14.7	1586.9
579	20.3	45.9	933.0	37.4	28.7	1069.9	76.6	26.7	2040.1	119.0	13.0	1546.1

TABLE 17 Continued

581	29.6	69.2	2048.2	29.9	67.6	2017.6	31.9	63.8	2037.1	88.5	18.9	1674.7
583	15.7	74.8	1170.7	28.1	72.3	2033.7	26.8	72.4	1936.8	63.4	34.2	2163.7
586	18.8	73.1	1374.6	28.5	69.9	1994.8	29.1	68.5	1995.9	17.0	71.0	1204.8
588	19.1	73.8	1408.3	26.5	73.1	1932.0	23.9	73.2	1749.5	33.0	64.6	2134.2
781	28.7	70.7	2026.6	27.6	70.9	1956.1	21.5	70.0	1508.8	15.1	73.4	1108.1
784	12.2	74.6	912.5	28.1	71.6	2009.8	29.9	70.8	2115.5	35.0	67.0	2340.6
785	27.6	71.1	1963.5	29.6	70.5	2084.4	32.8	68.2	2235.0	2.4	73.1	177.8
786	18.2	73.8	1345.6	24.9	73.3	1825.6	23.5	73.4	1726.7	21.0	74.4	1566.2

Segment 1—Trucks=15%

Southbound Traffic												
	HOV Lane			Left Lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
473	69.4	30.1	2091.1	109.6	10.6	1161.9	118.0	10.7	1259.8	121.4	6.6	804.2
479	23.9	30.2	722.6	89.4	19.2	1711.2	88.0	20.0	1758.7	112.1	11.3	1261.5
481	18.3	65.9	1206.9	19.6	66.5	1302.4	22.7	64.3	1457.2	23.9	30.2	722.6
482	64.1	32.5	2081.1	91.7	15.0	1379.5	100.6	13.2	1332.0	18.1	64.6	1171.1
488	60.6	33.0	2001.2	104.5	11.8	1234.8	114.4	10.4	1190.0	120.8	4.8	584.9
489	78.2	26.0	2036.1	100.6	13.2	1332.6	95.3	16.1	1533.4	130.7	6.5	848.8
490	22.3	51.9	1157.3	43.2	40.0	1725.7	46.0	36.0	1655.9	99.2	13.0	1286.9
492	32.2	63.7	2050.5	35.0	48.3	1690.2	37.1	42.5	1578.3	51.3	29.1	1490.5
495	16.9	72.5	1221.7	23.4	68.3	1598.4	26.3	60.4	1590.8	40.6	38.4	1560.7

TABLE 17 Continued

500	21.1	73.5	1552.4	24.0	69.5	1666.1	23.3	68.4	1596.2	22.8	63.1	1437.7
501	7.9	70.1	553.0	42.7	44.4	1898.0	42.9	41.9	1797.8	22.8	67.4	1535.7
503	24.7	66.2	1635.1	30.6	56.8	1738.6	31.8	52.6	1674.4	55.4	34.5	1913.5
504	39.6	49.2	1946.8	56.7	32.4	1836.0	61.9	27.6	1710.4	32.9	47.4	1555.5
506	27.5	72.0	1980.3	26.1	61.6	1606.4	24.6	61.5	1514.9	74.2	18.6	1380.2
508	23.2	73.1	1698.5	23.4	68.3	1599.9	23.6	66.7	1576.7	23.1	60.6	1399.2
512	23.3	72.9	1696.8	24.2	71.0	1717.0	23.7	71.0	1682.2	25.2	64.6	1624.5
514	21.9	72.8	1595.9	23.2	72.9	1692.5	22.4	72.9	1636.8	21.6	70.4	1519.1
516	27.3	59.6	1628.3	27.2	59.7	1622.7	24.9	59.3	1477.8	20.0	72.8	1454.9
517	28.9	57.3	1655.0	29.7	56.2	1668.5	30.4	53.1	1611.1	24.9	59.4	1476.4
518	31.0	50.2	1555.5	49.9	35.4	1765.2	46.0	31.3	1439.3	30.4	51.7	1567.4
519	35.0	53.7	1880.5	52.9	30.5	1614.5	60.2	26.0	1563.8	79.3	17.2	1362.4
523	14.2	74.4	1059.7	23.4	69.8	1628.5	22.4	67.1	1501.3	64.1	20.0	1281.9
524	21.4	70.8	1514.0	26.3	64.4	1692.2	26.0	62.3	1619.0	24.2	65.9	1591.8
526	33.1	61.6	2036.4	39.4	46.2	1816.9	38.1	44.9	1710.1	27.5	60.7	1666.5
Northbound Traffic												
553	80.9	26.5	2145.8	114.5	9.8	1116.8	119.4	10.4	1243.9	36.9	41.6	1535.6
557	65.0	31.9	2071.5	110.3	10.6	1173.0	114.1	11.3	1292.2	128.1	8.7	1117.9
559	81.3	26.0	2112.1	109.8	11.5	1264.1	113.2	12.3	1390.6	123.8	8.8	1094.0
563	72.2	29.1	2104.0	111.4	11.5	1279.0	113.7	12.1	1378.6	128.1	8.3	1059.9
566	78.1	27.7	2161.7	105.2	13.7	1436.7	111.7	12.8	1431.1	119.2	8.9	1059.9
568	60.6	34.4	2085.6	113.9	9.7	1099.0	122.1	9.4	1145.3	120.6	9.2	1108.8

TABLE 17 Continued

570	66.3	32.2	2132.1	105.5	12.5	1312.7	108.3	12.9	1392.9	133.1	7.1	945.7
571	75.5	28.7	2167.6	109.8	11.8	1300.4	109.8	12.9	1414.5	113.0	9.9	1119.2
572	90.1	22.8	2057.4	110.8	11.9	1321.6	110.5	13.0	1433.6	113.3	10.5	1189.5
574	75.6	26.1	1971.2	101.4	13.0	1318.0	101.2	13.9	1402.9	114.5	10.2	1171.0
575	66.6	32.4	2157.5	98.4	14.8	1452.8	100.8	14.9	1503.6	106.9	11.3	1207.4
576	96.2	20.8	2003.2	111.3	11.7	1305.7	109.8	13.7	1501.4	75.6	26.1	1971.2
577	84.7	21.3	1801.2	98.5	13.5	1331.4	89.2	17.7	1575.3	101.7	12.6	1283.9
579	20.6	41.1	844.3	36.6	26.6	975.1	75.4	24.3	1834.3	114.5	11.2	1283.0
581	28.0	64.9	1819.1	29.0	63.5	1843.7	31.4	59.5	1870.8	90.0	16.6	1492.4
583	25.0	59.4	1484.0	45.4	39.2	1780.5	47.7	33.4	1590.5	63.5	31.3	1988.6
586	26.6	68.9	1831.8	30.0	55.9	1674.3	30.0	55.1	1653.7	48.8	19.9	973.9
588	22.6	72.8	1644.1	22.8	70.7	1611.6	19.9	70.9	1412.9	34.4	51.6	1773.5
781	26.7	68.3	1820.5	25.6	67.9	1740.5	21.3	66.7	1420.1	14.7	70.2	1034.0
784	13.8	72.8	1002.7	27.0	67.8	1829.0	28.3	66.9	1894.0	33.1	62.3	2060.2
785	26.4	68.8	1813.9	28.1	67.4	1893.7	31.8	64.1	2033.9	3.1	69.7	214.8
786	20.3	72.9	1482.0	22.1	72.7	1608.2	20.9	72.8	1518.2	19.6	73.0	1428.5

Segment 1—Trucks=25%

Southbound Traffic												
	HOV Lane			Left Lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
473	64.4	29.8	1919.0	100.9	10.3	1043.1	113.0	9.6	1079.7	103.4	4.7	480.7

TABLE 17 Continued

479	24.1	27.3	658.8	86.5	17.8	1539.6	88.2	17.7	1560.6	105.6	9.6	1007.7
481	36.0	32.0	1149.1	35.8	32.1	1148.0	43.1	27.6	1188.2	24.1	27.3	658.8
482	62.4	31.4	1961.2	89.4	13.2	1182.5	98.7	11.7	1152.7	33.7	32.9	1109.7
488	51.3	36.0	1844.1	98.3	10.6	1046.1	113.1	8.6	969.7	101.8	3.9	398.3
489	74.3	26.0	1935.2	95.9	11.8	1127.4	95.7	13.3	1269.1	127.3	4.6	585.7
490	47.1	33.5	1580.5	85.6	16.7	1428.6	97.6	15.6	1519.1	93.8	11.2	1054.3
492	27.2	69.0	1873.5	27.2	54.9	1495.4	28.2	50.0	1408.5	107.6	9.5	1020.8
495	17.3	67.5	1166.0	23.8	62.6	1488.1	26.7	53.7	1435.7	30.8	47.2	1450.5
500	67.6	31.6	2136.0	86.6	15.9	1379.3	88.8	14.8	1315.1	24.2	54.1	1312.4
501	6.6	68.0	449.2	40.2	42.9	1726.9	40.0	40.2	1609.2	89.9	13.3	1192.7
503	64.1	35.7	2289.2	87.1	17.0	1481.1	93.0	15.1	1407.1	49.8	33.9	1688.9
504	48.2	43.0	2072.1	60.9	27.7	1689.4	66.1	23.4	1545.8	99.5	11.7	1167.1
506	27.0	71.6	1936.5	24.0	58.7	1405.7	22.7	57.8	1310.3	79.0	14.3	1129.0
508	22.7	73.1	1661.0	20.7	66.2	1371.1	21.6	64.9	1401.1	21.5	58.3	1252.7
512	22.9	72.8	1669.1	22.8	68.6	1560.8	21.6	68.5	1480.3	23.2	63.5	1473.0
514	21.8	72.8	1587.9	21.4	71.2	1522.6	19.5	71.3	1392.8	19.8	68.1	1347.3
516	69.8	22.9	1598.7	72.6	21.6	1564.1	74.9	16.6	1239.5	18.1	71.5	1292.1
517	78.2	22.5	1761.6	86.5	19.1	1650.7	91.0	14.5	1318.7	105.3	7.2	756.4
518	41.5	40.7	1688.7	64.4	24.4	1568.3	54.8	22.4	1228.3	95.4	12.4	1177.2
519	25.9	65.3	1691.2	30.1	46.4	1395.2	31.0	45.4	1409.3	87.6	12.5	1097.5
523	33.5	43.1	1443.7	48.3	32.2	1553.6	50.1	27.4	1372.1	30.8	41.0	1262.7
524	48.5	41.4	2008.6	68.1	21.9	1490.8	71.2	19.3	1375.4	54.3	24.5	1327.4

TABLE 17 Continued

526	33.3	61.9	2061.5	38.0	43.2	1639.9	35.9	42.4	1524.9	71.9	18.2	1310.2
Northbound Traffic												
553	64.4	32.2	2070.3	99.1	10.1	999.4	109.5	9.8	1075.6	33.5	38.4	1285.8
557	62.0	32.9	2037.9	98.6	10.9	1078.1	106.4	10.5	1119.6	118.5	8.1	962.8
559	77.8	26.7	2080.7	99.0	11.4	1129.2	105.4	11.2	1183.3	112.1	8.5	956.4
563	69.1	30.2	2085.2	99.3	11.4	1132.4	104.1	12.1	1255.7	112.8	8.1	916.7
566	74.7	29.4	2193.4	95.6	13.1	1247.8	102.7	12.7	1303.5	101.9	8.9	901.6
568	52.6	37.6	1978.9	99.2	9.8	972.3	112.8	8.7	984.1	106.3	9.2	972.1
570	64.2	32.5	2086.4	96.8	11.7	1133.5	102.1	12.0	1223.7	121.6	6.8	824.5
571	67.2	32.7	2193.8	98.1	11.9	1162.7	104.9	11.4	1200.8	99.9	9.7	970.9
572	88.3	23.6	2083.7	100.2	11.8	1181.9	104.9	12.1	1268.2	104.2	10.3	1071.9
574	73.4	27.4	2010.9	93.5	12.9	1205.7	99.5	12.3	1222.7	103.9	10.0	1038.4
575	61.7	34.9	2150.4	87.6	15.1	1319.1	93.6	14.3	1338.7	99.2	10.8	1066.0
576	90.8	22.5	2046.5	100.1	12.5	1247.5	104.1	12.3	1277.4	73.4	27.4	2010.9
577	82.3	22.2	1829.5	90.2	14.5	1307.5	85.3	16.8	1433.8	93.1	12.2	1134.1
579	20.3	39.0	790.6	33.8	26.3	887.1	70.0	24.1	1687.8	104.9	11.0	1152.8
581	29.3	57.7	1690.7	29.9	57.9	1732.6	31.7	54.4	1725.8	84.9	15.2	1294.5
583	46.8	41.9	1958.0	75.0	18.3	1373.4	83.6	15.5	1293.6	58.6	31.4	1839.7
586	26.6	69.1	1837.2	29.1	52.8	1534.5	29.0	51.5	1490.7	101.0	7.5	754.0
588	22.6	73.0	1646.9	20.5	68.8	1413.3	18.6	68.4	1272.6	33.5	48.1	1608.7
781	46.7	34.5	1609.9	46.4	34.6	1607.2	41.9	33.7	1410.0	14.5	67.2	973.1
784	22.8	63.2	1442.9	36.3	42.3	1534.6	38.2	40.9	1565.2	45.1	36.8	1660.5

TABLE 17 Continued

785	61.5	29.5	1817.1	68.1	25.5	1738.4	81.7	17.4	1419.2	21.3	23.3	496.0
786	20.4	73.0	1492.9	20.5	71.8	1472.6	19.4	71.3	1379.6	18.6	71.1	1324.4

Segment 2—Trucks=5%

Southbound Traffic												
	HOV Lane			Left Lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
342	37.6	59.8	2248.3	40.9	55.7	2275.3	36.5	44.9	1637.9	33.7	40.1	1352.6
344	54.5	42.3	2304.2	71.1	32.8	2331.8	80.5	23.9	1921.3	90.7	20.0	1814.8
346	29.2	71.2	2079.5	31.0	71.3	2209.1	22.4	70.7	1582.1	16.5	70.8	1167.2
349	25.4	71.3	1809.1	28.0	71.5	2002.5	22.5	71.9	1614.9	18.9	71.7	1355.6
350	23.7	70.1	1660.8	27.2	69.6	1890.7	24.0	69.1	1655.7	22.2	66.7	1481.8
352	32.6	67.7	2203.7	36.4	61.4	2234.6	35.6	53.6	1903.7	39.6	51.1	2022.6
353	25.6	56.6	1446.5	32.9	50.6	1661.1	36.1	42.3	1526.8	38.7	38.5	1489.1
354	37.1	40.7	1510.0	45.8	36.3	1663.2	58.0	24.1	1395.5	60.1	23.0	1381.0
356	49.9	32.1	1604.1	62.4	27.2	1698.7	79.8	15.9	1269.7	89.5	14.4	1291.4
360	76.6	24.9	1910.4	104.9	14.8	1555.3	139.3	5.9	824.7	193.8	1.5	296.9
361	31.9	67.6	2154.4	36.2	62.9	2281.0	34.6	55.9	1932.2	37.9	53.2	2017.0
364	95.1	21.4	2031.9	128.2	12.1	1556.3	157.5	4.9	776.8	206.3	1.0	213.6
365	102.7	19.3	1980.1	130.8	11.7	1528.4	159.6	4.9	781.1	214.9	0.6	125.7
366	70.3	25.5	1793.5	90.2	18.8	1693.4	115.3	9.9	1145.0	136.8	7.0	957.6
367	91.1	20.1	1832.3	112.7	14.1	1591.7	137.3	7.1	969.1	173.8	3.1	536.3

TABLE 17 Continued

369	94.5	22.1	2090.8	123.2	13.5	1660.4	158.6	4.8	762.1	192.3	1.5	289.4
371	70.3	30.2	2120.7	104.0	15.6	1620.2	140.5	6.1	852.8	183.1	1.2	227.1
373	100.2	20.3	2031.8	127.0	12.7	1606.8	156.6	5.3	830.9	196.1	0.9	182.5
375	74.0	27.6	2040.3	104.1	15.3	1593.7	141.4	6.1	856.7	189.2	0.8	145.6
377	89.8	23.9	2144.2	115.6	15.3	1764.0	163.0	4.6	742.2	193.0	1.2	225.2
379	98.2	20.9	2049.4	126.4	12.8	1621.7	156.0	5.7	896.4	192.7	1.0	185.7
381	72.8	28.6	2081.5	103.1	15.6	1611.1	138.9	6.7	930.5	187.2	0.8	144.8
384	86.7	24.1	2091.4	116.7	14.7	1720.5	152.1	5.7	869.4	197.2	0.9	167.8
385	96.9	21.3	2066.7	120.2	14.3	1714.5	149.5	6.7	1005.2	184.8	2.2	396.6
386	87.6	23.6	2065.7	117.6	14.4	1697.3	154.2	4.7	728.1	228.2	0.5	124.3
390	88.3	24.3	2142.5	108.8	17.0	1846.4	139.7	8.5	1188.3	151.7	6.0	903.8
391	103.4	19.2	1983.7	119.4	14.5	1735.4	142.5	8.3	1183.4	176.9	3.3	587.3
392	102.2	19.4	1984.9	116.1	15.2	1758.9	146.9	7.4	1081.6	167.1	4.2	693.9
393	77.2	26.0	2007.5	96.2	17.8	1714.0	119.0	10.9	1299.0	170.8	2.8	484.6
397	75.4	26.3	1984.0	88.2	20.3	1792.8	104.7	11.2	1167.1	122.9	5.3	647.9
399	61.3	32.3	1978.1	79.7	22.2	1771.9	102.3	11.6	1185.5	135.8	6.2	840.6
401	103.5	19.2	1983.1	123.7	13.4	1655.5	155.5	6.1	953.9	200.9	1.8	351.7
403	78.0	25.7	2006.0	102.0	16.1	1640.0	138.4	7.0	965.0	195.3	1.5	286.4
405	85.4	25.0	2135.1	120.7	13.8	1664.1	151.8	5.7	869.0	183.2	2.4	430.3
406	93.4	21.8	2035.8	120.9	13.5	1631.9	150.8	6.1	916.9	212.6	1.3	273.8
407	105.5	18.6	1959.1	126.2	12.8	1612.6	152.1	6.2	946.8	203.0	2.3	464.9
412	87.7	23.3	2042.4	115.7	14.6	1690.5	162.0	5.0	812.6	186.7	3.0	563.4

TABLE 17 Continued

414	89.4	23.8	2130.0	119.7	14.1	1690.3	154.9	5.8	893.6	181.9	2.7	487.7
415	97.7	20.9	2037.6	117.8	14.6	1716.6	165.1	5.0	827.8	191.8	2.5	487.1
416	96.3	21.3	2048.9	117.6	14.7	1722.3	165.4	5.0	820.6	187.8	2.8	529.4
418	97.7	20.9	2039.0	119.3	14.3	1700.2	156.2	5.9	927.7	199.5	1.6	316.0
419	106.0	18.4	1945.4	122.2	13.8	1686.1	143.3	8.2	1180.5	188.6	2.2	413.4
421	76.9	25.7	1976.4	96.3	17.6	1692.7	124.5	9.7	1213.2	183.7	2.0	359.6
426	96.5	20.6	1987.1	112.2	15.8	1772.5	135.1	9.2	1244.2	164.4	4.6	751.7
427	107.1	18.0	1930.0	120.4	14.2	1705.6	136.5	9.6	1313.6	146.5	6.9	1008.0
429	84.4	22.7	1919.3	98.5	17.0	1669.5	115.6	11.7	1353.2	134.3	7.1	955.9
431	66.1	30.1	1987.7	80.5	22.9	1839.3	98.8	13.3	1317.6	114.0	10.2	1164.7
435	84.1	22.3	1874.1	98.4	16.8	1648.6	120.1	10.4	1245.0	144.2	5.4	783.6
436	80.0	25.3	2025.9	101.5	17.4	1767.3	129.8	8.6	1111.1	157.8	4.7	745.3
439	89.5	24.3	2172.8	115.6	15.4	1774.4	150.3	7.1	1062.3	174.3	3.8	657.2
441	91.7	23.1	2114.8	120.3	14.0	1684.4	160.4	5.4	862.7	204.0	1.7	342.6
442	90.3	23.3	2107.3	113.1	15.7	1776.1	153.9	6.4	984.8	177.5	3.3	592.7
443	91.0	23.7	2153.4	114.6	15.6	1786.4	154.6	6.4	982.0	192.1	2.0	390.3
445	93.9	22.4	2103.5	113.0	16.1	1822.1	140.5	8.6	1210.9	180.1	2.7	487.7
447	91.2	23.1	2104.4	112.5	15.9	1787.5	143.0	7.6	1087.5	195.5	1.7	332.6
450	16.6	67.5	1118.3	32.2	63.8	2053.5	35.5	57.5	2039.8	38.8	53.4	2068.4
451	100.0	19.8	1978.1	116.7	14.8	1730.0	139.4	9.0	1248.7	152.1	6.0	916.0
452	18.6	72.0	1339.3	25.6	71.6	1833.5	23.4	71.1	1662.6	23.5	70.3	1649.5
453	18.8	71.7	1348.3	25.8	71.1	1831.5	24.5	71.1	1742.4	23.9	70.9	1693.4

TABLE 17 Continued

455	87.6	24.7	2160.5	110.3	16.6	1835.0	145.4	7.7	1114.7	169.6	3.8	636.3
456	17.6	71.7	1262.9	23.9	71.0	1693.5	24.4	70.2	1714.5	26.4	69.1	1824.0
457	18.5	71.5	1323.7	25.1	71.1	1784.1	25.4	70.9	1800.6	26.1	70.7	1840.4
458	34.1	20.5	697.6	99.9	20.3	2027.4	80.7	27.0	2177.1	81.6	26.0	2124.2
460	17.7	71.7	1271.7	24.5	71.3	1748.4	25.8	71.0	1829.8	27.0	70.3	1897.8
461	17.0	71.6	1219.3	24.9	71.2	1771.6	26.7	70.8	1888.5	27.6	70.7	1952.0
462	80.4	27.2	2190.1	103.1	18.8	1935.3	127.0	11.4	1444.2	162.9	4.1	671.1
464	16.1	71.3	1144.2	23.9	70.8	1691.1	26.0	69.7	1808.6	28.8	68.2	1962.1
465	16.6	71.3	1181.7	24.3	70.7	1716.2	26.7	70.0	1866.9	28.2	69.5	1957.1
466	92.1	22.3	2049.2	104.1	18.1	1884.6	99.2	18.5	1837.3	103.5	16.0	1660.3
468	15.0	71.9	1076.1	22.5	71.3	1603.3	24.5	70.3	1718.6	26.7	68.7	1833.5
469	16.2	71.4	1156.8	23.8	70.8	1685.5	25.0	70.3	1757.6	25.5	69.9	1782.3
478	16.7	71.9	1198.0	23.7	71.7	1701.7	24.7	71.5	1765.7	25.1	71.2	1786.6
Northbound Traffic												
521	20.2	72.1	1453.1	28.4	71.2	2022.0	24.8	69.3	1720.8	23.1	69.0	1594.0
540	20.3	72.0	1462.1	27.4	71.6	1957.8	23.9	70.9	1695.6	21.2	70.7	1500.9
589	97.3	21.1	2051.4	109.7	17.0	1862.6	125.9	9.8	1231.9	137.0	8.2	1120.5
590	74.1	26.9	1996.1	88.9	19.9	1771.4	106.4	12.8	1359.5	119.3	10.1	1198.5
591	73.4	27.0	1978.9	86.7	20.8	1806.0	105.3	13.3	1394.8	112.7	11.7	1317.4
593	87.8	24.1	2112.0	100.3	19.5	1960.6	130.7	9.1	1195.1	129.7	10.1	1309.5
596	101.1	19.5	1973.6	118.4	14.4	1708.4	117.5	12.5	1472.3	118.4	12.7	1497.1
597	22.5	19.9	448.3	93.3	22.8	2126.1	88.5	22.9	2022.7	96.6	19.7	1905.8

TABLE 17 Continued

599	47.0	34.8	1638.3	60.4	31.1	1879.3	62.1	28.3	1761.1	64.5	27.2	1751.2
601	30.5	26.0	793.6	87.8	23.8	2088.3	75.8	27.1	2056.0	77.4	25.7	1985.9
603	37.2	45.9	1706.5	56.2	36.3	2039.6	67.7	27.0	1826.4	76.4	22.8	1743.2
605	61.2	36.9	2256.6	80.3	27.2	2182.3	101.0	16.2	1632.8	106.9	14.6	1564.0
608	60.8	40.0	2430.8	83.8	26.6	2226.4	105.9	15.8	1668.0	128.2	10.3	1315.7
609	62.7	37.4	2344.7	76.4	29.5	2255.9	90.7	19.8	1793.8	96.5	16.8	1619.7
610	76.3	30.3	2314.0	85.8	25.8	2216.8	98.0	18.2	1785.8	98.0	17.1	1672.3
611	49.6	45.2	2240.2	61.0	34.7	2120.3	69.4	26.8	1858.1	84.0	19.9	1674.1
613	31.7	70.7	2242.5	34.8	67.4	2344.8	31.0	60.5	1878.7	33.0	58.0	1917.1
614	32.9	66.9	2198.3	38.0	59.9	2275.3	38.4	51.5	1978.5	40.1	48.3	1936.1
615	31.3	71.3	2229.6	33.7	70.8	2382.7	26.0	67.7	1762.4	21.9	67.1	1468.9
617	30.4	71.3	2167.6	32.6	71.1	2317.5	24.9	70.3	1748.5	19.5	71.0	1385.4
620	24.9	71.3	1771.8	29.2	71.3	2080.2	24.1	71.6	1721.4	20.7	71.5	1477.8
621	23.4	71.4	1667.4	26.8	71.5	1913.8	22.7	71.8	1628.4	20.5	71.1	1453.4
622	29.9	71.1	2125.2	32.0	71.3	2282.0	24.3	71.2	1728.8	20.2	71.4	1439.5
623	22.5	71.4	1604.9	26.3	71.5	1882.1	23.2	71.7	1661.7	20.0	71.6	1430.3
625	29.0	71.1	2064.9	31.5	71.2	2243.9	24.6	71.6	1760.9	20.4	71.7	1465.2
626	20.6	71.3	1470.8	25.1	71.4	1795.0	23.1	71.8	1659.0	20.6	71.8	1481.0
629	17.3	71.4	1233.4	22.2	71.4	1582.4	21.6	71.8	1553.9	20.0	71.9	1436.2
631	17.2	71.4	1226.0	22.0	71.5	1571.0	21.5	72.0	1549.9	21.2	71.9	1522.7
633	17.1	71.6	1220.5	26.2	71.5	1871.3	27.5	71.3	1958.0	28.0	70.7	1981.7
635	16.1	71.4	1150.1	23.5	70.8	1663.6	26.6	69.8	1859.7	32.5	67.6	2200.7

TABLE 17 Continued

636	17.0	71.6	1218.5	26.9	71.3	1919.3	29.6	70.5	2081.4	33.5	68.5	2297.9
637	16.8	70.9	1193.7	27.7	70.3	1949.5	30.2	68.7	2076.3	37.2	65.7	2444.1
639	17.7	71.7	1269.6	27.9	71.6	1997.0	27.8	71.0	1971.6	22.3	70.7	1575.4
642	39.3	44.0	1730.3	59.0	34.7	2046.5	70.0	23.7	1656.8	79.4	17.3	1373.8
643	82.4	27.2	2240.9	103.2	19.4	1998.8	116.6	12.6	1466.2	124.5	10.5	1304.9
645	57.7	39.2	2265.0	74.5	26.9	2006.0	89.6	17.9	1608.3	117.4	10.0	1169.4
648	40.9	50.7	2075.1	46.0	44.9	2064.4	48.7	33.2	1616.8	53.1	28.4	1505.5
649	55.9	35.2	1965.9	65.1	32.2	2094.7	70.6	23.8	1680.8	76.0	19.1	1448.1
651	48.4	40.9	1978.6	59.6	34.2	2037.7	66.9	25.6	1711.3	81.4	18.7	1521.1
654	59.6	32.7	1947.6	75.2	26.8	2016.2	89.5	17.5	1562.1	103.1	12.5	1291.9
655	75.0	27.0	2026.1	91.1	21.5	1955.6	104.3	14.2	1484.7	117.2	9.8	1144.1
661	91.0	23.6	2146.9	107.4	18.1	1943.3	119.7	12.6	1506.5	136.9	7.5	1027.2
663	58.8	36.7	2155.2	75.1	26.4	1978.3	91.4	17.4	1588.8	122.6	8.7	1069.2
669	27.2	71.5	1945.8	29.8	70.9	2114.7	21.6	68.4	1478.6	19.5	68.3	1329.7
672	22.3	71.4	1589.0	28.0	71.2	1996.6	26.2	71.2	1863.9	15.9	70.1	1113.3
674	71.2	32.5	2309.8	86.0	25.2	2162.9	103.0	16.2	1663.0	116.7	11.5	1336.3
675	19.8	71.6	1418.0	25.9	71.3	1845.9	25.8	70.9	1827.8	25.3	69.6	1758.9
676	19.2	71.6	1371.0	25.8	71.4	1841.7	25.2	71.1	1793.2	24.7	70.7	1745.2
682	19.1	71.5	1364.8	27.8	70.7	1961.9	25.7	69.2	1778.4	24.9	66.6	1660.2
688	17.3	71.6	1237.7	25.6	71.5	1827.7	24.8	71.5	1773.8	15.7	71.0	1117.0
690	31.3	65.2	2037.9	37.0	57.6	2131.5	36.6	48.9	1790.5	41.6	44.7	1861.6
691	16.7	71.6	1197.6	24.7	71.5	1764.9	23.6	71.6	1689.9	16.7	71.8	1196.0

TABLE 17 Continued

692	14.8	71.7	1060.2	21.2	71.7	1519.3	20.0	71.8	1437.3	15.2	72.1	1093.8
694	14.5	71.6	1034.7	20.7	71.7	1484.0	19.7	71.9	1416.8	15.2	72.2	1094.3
696	25.1	71.4	1795.1	29.0	71.1	2066.0	25.5	70.5	1795.7	26.8	68.7	1843.2
697	12.4	71.7	891.3	18.3	71.7	1312.7	18.5	71.9	1329.0	17.6	72.0	1264.1
700	11.5	71.5	823.0	18.0	71.5	1288.7	19.4	71.4	1382.0	19.7	71.7	1414.0
701	11.4	71.6	814.1	18.0	71.5	1288.3	19.5	71.5	1391.7	20.7	71.4	1474.2
703	10.3	71.9	742.4	16.8	71.9	1207.3	18.4	71.8	1320.9	21.0	71.4	1496.4
704	10.5	71.8	752.2	17.2	71.9	1239.0	19.0	72.0	1364.3	21.1	71.9	1514.0
709	4.6	71.0	324.3	29.1	68.3	1985.3	28.9	69.2	2000.1	28.8	68.8	1983.2
712	12.5	72.6	908.9	28.3	71.4	2022.1	27.2	70.5	1920.4	19.5	69.3	1354.1
716	17.7	72.0	1273.5	29.0	71.0	2055.7	27.4	69.4	1902.6	18.2	67.6	1232.9
718	22.2	71.1	1576.9	30.6	70.1	2143.9	30.8	68.2	2103.4	32.8	66.3	2174.1
720	18.1	71.4	1293.8	26.6	71.3	1898.6	25.2	70.5	1777.1	26.1	69.3	1811.6
722	15.0	71.7	1073.2	21.9	71.7	1571.7	20.3	71.8	1456.6	15.8	71.7	1135.9
723	13.3	71.7	950.8	19.3	71.7	1381.0	18.9	71.8	1353.5	16.8	71.9	1211.2
724	10.9	71.6	777.1	19.6	70.7	1386.8	25.4	69.2	1756.4	33.4	67.0	2239.0
725	8.7	71.3	619.3	27.7	70.1	1942.6	30.3	68.0	2062.9	34.4	64.2	2204.8
727	16.2	70.1	1134.9	29.3	67.4	1973.6	30.9	63.8	1968.9	35.5	58.5	2079.5
787	91.6	22.7	2083.7	105.2	18.2	1909.6	119.5	11.7	1392.5	132.6	9.3	1236.3
789	79.6	26.8	2129.3	101.2	19.1	1933.2	119.8	10.6	1268.0	122.9	10.3	1265.5
792	12.5	71.6	897.7	19.1	71.7	1365.8	20.6	71.9	1477.9	21.4	71.9	1539.8

TABLE 17 Continued

Segment 2—Trucks=15%

Southbound Traffic												
	HOV Lane			Left Lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
342	80.4	28.3	2277.8	91.1	23.7	2157.3	98.0	10.2	995.2	109.4	8.2	895.4
344	61.5	37.6	2312.8	82.1	26.7	2193.3	88.9	14.7	1302.8	101.0	11.9	1205.9
346	29.1	71.3	2077.5	29.1	71.4	2079.2	14.7	66.1	971.1	12.2	65.5	798.9
349	25.2	71.4	1798.1	25.9	71.5	1852.3	16.6	71.3	1186.3	14.3	70.5	1006.6
350	23.7	69.4	1647.8	25.3	68.6	1733.4	19.6	66.7	1309.2	18.2	63.3	1149.9
352	60.0	37.4	2242.5	71.0	30.3	2154.4	79.8	15.0	1199.4	87.3	16.2	1414.5
353	24.9	57.7	1436.9	29.4	52.8	1550.2	30.8	41.2	1267.8	38.7	29.9	1155.1
354	34.3	43.2	1483.5	41.4	38.4	1587.6	45.4	26.5	1203.4	50.9	21.0	1069.8
356	49.4	31.5	1557.5	58.5	27.9	1630.0	63.9	17.1	1090.8	78.5	13.5	1055.3
360	81.1	23.4	1899.8	102.7	15.4	1585.6	128.6	4.9	630.1	169.1	1.3	223.1
361	33.1	66.0	2182.4	35.9	59.2	2125.2	34.3	43.0	1473.8	38.1	40.3	1538.6
364	92.0	22.4	2060.6	124.7	12.7	1586.2	130.3	4.4	575.7	165.4	1.0	166.5
365	103.1	19.2	1976.3	128.2	12.2	1569.2	132.0	4.5	589.6	172.1	0.6	105.1
366	70.0	25.0	1746.7	87.3	19.0	1655.0	101.3	9.5	964.4	121.1	6.7	815.0
367	93.7	19.5	1822.5	110.6	14.6	1612.4	122.8	6.3	773.4	156.2	2.6	410.5
369	96.8	21.2	2047.6	118.3	14.6	1725.6	128.3	4.6	591.5	164.1	1.4	233.5
371	72.3	28.8	2079.2	97.1	17.5	1694.6	123.3	5.7	702.5	155.1	1.2	183.0

TABLE 17 Continued

373	104.6	18.7	1960.5	121.3	14.0	1693.5	130.5	5.2	676.1	121.9	0.7	88.0
375	77.8	25.5	1984.1	98.6	16.9	1660.9	124.3	5.5	687.1	115.2	0.6	71.8
377	92.9	22.6	2098.8	112.4	16.1	1808.3	135.1	3.9	530.9	147.8	0.9	131.2
379	105.1	18.7	1961.3	123.4	13.5	1661.2	136.7	5.5	748.5	127.7	0.6	78.6
381	76.6	26.0	1992.0	100.8	16.3	1641.7	128.9	5.9	760.4	122.7	0.5	65.6
384	89.7	23.0	2062.7	115.2	14.8	1704.3	138.1	5.0	683.5	156.9	0.6	100.9
385	102.4	19.4	1983.7	119.3	14.5	1724.8	138.1	5.9	808.2	137.3	1.5	203.2
386	80.5	24.8	1996.2	103.2	16.9	1746.7	123.1	4.5	559.5	186.3	0.7	124.7
390	91.2	23.1	2105.4	110.6	16.4	1812.8	136.4	6.5	887.2	144.7	4.1	591.4
391	106.2	18.3	1944.7	119.9	14.5	1733.5	138.5	6.9	956.8	146.0	1.8	258.0
392	104.6	18.5	1934.3	115.2	15.4	1775.2	143.2	5.8	825.1	146.7	2.6	380.6
393	79.8	24.7	1969.7	97.6	17.4	1696.5	121.5	8.9	1076.9	136.9	1.6	211.8
397	85.9	22.9	1965.3	100.5	17.0	1712.5	115.4	7.3	838.9	130.1	3.4	436.7
399	68.8	28.7	1971.9	89.2	19.0	1692.8	115.4	7.4	853.4	146.4	3.4	493.2
401	102.8	19.4	1992.3	126.6	12.7	1612.5	146.9	4.5	658.9	169.5	0.8	138.5
403	76.4	26.4	2013.3	104.6	15.2	1594.4	137.5	4.9	676.6	154.9	0.5	81.9
405	87.8	24.0	2110.1	113.5	15.3	1731.5	127.3	5.8	731.9	154.2	2.0	309.1
406	84.8	24.6	2084.8	121.4	13.1	1591.9	143.1	4.4	630.0	182.7	0.6	103.7
407	103.6	18.9	1959.7	123.6	13.2	1627.6	140.4	5.1	721.1	184.1	1.5	273.4
412	93.5	21.4	2002.8	115.6	14.7	1701.0	148.3	4.2	624.6	167.0	2.4	400.9
414	91.7	22.9	2098.7	116.1	14.9	1730.6	133.8	5.2	698.8	158.0	2.0	309.5
415	100.0	20.0	1998.2	116.9	14.8	1735.1	151.7	4.2	637.5	168.7	2.3	391.7

TABLE 17 Continued

416	100.8	19.8	1992.2	116.7	15.0	1746.8	152.3	4.2	637.2	168.3	2.5	427.2
418	100.1	20.0	2002.1	118.7	14.4	1704.8	145.9	5.2	754.3	158.7	1.3	209.2
419	109.3	17.3	1894.3	123.0	13.6	1669.3	138.6	7.1	980.0	159.3	1.7	276.5
421	79.1	24.4	1927.9	96.7	17.3	1677.3	123.3	8.4	1034.1	152.5	1.3	203.0
426	98.2	20.0	1967.7	111.6	15.8	1761.2	131.7	7.6	993.8	153.8	3.5	544.2
427	110.6	17.0	1880.7	118.4	14.7	1745.0	135.1	7.6	1032.5	132.8	6.1	810.9
429	85.0	22.1	1882.3	95.6	17.7	1693.2	118.0	9.5	1119.6	124.5	6.3	782.3
431	74.6	26.1	1950.9	89.6	19.5	1749.3	104.3	9.8	1017.8	125.6	6.6	830.2
435	83.1	22.7	1890.4	97.5	16.9	1643.3	120.9	8.6	1041.0	129.0	5.1	657.1
436	88.3	23.4	2068.4	115.1	14.6	1679.3	135.3	5.8	779.6	166.8	2.3	387.2
439	89.6	24.2	2169.5	114.6	15.6	1789.1	139.5	6.3	885.0	147.9	4.4	652.2
441	94.5	22.0	2075.1	119.8	14.1	1685.6	147.8	4.8	712.7	159.3	1.4	221.0
442	89.1	23.7	2114.1	112.2	15.9	1785.4	143.0	5.9	840.2	147.8	4.3	629.5
443	89.7	24.1	2165.3	113.2	16.1	1817.6	144.5	5.9	844.5	153.5	2.3	352.3
445	95.6	21.7	2077.4	108.1	17.6	1902.7	134.1	7.6	1025.2	144.5	3.0	428.0
447	91.3	22.9	2094.0	107.5	17.2	1852.7	134.1	6.9	925.9	151.4	1.7	254.6
450	19.6	66.2	1297.5	31.7	61.3	1942.7	35.2	51.8	1824.5	39.9	46.7	1861.9
451	98.2	20.5	2007.5	114.4	15.4	1758.3	134.6	7.4	992.9	132.4	6.3	838.5
452	21.9	71.7	1567.9	26.7	71.3	1903.1	20.2	70.0	1417.0	21.8	69.3	1510.1
453	21.6	71.6	1545.9	26.7	71.2	1898.1	22.1	70.5	1557.4	22.2	70.0	1553.4
455	88.3	24.4	2151.8	106.8	17.7	1885.1	138.1	6.5	900.3	143.0	4.1	585.3
456	19.6	71.6	1398.9	25.0	70.8	1772.1	22.9	69.1	1583.2	24.9	67.8	1689.2

TABLE 17 Continued

457	20.9	71.1	1486.0	26.6	70.0	1862.6	24.6	68.1	1677.0	24.8	67.3	1668.2
458	32.0	21.3	683.7	96.0	21.7	2086.2	79.3	25.9	2053.4	78.9	23.3	1839.2
460	20.0	71.5	1430.4	25.7	71.0	1824.9	24.7	69.6	1722.6	25.4	68.1	1730.5
461	20.4	70.9	1443.9	27.0	70.0	1888.9	26.4	66.8	1767.1	26.8	65.7	1759.3
462	78.4	28.1	2203.7	97.3	20.6	2005.3	121.6	10.6	1283.4	135.3	3.7	504.3
464	20.0	71.1	1425.1	26.3	69.5	1828.0	25.0	66.5	1661.0	26.6	64.5	1717.7
465	21.1	70.9	1495.5	27.4	70.0	1916.8	25.0	66.9	1669.6	25.7	66.0	1694.5
466	84.2	25.4	2137.0	91.7	22.2	2037.2	98.9	15.6	1544.2	96.8	13.6	1320.6
468	19.1	71.6	1369.3	24.9	70.9	1761.5	22.5	68.7	1547.7	24.2	67.1	1624.3
469	20.1	71.3	1433.7	26.2	70.7	1850.2	23.2	68.6	1593.2	22.8	67.8	1547.6
478	20.5	71.6	1467.3	25.8	71.3	1840.0	22.9	70.5	1613.9	22.1	70.1	1550.6
Northbound Traffic												
521	23.9	71.8	1715.2	28.7	70.6	2027.6	21.1	64.8	1368.8	20.8	64.2	1337.0
540	23.7	71.7	1701.2	28.5	71.3	2031.5	19.8	68.7	1357.0	19.3	68.8	1323.7
589	92.7	22.8	2114.1	108.1	17.4	1878.2	106.0	8.2	871.3	122.4	6.8	827.6
590	71.4	28.4	2029.2	85.4	21.3	1818.0	99.4	9.7	961.9	114.9	7.8	894.6
591	68.3	29.7	2027.0	84.1	21.5	1810.9	98.1	10.8	1057.6	111.4	9.3	1034.2
593	84.0	25.7	2162.8	97.6	20.3	1981.2	108.6	8.2	891.6	123.5	7.5	928.6
596	96.7	21.1	2035.5	115.4	15.0	1733.6	108.5	10.4	1126.2	115.4	9.7	1121.0
597	20.8	20.8	432.8	92.8	23.1	2142.1	89.8	19.4	1746.2	97.4	16.2	1580.0
599	50.8	32.4	1648.9	65.9	27.0	1779.4	70.5	20.6	1453.2	75.4	19.5	1472.2
601	30.3	24.3	733.8	88.0	24.0	2110.0	79.1	22.0	1740.9	81.1	20.6	1669.3

TABLE 17 Continued

603	42.1	41.5	1746.9	59.1	32.9	1945.6	72.5	21.7	1575.2	85.7	16.6	1426.1
605	66.3	35.3	2336.2	79.9	27.6	2201.7	98.0	13.0	1270.8	108.1	11.4	1235.2
608	61.9	39.3	2433.5	81.9	27.1	2222.1	96.7	14.3	1382.3	113.3	9.6	1088.1
609	60.5	38.5	2328.1	72.0	31.2	2241.3	84.3	17.3	1455.1	86.1	14.8	1275.3
610	76.5	30.2	2314.4	83.5	26.7	2232.3	92.3	15.4	1424.3	87.4	14.8	1297.2
611	51.0	43.0	2191.2	59.8	35.2	2105.8	67.3	24.0	1616.3	77.2	18.0	1392.6
613	31.6	70.8	2236.2	33.1	67.9	2243.4	28.7	54.8	1571.0	31.7	52.7	1671.9
614	33.0	66.3	2185.5	37.4	58.8	2200.8	37.8	45.2	1709.3	39.9	41.2	1641.9
615	31.3	71.3	2231.7	33.1	70.7	2338.3	21.9	63.5	1390.4	20.5	62.5	1281.0
617	30.7	71.2	2188.0	31.9	71.2	2270.5	19.7	68.2	1345.6	17.0	68.6	1163.5
620	25.5	71.4	1821.8	27.0	71.3	1924.4	20.9	71.6	1494.9	17.9	71.4	1275.9
621	23.7	71.5	1695.2	24.7	71.5	1767.5	19.7	71.7	1413.1	18.3	71.0	1301.1
622	30.2	71.2	2149.3	31.0	71.4	2209.3	19.7	70.4	1388.3	17.1	70.1	1197.7
623	22.8	71.4	1631.0	24.6	71.4	1753.4	20.1	71.6	1441.3	17.9	71.2	1273.0
625	29.2	71.2	2081.5	30.2	71.3	2153.7	20.5	71.4	1459.2	17.3	71.1	1227.4
626	21.1	71.4	1507.3	23.3	71.4	1662.8	20.8	71.9	1494.7	18.6	71.6	1334.4
629	18.0	71.5	1285.6	21.3	71.3	1520.4	19.6	71.1	1395.0	18.5	70.7	1309.3
631	17.8	71.5	1271.1	21.3	71.5	1523.5	19.7	71.2	1400.5	19.8	70.6	1399.7
633	26.8	56.5	1512.6	37.0	51.8	1917.6	37.5	41.3	1548.1	42.1	36.1	1520.6
635	17.9	70.4	1259.2	24.8	68.0	1682.8	26.3	63.2	1658.5	32.0	61.2	1956.4
636	35.3	49.5	1746.9	51.4	38.3	1966.7	55.5	26.6	1478.1	70.5	19.7	1389.9
637	47.3	39.1	1845.5	60.2	32.6	1960.7	67.1	20.0	1341.1	78.7	18.8	1477.7

TABLE 17 Continued

639	68.4	29.9	2041.5	82.4	24.1	1988.8	93.7	9.5	893.8	102.2	8.3	843.3
642	76.3	29.3	2233.5	99.0	19.6	1939.2	109.8	7.7	841.2	129.6	4.8	617.7
643	87.8	24.9	2187.1	106.1	18.4	1946.9	113.3	8.9	1004.5	123.8	5.4	665.9
645	63.4	34.8	2209.5	79.8	24.2	1930.3	96.1	12.5	1205.1	119.8	4.9	582.8
648	58.5	36.7	2149.5	72.3	27.7	1999.1	78.8	13.8	1090.2	86.9	10.4	899.7
649	78.5	26.2	2054.9	90.9	21.5	1954.5	98.9	11.2	1105.2	100.2	7.9	787.3
651	61.3	33.6	2062.9	76.1	25.0	1901.9	90.5	12.9	1170.5	101.4	7.2	726.0
654	76.1	27.8	2117.3	95.4	20.2	1925.1	111.3	9.0	998.1	128.7	4.8	620.1
655	92.4	23.0	2123.5	107.0	18.0	1929.0	119.7	8.2	976.0	123.6	4.6	569.1
661	91.2	23.7	2158.4	106.3	18.4	1958.9	112.9	9.7	1090.6	119.3	5.3	626.9
663	59.8	36.3	2171.8	75.0	26.0	1947.1	89.3	15.0	1336.0	112.3	6.8	758.3
669	27.8	71.4	1987.7	29.0	70.5	2042.6	17.9	63.2	1130.7	17.1	62.8	1074.3
672	22.9	71.4	1636.2	26.8	71.0	1905.1	22.1	69.0	1525.6	14.1	66.4	934.9
674	72.8	31.5	2294.7	87.0	24.4	2117.5	101.5	11.9	1207.5	108.2	8.5	922.8
675	20.5	71.5	1465.7	24.7	71.2	1760.7	22.3	69.9	1557.6	22.8	68.6	1567.1
676	19.7	71.6	1408.3	24.2	71.5	1732.3	22.3	70.8	1577.7	22.1	70.4	1555.7
682	21.0	71.6	1503.6	26.6	70.9	1883.9	22.0	66.9	1469.0	22.8	64.0	1460.3
688	19.9	71.5	1421.8	24.7	71.5	1763.6	20.5	70.2	1436.6	14.5	69.2	1001.8
690	31.7	64.2	2035.9	35.7	57.0	2033.8	34.8	42.0	1462.5	40.3	38.0	1534.3
691	18.9	71.6	1351.7	24.0	71.5	1715.7	19.9	71.3	1414.0	14.4	71.2	1026.9
692	16.6	71.6	1190.7	20.3	71.7	1451.1	17.5	71.9	1258.3	13.6	71.8	979.6
694	16.0	71.5	1147.5	20.3	71.7	1452.1	17.4	72.1	1252.5	13.6	72.2	984.5

TABLE 17 Continued

696	25.7	71.3	1832.4	28.5	70.9	2021.5	22.0	68.1	1498.2	22.8	66.4	1510.2
697	14.1	71.5	1006.6	18.0	71.7	1288.6	16.5	72.1	1189.0	16.4	72.0	1177.7
700	12.6	71.5	903.2	17.1	71.8	1228.2	18.4	71.9	1320.6	18.1	71.8	1298.8
701	12.5	71.6	894.9	17.1	71.7	1227.8	18.7	71.9	1346.4	18.8	71.6	1344.9
703	11.3	71.7	811.6	16.0	71.8	1148.2	18.0	71.7	1293.5	19.8	71.1	1405.5
704	11.4	71.6	816.6	16.7	71.9	1197.1	19.0	71.9	1365.2	20.0	71.6	1431.3
709	5.5	69.1	377.8	32.5	64.4	2093.5	30.0	62.7	1880.0	29.3	61.6	1800.6
712	20.7	71.8	1482.6	29.6	70.9	2097.5	20.7	65.3	1353.6	17.7	63.9	1133.5
716	23.5	71.4	1676.7	29.4	70.6	2074.5	22.2	64.4	1428.5	18.0	62.6	1124.3
718	25.8	70.3	1814.8	30.9	68.5	2112.9	28.3	62.2	1756.4	30.2	60.5	1823.7
720	21.1	71.3	1501.2	26.1	70.7	1842.7	22.1	67.4	1491.0	23.7	66.1	1567.2
722	17.1	71.6	1221.3	20.6	71.7	1476.3	17.8	71.6	1274.3	14.1	71.4	1009.0
723	15.0	71.5	1069.2	18.7	71.7	1344.1	17.1	72.0	1228.4	15.1	71.9	1088.6
724	11.6	71.2	826.1	19.8	70.4	1391.5	25.2	67.8	1705.5	31.7	65.4	2073.7
725	17.3	69.1	1190.9	30.6	66.1	2020.7	30.0	56.0	1679.5	34.2	53.1	1813.2
727	22.1	70.3	1554.0	29.7	67.5	2006.6	27.1	58.8	1594.1	33.0	55.4	1826.6
787	84.7	25.4	2151.6	104.4	18.1	1887.0	105.3	9.2	973.0	120.7	8.0	961.1
789	62.5	34.0	2126.4	88.1	22.0	1937.2	98.6	9.6	950.1	111.6	8.9	987.5
792	13.8	71.4	988.9	18.3	71.6	1312.0	19.1	72.0	1375.5	20.3	71.9	1458.3

TABLE 17 Continued

Segment 2—Trucks=25%

Southbound Traffic												
	HOV Lane			Left Lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
342	40.9	50.7	2073.6	51.4	36.0	1851.4	79.3	10.2	809.6	91.3	7.0	634.3
344	40.7	48.8	1985.0	52.5	37.9	1984.9	73.1	14.8	1083.5	89.5	10.7	955.2
346	26.1	71.5	1862.4	24.2	71.6	1733.6	12.7	62.7	792.9	11.3	62.0	701.6
349	22.8	71.3	1625.1	22.4	71.4	1599.8	15.0	66.1	990.1	14.1	60.2	850.6
350	26.3	59.2	1558.7	30.3	51.0	1543.5	28.5	37.0	1055.7	36.2	25.1	906.9
352	35.2	56.5	1990.7	43.0	43.2	1859.8	68.7	14.5	995.1	80.9	14.3	1158.9
353	24.4	57.4	1400.3	31.1	44.8	1394.9	39.4	26.0	1023.7	55.9	16.8	940.2
354	27.4	54.4	1491.3	38.9	36.2	1405.4	48.1	19.7	944.2	57.2	15.3	874.2
356	30.5	53.9	1644.7	48.9	29.8	1456.0	65.7	13.4	878.9	87.9	8.9	783.6
360	71.3	27.8	1981.1	85.2	20.5	1744.1	106.6	4.2	451.3	135.6	0.8	113.2
361	29.1	67.5	1962.9	29.5	60.7	1794.2	31.5	39.8	1253.1	34.6	38.4	1329.7
364	75.5	28.3	2137.4	110.4	14.4	1584.8	109.9	4.3	477.4	147.7	0.7	98.7
365	102.3	19.4	1980.8	127.3	12.3	1562.3	111.8	4.6	509.0	124.3	0.3	34.4
366	57.7	33.3	1922.3	81.6	20.2	1643.1	93.8	7.3	679.9	122.9	4.0	493.9
367	56.9	37.2	2115.9	83.5	19.5	1626.5	111.7	4.6	508.6	152.8	1.2	179.7
369	65.5	31.9	2090.7	92.8	18.0	1673.3	110.3	4.3	479.2	125.3	1.1	135.4
371	65.6	31.9	2095.8	85.6	20.1	1719.6	109.6	4.6	506.4	117.1	1.0	115.1

TABLE 17 Continued

373	80.9	25.4	2057.1	109.6	14.9	1630.4	114.3	4.1	473.5	110.2	0.5	55.7
375	66.5	30.7	2036.7	86.4	19.2	1662.1	110.9	4.3	475.6	103.3	0.5	52.2
377	70.9	30.1	2132.8	103.1	16.4	1690.3	117.0	4.1	473.7	136.4	0.9	119.5
379	99.3	20.2	2001.4	118.9	14.3	1702.5	121.3	4.5	549.4	114.7	0.5	56.5
381	74.2	27.2	2019.0	95.1	17.9	1697.2	118.3	4.7	551.0	123.7	0.4	50.9
384	68.6	30.7	2106.3	98.3	16.8	1653.4	121.8	4.6	561.7	145.6	0.6	89.2
385	99.6	20.0	1988.8	113.4	15.5	1752.2	120.6	5.7	686.6	113.3	1.1	129.1
386	35.9	52.2	1870.7	48.9	34.3	1676.7	108.1	5.1	555.6	175.8	0.7	124.2
390	90.7	23.3	2116.0	107.4	17.2	1850.9	120.4	6.0	721.3	131.1	3.1	401.8
391	105.8	18.4	1946.5	117.0	15.2	1773.8	120.3	6.8	819.8	106.8	1.1	115.9
392	104.1	18.6	1938.5	111.2	16.5	1830.9	121.0	6.1	742.9	116.3	1.7	194.6
393	81.5	24.0	1956.4	96.4	17.8	1713.6	112.1	8.0	892.9	108.4	1.0	108.8
397	97.4	19.9	1943.5	108.9	15.9	1730.5	109.3	5.8	633.1	121.1	2.0	243.2
399	77.6	25.4	1968.4	92.5	18.7	1732.2	113.0	5.9	663.1	138.4	1.4	193.0
401	105.4	18.6	1961.6	121.8	13.9	1694.4	126.6	4.3	548.7	138.7	0.7	94.5
403	78.8	25.2	1988.5	99.8	16.6	1661.6	123.7	4.6	565.9	126.1	0.5	61.9
405	64.3	33.4	2150.4	98.2	17.1	1674.4	111.0	5.1	563.1	131.8	1.6	204.8
406	78.2	27.1	2123.4	113.1	13.9	1573.7	128.5	4.3	554.7	148.3	0.5	76.4
407	97.3	20.2	1960.0	113.1	14.9	1685.1	122.8	5.0	618.8	188.1	0.6	121.2
412	90.7	22.1	2005.9	105.7	16.9	1785.3	130.6	3.9	505.3	154.3	1.4	215.5
414	79.3	27.1	2148.2	107.4	16.0	1716.1	118.7	5.1	604.8	141.5	1.7	239.2
415	97.7	20.7	2020.8	111.8	16.2	1807.3	137.5	4.0	550.4	141.8	1.5	205.0

TABLE 17 Continued

416	93.8	21.7	2036.4	110.0	16.2	1783.8	135.7	4.0	540.1	155.2	1.7	261.4
418	97.4	20.9	2032.8	115.2	15.2	1747.7	133.7	4.9	650.0	125.6	0.8	99.1
419	110.2	17.1	1887.8	118.6	14.8	1753.5	126.7	6.4	815.8	140.8	1.3	185.1
421	80.2	24.0	1927.1	91.2	19.1	1744.4	115.1	7.7	880.9	120.9	1.0	126.1
426	93.3	21.3	1988.1	105.8	16.9	1787.8	120.4	6.7	809.0	135.5	3.4	453.4
427	109.4	17.3	1887.9	115.1	15.6	1795.4	123.3	7.0	866.9	116.2	6.3	736.8
429	85.0	22.2	1885.8	93.3	18.7	1748.2	110.7	8.9	985.9	111.3	6.3	703.6
431	76.7	25.5	1954.6	87.6	19.7	1724.6	95.0	8.2	777.9	120.4	5.0	602.7
435	81.6	23.3	1898.7	92.4	18.6	1718.7	111.5	8.8	980.3	115.8	5.5	630.9
436	89.6	23.5	2106.0	114.0	15.1	1718.2	121.0	5.2	624.8	150.9	1.6	247.9
439	86.0	25.8	2218.3	108.0	17.5	1887.2	119.2	6.6	783.1	125.9	4.4	548.4
441	89.6	23.8	2130.1	115.6	14.8	1710.3	135.9	4.3	588.6	134.9	0.7	98.2
442	84.1	25.6	2156.8	99.1	19.4	1918.8	120.0	6.2	746.2	125.7	4.2	521.9
443	85.6	25.9	2219.5	105.7	18.3	1931.3	121.2	6.2	752.6	110.4	2.0	220.0
445	92.8	22.8	2114.0	102.7	19.3	1984.7	117.1	7.6	893.1	115.5	3.1	353.2
447	83.3	26.2	2177.8	99.0	19.4	1916.4	115.8	7.0	808.8	122.9	1.9	231.5
450	19.5	66.0	1287.0	31.1	61.5	1911.9	35.6	47.3	1683.9	40.2	43.2	1738.1
451	96.4	21.1	2028.6	109.0	16.8	1828.9	120.0	7.6	914.6	117.5	6.7	784.5
452	23.1	71.3	1648.9	27.2	70.7	1923.7	20.3	66.1	1339.6	20.8	64.6	1342.2
453	23.7	71.1	1682.0	27.4	70.5	1930.3	21.1	66.6	1404.8	21.1	65.5	1380.0
455	83.4	26.2	2182.1	98.4	20.0	1964.7	118.8	6.8	812.9	122.2	4.3	524.3
456	22.0	71.3	1565.9	25.3	70.5	1781.0	21.8	67.1	1462.0	23.5	64.9	1526.6

TABLE 17 Continued

457	23.6	70.9	1675.1	27.5	69.9	1924.7	23.6	64.8	1527.0	23.6	64.0	1510.9
458	30.4	21.8	664.7	91.2	23.5	2144.0	76.6	24.6	1884.1	73.3	23.1	1691.5
460	23.0	71.0	1630.1	27.7	70.2	1946.8	23.8	65.5	1560.8	24.5	64.3	1572.0
461	25.2	69.8	1754.6	29.6	68.0	2013.7	26.2	60.0	1573.5	26.6	59.1	1570.9
462	79.4	28.0	2219.7	91.5	22.6	2069.9	108.6	9.9	1075.7	109.3	3.9	428.7
464	24.8	70.3	1745.0	28.6	68.1	1949.0	25.3	59.0	1491.8	27.5	57.6	1583.4
465	25.8	70.5	1816.2	29.8	68.8	2051.9	25.0	59.5	1487.2	26.1	59.7	1558.9
466	78.3	27.7	2172.3	85.0	24.2	2060.3	88.8	15.0	1335.2	85.7	13.7	1173.9
468	24.1	71.0	1708.0	27.5	69.8	1920.3	22.6	60.8	1373.6	24.5	59.1	1448.6
469	26.0	70.3	1826.1	29.3	69.2	2028.2	22.8	60.6	1380.7	22.5	60.0	1347.8
478	26.0	71.3	1854.2	29.0	71.3	2063.6	20.8	67.1	1397.1	19.9	66.6	1322.1
Northbound Traffic												
521	24.4	71.1	1737.6	28.1	69.9	1966.9	20.4	60.2	1229.5	20.6	59.6	1229.6
540	24.5	71.4	1749.0	28.5	70.9	2018.5	19.0	64.6	1229.0	18.6	63.6	1183.5
589	50.2	43.1	2158.7	68.4	27.1	1855.1	83.5	9.3	774.8	100.2	7.4	741.0
590	47.7	43.6	2080.2	58.7	31.5	1846.7	79.6	10.7	854.9	93.1	8.4	778.4
591	51.6	40.3	2083.0	62.4	30.5	1900.0	79.7	11.5	920.1	94.2	9.7	908.8
593	51.6	42.3	2183.6	59.7	34.5	2058.5	86.1	8.8	753.2	99.9	8.7	864.6
596	84.7	25.2	2135.1	100.7	18.6	1877.0	90.7	10.5	951.9	95.6	10.5	999.1
597	18.2	21.9	398.0	85.8	26.0	2235.0	80.1	20.7	1656.8	83.6	17.5	1459.3
599	31.4	51.8	1626.9	39.9	45.2	1802.6	45.6	31.1	1415.1	50.4	28.0	1411.3
601	22.2	36.4	808.4	72.4	30.9	2236.4	60.7	26.2	1592.3	60.9	25.1	1525.3

TABLE 17 Continued

603	33.4	51.6	1725.3	43.7	43.9	1918.6	57.0	25.4	1446.5	67.5	20.9	1409.4
605	48.0	49.2	2362.1	57.9	38.8	2247.2	74.9	15.6	1168.8	85.0	14.1	1197.4
608	56.0	43.9	2456.0	69.8	32.5	2266.4	78.3	16.2	1270.6	90.5	12.1	1091.5
609	41.5	57.2	2372.0	47.6	46.6	2219.3	55.8	25.5	1420.7	58.7	21.9	1285.1
610	52.6	45.2	2376.6	55.5	42.0	2330.9	56.3	22.5	1268.5	53.7	22.0	1177.5
611	43.2	51.9	2240.2	49.0	44.3	2169.8	49.4	29.5	1456.4	56.6	24.7	1398.7
613	31.9	70.8	2256.8	32.0	67.3	2153.2	29.4	49.9	1464.9	34.1	47.9	1633.0
614	32.6	67.7	2206.6	35.0	61.8	2164.8	35.3	44.8	1580.1	37.7	42.0	1582.5
615	31.9	71.0	2262.1	32.2	70.2	2259.4	22.2	57.6	1279.1	21.6	56.6	1220.4
617	31.0	70.9	2201.2	31.7	71.0	2254.7	17.9	64.3	1153.2	16.3	64.3	1049.5
620	25.8	71.4	1840.7	27.4	71.3	1952.3	19.0	70.2	1334.4	17.3	69.8	1206.7
621	24.2	71.4	1729.3	24.9	71.5	1783.0	18.3	70.2	1287.4	18.2	69.3	1259.2
622	30.5	71.2	2170.3	30.8	71.4	2198.3	17.9	67.3	1204.6	16.9	66.6	1128.6
623	23.4	71.3	1671.2	24.7	71.3	1762.6	19.3	69.5	1345.0	17.7	68.8	1217.0
625	29.7	71.2	2113.2	30.2	71.3	2155.8	18.8	68.9	1294.5	17.1	68.3	1166.2
626	27.2	58.9	1599.7	31.8	52.8	1676.8	28.4	46.3	1315.9	28.9	41.2	1190.2
629	55.5	30.6	1699.6	66.0	25.3	1667.3	69.8	13.5	938.7	81.5	10.2	834.1
631	54.7	34.3	1873.2	69.2	25.1	1735.6	82.1	11.0	898.7	97.6	8.1	786.3
633	46.1	46.2	2129.0	62.1	29.3	1816.0	85.5	7.9	672.9	92.6	5.4	500.5
635	47.1	44.1	2080.4	68.1	25.9	1761.0	84.5	10.7	904.3	98.0	7.0	680.4
636	57.0	38.4	2188.1	83.2	21.2	1763.3	93.7	8.1	760.9	111.0	3.7	411.3
637	51.7	41.1	2123.4	72.3	23.4	1690.3	92.2	8.0	735.7	118.7	6.4	759.8

TABLE 17 Continued

639	69.4	30.9	2145.3	93.3	18.5	1721.6	102.4	4.5	461.7	115.1	3.4	388.9
642	63.0	33.9	2135.9	87.8	19.6	1723.6	101.3	6.0	602.8	115.3	2.4	276.3
643	69.4	30.6	2120.2	89.1	20.2	1804.2	99.7	6.9	685.7	109.1	2.7	288.8
645	60.1	34.7	2088.0	75.2	24.8	1860.7	94.6	8.1	764.4	111.3	2.7	302.1
648	66.3	32.8	2175.0	88.6	20.7	1830.3	95.3	7.6	723.8	108.9	3.6	396.1
649	94.4	21.7	2047.8	106.7	17.5	1865.6	108.5	7.3	787.2	109.3	3.3	359.6
651	69.8	29.5	2056.2	84.8	21.6	1827.1	98.7	9.2	906.4	107.5	3.0	323.0
654	53.9	39.5	2128.3	72.8	25.2	1834.4	98.0	8.8	860.1	113.3	3.0	344.3
655	77.7	28.0	2176.8	90.3	21.7	1958.1	97.3	7.9	772.6	97.9	2.5	239.5
661	92.0	23.3	2140.9	103.2	19.4	2000.9	99.5	9.1	909.5	108.5	4.1	444.6
663	59.9	35.9	2146.8	73.3	26.6	1950.4	83.4	13.9	1158.3	107.3	6.1	650.8
669	27.3	71.5	1953.3	27.4	71.1	1949.2	17.0	59.9	1015.0	17.6	59.5	1044.3
672	27.1	64.6	1749.3	32.1	59.0	1894.1	34.4	36.4	1252.8	34.4	25.6	879.9
674	69.0	33.6	2316.2	81.7	26.2	2137.3	91.8	10.6	971.1	100.0	7.7	773.8
675	40.4	48.9	1974.5	53.0	35.7	1894.4	66.0	16.1	1059.5	82.8	11.2	927.4
676	67.7	31.9	2159.0	80.0	25.2	2017.5	84.6	10.4	880.8	98.4	7.2	706.4
682	23.3	71.5	1662.1	25.5	70.7	1801.6	18.1	63.3	1143.2	21.4	61.2	1309.1
688	20.9	71.4	1495.0	23.3	71.5	1667.3	18.4	68.5	1256.9	13.4	66.5	891.0
690	31.3	64.4	2016.3	34.0	57.5	1955.5	33.8	38.6	1307.2	40.0	35.1	1405.4
691	19.7	71.5	1408.9	23.0	71.6	1647.5	17.7	70.5	1247.5	12.5	69.9	875.5
692	17.3	71.5	1236.7	19.6	71.6	1404.4	15.8	71.6	1129.4	11.7	71.4	835.3
694	16.9	71.4	1209.5	19.2	71.7	1377.8	15.6	72.2	1128.6	11.9	72.1	859.2

TABLE 17 Continued

696	25.7	71.3	1829.3	28.0	71.1	1987.7	20.3	66.2	1343.3	22.1	64.9	1437.1
697	14.3	71.5	1019.9	16.6	71.7	1186.5	15.7	71.9	1127.1	14.9	71.9	1072.4
700	12.8	70.6	906.2	16.8	70.1	1179.5	18.2	68.7	1251.5	18.7	66.5	1239.7
701	12.5	71.4	896.2	16.2	71.7	1158.3	17.5	72.0	1260.9	18.2	71.5	1301.1
703	15.1	63.5	955.9	20.5	58.1	1191.8	28.5	38.8	1104.6	34.8	34.2	1191.4
704	25.0	52.4	1307.7	32.5	43.7	1417.7	51.4	19.3	992.2	66.8	15.1	1007.3
709	47.0	18.3	858.5	105.7	18.3	1933.0	91.5	14.4	1314.9	91.7	12.4	1139.8
712	50.1	44.0	2206.4	68.1	27.7	1886.3	90.2	8.1	727.4	99.3	3.5	351.6
716	27.1	71.4	1934.9	25.8	70.2	1813.7	17.5	52.1	909.9	16.6	52.4	870.0
718	31.1	69.7	2164.4	32.3	67.9	2194.1	25.1	52.2	1310.7	26.3	50.4	1324.3
720	22.1	71.4	1578.5	24.6	70.9	1745.6	19.7	66.0	1297.2	21.7	64.5	1399.9
722	17.7	71.5	1265.4	20.1	71.7	1439.1	15.8	71.3	1127.7	12.3	70.4	866.8
723	15.4	71.5	1103.3	17.5	71.7	1253.4	15.8	72.1	1135.1	13.7	71.9	984.3
724	71.6	25.0	1793.4	89.7	17.8	1592.8	86.1	10.6	911.1	101.5	8.6	872.6
725	39.9	52.0	2074.1	52.3	35.8	1870.5	79.9	11.6	926.4	96.6	8.5	819.0
727	29.3	65.7	1926.8	31.0	58.0	1799.9	31.9	34.7	1106.7	40.2	32.1	1291.5
787	52.4	41.9	2196.5	69.3	27.8	1928.4	82.6	10.5	865.5	98.7	8.5	834.2
789	40.8	49.6	2023.2	56.4	33.6	1896.8	79.4	11.9	947.6	94.2	10.1	951.9
792	14.1	71.4	1005.6	17.5	71.6	1250.1	18.1	71.8	1301.7	19.4	71.7	1392.9

TABLE 17 Continued

Segment 3—Trucks=5%

Southbound Traffic									
	HOV Lane			Left Lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
165	13.8	75.1	1038.0	15.0	75.2	1126.4	17.0	74.2	1258.7
277	11.6	75.3	875.3	13.5	75.1	1009.6	15.2	73.5	1115.6
279	11.4	75.1	856.2	12.9	75.0	966.7	9.4	74.9	704.7
281	11.3	75.0	850.3	12.7	75.1	954.0	11.4	75.1	853.4
576	19.6	74.2	1451.1	21.9	73.6	1608.8	23.4	71.7	1675.0
283	20.3	74.4	1507.6	21.7	73.5	1593.0	15.2	72.4	1103.2
286	20.9	73.9	1545.0	22.2	73.0	1622.6	21.8	71.8	1566.6
287	19.4	74.3	1443.7	20.1	73.3	1472.4	20.2	70.0	1416.0
289	19.9	74.3	1477.1	19.4	73.4	1425.5	11.5	73.0	837.1
294	20.1	73.9	1486.5	21.4	73.2	1562.8	22.0	72.5	1594.9
295	20.4	74.1	1512.1	21.3	74.0	1574.7	17.8	73.6	1310.9
298	20.1	74.1	1492.2	22.7	73.4	1664.2	25.5	72.1	1839.2
299	21.8	74.1	1614.6	23.1	73.5	1695.2	20.9	72.8	1517.7
302	25.0	60.8	1521.6	27.9	55.1	1535.9	36.2	56.0	2024.8
303	80.8	25.2	2031.8	100.8	15.0	1507.1	119.4	9.1	1091.9
306	30.6	68.8	2106.8	29.3	64.6	1890.8	30.6	62.4	1908.5
307	24.9	72.9	1814.3	23.3	72.9	1695.9	16.3	72.3	1178.2

TABLE 17 Continued

314	25.6	71.3	1823.7	26.2	70.1	1838.9	29.2	67.7	1976.3
312	21.3	73.2	1558.1	22.8	72.1	1645.9	28.1	69.4	1950.3
319	18.5	73.7	1367.2	19.4	73.5	1423.1	18.7	73.6	1375.3
318	17.3	73.8	1276.9	18.1	73.9	1335.4	17.8	73.8	1316.5
321	16.9	74.4	1255.1	19.5	73.9	1438.1	26.7	72.4	1929.4
322	18.4	74.3	1369.8	20.2	74.3	1499.5	19.8	73.4	1449.2
325	16.6	74.8	1238.9	19.3	74.3	1430.9	23.1	72.7	1679.9
326	17.1	74.6	1273.0	18.6	74.4	1385.0	15.8	73.6	1163.3
329	17.1	74.6	1274.2	20.1	73.7	1483.2	25.4	70.4	1783.8
330	18.9	74.4	1404.7	19.0	73.3	1393.5	10.0	72.2	720.1
333	17.7	74.5	1320.9	20.3	73.4	1487.4	23.6	71.4	1685.0
334	18.4	74.4	1365.8	19.2	73.9	1416.0	13.5	74.0	994.6
342	17.6	74.4	1311.7	20.0	73.2	1464.4	26.1	71.2	1856.6
338	18.2	74.5	1356.3	18.7	74.1	1381.8	13.7	73.9	1013.9
Northbound Traffic									
718	75.8	26.3	1996.7	90.9	17.7	1608.7	116.1	10.8	1258.2
720	89.4	23.6	2109.1	107.9	13.8	1492.2	126.3	9.0	1134.0
723	33.7	62.2	2097.7	32.7	53.2	1738.9	36.7	50.3	1845.1
724	27.4	72.6	1989.6	23.0	70.7	1628.2	19.2	70.2	1349.7
727	27.8	71.2	1975.8	28.1	69.8	1960.0	29.7	67.5	2000.5
728	26.8	72.5	1945.5	26.4	72.6	1917.3	19.1	72.1	1377.9
729	42.3	49.3	2082.8	44.8	38.4	1717.6	48.1	37.5	1805.3

TABLE 17 Continued

731	103.9	19.1	1985.5	119.5	12.0	1437.1	125.5	11.1	1395.5
732	22.3	73.2	1634.3	23.6	73.4	1731.4	23.7	72.6	1722.7
736	20.5	73.4	1508.4	22.7	73.4	1664.1	26.1	71.5	1868.7
737	20.9	72.6	1519.8	23.2	72.8	1686.5	21.8	72.6	1585.7
739	20.7	73.1	1509.4	22.2	73.8	1637.4	18.8	74.0	1388.7
746	27.1	68.8	1868.3	27.6	65.3	1799.4	32.2	61.3	1973.8
747	25.7	72.5	1865.1	23.6	71.3	1681.7	16.2	70.5	1140.9
750	27.6	70.7	1952.5	28.0	68.6	1920.4	31.3	65.6	2049.6
751	26.0	71.6	1864.5	22.2	70.3	1561.3	14.7	68.7	1006.9
753	20.6	72.9	1503.4	22.9	73.0	1672.9	22.3	72.3	1614.5
754	20.7	73.4	1515.7	21.0	73.2	1533.1	23.6	72.5	1707.8
755	19.9	73.4	1457.9	20.5	74.0	1517.1	16.8	73.9	1244.2
758	16.7	73.9	1232.5	18.9	73.9	1398.8	22.7	72.7	1650.6
759	16.6	74.0	1228.2	17.9	74.2	1330.9	14.8	73.6	1086.9
762	22.4	72.4	1623.1	24.5	70.7	1734.2	29.1	68.2	1981.3
763	21.2	73.1	1551.6	21.5	71.8	1541.6	20.3	64.5	1311.6
767	19.5	73.9	1436.8	18.9	73.6	1390.3	11.3	74.4	836.9
771	19.3	73.4	1420.5	20.0	73.4	1463.4	12.8	73.4	940.9
774	20.1	73.2	1473.1	21.8	72.9	1585.7	22.9	71.7	1638.6
776	14.9	74.2	1106.5	15.7	73.8	1158.5	16.0	72.6	1163.5
777	13.4	74.3	999.3	13.2	74.1	974.7	7.6	74.7	567.5
783	19.0	73.5	1394.2	19.0	73.4	1396.2	13.4	74.4	993.2

TABLE 17 Continued

784	19.5	73.2	1427.7	21.0	72.9	1533.8	22.7	72.0	1629.9
787	13.6	74.2	1011.2	15.3	74.2	1135.5	15.5	73.9	1145.9
789	18.3	73.6	1348.1	22.3	73.0	1629.8	29.6	70.7	2089.1

Segment 3—Trucks=15%

Southbound Traffic									
	HOV Lane			Left Lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
165	13.5	75.2	1018.3	15.4	75.0	1153.4	16.9	73.8	1250.8
277	11.7	75.1	879.3	13.6	75.0	1019.4	15.1	73.4	1107.9
279	11.5	75.0	864.7	12.8	74.9	960.7	9.5	74.8	710.2
281	11.3	74.9	844.9	12.8	74.9	961.3	11.7	74.7	876.9
283	20.1	74.0	1486.3	21.7	72.2	1568.1	16.1	71.6	1155.7
286	21.7	72.8	1580.2	22.6	70.9	1604.1	22.3	69.7	1551.5
287	19.4	73.1	1421.4	20.9	71.9	1503.5	20.6	68.2	1402.9
289	19.9	73.2	1454.5	19.5	71.3	1387.6	12.8	69.2	887.1
294	27.7	57.7	1595.4	29.3	48.7	1427.1	30.6	47.6	1456.9
295	55.0	31.6	1738.5	66.5	18.4	1225.1	68.6	15.8	1086.3
298	81.5	23.6	1919.8	100.8	11.2	1125.7	108.0	9.0	976.7
299	94.9	22.1	2101.0	115.2	10.3	1189.0	126.8	5.7	724.2
302	89.6	23.2	2079.1	111.7	10.5	1177.4	114.1	7.7	878.5
303	91.8	23.5	2158.3	113.6	11.3	1287.3	116.6	5.7	667.2

TABLE 17 Continued

306	29.7	68.6	2039.9	26.7	60.2	1608.7	27.9	57.4	1602.3
307	23.4	72.9	1701.7	20.2	72.4	1462.7	14.0	70.8	989.2
312	19.7	72.1	1423.3	21.4	69.7	1488.3	26.5	67.2	1781.8
314	24.1	69.1	1667.0	24.3	67.9	1647.9	27.7	65.7	1818.2
318	16.9	73.3	1236.0	17.0	72.7	1234.1	16.1	72.0	1155.7
319	18.2	72.8	1326.6	18.1	70.8	1279.0	17.4	69.7	1215.1
321	16.0	73.9	1184.8	18.7	73.1	1362.4	24.8	71.6	1771.6
322	17.3	74.0	1277.1	18.9	73.8	1396.6	18.8	72.9	1368.9
325	15.1	74.4	1121.8	18.5	73.9	1364.9	22.8	72.4	1645.9
326	15.5	74.5	1155.4	18.3	74.4	1359.8	15.1	73.3	1106.1
329	17.1	73.6	1258.5	20.0	71.6	1432.8	24.3	68.1	1655.7
330	18.5	74.0	1364.3	17.9	72.4	1296.9	9.7	70.5	683.4
333	18.8	72.7	1368.9	20.0	69.3	1388.8	23.3	67.2	1566.3
334	19.1	73.8	1407.1	18.1	72.3	1307.6	12.9	71.9	929.6
338	18.5	73.9	1370.9	17.7	73.3	1298.0	13.4	72.5	970.3
342	18.9	72.7	1370.5	19.8	70.3	1394.2	25.3	68.4	1727.4
576	21.0	72.1	1515.1	22.7	71.5	1622.3	23.1	69.7	1606.8
Northbound Traffic									
718	77.5	25.1	1945.7	92.1	14.4	1325.0	115.7	7.2	830.8
720	59.9	34.2	2049.5	62.0	19.7	1222.3	71.7	12.6	900.5
723	33.8	59.9	2024.2	32.4	45.6	1474.7	37.0	42.6	1575.7
724	63.8	32.8	2091.6	68.9	18.2	1250.5	76.9	13.7	1055.5

TABLE 17 Continued

727	32.6	65.9	2150.6	29.4	53.8	1582.1	31.4	51.2	1605.8
728	27.8	72.2	2005.1	21.7	69.2	1496.9	17.4	67.6	1173.3
729	31.8	61.7	1963.6	30.3	47.0	1423.4	36.1	41.8	1508.5
731	105.4	18.4	1941.8	110.5	10.2	1124.9	120.0	8.2	982.2
732	21.9	72.9	1596.2	21.0	72.2	1511.7	21.0	71.1	1494.5
736	19.1	73.1	1399.1	20.3	73.3	1488.6	23.4	71.4	1667.8
737	32.4	45.7	1481.8	34.8	42.3	1474.2	34.3	40.5	1387.8
739	44.8	33.9	1520.8	53.3	26.0	1385.6	61.1	16.1	983.1
746	81.4	26.5	2160.3	93.6	14.2	1328.3	100.6	13.8	1390.5
747	95.9	22.0	2105.9	111.3	10.0	1109.9	132.2	6.4	839.4
750	29.8	68.1	2032.0	26.9	59.4	1596.0	29.9	56.3	1681.0
751	24.4	72.0	1758.4	19.6	69.7	1366.0	12.4	66.9	826.6
753	19.1	73.1	1393.3	20.6	73.6	1516.5	20.5	72.3	1479.5
754	19.1	73.0	1395.2	19.3	72.7	1400.9	21.6	71.8	1551.1
755	18.0	73.0	1310.0	19.3	73.7	1423.6	15.6	73.4	1146.4
758	15.2	73.6	1115.1	17.8	73.8	1310.8	21.4	72.6	1555.5
759	15.3	73.6	1126.4	17.1	74.1	1266.3	13.7	73.3	1006.2
762	24.2	70.6	1707.8	24.3	65.7	1598.6	28.1	63.3	1775.5
763	22.5	72.2	1624.2	19.8	67.7	1338.3	21.1	59.4	1251.8
767	20.4	73.3	1496.4	16.2	71.9	1162.1	11.4	70.7	804.5
771	19.2	73.0	1400.9	18.7	73.1	1369.6	12.5	72.4	906.9
774	20.1	72.4	1451.7	21.1	71.7	1514.5	21.9	70.5	1543.3

TABLE 17 Continued

776	14.5	73.6	1064.8	14.9	73.1	1087.2	15.9	72.2	1145.1
777	12.7	73.7	934.4	12.5	74.2	926.9	7.6	74.6	569.7
783	19.8	73.0	1442.7	17.0	72.1	1227.2	13.3	71.5	953.0
784	20.1	72.6	1455.2	20.4	72.2	1475.0	21.3	70.6	1502.3
787	13.1	73.5	965.3	15.0	74.1	1110.0	15.2	73.7	1117.5
789	62.2	28.0	1742.2	74.7	17.2	1284.4	99.3	10.6	1053.6

Segment 3—Trucks=25%

Southbound Traffic									
	HOV Lane			Left Lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
165	12.91	75.2	970.53	15.41	74.6	1149.61	17.65	73.82	1302.98
277	11.31	75.25	850.89	13.77	74.43	1024.86	15.38	73.11	1124.22
279	11.06	75.06	829.88	13.33	74.47	993.05	9.67	74.07	716.29
281	11.37	73.61	836.88	13.7	72.09	987.51	12.76	69.79	890.51
283	19.05	73.42	1398.82	22.1	70.86	1566.27	16.78	70.08	1175.81
286	21.61	72.69	1571.03	22.5	69.54	1564.38	22.58	68.32	1542.44
287	19.58	72.79	1425.4	21.13	69.01	1458.04	21.45	65.25	1399.63
289	21.53	69	1485.94	20.74	63.18	1310.07	15.89	55.86	887.33
294	53.6	34.92	1872.09	57.13	20.02	1143.68	62.82	17.18	1079.26
295	81.02	25.25	2045.74	90.74	10.45	948.37	94.75	8.63	817.96
298	87.1	24.06	2095.99	99.97	9.61	960.79	106.77	6.76	721.34

TABLE 17 Continued

299	88.82	24.54	2179.29	100.08	10.77	1077.54	103.31	6.21	642.03
302	82.33	25.84	2127.2	94.64	11.1	1050.48	96.18	8.76	842.35
303	86	25.78	2217.12	98.84	11.49	1135.44	97.84	6.06	592.72
306	29.06	69.23	2011.79	24.79	58.32	1445.66	25.78	55.63	1434.46
307	22.23	72.31	1607.8	19.08	70.05	1336.27	14.04	67.34	945.12
312	20.71	68.59	1420.26	22.52	61.58	1386.59	27.13	58.48	1586.15
314	27.15	63.08	1712.51	25.72	58.66	1508.64	28.62	55.76	1595.57
318	17.25	73.11	1261.19	16.25	70.9	1152.19	15.33	69.84	1070.62
319	18.82	72.82	1370.05	16.37	68.29	1118.05	16.53	67.55	1116.41
321	16.22	73.48	1191.81	17.99	71.33	1283.52	24.18	70.33	1700.7
322	17.36	73.69	1279.13	18.48	72.54	1340.54	18.28	71.55	1307.96
325	14.81	74.27	1099.64	17.97	73.61	1322.82	22.08	72.06	1591.1
326	15	74.18	1112.85	17.8	74.23	1321.09	15.19	73.04	1109.59
329	18.46	72.49	1338.01	20.14	66.89	1347.02	25.13	62.89	1580.5
330	19.34	73.32	1418.13	16.69	69.28	1156.11	10.63	65.78	699.22
333	21.35	70.38	1502.28	20.92	62.14	1300.26	24.64	59.63	1469.4
334	20.75	73.19	1518.78	16.94	69.82	1182.7	13.11	68.54	898.87
338	20.53	73.21	1502.9	16.94	70.15	1188.59	13.17	69.22	911.98
342	20.76	71.48	1483.56	20.81	65.08	1354.39	25.59	62.63	1602.71
576	22.93	68.23	1564.22	23.4	67.04	1568.54	23.54	65.59	1543.92
Northbound Traffic									
718	76.01	25.6	1945.77	85.6	13.42	1148.66	105.16	5.34	562.04

TABLE 17 Continued

720	26.08	70.68	1843.29	17.84	59.51	1061.41	15.7	55.94	878.47
723	45.99	42.24	1942.7	46.85	27.94	1309.02	53.67	25.43	1364.62
724	84.02	25.8	2167.82	90.09	11.13	1002.51	104.37	7.48	780.52
727	31.34	66.82	2093.94	27.58	51.04	1407.76	29.49	48.35	1425.79
728	27.23	72.27	1967.72	19.11	66.9	1278.17	16.31	65.34	1065.8
729	29.81	62.95	1876.49	27.95	43.22	1208.05	33.52	39.63	1328.13
731	97.69	19.96	1950.26	98.69	8.97	885.69	111.83	6.52	729.69
732	28.35	56.47	1600.74	27.2	47.64	1295.94	30.64	42.91	1314.68
736	46.47	34.01	1580.33	48.87	24.64	1204.22	60.84	19.45	1183.31
737	102.24	18.94	1936.74	103.22	8.96	925.28	107.47	8.49	912.27
739	84.52	22.09	1866.79	95.15	10.8	1027.38	110.73	3.62	400.64
746	60.84	34.86	2120.74	64.92	18.23	1183.36	76	17.27	1312.24
747	90.27	23.79	2148.02	94.92	9.66	916.58	119.18	5.69	678.42
750	28.52	68.92	1965.55	24.65	57.03	1405.85	27.73	54.06	1499.31
751	22.99	72.04	1655.76	17.74	67.3	1193.64	12	63.32	759.83
753	69.66	25	1741.71	75.94	13.48	1023.45	83.57	11.5	960.77
754	18.23	72.86	1328.09	17.74	70.63	1252.7	20.57	69.82	1435.91
755	17.51	73.04	1278.79	17.44	72.76	1268.73	15.11	71.86	1086.07
758	14.29	73.47	1049.76	17.1	73.53	1257.09	20.35	72.08	1466.96
759	14.81	71.41	1057.35	17.91	69.9	1252.3	13.95	65.87	918.61
762	29.15	67.66	1972.01	25.45	53.51	1362.13	28.88	51.51	1487.7
763	22.99	72.22	1660.42	17.78	65.44	1163.48	20.63	56.48	1165.25

TABLE 17 Continued

767	20.22	73.17	1479.58	14.4	70.52	1015.31	11.11	68.57	762.13
771	18.13	72.81	1319.95	18.07	71.9	1299.59	12.37	70.21	868.72
774	19.17	72.56	1391.27	20.49	71.33	1461.7	21.48	69.95	1502.77
776	13.73	73.44	1008.04	14.57	72.46	1055.38	15.64	70.42	1101.3
777	11.93	73.6	877.93	12.34	73.82	910.84	7.66	73.37	562.37
783	19.57	72.45	1417.94	15.78	69.97	1104.45	13.03	69	898.87
784	19.53	72.27	1411.41	19.56	70.52	1379.33	20.85	68.76	1433.35
787	12.55	73.48	922.02	14.92	73.67	1099.48	14.53	72.98	1060.5
789	73.69	27.38	2017.93	88.62	12.21	1081.78	115.31	4.88	563.2

APPENDIX D: Left Lane Restriction Off Peak Hour Simulation Results

TABLE 18 Segment 1—Trucks=5%

Southbound Traffic												
	HOV Lane			Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
473	7.9	75.2	595.5	11.5	75.3	867.5	13.6	75.5	1029.1	15.7	74.0	1157.7
479	4.9	74.8	368.4	19.7	73.4	1447.1	15.2	74.7	1135.8	13.0	73.8	957.9
481	10.3	75.1	773.5	13.6	75.1	1017.5	15.1	73.9	1112.1	4.9	74.8	368.4
482	8.0	75.1	600.8	12.1	75.4	914.6	14.3	75.4	1078.7	4.4	78.0	346.5
488	8.0	75.4	601.1	10.8	75.4	817.6	12.4	75.4	936.4	18.8	73.4	1377.6
489	7.9	75.3	592.6	13.1	75.1	980.9	15.4	75.1	1152.9	18.1	74.3	1345.0
490	6.0	74.7	446.8	15.8	74.7	1182.4	15.0	75.0	1128.1	18.9	72.5	1367.4
492	6.2	76.1	467.9	10.0	75.6	754.6	17.5	74.4	1305.1	13.5	74.0	999.7
495	5.5	75.7	415.3	10.0	75.9	761.0	18.8	74.4	1399.2	23.4	72.1	1687.8
500	3.9	79.2	312.1	12.3	76.0	937.2	15.0	74.6	1119.6	16.5	73.4	1208.5
501	5.1	74.8	383.8	15.4	73.8	1136.3	13.9	74.9	1042.4	15.8	73.3	1155.3
503	4.9	79.0	383.9	12.8	76.0	972.1	15.2	74.6	1130.9	19.1	72.9	1394.1
504	4.8	79.0	378.4	12.1	76.1	918.6	14.2	74.7	1059.2	15.3	73.4	1121.9
506	5.6	78.7	442.3	13.1	75.9	996.4	15.1	74.6	1123.8	14.8	73.6	1086.0
508	5.7	78.7	445.0	12.5	76.0	951.8	14.0	74.6	1044.8	15.8	73.4	1159.5
512	6.4	78.5	502.1	13.0	75.8	983.6	14.9	74.6	1107.7	14.8	73.4	1085.2
514	6.8	78.3	535.1	13.2	75.8	997.5	14.7	74.6	1093.5	15.0	73.3	1096.4
516	12.3	75.2	927.9	14.8	75.0	1105.5	14.3	74.3	1063.5	13.9	73.3	1015.6

TABLE 18 Continued

517	12.5	75.3	937.7	14.6	75.0	1094.0	14.0	74.1	1034.8	7.9	75.3	591.7
518	5.5	75.7	413.2	14.0	74.9	1046.5	9.6	75.3	723.6	9.4	75.5	711.9
519	5.5	75.7	413.7	11.7	75.3	878.6	11.0	75.6	827.4	19.2	73.4	1412.1
523	2.0	79.7	158.0	11.5	76.5	880.3	16.4	74.8	1230.3	17.1	73.6	1256.6
524	3.1	79.5	247.7	12.2	76.2	930.3	15.2	74.6	1131.0	16.0	73.3	1173.2
526	5.1	78.9	404.3	12.2	76.1	924.7	14.0	74.7	1047.2	16.3	73.2	1192.4
Northbound Traffic												
553	10.0	75.2	748.6	12.9	75.3	969.5	14.3	75.5	1080.5	15.6	73.4	1147.8
557	9.4	75.3	706.5	13.5	75.1	1010.9	15.6	75.3	1172.9	16.5	75.1	1240.5
559	9.5	75.1	712.4	14.2	75.2	1069.1	16.0	75.5	1207.5	18.5	74.4	1373.3
563	9.0	75.2	679.0	15.5	75.5	1166.8	17.8	75.2	1336.7	17.6	74.7	1315.5
566	9.3	75.3	702.3	15.8	75.4	1189.1	18.1	75.2	1360.5	19.9	73.9	1472.9
568	10.1	75.6	761.9	12.4	75.5	937.0	12.7	75.6	962.9	19.6	73.9	1445.8
570	9.2	75.2	690.8	14.9	75.4	1119.9	16.9	75.1	1266.3	14.8	75.3	1115.3
571	9.1	75.7	684.5	16.3	75.4	1229.8	18.7	74.8	1398.5	20.0	74.1	1477.3
572	9.1	75.8	689.9	16.2	75.5	1222.6	18.3	74.8	1367.6	19.2	73.4	1410.2
574	9.1	75.9	692.4	16.1	75.5	1212.3	17.6	75.0	1317.9	18.6	73.7	1373.0
575	8.9	75.6	672.9	15.6	75.4	1176.3	18.3	75.1	1374.9	17.7	73.7	1304.9
576	9.3	75.8	702.9	16.6	75.3	1252.3	17.7	74.8	1327.2	9.1	75.9	692.4
577	9.2	75.7	694.3	16.7	75.4	1255.3	17.7	74.7	1320.2	19.8	73.6	1458.1
579	7.9	74.5	586.2	8.0	73.6	589.4	28.7	71.0	2035.9	17.7	73.5	1299.7
581	19.5	74.0	1443.1	19.7	73.9	1457.8	19.4	71.8	1393.8	18.0	73.5	1320.9
583	8.3	76.2	631.6	18.9	73.8	1394.7	20.0	73.6	1468.7	21.4	72.4	1547.7
586	8.7	75.9	660.5	17.3	73.9	1275.0	19.1	73.6	1406.1	11.4	72.6	826.4

588	9.1	75.7	692.0	17.6	74.3	1308.1	17.4	73.8	1283.8	21.7	71.8	1555.8
781	20.0	73.7	1476.2	19.7	73.7	1454.7	12.9	73.8	952.4	10.0	73.9	740.1
784	6.5	76.0	490.3	18.8	74.0	1389.9	20.0	73.7	1475.9	23.8	71.2	1697.6
785	18.9	73.7	1389.8	20.2	73.7	1485.3	19.3	73.6	1421.1	1.0	75.9	71.9

Segment 1—Trucks=15%

Southbound Traffic												
	HOV Lane			Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
473	7.9	75.2	596.5	11.5	75.1	864.7	13.3	75.2	1003.1	16.1	73.9	1190.0
479	4.8	75.0	362.4	20.0	72.8	1451.8	15.3	74.1	1137.2	13.0	73.5	954.4
481	9.9	74.5	737.5	13.6	74.7	1017.1	15.5	73.7	1143.4	4.8	75.0	362.4
482	8.0	75.2	603.6	12.1	75.3	911.9	14.0	75.2	1049.7	4.7	76.2	355.0
488	7.9	75.4	599.0	10.9	75.5	819.6	12.5	75.1	935.4	19.1	73.2	1399.7
489	7.9	75.3	598.1	13.4	75.0	1001.7	15.3	74.6	1143.4	18.2	74.1	1348.6
490	6.1	74.5	452.4	15.9	74.1	1178.8	14.8	74.5	1101.8	18.7	72.1	1349.9
492	6.6	75.4	500.2	11.1	73.8	821.4	17.5	73.0	1279.0	13.4	73.8	985.8
495	5.9	75.5	446.3	10.6	75.7	805.6	18.3	73.6	1343.4	22.7	71.1	1615.8
500	4.2	78.8	329.2	12.4	75.7	936.9	14.8	74.3	1100.8	16.0	73.1	1166.3
501	5.1	74.8	383.0	15.2	73.1	1111.5	14.2	74.3	1054.6	15.5	73.1	1129.9
503	5.1	78.5	401.2	13.2	75.7	998.9	14.9	74.1	1103.4	19.4	72.6	1409.4
504	4.9	78.4	383.9	12.7	75.8	965.7	13.9	74.3	1030.0	15.2	72.9	1104.7
506	5.9	78.0	460.1	13.5	75.2	1015.9	15.4	74.1	1137.1	14.7	73.3	1078.6
508	5.9	77.9	460.2	12.7	75.5	955.3	14.4	74.2	1065.6	15.5	73.0	1131.3
512	6.3	77.8	492.4	13.1	75.4	987.2	15.2	74.3	1130.5	14.7	73.2	1072.8

TABLE 18 Continued

514	6.8	77.6	527.9	13.4	75.4	1009.2	14.8	74.4	1098.5	15.4	73.2	1126.6
516	12.4	74.5	919.8	15.0	74.4	1116.0	14.1	73.8	1036.9	14.3	73.5	1050.7
517	12.6	74.7	938.2	14.7	74.5	1097.3	13.6	73.8	1006.3	8.2	74.8	614.9
518	5.7	75.5	428.6	14.0	74.4	1043.0	9.2	75.0	691.3	9.8	75.0	735.2
519	5.7	75.5	428.8	11.7	74.9	873.1	10.8	75.2	812.7	19.2	73.2	1402.8
523	2.0	79.0	159.7	12.2	76.0	928.3	15.8	74.4	1175.8	17.3	73.4	1271.1
524	3.4	79.0	269.6	12.3	75.7	930.7	15.0	74.2	1109.3	15.8	73.2	1159.4
526	5.1	78.1	397.1	12.9	75.6	970.8	13.9	74.3	1034.6	16.1	73.0	1172.4
Northbound Traffic												
553	10.2	75.3	769.7	13.2	75.1	987.1	13.9	75.1	1046.2	15.5	73.0	1131.1
557	9.9	75.0	741.3	13.8	74.4	1029.8	16.1	74.1	1190.5	16.8	75.0	1258.3
559	10.0	74.8	750.6	14.8	74.6	1102.1	16.2	74.6	1210.6	18.8	73.3	1374.2
563	9.7	75.0	725.9	16.1	74.7	1205.3	18.4	74.5	1371.1	17.6	74.1	1306.8
566	10.3	75.0	773.2	17.1	74.3	1267.9	19.1	74.1	1414.7	19.1	73.3	1400.9
568	10.1	75.7	761.0	12.4	75.5	938.1	12.8	75.4	962.8	18.6	72.8	1352.2
570	9.8	74.7	728.9	15.3	74.6	1143.1	17.5	74.7	1308.5	14.9	75.1	1117.5
571	10.3	75.3	775.4	17.2	74.4	1276.5	19.4	73.8	1429.7	19.7	73.2	1443.6
572	10.1	75.4	763.4	17.3	74.7	1294.4	18.3	73.9	1353.4	18.8	72.4	1361.0
574	10.1	75.6	760.9	17.0	75.0	1275.4	17.4	74.3	1290.2	17.7	73.0	1292.3
575	10.0	75.3	755.5	16.7	74.6	1245.0	18.9	74.3	1405.4	16.7	73.3	1224.8
576	10.2	75.4	772.2	17.2	74.8	1285.0	17.5	74.3	1300.7	10.1	75.6	760.9
577	9.9	75.5	750.8	16.8	74.9	1258.9	17.5	74.4	1297.4	19.3	72.8	1404.4
579	8.0	73.9	593.0	8.4	72.5	609.8	28.9	70.3	2029.1	16.9	73.5	1245.0
581	19.6	72.5	1419.2	20.5	72.5	1483.0	20.1	69.5	1397.6	17.7	73.6	1301.7

TABLE 18 Continued

583	8.5	75.8	645.8	19.3	73.1	1411.0	19.3	72.6	1398.7	21.5	71.5	1532.4
586	9.4	75.8	712.2	17.8	73.0	1301.7	19.0	72.8	1382.1	12.3	71.0	873.3
588	10.4	75.7	788.1	17.5	73.7	1289.0	17.1	73.3	1251.4	21.4	70.7	1508.5
781	20.0	72.9	1455.5	20.3	72.8	1476.2	13.3	71.9	957.5	9.7	72.9	709.4
784	6.7	75.9	504.2	19.1	73.3	1398.7	20.0	72.9	1460.8	24.1	70.3	1696.6
785	19.0	73.4	1392.0	20.1	73.3	1471.8	19.8	72.6	1434.0	1.1	74.6	78.1
786	10.6	75.6	802.2	16.7	73.9	1235.9	15.9	73.7	1168.2	11.7	75.2	881.7

Segment 1—Trucks=25%

Southbound Traffic												
	HOV Lane			Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
473	8.0	75.4	606.2	11.8	75.1	888.5	13.3	75.1	1000.9	15.7	73.7	1153.4
479	4.6	74.9	343.7	20.0	72.6	1453.6	15.6	73.8	1149.5	13.2	72.9	961.3
481	10.0	74.0	738.0	13.8	74.4	1028.7	15.0	73.4	1097.4	4.6	74.9	343.7
482	8.3	75.3	626.8	12.2	75.0	914.5	14.2	74.9	1060.1	5.2	75.3	390.0
488	8.0	75.6	605.1	11.1	75.3	833.1	12.5	75.1	941.2	18.7	73.0	1362.5
489	8.1	75.2	611.8	13.4	74.6	999.7	15.3	74.3	1138.3	17.8	73.9	1315.2
490	6.0	74.6	447.9	16.1	74.0	1189.5	14.6	74.1	1078.4	18.7	71.9	1343.8
492	7.7	74.8	575.7	12.2	70.8	863.7	17.9	69.9	1252.2	13.6	73.8	1004.4
495	6.5	75.1	487.2	11.3	74.7	839.7	18.2	71.8	1302.9	22.4	68.1	1524.1
500	5.4	77.6	417.0	13.0	74.8	968.4	14.7	73.7	1083.6	15.2	71.7	1088.1
501	4.8	74.8	357.9	15.7	72.4	1134.8	14.6	74.0	1076.9	15.0	72.8	1088.2
503	6.3	77.5	491.4	13.4	74.9	1003.9	14.5	73.8	1072.1	19.3	71.8	1386.8

TABLE 18 Continued

504	6.2	77.7	483.8	12.6	75.0	944.5	13.5	74.0	996.1	14.9	73.0	1089.2
506	7.2	77.4	554.1	13.9	74.7	1036.4	14.7	73.7	1081.2	14.6	73.2	1067.8
508	7.0	77.5	544.2	13.0	74.9	971.9	13.7	73.9	1011.8	15.6	72.9	1135.1
512	7.6	77.3	586.2	13.4	74.7	1001.9	14.6	73.8	1075.3	14.6	73.1	1064.3
514	7.9	77.3	611.8	13.7	74.9	1027.1	14.1	74.1	1044.8	14.8	73.2	1079.2
516	12.8	74.3	949.7	14.9	73.8	1097.3	14.0	73.5	1025.6	13.8	73.5	1013.5
517	12.8	74.6	955.3	14.4	74.0	1062.7	13.9	73.6	1022.8	8.2	74.2	607.1
518	5.6	75.7	426.1	14.1	74.3	1048.4	9.3	74.6	695.0	9.9	74.4	732.9
519	5.7	75.6	431.6	12.2	74.1	906.5	11.2	73.6	822.8	19.2	72.9	1399.4
523	3.1	77.7	244.2	12.9	75.0	965.5	15.4	73.5	1131.1	17.2	72.3	1246.0
524	4.7	77.8	368.8	12.7	74.7	945.1	15.0	73.4	1101.6	15.3	72.4	1107.1
526	6.5	77.3	504.8	12.7	74.8	951.8	13.9	73.7	1021.1	15.7	72.4	1136.0
Northbound Traffic												
553	10.1	75.3	759.5	13.2	75.0	988.4	14.6	75.1	1093.8	15.4	72.6	1116.0
557	10.3	74.5	763.7	14.9	72.5	1079.6	16.7	72.2	1209.2	16.5	74.6	1232.4
559	10.9	74.6	815.2	15.0	73.1	1098.1	16.7	73.4	1223.2	18.8	71.2	1336.2
563	11.2	74.7	837.4	17.0	72.8	1235.8	18.4	72.7	1333.7	17.3	72.9	1259.7
566	11.9	74.6	890.0	17.4	72.8	1269.3	18.7	72.2	1347.2	18.9	71.5	1349.3
568	10.1	75.7	765.9	12.5	75.3	937.9	12.9	75.5	973.6	18.6	71.1	1320.3
570	10.8	74.6	804.1	15.8	73.2	1156.2	17.9	72.8	1303.4	15.0	74.9	1122.1
571	11.8	74.7	876.9	17.6	72.6	1277.1	19.2	72.2	1386.1	19.9	71.4	1421.9
572	11.7	74.9	876.9	17.4	73.0	1273.7	18.6	72.6	1352.2	18.6	70.5	1308.8
574	11.7	75.0	875.1	17.2	73.6	1268.9	17.6	73.1	1284.1	17.3	71.3	1230.7
575	11.3	74.8	842.8	16.9	73.0	1234.5	18.9	72.6	1368.2	16.3	72.1	1172.5

TABLE 18 Continued

576	11.9	74.8	889.8	17.4	73.3	1271.2	17.9	73.1	1309.0	11.7	75.0	875.1
577	11.5	75.0	858.6	17.0	73.9	1258.8	17.4	73.4	1273.6	19.6	71.2	1395.3
579	8.1	73.2	591.3	9.4	70.5	661.6	29.0	68.4	1979.2	16.3	72.3	1178.6
581	19.8	70.9	1403.1	20.7	71.2	1471.6	20.9	68.1	1419.8	17.2	73.0	1252.3
583	9.7	75.4	729.5	19.5	71.8	1400.1	19.0	71.5	1359.1	21.4	69.9	1492.8
586	11.1	75.0	829.4	18.1	71.4	1290.9	18.7	70.6	1323.2	12.1	69.8	845.2
588	12.0	74.6	893.3	17.6	72.3	1271.0	16.3	72.2	1172.9	21.5	68.3	1470.7
781	20.3	71.4	1451.9	20.1	71.5	1434.0	14.4	69.7	1003.5	9.9	71.0	704.5
784	7.2	75.1	543.1	19.5	71.9	1402.2	20.2	71.5	1445.0	24.4	68.4	1669.4
785	19.5	71.7	1397.6	20.2	71.6	1446.1	20.3	70.4	1429.8	1.4	71.7	100.3
786	11.7	74.5	874.1	16.3	73.2	1194.5	15.4	73.4	1130.3	11.6	74.3	859.2

Segment 2—Trucks=5%

Southbound Traffic												
	HOV Lane			Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
342	10.7	72.2	771.8	15.0	72.1	1080.0	16.6	71.9	1193.0	10.8	71.8	778.1
344	11.6	72.3	839.5	15.4	72.2	1110.2	16.0	72.1	1155.2	16.2	72.2	1165.4
346	9.7	72.0	698.8	14.5	72.1	1045.7	16.0	72.0	1153.2	12.1	72.2	876.2
349	9.1	72.0	652.2	14.3	72.1	1029.7	14.7	71.9	1054.0	11.8	72.1	850.0
350	8.8	72.0	630.4	14.0	72.1	1009.5	13.8	71.9	989.1	11.5	72.2	831.3
352	10.7	72.2	769.3	14.0	72.2	1011.7	15.2	72.0	1093.4	20.0	69.9	1399.1
353	7.5	72.1	539.9	12.3	72.2	888.2	12.3	71.9	886.5	11.5	72.1	828.3
354	7.5	72.1	538.3	12.1	72.2	870.4	12.2	72.0	875.1	11.6	72.2	834.8

TABLE 18 Continued

356	7.6	72.0	546.1	11.9	72.1	859.6	12.5	72.0	902.6	12.7	72.2	914.3
360	7.6	72.1	547.9	11.7	72.2	841.5	13.4	72.1	963.3	13.9	72.1	1003.8
361	10.0	72.1	722.2	14.3	72.1	1033.4	16.7	71.9	1199.2	18.2	71.5	1299.8
364	7.5	72.2	541.2	11.8	72.2	854.2	13.6	72.1	976.6	15.5	72.1	1118.9
365	7.4	72.1	533.9	12.1	72.2	876.9	13.4	72.1	967.9	16.0	72.1	1151.7
366	7.8	72.0	559.0	12.3	72.1	887.3	13.3	72.1	960.2	14.2	72.2	1023.5
367	7.6	72.1	550.6	11.4	72.2	824.3	13.4	72.0	961.2	13.7	72.1	988.0
369	8.0	72.3	578.3	16.0	72.3	1155.7	21.3	71.9	1529.5	24.5	71.2	1743.3
371	8.4	72.3	610.0	16.8	72.2	1214.0	21.3	71.8	1528.1	25.7	71.0	1827.0
373	8.6	72.4	619.2	18.2	72.3	1316.4	22.2	71.8	1592.4	18.1	71.0	1285.1
375	8.7	72.4	628.3	18.3	72.3	1318.6	21.9	71.7	1568.9	23.6	70.4	1663.9
377	9.0	72.4	651.2	19.5	72.2	1405.6	24.1	71.5	1721.1	27.0	70.4	1898.5
379	10.4	72.4	750.6	22.0	72.0	1580.6	24.7	71.1	1755.9	16.7	70.0	1167.4
381	10.7	72.5	778.5	21.8	72.1	1574.5	24.6	71.2	1749.9	26.4	69.6	1840.0
384	11.0	72.4	798.9	22.8	71.8	1640.0	26.1	70.5	1840.6	27.4	69.4	1901.1
385	11.8	72.5	853.7	23.6	72.0	1699.9	25.6	71.1	1821.7	25.3	70.8	1794.4
386	7.6	72.1	547.7	14.4	72.1	1036.5	21.5	71.2	1530.7	28.5	69.9	1993.5
390	15.0	72.3	1081.9	27.4	71.2	1951.0	29.0	69.8	2026.6	30.5	69.1	2108.9
391	15.6	72.3	1128.8	26.7	71.6	1912.2	25.8	71.1	1830.5	23.6	70.7	1665.7
392	15.3	72.4	1109.0	26.6	71.6	1900.9	26.9	70.8	1904.3	24.2	70.4	1705.9
393	15.9	72.3	1150.0	26.6	71.6	1903.6	26.0	71.0	1848.0	27.5	70.1	1929.6
397	17.3	72.2	1249.3	29.4	71.4	2095.5	28.3	70.5	1993.8	20.8	69.4	1441.7
399	17.5	72.1	1260.5	29.3	71.3	2087.4	28.7	70.3	2017.3	27.7	68.5	1899.4
401	18.3	71.9	1317.1	29.8	71.1	2113.9	29.5	69.9	2060.1	19.5	68.1	1324.9

TABLE 18 Continued

403	18.7	71.9	1343.7	29.5	71.0	2094.1	28.8	70.1	2014.2	24.8	68.7	1700.2
405	8.5	72.3	617.6	17.5	72.3	1265.5	21.8	71.7	1561.0	25.4	70.6	1796.0
406	17.9	72.0	1288.8	28.8	71.2	2048.0	29.1	70.2	2039.9	28.8	69.2	1993.8
407	17.8	71.6	1276.5	28.5	71.0	2026.4	28.6	70.2	2009.5	28.9	69.5	2010.1
412	18.1	71.6	1297.1	28.7	71.0	2036.9	28.7	70.3	2019.3	26.8	69.7	1868.5
414	9.8	72.4	707.7	20.5	72.1	1480.6	24.1	71.5	1726.1	26.1	70.4	1834.0
415	17.9	71.7	1280.4	27.7	71.2	1969.5	27.9	70.9	1979.6	24.8	71.0	1758.0
416	17.7	71.7	1272.8	28.0	71.2	1990.1	28.6	70.7	2019.6	25.1	70.5	1769.5
418	17.4	71.7	1250.1	27.1	71.1	1926.5	27.6	70.6	1948.1	26.8	69.7	1870.9
419	18.1	71.3	1286.2	28.9	70.3	2032.6	29.4	69.2	2030.7	29.2	68.7	2006.1
421	18.7	70.8	1326.6	29.7	69.1	2056.1	30.2	67.7	2045.7	32.6	66.4	2159.5
426	18.3	71.7	1309.6	29.1	70.4	2051.0	29.7	68.6	2036.2	33.4	67.1	2241.8
427	19.0	71.8	1365.2	29.6	71.0	2105.2	28.6	69.9	1996.7	28.9	69.5	2008.6
429	19.2	71.7	1371.9	29.5	71.2	2098.3	27.7	70.8	1959.0	25.4	71.1	1802.3
431	16.4	71.7	1174.2	28.1	70.2	1971.9	29.2	67.9	1979.0	34.7	64.8	2245.5
435	17.4	71.8	1248.9	25.9	71.5	1854.4	25.6	71.5	1833.2	23.1	71.3	1646.6
436	18.2	72.0	1307.8	29.1	71.3	2072.6	29.1	70.7	2053.5	27.7	69.5	1928.3
436	18.2	72.0	1307.8	29.1	71.3	2072.6	31.7	68.7	2178.7	25.6	58.6	1501.6
437	17.9	72.0	1289.2	28.4	71.2	2023.9	25.3	71.6	1807.5	22.7	71.4	1620.1
438	17.4	71.8	1249.1	26.0	71.6	1857.9	68.0	21.4	1455.0	74.0	18.5	1365.5
439	32.7	46.5	1519.2	56.3	30.8	1731.5	68.0	21.4	1455.0	74.0	18.5	1365.5
439	32.7	46.5	1519.2	56.3	30.8	1731.5	29.1	70.1	2039.7	25.5	68.7	1748.0
440	18.9	71.6	1353.8	29.5	71.0	2094.1	27.7	70.9	1959.5	25.9	70.1	1815.1

TABLE 18 Continued

441	18.0	71.8	1292.2	27.8	71.3	1979.1	27.7	70.9	1959.5	25.9	70.1	1815.1
441	18.0	71.8	1292.2	27.8	71.3	1979.1	94.0	13.4	1259.0	103.9	12.4	1283.7
442	43.3	39.2	1696.4	73.2	23.8	1741.1	94.0	13.4	1259.0	103.9	12.4	1283.7
442	43.3	39.2	1696.4	73.2	23.8	1741.1	120.3	9.3	1118.0	146.5	6.2	907.6
443	56.9	35.8	2033.6	95.2	19.3	1831.5	120.3	9.3	1118.0	146.5	6.2	907.6
443	56.9	35.8	2033.6	95.2	19.3	1831.5	30.5	68.4	2087.4	31.5	67.5	2128.2
444	19.1	71.4	1363.1	29.6	70.1	2075.1	125.2	10.2	1276.2	139.2	8.0	1114.7
445	84.3	26.2	2211.0	106.5	18.0	1915.1	125.2	10.2	1276.2	139.2	8.0	1114.7
445	84.3	26.2	2211.0	106.5	18.0	1915.1	129.0	8.8	1130.3	172.3	3.8	662.3
447	76.0	29.1	2207.3	104.5	18.2	1897.6	129.0	8.8	1130.3	172.3	3.8	662.3
447	76.0	29.1	2207.3	104.5	18.2	1897.6	29.7	68.9	2045.7	30.4	68.6	2084.0
448	19.4	71.3	1385.9	30.0	70.3	2105.5	54.3	41.8	2270.4	50.6	42.6	2157.1
449	0.1	56.8	3.6	54.1	44.4	2403.3	32.6	60.9	1988.6	34.4	58.1	1996.9
450	13.9	68.8	958.7	30.1	66.5	1997.3	32.6	60.9	1988.6	34.4	58.1	1996.9
450	13.9	68.8	958.7	30.1	66.5	1997.3	26.1	71.2	1856.3	24.7	70.9	1749.0
451	18.4	71.8	1318.2	27.5	71.4	1962.5	26.1	71.2	1856.3	24.7	70.9	1749.0
451	18.4	71.8	1318.2	27.5	71.4	1962.5	20.4	71.5	1460.1	19.2	71.4	1371.9
452	16.4	72.2	1186.0	24.2	71.6	1732.1	20.4	71.5	1460.1	19.2	71.4	1371.9
452	16.4	72.2	1186.0	24.2	71.6	1732.1	20.5	71.7	1473.0	19.2	71.8	1376.6
453	16.4	72.0	1180.6	23.5	71.6	1679.5	20.5	71.7	1473.0	19.2	71.8	1376.6
453	16.4	72.0	1180.6	23.5	71.6	1679.5	25.5	71.0	1810.4	26.9	69.5	1869.1
454	17.4	71.9	1248.1	25.8	71.4	1840.9	34.1	51.7	1762.5	33.1	47.7	1576.0
455	19.2	66.3	1275.0	30.2	58.0	1753.9	34.1	51.7	1762.5	33.1	47.7	1576.0
455	19.2	66.3	1275.0	30.2	58.0	1753.9	19.4	71.5	1386.1	19.6	71.5	1401.8

TABLE 18 Continued

456	14.9	72.0	1073.2	21.4	71.5	1530.9	19.4	71.5	1386.1	19.6	71.5	1401.8
456	14.9	72.0	1073.2	21.4	71.5	1530.9	20.2	71.8	1449.4	20.1	71.8	1445.8
457	15.0	71.8	1079.0	21.3	71.4	1522.7	20.2	71.8	1449.4	20.1	71.8	1445.8
457	15.0	71.8	1079.0	21.3	71.4	1522.7	76.5	28.3	2165.8	75.4	28.6	2154.9
458	31.2	21.5	671.6	93.0	22.8	2117.5	76.5	28.3	2165.8	75.4	28.6	2154.9
458	31.2	21.5	671.6	93.0	22.8	2117.5	102.5	14.0	1436.2	133.7	7.3	979.8
459	65.6	34.0	2228.0	85.1	22.2	1885.8	20.6	71.8	1482.7	21.1	71.8	1515.0
460	13.9	72.0	1003.1	20.0	71.6	1429.2	20.6	71.8	1482.7	21.1	71.8	1515.0
460	13.9	72.0	1003.1	20.0	71.6	1429.2	20.5	71.8	1475.1	22.2	71.7	1590.3
461	12.6	71.9	905.9	19.1	71.7	1367.7	20.5	71.8	1475.1	22.2	71.7	1590.3
461	12.6	71.9	905.9	19.1	71.7	1367.7	115.6	12.8	1476.7	132.6	9.1	1200.7
462	72.0	31.5	2270.7	98.8	20.1	1987.6	115.6	12.8	1476.7	132.6	9.1	1200.7
462	72.0	31.5	2270.7	98.8	20.1	1987.6	95.0	16.5	1570.2	126.7	8.7	1096.3
463	59.5	38.5	2292.2	78.2	25.6	1999.0	19.4	71.8	1393.5	21.9	71.4	1563.6
464	11.5	72.0	830.4	17.7	71.7	1265.7	19.4	71.8	1393.5	21.9	71.4	1563.6
464	11.5	72.0	830.4	17.7	71.7	1265.7	20.0	71.6	1429.1	22.0	71.3	1566.4
465	11.4	72.0	819.4	17.7	71.6	1264.2	20.0	71.6	1429.1	22.0	71.3	1566.4
465	11.4	72.0	819.4	17.7	71.6	1264.2	97.3	18.1	1761.4	101.0	16.7	1687.6
466	87.5	24.1	2105.2	96.4	20.7	1996.7	97.3	18.1	1761.4	101.0	16.7	1687.6
466	87.5	24.1	2105.2	96.4	20.7	1996.7	97.2	18.8	1824.9	81.7	22.1	1802.1
467	102.1	19.6	2001.1	126.4	12.7	1599.9	17.9	71.9	1284.1	20.5	71.4	1460.9
468	10.3	72.3	742.7	16.2	72.1	1167.3	17.9	71.9	1284.1	20.5	71.4	1460.9
468	10.3	72.3	742.7	16.2	72.1	1167.3	18.6	72.0	1336.8	20.3	71.8	1459.3
469	10.7	72.2	768.9	16.6	71.9	1193.5	18.6	72.0	1336.8	20.3	71.8	1459.3

TABLE 18 Continued

469	10.7	72.2	768.9	16.6	71.9	1193.5	42.5	51.9	2207.4	44.6	48.9	2181.0
470	0.0	73.2	2.0	41.4	56.6	2343.9	27.9	66.1	1844.6	27.3	65.6	1788.7
471	17.2	71.9	1235.8	29.8	70.3	2093.7	18.7	72.3	1350.5	20.3	72.1	1460.0
472	10.8	72.3	776.6	16.6	72.1	1198.1	18.9	72.2	1365.4	20.2	72.0	1457.9
478	10.9	72.2	786.7	16.8	72.1	1206.5	18.9	72.2	1365.4	20.2	72.0	1457.9
478	10.9	72.2	786.7	16.8	72.1	1206.5	23.3	69.5	1621.6	21.0	69.2	1450.8
Northbound Traffic												
521	17.30	72.21	1249.54	27.57	71.40	1968.87	23.34	69.47	1621.63	20.96	69.22	1450.83
521	17.30	72.21	1249.54	27.57	71.40	1968.87	21.50	70.86	1523.38	18.82	70.91	1334.94
540	17.63	72.12	1271.40	26.68	71.57	1909.87	21.50	70.86	1523.38	18.82	70.91	1334.94
540	17.63	72.12	1271.40	26.68	71.57	1909.87	14.38	72.13	1036.87	15.23	71.93	1095.44
589	10.22	72.36	739.57	13.18	72.23	952.05	14.38	72.13	1036.87	15.23	71.93	1095.44
589	10.22	72.36	739.57	13.18	72.23	952.05	13.62	72.08	982.07	15.55	71.86	1117.44
590	9.80	72.37	709.32	12.59	72.23	909.53	13.62	72.08	982.07	15.55	71.86	1117.44
590	9.80	72.37	709.32	12.59	72.23	909.53	14.17	72.13	1021.93	17.01	71.85	1222.43
591	9.09	72.25	657.00	12.23	72.22	883.26	14.17	72.13	1021.93	17.01	71.85	1222.43
591	9.09	72.25	657.00	12.23	72.22	883.26	14.97	72.26	1081.94	17.70	72.05	1275.16
593	8.99	72.20	649.32	12.79	72.22	923.89	14.97	72.26	1081.94	17.70	72.05	1275.16
593	8.99	72.20	649.32	12.79	72.22	923.89	15.53	72.25	1122.21	18.02	71.93	1296.28
596	8.43	72.16	608.46	12.83	72.25	926.94	15.53	72.25	1122.21	18.02	71.93	1296.28
596	8.43	72.16	608.46	12.83	72.25	926.94	17.35	72.11	1251.18	18.71	71.95	1345.78
597	0.60	72.14	43.28	18.72	71.43	1337.24	17.35	72.11	1251.18	18.71	71.95	1345.78
597	0.60	72.14	43.28	18.72	71.43	1337.24	17.46	72.25	1261.59	20.03	71.67	1435.36
599	0.94	73.42	68.66	16.65	72.04	1199.48	17.46	72.25	1261.59	20.03	71.67	1435.36

TABLE 18 Continued

599	0.94	73.42	68.66	16.65	72.04	1199.48	18.59	72.25	1343.39	21.09	71.91	1516.50
601	0.39	73.63	29.00	17.41	71.83	1250.51	18.59	72.25	1343.39	21.09	71.91	1516.50
601	0.39	73.63	29.00	17.41	71.83	1250.51	18.77	72.35	1357.80	21.84	71.68	1565.38
603	1.02	73.46	74.61	16.02	72.07	1154.24	18.77	72.35	1357.80	21.84	71.68	1565.38
603	1.02	73.46	74.61	16.02	72.07	1154.24	19.57	72.26	1414.32	23.01	71.78	1651.92
605	2.04	73.69	150.65	15.98	72.05	1151.30	19.57	72.26	1414.32	23.01	71.78	1651.92
605	2.04	73.69	150.65	15.98	72.05	1151.30	19.62	72.06	1414.05	25.22	70.95	1789.40
608	2.83	73.54	208.43	15.43	72.01	1111.09	19.62	72.06	1414.05	25.22	70.95	1789.40
608	2.83	73.54	208.43	15.43	72.01	1111.09	25.19	70.92	1786.69	32.55	68.58	2232.73
609	4.08	72.87	297.15	17.10	71.54	1223.43	25.19	70.92	1786.69	32.55	68.58	2232.73
609	4.08	72.87	297.15	17.10	71.54	1223.43	24.37	71.90	1752.28	25.50	70.98	1809.71
610	5.58	73.24	408.65	19.03	72.06	1371.01	24.37	71.90	1752.28	25.50	70.98	1809.71
610	5.58	73.24	408.65	19.03	72.06	1371.01	24.14	71.78	1732.94	28.66	70.31	2015.31
611	6.08	73.12	444.60	18.49	72.04	1331.99	24.14	71.78	1732.94	28.66	70.31	2015.31
611	6.08	73.12	444.60	18.49	72.04	1331.99	23.88	71.63	1710.33	27.51	69.72	1917.84
613	6.63	73.22	485.19	18.87	71.99	1358.36	23.88	71.63	1710.33	27.51	69.72	1917.84
613	6.63	73.22	485.19	18.87	71.99	1358.36	24.23	71.53	1733.04	27.93	70.08	1957.30
614	6.25	73.18	457.62	18.50	72.01	1332.50	24.23	71.53	1733.04	27.93	70.08	1957.30
614	6.25	73.18	457.62	18.50	72.01	1332.50	24.19	71.69	1734.15	20.36	71.02	1446.12
615	7.45	73.21	545.55	19.68	72.05	1418.12	24.19	71.69	1734.15	20.36	71.02	1446.12
615	7.45	73.21	545.55	19.68	72.05	1418.12	23.07	71.75	1655.09	19.24	71.35	1372.43
617	8.03	73.18	587.64	19.73	72.01	1421.12	23.07	71.75	1655.09	19.24	71.35	1372.43
617	8.03	73.18	587.64	19.73	72.01	1421.12	24.94	71.29	1777.81	23.06	67.72	1561.56
619	6.88	73.21	503.65	19.03	72.06	1371.54	19.99	71.70	1433.25	17.34	71.30	1236.58

TABLE 18 Continued

620	8.02	73.15	586.99	17.53	72.07	1263.72	19.99	71.70	1433.25	17.34	71.30	1236.58
620	8.02	73.15	586.99	17.53	72.07	1263.72	18.13	71.76	1300.97	15.93	71.30	1135.87
621	7.85	73.23	575.10	16.40	72.06	1181.93	18.13	71.76	1300.97	15.93	71.30	1135.87
621	7.85	73.23	575.10	16.40	72.06	1181.93	22.55	71.76	1618.10	18.43	71.40	1316.15
622	8.35	73.14	610.85	19.66	71.98	1415.00	22.55	71.76	1618.10	18.43	71.40	1316.15
622	8.35	73.14	610.85	19.66	71.98	1415.00	17.32	71.88	1245.24	15.46	71.46	1104.53
623	8.18	73.13	598.15	16.01	72.13	1154.65	17.32	71.88	1245.24	15.46	71.46	1104.53
623	8.18	73.13	598.15	16.01	72.13	1154.65	17.54	71.80	1259.72	15.33	71.33	1093.37
624	8.05	73.25	589.48	16.24	72.05	1169.84	22.01	71.76	1579.19	18.10	71.37	1291.98
625	8.79	73.14	643.05	19.37	71.93	1393.55	22.01	71.76	1579.19	18.10	71.37	1291.98
625	8.79	73.14	643.05	19.37	71.93	1393.55	16.63	71.83	1194.33	15.09	71.47	1078.82
626	8.16	73.14	596.65	15.42	72.06	1110.97	16.63	71.83	1194.33	15.09	71.47	1078.82
626	8.16	73.14	596.65	15.42	72.06	1110.97	17.54	71.83	1259.92	15.32	71.05	1088.53
627	7.91	73.23	578.90	16.00	72.11	1153.74	14.75	71.97	1061.59	13.64	71.65	977.39
629	7.55	73.18	552.32	13.65	72.10	984.10	14.75	71.97	1061.59	13.64	71.65	977.39
629	7.55	73.18	552.32	13.65	72.10	984.10	14.54	71.97	1046.22	13.77	71.48	984.52
630	7.38	73.14	539.54	13.57	72.15	978.97	14.74	71.93	1060.54	14.23	71.49	1017.49
631	7.52	73.11	549.44	13.67	72.08	985.09	14.74	71.93	1060.54	14.23	71.49	1017.49
631	7.52	73.11	549.44	13.67	72.08	985.09	18.13	71.92	1303.83	21.72	71.44	1551.33
633	7.28	73.06	532.22	14.64	72.18	1056.53	18.13	71.92	1303.83	21.72	71.44	1551.33
633	7.28	73.06	532.22	14.64	72.18	1056.53	14.76	71.89	1061.27	13.74	71.54	983.16
634	7.43	73.14	543.22	13.73	72.11	989.89	16.99	71.60	1216.36	22.67	70.71	1602.86
635	7.16	73.10	523.09	13.32	72.05	960.02	16.99	71.60	1216.36	22.67	70.71	1602.86
635	7.16	73.10	523.09	13.32	72.05	960.02	19.14	71.89	1375.84	24.35	70.83	1725.17

TABLE 18 Continued

636	7.27	73.10	531.65	15.00	72.21	1083.13	19.14	71.89	1375.84	24.35	70.83	1725.17
636	7.27	73.10	531.65	15.00	72.21	1083.13	19.15	71.78	1374.68	26.66	70.15	1869.90
637	6.82	73.12	498.33	14.61	72.32	1056.35	19.15	71.78	1374.68	26.66	70.15	1869.90
637	6.82	73.12	498.33	14.61	72.32	1056.35	18.92	71.94	1361.17	17.94	71.35	1279.85
639	7.00	73.13	512.00	15.25	72.28	1101.97	18.92	71.94	1361.17	17.94	71.35	1279.85
639	7.00	73.13	512.00	15.25	72.28	1101.97	19.32	71.83	1387.79	19.80	71.17	1409.45
640	6.94	73.15	507.57	15.14	72.27	1093.87	18.22	71.88	1309.90	19.13	71.19	1361.79
642	7.12	73.16	521.03	15.27	72.27	1103.72	18.22	71.88	1309.90	19.13	71.19	1361.79
642	7.12	73.16	521.03	15.27	72.27	1103.72	18.65	71.80	1338.83	20.37	71.14	1449.29
643	6.93	73.21	507.25	15.35	72.33	1110.46	18.65	71.80	1338.83	20.37	71.14	1449.29
643	6.93	73.21	507.25	15.35	72.33	1110.46	18.97	71.68	1359.92	24.60	70.54	1735.49
645	7.11	73.08	519.92	15.52	72.18	1120.43	18.97	71.68	1359.92	24.60	70.54	1735.49
645	7.11	73.08	519.92	15.52	72.18	1120.43	19.50	71.29	1390.03	24.45	69.98	1711.27
647	7.07	72.99	515.78	15.38	71.94	1106.50	19.57	71.75	1404.04	21.43	70.98	1521.08
648	7.54	73.12	551.52	16.17	72.21	1167.75	19.57	71.75	1404.04	21.43	70.98	1521.08
648	7.54	73.12	551.52	16.17	72.21	1167.75	19.88	71.79	1427.38	21.24	71.22	1512.60
649	7.71	73.01	563.15	16.19	72.22	1168.98	19.88	71.79	1427.38	21.24	71.22	1512.60
649	7.71	73.01	563.15	16.19	72.22	1168.98	19.88	71.79	1427.30	22.99	71.07	1633.97
651	7.80	73.08	570.08	16.15	72.23	1166.88	19.88	71.79	1427.30	22.99	71.07	1633.97
651	7.80	73.08	570.08	16.15	72.23	1166.88	20.37	71.72	1460.89	22.89	70.78	1620.50
653	8.03	73.06	586.79	16.17	72.27	1168.82	18.90	71.79	1357.13	22.03	70.92	1562.38
654	7.10	73.16	519.41	15.26	72.30	1103.51	18.90	71.79	1357.13	22.03	70.92	1562.38
654	7.10	73.16	519.41	15.26	72.30	1103.51	18.57	71.91	1335.41	19.92	71.31	1420.47
655	7.29	73.15	533.16	15.48	72.33	1120.09	18.57	71.91	1335.41	19.92	71.31	1420.47

TABLE 18 Continued

655	7.29	73.15	533.16	15.48	72.33	1120.09	18.70	71.88	1344.02	22.77	70.96	1615.65
657	7.34	73.16	537.26	15.58	72.32	1127.08	20.05	71.71	1437.61	23.86	70.46	1681.42
659	7.57	73.07	553.03	16.14	72.28	1166.77	20.48	71.71	1468.64	15.12	70.90	1071.85
661	8.12	73.11	593.54	16.95	72.14	1222.84	20.48	71.71	1468.64	15.12	70.90	1071.85
661	8.12	73.11	593.54	16.95	72.14	1222.84	20.28	71.65	1453.08	21.31	70.33	1498.85
663	8.04	73.10	587.71	16.58	72.29	1198.85	20.28	71.65	1453.08	21.31	70.33	1498.85
663	8.04	73.10	587.71	16.58	72.29	1198.85	20.06	71.25	1428.97	17.89	69.69	1246.69
665	7.34	73.00	535.87	16.23	72.16	1170.90	19.55	71.62	1400.09	15.80	70.86	1119.68
667	7.57	73.04	553.08	16.33	72.31	1180.85	19.79	71.76	1419.72	22.48	70.60	1587.23
668	7.41	73.11	541.92	15.80	72.32	1142.55	19.38	71.62	1388.33	15.13	71.11	1075.91
669	7.71	73.02	562.84	16.55	72.27	1195.92	19.38	71.62	1388.33	15.13	71.11	1075.91
669	7.71	73.02	562.84	16.55	72.27	1195.92	19.12	71.66	1370.36	18.62	71.15	1324.43
670	7.91	73.01	577.18	16.56	72.38	1198.84	19.10	71.52	1366.06	11.86	70.71	838.38
672	7.61	73.11	556.72	16.34	72.28	1181.06	19.10	71.52	1366.06	11.86	70.71	838.38
672	7.61	73.11	556.72	16.34	72.28	1181.06	20.69	71.60	1481.60	23.40	70.50	1649.60
674	7.99	73.07	583.89	16.95	72.17	1223.40	20.69	71.60	1481.60	23.40	70.50	1649.60
674	7.99	73.07	583.89	16.95	72.17	1223.40	17.78	71.51	1271.81	16.51	71.03	1172.85
675	7.15	73.12	522.95	14.50	72.37	1049.73	17.78	71.51	1271.81	16.51	71.03	1172.85
675	7.15	73.12	522.95	14.50	72.37	1049.73	17.29	71.52	1236.88	16.49	71.36	1176.92
676	7.07	73.10	516.64	14.05	72.31	1015.92	17.29	71.52	1236.88	16.49	71.36	1176.92
676	7.07	73.10	516.64	14.05	72.31	1015.92	20.90	71.38	1491.76	18.72	67.18	1257.67
677	7.99	73.08	583.72	16.46	72.18	1188.17	17.41	71.49	1244.36	22.96	70.94	1629.15
678	7.18	73.13	524.75	14.28	72.34	1032.94	19.96	71.34	1424.19	25.53	70.20	1792.12
680	7.47	73.04	545.48	14.77	72.20	1066.32	18.67	71.26	1330.85	18.84	70.03	1319.65

TABLE 18 Continued

682	6.61	73.04	482.94	14.96	72.31	1081.48	18.67	71.26	1330.85	18.84	70.03	1319.65
682	6.61	73.04	482.94	14.96	72.31	1081.48	17.63	71.55	1261.77	10.96	71.44	783.07
684	6.96	73.11	509.09	15.31	72.41	1108.56	17.92	71.51	1281.68	12.32	71.14	876.47
685	6.80	73.12	496.89	15.10	72.36	1092.59	17.57	71.59	1257.94	15.65	70.97	1110.70
686	6.91	73.17	505.39	15.11	72.40	1094.11	16.68	71.57	1193.61	11.92	71.35	850.45
688	6.79	73.08	496.43	14.81	72.34	1071.18	16.68	71.57	1193.61	11.92	71.35	850.45
688	6.79	73.08	496.43	14.81	72.34	1071.18	20.14	71.47	1439.09	23.69	69.49	1646.43
690	7.65	73.07	558.86	16.00	72.23	1155.46	20.14	71.47	1439.09	23.69	69.49	1646.43
690	7.65	73.07	558.86	16.00	72.23	1155.46	16.06	71.58	1149.52	11.73	71.54	839.38
691	6.63	73.10	484.68	14.55	72.31	1052.09	16.06	71.58	1149.52	11.73	71.54	839.38
691	6.63	73.10	484.68	14.55	72.31	1052.09	13.66	71.63	978.70	9.84	71.64	704.98
692	6.29	73.14	459.83	13.07	72.37	945.61	13.66	71.63	978.70	9.84	71.64	704.98
692	6.29	73.14	459.83	13.07	72.37	945.61	20.95	70.52	1477.64	21.71	64.00	1389.22
693	7.22	73.07	527.91	15.39	72.23	1111.73	13.40	71.58	959.01	9.81	71.64	702.69
694	6.36	73.13	465.43	12.75	72.33	922.08	13.40	71.58	959.01	9.81	71.64	702.69
694	6.36	73.13	465.43	12.75	72.33	922.08	19.28	71.58	1380.40	19.85	70.59	1401.19
696	7.94	73.07	580.44	16.56	72.27	1196.45	19.28	71.58	1380.40	19.85	70.59	1401.19
696	7.94	73.07	580.44	16.56	72.27	1196.45	12.07	71.67	865.33	9.70	71.78	696.31
697	5.75	73.15	420.81	11.14	72.31	805.39	12.07	71.67	865.33	9.70	71.78	696.31
697	5.75	73.15	420.81	11.14	72.31	805.39	12.01	71.65	860.71	9.59	71.83	688.78
698	5.69	73.08	416.13	10.96	72.35	792.71	11.15	71.74	799.80	11.11	71.93	799.43
700	5.56	73.17	406.78	10.00	72.33	723.39	11.15	71.74	799.80	11.11	71.93	799.43
700	5.56	73.17	406.78	10.00	72.33	723.39	11.36	71.73	814.67	11.34	71.89	815.08
701	5.41	73.14	395.67	9.85	72.34	712.67	11.36	71.73	814.67	11.34	71.89	815.08

TABLE 18 Continued

701	5.41	73.14	395.67	9.85	72.34	712.67	20.15	70.72	1425.18	16.73	62.63	1047.63
702	7.44	73.09	543.76	15.70	72.16	1133.01	10.24	71.71	734.48	11.40	71.84	819.30
703	5.17	73.17	378.04	9.31	72.36	673.77	10.24	71.71	734.48	11.40	71.84	819.30
703	5.17	73.17	378.04	9.31	72.36	673.77	10.39	71.80	745.89	11.99	72.03	863.76
704	5.10	73.18	373.38	9.38	72.40	679.34	10.39	71.80	745.89	11.99	72.03	863.76
704	5.10	73.18	373.38	9.38	72.40	679.34	19.05	71.39	1360.14	23.36	70.18	1639.10
705	7.33	73.14	535.87	14.40	72.13	1039.03	10.52	71.87	756.12	12.28	71.98	884.04
706	5.06	73.11	370.20	9.37	72.43	678.39	16.26	71.96	1169.99	20.70	71.38	1477.74
709	1.70	73.28	124.91	14.05	72.31	1016.00	16.26	71.96	1169.99	20.70	71.38	1477.74
709	1.70	73.28	124.91	14.05	72.31	1016.00	17.24	71.89	1239.11	23.94	70.82	1695.18
710	0.35	72.86	25.15	15.17	72.52	1100.37	19.16	71.65	1373.02	15.86	70.90	1124.39
712	2.16	73.62	158.67	15.68	72.52	1137.26	19.16	71.65	1373.02	15.86	70.90	1124.39
712	2.16	73.62	158.67	15.68	72.52	1137.26	17.74	71.53	1269.06	24.92	70.08	1746.59
714	2.17	73.72	159.84	14.51	72.55	1052.58	20.49	71.31	1460.80	14.50	70.54	1022.92
716	3.29	73.48	241.82	16.93	72.38	1224.98	20.49	71.31	1460.80	14.50	70.54	1022.92
716	3.29	73.48	241.82	16.93	72.38	1224.98	20.70	71.49	1479.51	24.21	70.61	1709.24
718	7.81	73.06	570.86	16.22	72.27	1172.49	20.70	71.49	1479.51	24.21	70.61	1709.24
718	7.81	73.06	570.86	16.22	72.27	1172.49	21.10	70.80	1493.90	21.56	65.16	1405.12
719	6.55	73.07	478.94	14.83	72.18	1070.76	17.28	71.51	1235.88	18.10	70.87	1282.50
720	6.93	73.13	506.82	15.21	72.33	1100.49	17.28	71.51	1235.88	18.10	70.87	1282.50
720	6.93	73.13	506.82	15.21	72.33	1100.49	17.24	71.14	1226.69	15.27	66.57	1016.39
721	6.66	73.07	486.60	14.62	72.29	1056.93	13.99	71.60	1001.67	10.23	71.62	732.64
722	6.18	73.14	452.11	13.23	72.39	957.60	13.99	71.60	1001.67	10.23	71.62	732.64
722	6.18	73.14	452.11	13.23	72.39	957.60	12.63	71.60	904.13	9.90	71.63	709.16

TABLE 18 Continued

723	6.01	73.15	439.56	11.85	72.33	857.34	12.63	71.60	904.13	9.90	71.63	709.16
723	6.01	73.15	439.56	11.85	72.33	857.34	13.79	71.76	989.33	22.52	70.79	1594.07
724	4.75	73.17	347.88	9.84	72.47	713.24	13.79	71.76	989.33	22.52	70.79	1594.07
724	4.75	73.17	347.88	9.84	72.47	713.24	18.10	71.74	1298.64	24.87	69.96	1739.71
725	1.23	73.52	90.69	14.39	72.57	1044.58	18.10	71.74	1298.64	24.87	69.96	1739.71
725	1.23	73.52	90.69	14.39	72.57	1044.58	20.26	70.94	1437.17	19.89	64.06	1274.47
726	1.66	73.68	122.38	14.92	72.47	1081.18	19.39	71.31	1382.64	25.02	68.56	1715.07
727	2.41	73.68	177.53	15.21	72.42	1101.77	19.39	71.31	1382.64	25.02	68.56	1715.07
727	2.41	73.68	177.53	15.21	72.42	1101.77	21.67	70.66	1531.45	19.40	62.78	1217.98
728	2.68	73.59	197.14	15.87	72.30	1147.46	14.09	72.11	1016.11	16.53	72.03	1190.95
787	9.77	72.30	706.08	12.83	72.21	926.44	14.09	72.11	1016.11	16.53	72.03	1190.95
787	9.77	72.30	706.08	12.83	72.21	926.44	14.18	72.22	1024.01	14.65	71.98	1054.27
789	10.56	72.38	764.20	13.43	72.30	970.92	14.18	72.22	1024.01	14.65	71.98	1054.27
789	10.56	72.38	764.20	13.43	72.30	970.92	13.90	71.73	997.02	16.58	69.52	1152.91
790	10.17	72.40	736.49	12.83	72.34	928.32	12.12	71.67	868.79	10.51	71.82	754.92
791	5.72	73.19	418.99	11.07	72.34	800.99	12.40	71.67	888.98	11.42	71.88	821.18
792	5.97	73.13	436.65	10.97	72.28	793.17	5.97	73.13	436.65	10.97	72.28	793.17
792	5.97	73.13	436.65	10.97	72.28	793.17	12.40	71.67	888.98	11.42	71.88	821.18

Segment 2—Trucks=15%

Southbound Traffic												
	HOV Lane			Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
342	10.7	72.2	771.0	14.6	72.1	1050.7	17.0	71.5	1219.0	11.0	70.7	779.6

TABLE 18 Continued

344	11.5	72.3	831.9	14.7	72.2	1057.4	16.5	72.1	1186.3	16.6	72.0	1194.8
346	10.0	72.1	724.1	14.3	72.1	1027.7	16.0	72.0	1151.8	11.9	72.1	861.0
349	9.6	72.1	688.1	13.7	72.0	988.1	14.9	71.9	1070.9	11.8	72.0	848.5
350	9.2	72.0	662.7	13.3	72.0	958.9	14.1	71.9	1010.7	11.7	72.1	842.0
352	10.6	72.3	763.5	13.4	72.2	967.0	15.9	71.9	1140.3	20.2	69.4	1402.6
353	7.9	72.1	568.5	11.7	72.1	845.6	12.7	71.9	910.4	11.9	71.9	854.4
354	7.9	72.1	569.1	11.5	72.1	830.3	12.4	72.0	893.3	12.0	72.1	863.3
356	8.0	72.1	573.5	11.5	72.1	825.3	12.5	72.0	898.9	13.1	72.2	948.4
360	7.7	72.1	554.2	11.4	72.1	823.5	13.2	72.0	946.8	14.4	72.1	1037.5
361	10.2	72.1	733.8	14.2	72.0	1025.6	16.8	71.6	1206.4	18.3	70.8	1292.8
364	7.6	72.1	547.0	11.6	72.2	837.9	13.5	72.0	975.3	15.7	72.0	1129.2
365	7.4	72.2	535.4	11.6	72.2	840.3	14.0	72.1	1005.1	16.0	72.1	1153.2
366	8.0	72.1	577.8	11.8	72.0	848.2	13.3	72.0	954.7	14.8	72.2	1070.3
367	7.6	72.1	544.1	11.4	72.1	818.5	13.3	72.0	957.4	14.1	72.1	1014.4
369	8.6	72.3	621.0	16.6	72.2	1198.0	21.4	71.2	1520.4	23.6	70.4	1663.6
371	9.1	72.3	654.5	17.4	72.2	1252.6	21.3	71.6	1525.0	24.7	70.5	1738.1
373	9.5	72.3	687.5	18.6	72.1	1342.2	21.8	71.2	1552.6	17.6	70.0	1228.1
375	9.6	72.4	696.2	18.9	72.1	1362.1	21.6	71.2	1535.0	22.6	69.8	1579.4
377	10.3	72.2	741.8	20.5	71.7	1465.7	23.6	70.1	1656.1	26.1	68.8	1799.3
379	12.2	72.2	879.1	22.3	71.5	1595.3	23.9	69.7	1666.8	16.4	67.3	1107.2
381	12.4	72.3	895.4	22.6	71.8	1623.6	24.0	69.7	1670.2	25.8	67.4	1735.2
384	13.4	72.0	961.9	24.2	71.0	1715.7	25.3	68.0	1720.4	26.3	66.8	1757.9
385	14.4	72.2	1041.1	25.6	71.2	1819.2	24.2	68.9	1663.7	24.0	68.5	1644.3
386	7.7	72.2	553.5	14.4	71.9	1032.1	21.9	70.3	1539.6	28.7	68.7	1972.0

TABLE 18 Continued

390	24.1	70.0	1683.2	32.5	67.0	2179.2	29.2	57.2	1668.0	30.1	55.1	1657.7
391	46.6	41.2	1917.5	58.8	35.0	2059.0	55.3	23.1	1276.1	57.2	20.2	1156.7
392	34.6	53.5	1851.4	42.4	49.7	2109.2	38.9	35.3	1373.7	38.6	32.0	1235.6
393	54.1	37.9	2052.6	65.9	30.2	1988.1	71.8	18.2	1309.3	84.6	12.4	1044.4
397	29.8	71.4	2129.2	30.9	70.3	2174.1	19.5	57.5	1122.0	19.3	57.4	1105.5
399	29.2	71.4	2083.9	31.5	70.8	2233.1	19.9	62.3	1242.6	23.2	61.4	1423.7
401	25.2	71.0	1793.1	29.9	70.7	2117.1	24.1	68.3	1644.5	16.0	65.4	1047.7
403	25.2	71.1	1787.7	29.7	70.9	2101.2	23.7	68.4	1619.7	21.5	65.9	1417.7
405	9.3	72.3	673.6	17.9	72.1	1293.4	21.9	71.5	1566.2	24.2	70.4	1705.7
406	23.8	71.1	1694.2	29.3	70.2	2055.5	25.8	66.6	1716.4	26.1	65.5	1711.2
407	23.7	70.9	1679.2	28.9	70.2	2027.9	25.2	66.6	1676.1	26.4	65.9	1739.9
412	24.0	70.5	1688.6	29.7	69.8	2075.0	25.7	65.6	1681.6	24.7	64.8	1597.9
414	11.6	72.3	837.7	21.3	71.9	1532.6	23.3	70.9	1647.6	24.8	69.8	1729.6
415	21.5	71.0	1521.8	27.5	70.8	1945.3	25.2	69.0	1738.2	23.1	68.6	1585.4
416	21.2	71.2	1505.5	27.4	70.9	1942.4	25.9	68.7	1782.3	23.9	68.0	1626.8
418	20.6	71.2	1466.7	26.7	71.0	1896.3	24.9	70.0	1742.0	24.5	69.1	1693.5
419	21.2	70.2	1486.5	28.8	69.4	1995.3	27.7	66.2	1829.4	28.5	65.3	1862.7
421	21.8	70.2	1530.3	29.9	68.6	2048.2	29.0	63.9	1854.3	31.4	63.1	1977.1
426	25.0	68.7	1717.9	32.7	64.4	2107.1	32.7	53.8	1760.5	36.7	51.3	1881.2
427	26.4	70.8	1866.5	32.1	69.0	2213.1	27.3	59.8	1630.4	27.6	59.3	1638.7
429	26.4	71.2	1881.0	31.2	70.4	2193.8	22.8	65.0	1483.0	20.3	65.9	1340.8
431	31.8	65.3	2074.8	35.5	57.7	2050.6	35.0	40.9	1430.7	40.4	37.9	1531.8
435	29.6	55.3	1639.2	37.0	52.0	1922.3	34.6	42.3	1464.1	35.4	36.6	1294.3
436	27.4	71.3	1949.6	30.9	71.1	2198.5	22.0	67.9	1495.1	22.3	66.6	1482.4

TABLE 18 Continued

436	18.2	72.0	1307.8	29.1	71.3	2072.6	31.7	68.7	2178.7	25.6	58.6	1501.6
437	17.9	72.0	1289.2	28.4	71.2	2023.9	25.3	71.6	1807.5	22.7	71.4	1620.1
438	17.4	71.8	1249.1	26.0	71.6	1857.9	101.8	9.1	925.4	120.9	7.6	914.1
439	66.2	32.6	2159.1	91.3	20.8	1902.0	68.0	21.4	1455.0	74.0	18.5	1365.5
439	32.7	46.5	1519.2	56.3	30.8	1731.5	29.1	70.1	2039.7	25.5	68.7	1748.0
440	18.9	71.6	1353.8	29.5	71.0	2094.1	23.9	70.2	1676.3	22.7	69.4	1576.2
441	22.7	71.2	1618.7	27.8	71.1	1978.5	27.7	70.9	1959.5	25.9	70.1	1815.1
441	18.0	71.8	1292.2	27.8	71.3	1979.1	114.9	7.2	823.6	132.2	6.5	862.4
442	77.1	28.5	2193.2	97.8	19.8	1931.9	94.0	13.4	1259.0	103.9	12.4	1283.7
442	43.3	39.2	1696.4	73.2	23.8	1741.1	120.1	6.4	767.4	141.5	4.6	656.3
443	83.2	26.9	2239.6	104.3	18.7	1945.4	120.3	9.3	1118.0	146.5	6.2	907.6
443	56.9	35.8	2033.6	95.2	19.3	1831.5	30.5	68.4	2087.4	31.5	67.5	2128.2
444	19.1	71.4	1363.1	29.6	70.1	2075.1	114.2	9.3	1063.3	120.1	7.5	903.8
445	88.8	24.3	2160.9	100.8	19.8	1999.6	125.2	10.2	1276.2	139.2	8.0	1114.7
445	84.3	26.2	2211.0	106.5	18.0	1915.1	115.2	8.2	942.4	143.6	3.6	514.7
447	80.1	27.7	2219.2	99.5	19.5	1941.8	129.0	8.8	1130.3	172.3	3.8	662.3
447	76.0	29.1	2207.3	104.5	18.2	1897.6	29.7	68.9	2045.7	30.4	68.6	2084.0
448	19.4	71.3	1385.9	30.0	70.3	2105.5	54.3	41.8	2270.4	50.6	42.6	2157.1
449	0.1	56.8	3.6	54.1	44.4	2403.3	32.3	55.1	1776.9	34.7	52.8	1829.0
450	15.1	67.7	1023.5	30.4	65.4	1988.9	32.6	60.9	1988.6	34.4	58.1	1996.9
450	13.9	68.8	958.7	30.1	66.5	1997.3	22.5	67.4	1518.4	22.2	66.5	1480.2
451	24.5	71.0	1741.2	29.3	70.4	2063.6	26.1	71.2	1856.3	24.7	70.9	1749.0
451	18.4	71.8	1318.2	27.5	71.4	1962.5	16.9	70.8	1197.3	17.0	70.2	1195.4
452	19.2	71.9	1382.7	24.2	71.6	1736.2	20.4	71.5	1460.1	19.2	71.4	1371.9

TABLE 18 Continued

452	16.4	72.2	1186.0	24.2	71.6	1732.1	17.8	71.2	1269.7	17.3	70.9	1227.5
453	18.9	71.8	1357.0	23.5	71.4	1676.1	20.5	71.7	1473.0	19.2	71.8	1376.6
453	16.4	72.0	1180.6	23.5	71.6	1679.5	25.5	71.0	1810.4	26.9	69.5	1869.1
454	17.4	71.9	1248.1	25.8	71.4	1840.9	65.8	19.2	1258.9	76.1	14.4	1096.8
455	45.1	40.6	1828.6	59.5	31.3	1860.0	34.1	51.7	1762.5	33.1	47.7	1576.0
455	19.2	66.3	1275.0	30.2	58.0	1753.9	17.6	71.2	1254.6	18.1	70.3	1275.8
456	17.1	71.8	1229.2	21.1	71.4	1504.8	19.4	71.5	1386.1	19.6	71.5	1401.8
456	14.9	72.0	1073.2	21.4	71.5	1530.9	19.0	70.7	1343.5	18.6	70.3	1305.3
457	17.2	71.3	1223.4	21.2	71.0	1508.3	20.2	71.8	1449.4	20.1	71.8	1445.8
457	15.0	71.8	1079.0	21.3	71.4	1522.7	70.5	28.3	1994.3	68.5	27.9	1909.7
458	30.2	22.3	672.8	86.4	25.1	2168.4	76.5	28.3	2165.8	75.4	28.6	2154.9
458	31.2	21.5	671.6	93.0	22.8	2117.5	102.5	14.0	1436.2	133.7	7.3	979.8
459	65.6	34.0	2228.0	85.1	22.2	1885.8	19.1	71.7	1368.8	19.4	71.2	1380.7
460	16.0	71.7	1143.9	20.0	71.5	1429.5	20.6	71.8	1482.7	21.1	71.8	1515.0
460	13.9	72.0	1003.1	20.0	71.6	1429.2	19.8	71.4	1410.7	20.4	70.8	1443.1
461	14.6	71.6	1048.2	19.1	71.2	1362.2	20.5	71.8	1475.1	22.2	71.7	1590.3
461	12.6	71.9	905.9	19.1	71.7	1367.7	104.0	12.6	1313.8	110.6	9.1	1000.8
462	76.2	29.2	2228.0	92.0	22.3	2054.1	115.6	12.8	1476.7	132.6	9.1	1200.7
462	72.0	31.5	2270.7	98.8	20.1	1987.6	95.0	16.5	1570.2	126.7	8.7	1096.3
463	59.5	38.5	2292.2	78.2	25.6	1999.0	18.4	71.4	1313.5	20.4	70.6	1442.5
464	13.3	71.7	952.7	17.7	71.6	1268.3	19.4	71.8	1393.5	21.9	71.4	1563.6
464	11.5	72.0	830.4	17.7	71.7	1265.7	19.4	71.5	1389.4	20.5	71.0	1459.0
465	12.8	71.7	918.7	17.8	71.5	1275.6	20.0	71.6	1429.1	22.0	71.3	1566.4
465	11.4	72.0	819.4	17.7	71.6	1264.2	86.3	17.8	1536.7	89.1	15.1	1340.3

TABLE 18 Continued

466	75.3	29.2	2196.8	82.1	25.9	2125.4	97.3	18.1	1761.4	101.0	16.7	1687.6
466	87.5	24.1	2105.2	96.4	20.7	1996.7	97.2	18.8	1824.9	81.7	22.1	1802.1
467	102.1	19.6	2001.1	126.4	12.7	1599.9	18.2	71.6	1303.5	19.1	70.6	1346.4
468	11.3	71.9	811.7	15.8	71.8	1136.4	17.9	71.9	1284.1	20.5	71.4	1460.9
468	10.3	72.3	742.7	16.2	72.1	1167.3	18.4	71.0	1302.8	19.2	70.4	1348.9
469	11.6	71.7	829.4	17.1	71.5	1224.6	18.6	72.0	1336.8	20.3	71.8	1459.3
469	10.7	72.2	768.9	16.6	71.9	1193.5	42.5	51.9	2207.4	44.6	48.9	2181.0
470	0.0	73.2	2.0	41.4	56.6	2343.9	27.9	66.1	1844.6	27.3	65.6	1788.7
471	17.2	71.9	1235.8	29.8	70.3	2093.7	18.7	72.3	1350.5	20.3	72.1	1460.0
472	10.8	72.3	776.6	16.6	72.1	1198.1	18.4	71.8	1318.2	18.7	71.4	1333.5
478	11.7	71.9	843.0	17.7	71.9	1269.7	18.9	72.2	1365.4	20.2	72.0	1457.9
478	10.9	72.2	786.7	16.8	72.1	1206.5	19.1	65.3	1249.0	18.3	65.6	1202.4
Northbound Traffic												
521	19.9	72.0	1435.4	27.9	71.2	1984.4	23.3	69.5	1621.6	21.0	69.2	1450.8
521	17.3	72.2	1249.5	27.6	71.4	1968.9	17.2	69.1	1185.4	16.4	69.0	1130.8
540	20.4	71.9	1465.4	26.8	71.5	1920.4	21.5	70.9	1523.4	18.8	70.9	1334.9
540	17.6	72.1	1271.4	26.7	71.6	1909.9	14.6	71.8	1045.6	15.3	71.4	1095.1
589	10.2	72.4	735.8	13.2	72.3	951.0	14.4	72.1	1036.9	15.2	71.9	1095.4
589	10.2	72.4	739.6	13.2	72.2	952.1	14.1	71.9	1009.3	15.5	71.4	1105.7
590	9.8	72.3	708.3	12.7	72.3	918.5	13.6	72.1	982.1	15.6	71.9	1117.4
590	9.8	72.4	709.3	12.6	72.2	909.5	14.7	72.0	1055.4	16.9	71.5	1211.3
591	9.1	72.3	654.7	12.4	72.3	894.9	14.2	72.1	1021.9	17.0	71.9	1222.4
591	9.1	72.3	657.0	12.2	72.2	883.3	15.2	71.9	1094.3	17.7	71.7	1265.6
593	9.2	72.3	661.8	13.2	72.2	948.6	15.0	72.3	1081.9	17.7	72.1	1275.2

TABLE 18 Continued

593	9.0	72.2	649.3	12.8	72.2	923.9	15.2	72.0	1096.2	17.9	71.7	1286.3
596	8.9	72.2	644.9	13.0	72.2	935.5	15.5	72.3	1122.2	18.0	71.9	1296.3
596	8.4	72.2	608.5	12.8	72.3	926.9	17.4	71.9	1253.9	18.9	71.7	1352.4
597	0.6	72.0	43.5	19.1	71.5	1368.3	17.4	72.1	1251.2	18.7	72.0	1345.8
597	0.6	72.1	43.3	18.7	71.4	1337.2	17.8	72.1	1278.9	20.2	71.6	1444.9
599	1.2	73.5	88.2	16.8	72.1	1210.4	17.5	72.3	1261.6	20.0	71.7	1435.4
599	0.9	73.4	68.7	16.7	72.0	1199.5	19.1	71.9	1374.2	21.4	71.6	1531.0
601	0.5	73.7	36.8	17.5	71.8	1258.6	18.6	72.3	1343.4	21.1	71.9	1516.5
601	0.4	73.6	29.0	17.4	71.8	1250.5	19.2	71.9	1379.4	22.1	71.3	1572.0
603	1.3	73.4	95.7	16.1	72.0	1161.3	18.8	72.4	1357.8	21.8	71.7	1565.4
603	1.0	73.5	74.6	16.0	72.1	1154.2	20.0	71.5	1431.3	22.9	71.1	1624.5
605	2.7	73.2	197.3	16.3	71.8	1168.4	19.6	72.3	1414.3	23.0	71.8	1651.9
605	2.0	73.7	150.7	16.0	72.1	1151.3	19.8	71.6	1418.0	25.0	70.6	1765.5
608	3.9	73.4	284.8	15.5	72.0	1111.8	19.6	72.1	1414.1	25.2	71.0	1789.4
608	2.8	73.5	208.4	15.4	72.0	1111.1	25.4	69.1	1755.2	31.4	67.0	2105.3
609	5.3	72.8	386.8	17.9	71.3	1277.7	25.2	70.9	1786.7	32.6	68.6	2232.7
609	4.1	72.9	297.2	17.1	71.5	1223.4	23.6	70.4	1663.4	23.7	69.7	1653.0
610	7.4	73.0	538.4	20.7	71.9	1485.1	24.4	71.9	1752.3	25.5	71.0	1809.7
610	5.6	73.2	408.7	19.0	72.1	1371.0	22.6	71.0	1600.7	27.0	70.1	1891.7
611	8.0	73.0	580.2	20.2	71.9	1453.9	24.1	71.8	1732.9	28.7	70.3	2015.3
611	6.1	73.1	444.6	18.5	72.0	1332.0	23.1	70.7	1631.4	26.2	68.7	1799.2
613	8.9	72.9	647.7	19.5	71.8	1396.9	23.9	71.6	1710.3	27.5	69.7	1917.8
613	6.6	73.2	485.2	18.9	72.0	1358.4	23.3	70.7	1644.2	26.5	69.4	1838.8
614	8.2	72.9	600.8	19.6	71.8	1410.1	24.2	71.5	1733.0	27.9	70.1	1957.3

TABLE 18 Continued

614	6.3	73.2	457.6	18.5	72.0	1332.5	22.9	71.0	1625.7	19.1	70.1	1336.8
615	9.9	72.9	718.3	20.4	71.8	1462.2	24.2	71.7	1734.2	20.4	71.0	1446.1
615	7.5	73.2	545.6	19.7	72.1	1418.1	21.9	71.5	1562.9	17.6	71.2	1254.6
617	10.4	72.9	758.4	20.3	71.8	1454.6	23.1	71.8	1655.1	19.2	71.4	1372.4
617	8.0	73.2	587.6	19.7	72.0	1421.1	24.9	71.3	1777.8	23.1	67.7	1561.6
619	6.9	73.2	503.7	19.0	72.1	1371.5	19.2	71.7	1377.2	16.6	71.4	1187.8
620	9.7	72.9	705.7	17.7	71.8	1273.4	20.0	71.7	1433.3	17.3	71.3	1236.6
620	8.0	73.2	587.0	17.5	72.1	1263.7	17.6	71.8	1261.5	15.4	71.5	1102.1
621	9.3	72.9	679.6	16.4	71.9	1175.4	18.1	71.8	1301.0	15.9	71.3	1135.9
621	7.9	73.2	575.1	16.4	72.1	1181.9	21.4	71.7	1536.5	17.1	71.4	1219.3
622	10.6	72.8	773.4	20.1	71.8	1440.2	22.6	71.8	1618.1	18.4	71.4	1316.2
622	8.4	73.1	610.9	19.7	72.0	1415.0	17.3	71.7	1239.0	14.7	71.4	1047.6
623	9.4	72.9	682.2	16.2	71.9	1162.3	17.3	71.9	1245.2	15.5	71.5	1104.5
623	8.2	73.1	598.2	16.0	72.1	1154.7	17.5	71.8	1259.7	15.3	71.3	1093.4
624	8.1	73.3	589.5	16.2	72.1	1169.8	21.2	71.7	1523.7	17.0	71.5	1211.7
625	10.8	72.9	785.5	19.7	71.8	1414.9	22.0	71.8	1579.2	18.1	71.4	1292.0
625	8.8	73.1	643.1	19.4	71.9	1393.6	16.7	71.8	1197.0	14.7	71.6	1048.7
626	9.3	72.9	680.1	15.2	71.9	1089.2	16.6	71.8	1194.3	15.1	71.5	1078.8
626	8.2	73.1	596.7	15.4	72.1	1111.0	17.5	71.8	1259.9	15.3	71.1	1088.5
627	7.9	73.2	578.9	16.0	72.1	1153.7	14.7	71.8	1057.8	13.4	71.7	959.7
629	8.5	72.9	615.8	13.2	71.9	947.2	14.8	72.0	1061.6	13.6	71.7	977.4
629	7.6	73.2	552.3	13.7	72.1	984.1	14.5	72.0	1046.2	13.8	71.5	984.5
630	7.4	73.1	539.5	13.6	72.2	979.0	14.7	71.8	1054.7	14.0	71.7	1002.2
631	8.4	72.8	614.7	13.1	72.0	945.5	14.7	71.9	1060.5	14.2	71.5	1017.5

TABLE 18 Continued

631	7.5	73.1	549.4	13.7	72.1	985.1	18.4	71.6	1318.1	21.2	71.2	1508.9
633	8.1	72.9	589.7	14.5	72.1	1047.9	18.1	71.9	1303.8	21.7	71.4	1551.3
633	7.3	73.1	532.2	14.6	72.2	1056.5	14.8	71.9	1061.3	13.7	71.5	983.2
634	7.4	73.1	543.2	13.7	72.1	989.9	16.9	71.4	1207.5	22.3	70.4	1571.6
635	7.9	72.9	578.1	13.2	72.0	950.3	17.0	71.6	1216.4	22.7	70.7	1602.9
635	7.2	73.1	523.1	13.3	72.1	960.0	19.1	71.6	1369.6	23.9	70.8	1693.6
636	8.1	72.9	593.0	14.8	72.1	1069.6	19.1	71.9	1375.8	24.4	70.8	1725.2
636	7.3	73.1	531.7	15.0	72.2	1083.1	19.0	71.5	1361.4	26.5	70.2	1859.9
637	7.7	72.9	560.4	14.3	72.3	1032.6	19.2	71.8	1374.7	26.7	70.2	1869.9
637	6.8	73.1	498.3	14.6	72.3	1056.4	18.6	71.8	1336.8	17.7	71.4	1259.1
639	7.9	73.0	574.3	15.2	72.3	1097.9	18.9	71.9	1361.2	17.9	71.4	1279.9
639	7.0	73.1	512.0	15.3	72.3	1102.0	19.3	71.8	1387.8	19.8	71.2	1409.5
640	6.9	73.2	507.6	15.1	72.3	1093.9	18.2	71.8	1302.8	18.8	71.2	1336.5
642	8.0	73.0	580.3	15.2	72.3	1096.1	18.2	71.9	1309.9	19.1	71.2	1361.8
642	7.1	73.2	521.0	15.3	72.3	1103.7	18.9	71.5	1349.3	19.8	71.0	1405.9
643	7.8	72.9	566.4	15.1	72.1	1091.4	18.7	71.8	1338.8	20.4	71.1	1449.3
643	6.9	73.2	507.3	15.4	72.3	1110.5	19.2	71.6	1377.9	23.7	70.7	1675.5
645	8.0	72.9	581.9	15.3	72.2	1101.9	19.0	71.7	1359.9	24.6	70.5	1735.5
645	7.1	73.1	519.9	15.5	72.2	1120.4	19.5	71.3	1390.0	24.5	70.0	1711.3
647	7.1	73.0	515.8	15.4	71.9	1106.5	19.8	71.5	1413.7	21.1	70.8	1496.0
648	8.1	72.9	592.4	15.8	72.2	1140.7	19.6	71.8	1404.0	21.4	71.0	1521.1
648	7.5	73.1	551.5	16.2	72.2	1167.8	19.9	71.5	1421.0	21.3	70.8	1506.4
649	8.1	72.9	589.3	16.0	72.2	1152.3	19.9	71.8	1427.4	21.2	71.2	1512.6
649	7.7	73.0	563.2	16.2	72.2	1169.0	19.8	71.6	1420.1	22.9	70.8	1618.4

TABLE 18 Continued

651	8.2	72.9	595.2	16.2	72.2	1167.7	19.9	71.8	1427.3	23.0	71.1	1634.0
651	7.8	73.1	570.1	16.2	72.2	1166.9	20.4	71.7	1460.9	22.9	70.8	1620.5
653	8.0	73.1	586.8	16.2	72.3	1168.8	19.4	71.4	1382.7	21.5	70.5	1518.8
654	7.6	73.0	551.8	15.2	72.2	1094.9	18.9	71.8	1357.1	22.0	70.9	1562.4
654	7.1	73.2	519.4	15.3	72.3	1103.5	18.8	71.4	1345.2	19.5	71.0	1386.7
655	7.7	73.0	562.1	15.5	72.3	1120.8	18.6	71.9	1335.4	19.9	71.3	1420.5
655	7.3	73.2	533.2	15.5	72.3	1120.1	18.7	71.9	1344.0	22.8	71.0	1615.7
657	7.3	73.2	537.3	15.6	72.3	1127.1	20.1	71.7	1437.6	23.9	70.5	1681.4
659	7.6	73.1	553.0	16.1	72.3	1166.8	19.8	71.2	1407.1	15.0	70.3	1052.5
661	8.9	72.8	646.9	17.3	72.1	1247.3	20.5	71.7	1468.6	15.1	70.9	1071.9
661	8.1	73.1	593.5	17.0	72.1	1222.8	19.8	71.2	1410.0	20.8	69.9	1451.1
663	8.8	72.9	644.2	16.9	72.1	1218.5	20.3	71.7	1453.1	21.3	70.3	1498.9
663	8.0	73.1	587.7	16.6	72.3	1198.9	20.1	71.3	1429.0	17.9	69.7	1246.7
665	7.3	73.0	535.9	16.2	72.2	1170.9	19.6	71.6	1400.1	15.8	70.9	1119.7
667	7.6	73.0	553.1	16.3	72.3	1180.9	19.8	71.8	1419.7	22.5	70.6	1587.2
668	7.4	73.1	541.9	15.8	72.3	1142.6	18.3	70.5	1291.5	15.1	69.9	1052.2
669	9.1	72.6	662.7	16.9	71.7	1213.6	19.4	71.6	1388.3	15.1	71.1	1075.9
669	7.7	73.0	562.8	16.6	72.3	1195.9	19.1	71.7	1370.4	18.6	71.2	1324.4
670	7.9	73.0	577.2	16.6	72.4	1198.8	18.4	71.1	1306.0	11.2	70.1	787.3
672	9.0	72.8	654.5	16.5	72.0	1190.0	19.1	71.5	1366.1	11.9	70.7	838.4
672	7.6	73.1	556.7	16.3	72.3	1181.1	20.4	71.0	1449.7	23.0	69.9	1610.5
674	8.9	72.8	645.9	17.1	72.0	1228.2	20.7	71.6	1481.6	23.4	70.5	1649.6
674	8.0	73.1	583.9	17.0	72.2	1223.4	16.9	71.4	1208.6	16.1	70.9	1140.7
675	8.1	72.9	592.7	14.9	72.1	1073.9	17.8	71.5	1271.8	16.5	71.0	1172.9

TABLE 18 Continued

675	7.2	73.1	523.0	14.5	72.4	1049.7	16.4	71.7	1176.9	16.3	71.5	1166.1
676	7.8	73.0	568.6	14.3	72.1	1034.1	17.3	71.5	1236.9	16.5	71.4	1176.9
676	7.1	73.1	516.6	14.1	72.3	1015.9	20.9	71.4	1491.8	18.7	67.2	1257.7
677	8.0	73.1	583.7	16.5	72.2	1188.2	17.4	71.5	1244.4	23.0	70.9	1629.2
678	7.2	73.1	524.8	14.3	72.3	1032.9	20.0	71.3	1424.2	25.5	70.2	1792.1
680	7.5	73.0	545.5	14.8	72.2	1066.3	18.5	70.0	1296.0	18.5	67.9	1255.2
682	8.0	72.8	582.9	15.2	71.9	1092.8	18.7	71.3	1330.9	18.8	70.0	1319.7
682	6.6	73.0	482.9	15.0	72.3	1081.5	17.6	71.6	1261.8	11.0	71.4	783.1
684	7.0	73.1	509.1	15.3	72.4	1108.6	17.9	71.5	1281.7	12.3	71.1	876.5
685	6.8	73.1	496.9	15.1	72.4	1092.6	17.6	71.6	1257.9	15.7	71.0	1110.7
686	6.9	73.2	505.4	15.1	72.4	1094.1	16.3	71.6	1166.9	10.8	71.1	767.2
688	8.3	72.8	602.7	15.0	72.1	1083.9	16.7	71.6	1193.6	11.9	71.4	850.5
688	6.8	73.1	496.4	14.8	72.3	1071.2	19.8	70.7	1398.4	23.3	68.5	1597.1
690	8.6	72.9	623.5	16.3	72.0	1173.0	20.1	71.5	1439.1	23.7	69.5	1646.4
690	7.7	73.1	558.9	16.0	72.2	1155.5	15.8	71.7	1130.2	10.8	71.7	773.4
691	8.1	72.8	585.9	14.5	72.0	1046.1	16.1	71.6	1149.5	11.7	71.5	839.4
691	6.6	73.1	484.7	14.6	72.3	1052.1	13.4	71.8	960.2	9.4	71.8	673.9
692	7.5	72.8	545.7	12.6	72.1	911.2	13.7	71.6	978.7	9.8	71.6	705.0
692	6.3	73.1	459.8	13.1	72.4	945.6	21.0	70.5	1477.6	21.7	64.0	1389.2
693	7.2	73.1	527.9	15.4	72.2	1111.7	13.2	71.7	943.2	9.4	71.9	673.0
694	7.4	72.8	537.6	12.4	72.1	894.8	13.4	71.6	959.0	9.8	71.6	702.7
694	6.4	73.1	465.4	12.8	72.3	922.1	18.3	71.2	1300.1	19.2	70.3	1352.1
696	9.4	72.9	683.8	16.9	72.1	1220.1	19.3	71.6	1380.4	19.9	70.6	1401.2
696	7.9	73.1	580.4	16.6	72.3	1196.5	11.9	71.8	855.2	9.5	71.9	686.1

TABLE 18 Continued

697	6.4	72.8	466.8	10.9	72.1	786.9	12.1	71.7	865.3	9.7	71.8	696.3
697	5.8	73.2	420.8	11.1	72.3	805.4	12.0	71.7	860.7	9.6	71.8	688.8
698	5.7	73.1	416.1	11.0	72.4	792.7	11.5	71.9	826.7	10.6	72.0	761.6
700	6.1	72.8	441.0	9.3	72.1	673.2	11.2	71.7	799.8	11.1	71.9	799.4
700	5.6	73.2	406.8	10.0	72.3	723.4	11.4	71.8	820.5	11.0	71.9	786.6
701	5.9	72.8	430.1	9.5	72.0	683.7	11.4	71.7	814.7	11.3	71.9	815.1
701	5.4	73.1	395.7	9.9	72.3	712.7	20.2	70.7	1425.2	16.7	62.6	1047.6
702	7.4	73.1	543.8	15.7	72.2	1133.0	10.7	71.9	766.3	11.2	71.9	802.3
703	5.7	72.8	416.1	8.5	72.1	612.5	10.2	71.7	734.5	11.4	71.8	819.3
703	5.2	73.2	378.0	9.3	72.4	673.8	10.9	72.0	780.3	11.8	72.0	848.1
704	5.8	72.8	420.6	8.6	72.1	617.8	10.4	71.8	745.9	12.0	72.0	863.8
704	5.1	73.2	373.4	9.4	72.4	679.3	19.1	71.4	1360.1	23.4	70.2	1639.1
705	7.3	73.1	535.9	14.4	72.1	1039.0	10.5	71.9	756.1	12.3	72.0	884.0
706	5.1	73.1	370.2	9.4	72.4	678.4	16.7	71.8	1199.6	20.3	71.3	1444.3
709	2.1	73.0	154.9	13.8	71.9	989.4	16.3	72.0	1170.0	20.7	71.4	1477.7
709	1.7	73.3	124.9	14.1	72.3	1016.0	17.2	71.9	1239.1	23.9	70.8	1695.2
710	0.4	72.9	25.2	15.2	72.5	1100.4	19.6	71.1	1389.6	15.0	69.9	1050.4
712	3.0	73.3	223.0	15.6	72.1	1123.6	19.2	71.7	1373.0	15.9	70.9	1124.4
712	2.2	73.6	158.7	15.7	72.5	1137.3	17.7	71.5	1269.1	24.9	70.1	1746.6
714	2.2	73.7	159.8	14.5	72.6	1052.6	20.1	70.4	1415.5	13.6	69.1	939.3
716	4.9	73.1	358.3	17.2	72.0	1235.4	20.5	71.3	1460.8	14.5	70.5	1022.9
716	3.3	73.5	241.8	16.9	72.4	1225.0	20.5	70.9	1456.3	23.5	70.1	1648.1
718	8.8	72.8	642.5	16.7	71.9	1197.4	20.7	71.5	1479.5	24.2	70.6	1709.2
718	7.8	73.1	570.9	16.2	72.3	1172.5	21.1	70.8	1493.9	21.6	65.2	1405.1

TABLE 18 Continued

719	6.6	73.1	478.9	14.8	72.2	1070.8	16.9	71.2	1206.3	16.8	70.3	1181.5
720	8.5	72.8	621.0	15.6	72.0	1124.7	17.3	71.5	1235.9	18.1	70.9	1282.5
720	6.9	73.1	506.8	15.2	72.3	1100.5	17.2	71.1	1226.7	15.3	66.6	1016.4
721	6.7	73.1	486.6	14.6	72.3	1056.9	13.8	71.7	993.1	9.8	71.7	704.8
722	7.5	72.8	542.9	12.7	72.1	919.0	14.0	71.6	1001.7	10.2	71.6	732.6
722	6.2	73.1	452.1	13.2	72.4	957.6	12.6	71.8	905.6	9.5	71.8	681.7
723	6.8	72.8	493.3	11.6	72.1	833.9	12.6	71.6	904.1	9.9	71.6	709.2
723	6.0	73.2	439.6	11.9	72.3	857.3	14.2	71.3	1013.5	22.4	70.4	1577.4
724	5.6	72.9	406.4	9.0	72.1	647.8	13.8	71.8	989.3	22.5	70.8	1594.1
724	4.8	73.2	347.9	9.8	72.5	713.2	18.4	71.3	1314.6	24.3	69.3	1684.7
725	1.7	73.1	121.9	14.5	72.1	1045.4	18.1	71.7	1298.6	24.9	70.0	1739.7
725	1.2	73.5	90.7	14.4	72.6	1044.6	20.3	70.9	1437.2	19.9	64.1	1274.5
726	1.7	73.7	122.4	14.9	72.5	1081.2	19.6	69.8	1365.6	24.3	66.1	1607.2
727	3.8	72.7	273.8	15.8	71.7	1130.5	19.4	71.3	1382.6	25.0	68.6	1715.1
727	2.4	73.7	177.5	15.2	72.4	1101.8	21.7	70.7	1531.5	19.4	62.8	1218.0
728	2.7	73.6	197.1	15.9	72.3	1147.5	14.9	71.7	1065.7	16.3	71.6	1163.4
787	9.7	72.3	699.0	13.0	72.2	934.9	14.1	72.1	1016.1	16.5	72.0	1191.0
787	9.8	72.3	706.1	12.8	72.2	926.4	14.4	72.1	1034.6	14.8	71.8	1063.6
789	10.5	72.4	758.2	13.1	72.4	945.9	14.2	72.2	1024.0	14.7	72.0	1054.3
789	10.6	72.4	764.2	13.4	72.3	970.9	13.9	71.7	997.0	16.6	69.5	1152.9
790	10.2	72.4	736.5	12.8	72.3	928.3	12.1	71.7	868.8	10.5	71.8	754.9
791	5.7	73.2	419.0	11.1	72.3	801.0	12.3	71.8	879.8	11.3	72.0	812.4
792	6.7	72.8	484.0	10.6	72.0	764.6	6.7	72.8	484.0	10.6	72.0	764.6

TABLE 18 Continued

792	6.0	73.1	436.7	11.0	72.3	793.2	12.4	71.7	889.0	11.4	71.9	821.2

Segment 2—Trucks= 25%

Southbound Traffic												
	HOV Lane			Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
342	10.7	72.3	771.4	14.3	72.1	1030.7	17.4	70.5	1223.6	11.7	68.9	805.6
344	11.3	72.3	819.8	13.8	72.3	994.0	17.0	71.9	1219.6	17.2	71.8	1236.9
346	10.6	72.1	764.5	14.3	72.0	1032.5	15.3	71.4	1093.7	11.4	71.4	815.3
349	10.2	72.1	732.4	13.3	72.0	959.5	14.4	71.8	1034.9	11.4	71.8	820.5
350	10.0	72.1	720.8	12.7	71.9	911.3	13.7	71.9	987.0	11.5	71.9	824.8
352	10.4	72.3	749.9	12.9	72.2	927.9	16.2	71.6	1159.3	20.9	68.7	1435.7
353	8.6	72.2	618.0	11.4	72.0	823.2	12.5	71.7	896.7	11.6	71.6	833.2
354	8.6	72.2	617.8	11.3	72.0	810.4	12.5	71.7	896.7	11.5	71.8	825.9
356	8.5	72.2	611.5	11.4	72.0	821.7	12.7	72.0	916.0	12.4	72.0	889.9
360	8.1	72.2	581.4	10.7	72.0	771.9	13.7	72.1	984.7	14.0	71.8	1006.3
361	10.6	72.2	762.8	14.2	71.8	1017.1	17.4	69.9	1216.2	18.5	68.9	1272.4
364	7.8	72.2	562.6	10.8	72.1	774.8	14.0	72.0	1010.6	15.6	71.9	1123.2
365	7.7	72.2	554.9	10.7	72.1	773.9	14.2	72.0	1020.6	16.2	72.0	1168.4
366	8.5	72.1	612.8	11.5	72.0	827.1	13.7	72.0	983.3	14.1	72.1	1014.5
367	8.1	72.2	585.5	10.5	72.0	756.8	13.7	72.0	985.3	13.8	71.9	991.0
369	9.0	72.2	648.9	17.1	71.9	1226.9	21.7	69.4	1508.9	23.5	68.9	1616.5
371	9.5	72.2	684.3	18.4	72.1	1325.1	21.0	70.3	1475.8	24.3	69.3	1681.6
373	10.7	72.3	772.6	18.6	71.8	1334.7	21.5	70.1	1506.7	17.0	68.9	1173.8

TABLE 18 Continued

375	11.8	70.2	830.2	20.0	68.4	1367.2	24.2	59.6	1440.3	26.8	55.0	1472.5
377	17.2	62.5	1077.7	27.5	53.6	1472.6	35.5	39.9	1414.3	43.1	34.7	1495.9
379	32.4	49.8	1612.8	49.3	32.0	1578.3	67.0	14.4	965.5	76.9	7.5	573.4
381	34.3	49.5	1697.9	48.4	33.3	1613.8	70.2	13.3	936.8	91.2	7.9	723.0
384	43.6	45.9	2002.2	64.4	26.7	1718.2	86.5	9.7	837.5	111.0	4.5	499.5
385	58.3	36.9	2151.7	75.6	25.1	1894.0	89.4	9.3	828.9	95.0	5.3	507.5
386	7.9	72.0	570.3	14.0	71.6	1001.1	22.8	68.5	1560.5	29.1	67.1	1949.2
390	55.8	41.9	2336.2	67.4	32.1	2165.6	80.8	11.6	937.0	87.4	10.1	882.9
391	91.2	23.4	2129.8	97.8	21.1	2059.4	90.3	9.6	870.0	94.5	7.0	657.3
392	79.3	27.4	2174.6	84.8	24.8	2099.1	89.3	8.6	764.9	92.3	7.8	717.5
393	68.4	31.1	2125.3	75.5	26.5	2001.4	80.7	13.1	1060.1	92.2	6.0	553.3
397	28.7	71.6	2054.7	28.1	70.8	1984.7	18.2	54.6	996.6	17.6	54.6	962.1
399	28.2	71.6	2016.5	28.9	71.2	2058.3	17.8	60.9	1084.0	21.1	61.0	1286.5
401	24.9	71.2	1772.5	27.4	71.1	1944.5	21.2	67.1	1422.5	15.1	64.2	968.7
403	24.7	71.2	1756.8	27.6	70.8	1954.1	21.1	66.6	1405.1	20.5	64.2	1315.7
405	10.3	72.2	742.0	18.8	71.9	1349.3	21.3	70.4	1497.5	23.6	69.4	1636.8
406	23.7	71.0	1681.3	27.3	70.0	1911.1	23.9	63.9	1527.6	25.1	62.6	1568.4
407	23.0	71.3	1642.1	27.3	70.8	1929.4	22.8	65.1	1480.0	24.6	64.0	1577.7
412	23.5	70.6	1659.7	28.5	69.6	1980.7	23.4	62.5	1462.8	23.5	61.9	1457.5
414	22.9	60.4	1383.4	33.1	48.5	1604.6	50.6	23.9	1208.8	61.9	19.5	1207.8
415	22.0	71.1	1563.4	25.9	71.0	1837.5	22.9	67.1	1535.4	21.1	66.4	1400.0
416	21.9	70.7	1552.4	25.8	70.0	1807.0	24.2	66.0	1595.9	22.1	65.1	1442.4
418	21.3	71.1	1517.3	25.5	70.8	1808.3	22.6	68.2	1541.7	22.7	67.0	1521.0
419	23.2	68.3	1585.0	28.9	66.2	1910.0	28.7	56.7	1629.3	29.2	54.7	1596.2

TABLE 18 Continued

421	26.1	64.5	1683.9	31.7	62.2	1971.8	31.7	50.2	1589.1	34.5	47.9	1653.5
426	25.9	68.8	1783.4	31.1	64.6	2011.7	30.5	50.4	1534.8	34.3	47.9	1641.9
427	27.2	70.2	1911.8	30.9	68.0	2102.2	26.9	53.2	1430.8	27.3	52.8	1441.2
429	27.0	71.0	1915.7	30.1	70.4	2118.8	20.5	60.2	1232.4	18.7	61.0	1139.8
431	31.2	65.3	2032.6	32.9	58.4	1918.3	33.0	37.5	1237.3	38.8	34.7	1343.5
435	36.8	46.2	1696.9	43.1	42.8	1845.6	43.1	29.1	1255.1	43.2	23.2	999.2
436	26.7	71.4	1902.6	28.8	71.3	2052.0	19.8	66.7	1318.3	20.0	65.5	1309.8
436	18.2	72.0	1307.8	29.1	71.3	2072.6	31.7	68.7	2178.7	25.6	58.6	1501.6
437	17.9	72.0	1289.2	28.4	71.2	2023.9	25.3	71.6	1807.5	22.7	71.4	1620.1
438	17.4	71.8	1249.1	26.0	71.6	1857.9	99.3	7.2	714.8	121.9	5.7	689.4
439	72.4	31.8	2300.8	95.5	20.7	1980.6	68.0	21.4	1455.0	74.0	18.5	1365.5
439	32.7	46.5	1519.2	56.3	30.8	1731.5	29.1	70.1	2039.7	25.5	68.7	1748.0
440	18.9	71.6	1353.8	29.5	71.0	2094.1	21.2	68.9	1460.2	20.3	67.7	1373.4
441	22.7	71.3	1621.0	26.1	71.2	1859.2	27.7	70.9	1959.5	25.9	70.1	1815.1
441	18.0	71.8	1292.2	27.8	71.3	1979.1	99.6	6.8	675.3	118.2	6.2	727.2
442	57.7	39.0	2253.3	77.3	25.6	1978.2	94.0	13.4	1259.0	103.9	12.4	1283.7
442	43.3	39.2	1696.4	73.2	23.8	1741.1	101.7	6.1	621.3	121.0	4.1	500.7
443	75.2	30.6	2301.2	96.5	20.8	2007.4	120.3	9.3	1118.0	146.5	6.2	907.6
443	56.9	35.8	2033.6	95.2	19.3	1831.5	30.5	68.4	2087.4	31.5	67.5	2128.2
444	19.1	71.4	1363.1	29.6	70.1	2075.1	101.8	8.5	869.4	104.8	6.6	691.8
445	89.6	24.1	2155.7	96.1	21.5	2069.0	125.2	10.2	1276.2	139.2	8.0	1114.7
445	84.3	26.2	2211.0	106.5	18.0	1915.1	101.0	7.7	774.3	122.0	3.3	396.5
447	70.7	32.2	2272.0	89.8	21.7	1949.0	129.0	8.8	1130.3	172.3	3.8	662.3
447	76.0	29.1	2207.3	104.5	18.2	1897.6	29.7	68.9	2045.7	30.4	68.6	2084.0

TABLE 18 Continued

448	19.4	71.3	1385.9	30.0	70.3	2105.5	54.3	41.8	2270.4	50.6	42.6	2157.1
449	0.1	56.8	3.6	54.1	44.4	2403.3	32.0	50.9	1629.2	34.2	48.2	1647.1
450	16.5	67.3	1109.9	29.8	64.2	1910.8	32.6	60.9	1988.6	34.4	58.1	1996.9
450	13.9	68.8	958.7	30.1	66.5	1997.3	29.8	43.0	1281.0	31.0	40.5	1254.0
451	31.5	57.3	1805.8	36.5	55.3	2019.4	26.1	71.2	1856.3	24.7	70.9	1749.0
451	18.4	71.8	1318.2	27.5	71.4	1962.5	15.8	70.0	1103.3	15.8	69.6	1102.0
452	19.5	72.0	1404.5	23.7	71.6	1694.0	20.4	71.5	1460.1	19.2	71.4	1371.9
452	16.4	72.2	1186.0	24.2	71.6	1732.1	17.1	71.5	1219.8	16.1	71.2	1147.5
453	18.8	71.9	1347.4	22.7	71.7	1627.2	20.5	71.7	1473.0	19.2	71.8	1376.6
453	16.4	72.0	1180.6	23.5	71.6	1679.5	25.5	71.0	1810.4	26.9	69.5	1869.1
454	17.4	71.9	1248.1	25.8	71.4	1840.9	75.3	12.7	953.9	90.9	9.0	816.4
455	46.9	43.6	2047.8	59.1	33.0	1950.8	34.1	51.7	1762.5	33.1	47.7	1576.0
455	19.2	66.3	1275.0	30.2	58.0	1753.9	17.1	71.6	1226.0	17.1	70.7	1207.5
456	16.9	71.9	1211.6	20.3	71.7	1452.4	19.4	71.5	1386.1	19.6	71.5	1401.8
456	14.9	72.0	1073.2	21.4	71.5	1530.9	18.4	70.7	1303.7	17.7	70.2	1245.5
457	17.1	71.7	1224.8	20.3	71.3	1446.4	20.2	71.8	1449.4	20.1	71.8	1445.8
457	15.0	71.8	1079.0	21.3	71.4	1522.7	70.4	26.4	1858.8	67.5	25.4	1716.4
458	30.8	22.2	681.2	88.2	24.4	2155.0	76.5	28.3	2165.8	75.4	28.6	2154.9
458	31.2	21.5	671.6	93.0	22.8	2117.5	102.5	14.0	1436.2	133.7	7.3	979.8
459	65.6	34.0	2228.0	85.1	22.2	1885.8	18.3	71.5	1304.7	18.7	71.1	1330.9
460	15.8	71.8	1131.9	19.6	71.6	1400.2	20.6	71.8	1482.7	21.1	71.8	1515.0
460	13.9	72.0	1003.1	20.0	71.6	1429.2	18.9	70.5	1331.4	20.0	70.1	1398.5
461	14.8	71.7	1062.4	18.8	71.3	1337.6	20.5	71.8	1475.1	22.2	71.7	1590.3
461	12.6	71.9	905.9	19.1	71.7	1367.7	93.7	11.5	1080.2	97.5	7.8	758.5

TABLE 18 Continued

462	68.0	33.0	2247.2	80.7	26.3	2123.8	115.6	12.8	1476.7	132.6	9.1	1200.7
462	72.0	31.5	2270.7	98.8	20.1	1987.6	95.0	16.5	1570.2	126.7	8.7	1096.3
463	59.5	38.5	2292.2	78.2	25.6	1999.0	17.5	71.0	1238.2	19.8	70.0	1383.2
464	13.6	71.9	977.8	17.7	71.8	1271.4	19.4	71.8	1393.5	21.9	71.4	1563.6
464	11.5	72.0	830.4	17.7	71.7	1265.7	18.2	70.5	1282.8	19.6	70.2	1373.8
465	13.4	71.8	962.2	18.1	71.6	1295.2	20.0	71.6	1429.1	22.0	71.3	1566.4
465	11.4	72.0	819.4	17.7	71.6	1264.2	80.3	16.0	1280.9	79.7	15.2	1215.1
466	74.1	29.9	2218.1	80.2	26.3	2105.9	97.3	18.1	1761.4	101.0	16.7	1687.6
466	87.5	24.1	2105.2	96.4	20.7	1996.7	97.2	18.8	1824.9	81.7	22.1	1802.1
467	102.1	19.6	2001.1	126.4	12.7	1599.9	17.1	69.5	1184.7	18.9	67.7	1280.5
468	12.1	71.8	869.1	16.6	71.3	1185.1	17.9	71.9	1284.1	20.5	71.4	1460.9
468	10.3	72.3	742.7	16.2	72.1	1167.3	17.6	68.9	1210.3	18.6	68.5	1270.6
469	12.8	71.6	913.2	17.7	71.1	1257.5	18.6	72.0	1336.8	20.3	71.8	1459.3
469	10.7	72.2	768.9	16.6	71.9	1193.5	42.5	51.9	2207.4	44.6	48.9	2181.0
470	0.0	73.2	2.0	41.4	56.6	2343.9	27.9	66.1	1844.6	27.3	65.6	1788.7
471	17.2	71.9	1235.8	29.8	70.3	2093.7	18.7	72.3	1350.5	20.3	72.1	1460.0
472	10.8	72.3	776.6	16.6	72.1	1198.1	17.6	71.2	1253.2	17.5	70.8	1235.3
478	13.2	71.9	946.3	17.9	71.8	1288.4	18.9	72.2	1365.4	20.2	72.0	1457.9
478	10.9	72.2	786.7	16.8	72.1	1206.5	17.5	62.1	1084.4	17.4	62.1	1078.5
Northbound Traffic												
521	21.2	72.0	1522.6	26.5	71.1	1887.3	23.3	69.5	1621.6	21.0	69.2	1450.8
521	17.3	72.2	1249.5	27.6	71.4	1968.9	15.6	67.4	1049.5	15.2	66.8	1018.1
540	21.1	72.0	1519.3	26.1	71.6	1871.2	21.5	70.9	1523.4	18.8	70.9	1334.9
540	17.6	72.1	1271.4	26.7	71.6	1909.9	14.9	70.9	1058.5	15.2	70.5	1068.0

TABLE 18 Continued

589	10.4	72.3	748.5	13.0	72.1	933.8	14.4	72.1	1036.9	15.2	71.9	1095.4
589	10.2	72.4	739.6	13.2	72.2	952.1	14.2	71.4	1013.8	15.3	70.8	1079.5
590	10.0	72.3	722.6	12.8	72.2	922.8	13.6	72.1	982.1	15.6	71.9	1117.4
590	9.8	72.4	709.3	12.6	72.2	909.5	15.1	71.5	1081.4	16.8	71.1	1191.4
591	9.3	72.2	671.9	12.8	72.2	920.6	14.2	72.1	1021.9	17.0	71.9	1222.4
591	9.1	72.3	657.0	12.2	72.2	883.3	15.8	71.5	1129.6	17.2	71.3	1228.3
593	9.5	72.2	682.7	13.5	72.1	976.3	15.0	72.3	1081.9	17.7	72.1	1275.2
593	9.0	72.2	649.3	12.8	72.2	923.9	15.6	71.9	1120.1	17.8	71.6	1270.8
596	9.2	72.1	665.8	13.4	72.1	964.0	15.5	72.3	1122.2	18.0	71.9	1296.3
596	8.4	72.2	608.5	12.8	72.3	926.9	17.4	71.4	1244.2	18.9	71.2	1342.3
597	0.7	72.1	48.4	19.8	71.2	1409.0	17.4	72.1	1251.2	18.7	72.0	1345.8
597	0.6	72.1	43.3	18.7	71.4	1337.2	17.9	71.4	1279.4	20.1	70.7	1422.6
599	1.5	73.4	109.0	17.3	71.9	1240.6	17.5	72.3	1261.6	20.0	71.7	1435.4
599	0.9	73.4	68.7	16.7	72.0	1199.5	20.0	70.9	1416.5	21.1	70.6	1486.6
601	0.7	73.2	49.1	18.8	71.2	1336.1	18.6	72.3	1343.4	21.1	71.9	1516.5
601	0.4	73.6	29.0	17.4	71.8	1250.5	19.9	71.3	1419.7	21.9	70.5	1542.9
603	1.5	73.1	105.9	17.2	71.9	1238.1	18.8	72.4	1357.8	21.8	71.7	1565.4
603	1.0	73.5	74.6	16.0	72.1	1154.2	20.4	70.3	1432.0	22.8	69.8	1592.7
605	3.4	72.6	245.0	17.6	71.5	1256.2	19.6	72.3	1414.3	23.0	71.8	1651.9
605	2.0	73.7	150.7	16.0	72.1	1151.3	20.0	70.7	1416.1	23.9	69.5	1661.7
608	4.9	73.1	359.8	16.7	71.7	1199.0	19.6	72.1	1414.1	25.2	71.0	1789.4
608	2.8	73.5	208.4	15.4	72.0	1111.1	25.4	66.5	1685.2	30.9	64.4	1987.1
609	7.1	72.1	510.6	18.9	70.6	1337.1	25.2	70.9	1786.7	32.6	68.6	2232.7
609	4.1	72.9	297.2	17.1	71.5	1223.4	22.7	67.9	1541.0	22.8	67.1	1526.3

TABLE 18 Continued

610	10.0	72.6	725.5	21.7	71.5	1555.6	24.4	71.9	1752.3	25.5	71.0	1809.7
610	5.6	73.2	408.7	19.0	72.1	1371.0	21.4	69.4	1487.3	24.7	68.4	1686.8
611	11.0	72.5	798.4	21.5	71.5	1535.2	24.1	71.8	1732.9	28.7	70.3	2015.3
611	6.1	73.1	444.6	18.5	72.0	1332.0	21.7	69.2	1498.5	24.5	67.5	1654.5
613	11.2	72.6	815.5	21.0	71.6	1502.9	23.9	71.6	1710.3	27.5	69.7	1917.8
613	6.6	73.2	485.2	18.9	72.0	1358.4	22.1	69.2	1526.0	24.5	68.1	1670.4
614	11.1	72.5	803.3	21.0	71.5	1502.7	24.2	71.5	1733.0	27.9	70.1	1957.3
614	6.3	73.2	457.6	18.5	72.0	1332.5	21.4	69.5	1487.7	18.0	68.3	1229.0
615	12.1	72.5	878.1	21.8	71.6	1558.4	24.2	71.7	1734.2	20.4	71.0	1446.1
615	7.5	73.2	545.6	19.7	72.1	1418.1	20.0	70.6	1413.2	16.2	70.3	1134.9
617	12.4	72.6	901.3	21.5	71.6	1537.9	23.1	71.8	1655.1	19.2	71.4	1372.4
617	8.0	73.2	587.6	19.7	72.0	1421.1	24.9	71.3	1777.8	23.1	67.7	1561.6
619	6.9	73.2	503.7	19.0	72.1	1371.5	17.9	71.6	1279.1	15.2	71.4	1086.9
620	11.6	72.6	840.2	18.6	71.6	1334.2	20.0	71.7	1433.3	17.3	71.3	1236.6
620	8.0	73.2	587.0	17.5	72.1	1263.7	16.2	71.7	1159.9	14.2	71.4	1017.3
621	11.1	72.6	806.4	17.5	71.7	1252.1	18.1	71.8	1301.0	15.9	71.3	1135.9
621	7.9	73.2	575.1	16.4	72.1	1181.9	19.6	71.2	1395.6	15.6	70.9	1105.0
622	12.7	72.5	922.2	21.0	71.6	1503.0	22.6	71.8	1618.1	18.4	71.4	1316.2
622	8.4	73.1	610.9	19.7	72.0	1415.0	15.9	71.9	1144.5	13.6	71.7	974.5
623	11.2	72.6	810.3	17.1	71.7	1222.5	17.3	71.9	1245.2	15.5	71.5	1104.5
623	8.2	73.1	598.2	16.0	72.1	1154.7	17.5	71.8	1259.7	15.3	71.3	1093.4
624	8.1	73.3	589.5	16.2	72.1	1169.8	19.3	71.4	1374.9	15.6	71.4	1114.9
625	12.9	72.5	933.5	20.7	71.6	1483.1	22.0	71.8	1579.2	18.1	71.4	1292.0
625	8.8	73.1	643.1	19.4	71.9	1393.6	15.6	71.9	1122.9	13.5	71.8	966.8

TABLE 18 Continued

626	10.8	72.6	785.4	16.2	71.7	1161.0	16.6	71.8	1194.3	15.1	71.5	1078.8
626	8.2	73.1	596.7	15.4	72.1	1111.0	17.5	71.8	1259.9	15.3	71.1	1088.5
627	7.9	73.2	578.9	16.0	72.1	1153.7	14.1	71.7	1010.1	12.7	71.8	909.6
629	9.8	72.6	708.8	14.1	71.7	1008.9	14.8	72.0	1061.6	13.6	71.7	977.4
629	7.6	73.2	552.3	13.7	72.1	984.1	14.5	72.0	1046.2	13.8	71.5	984.5
630	7.4	73.1	539.5	13.6	72.2	979.0	14.1	71.9	1011.2	13.4	71.6	958.7
631	9.7	72.5	701.7	14.0	71.6	1001.7	14.7	71.9	1060.5	14.2	71.5	1017.5
631	7.5	73.1	549.4	13.7	72.1	985.1	18.3	70.9	1293.5	20.2	70.6	1424.0
633	9.4	72.6	682.8	14.8	71.8	1063.2	18.1	71.9	1303.8	21.7	71.4	1551.3
633	7.3	73.1	532.2	14.6	72.2	1056.5	14.8	71.9	1061.3	13.7	71.5	983.2
634	7.4	73.1	543.2	13.7	72.1	989.9	16.8	70.5	1186.8	21.6	69.6	1500.7
635	9.2	72.5	666.3	13.7	71.6	976.6	17.0	71.6	1216.4	22.7	70.7	1602.9
635	7.2	73.1	523.1	13.3	72.1	960.0	19.0	71.2	1351.8	23.0	70.2	1618.3
636	9.3	72.6	672.2	14.9	71.9	1070.2	19.1	71.9	1375.8	24.4	70.8	1725.2
636	7.3	73.1	531.7	15.0	72.2	1083.1	19.3	70.3	1354.4	25.4	68.5	1742.5
637	8.9	72.3	641.3	14.9	71.6	1064.0	19.2	71.8	1374.7	26.7	70.2	1869.9
637	6.8	73.1	498.3	14.6	72.3	1056.4	18.4	71.1	1310.5	16.4	70.7	1159.2
639	9.2	72.6	670.4	15.5	72.0	1118.4	18.9	71.9	1361.2	17.9	71.4	1279.9
639	7.0	73.1	512.0	15.3	72.3	1102.0	19.3	71.8	1387.8	19.8	71.2	1409.5
640	6.9	73.2	507.6	15.1	72.3	1093.9	17.9	71.7	1280.4	17.8	71.0	1265.1
642	9.2	72.6	664.6	15.1	71.9	1082.3	18.2	71.9	1309.9	19.1	71.2	1361.8
642	7.1	73.2	521.0	15.3	72.3	1103.7	18.6	71.2	1326.0	19.5	70.8	1379.1
643	8.9	72.6	648.7	14.7	71.8	1058.6	18.7	71.8	1338.8	20.4	71.1	1449.3
643	6.9	73.2	507.3	15.4	72.3	1110.5	18.9	71.4	1350.0	23.5	70.3	1648.6

TABLE 18 Continued

645	9.1	72.6	660.5	14.9	71.9	1068.4	19.0	71.7	1359.9	24.6	70.5	1735.5
645	7.1	73.1	519.9	15.5	72.2	1120.4	19.5	71.3	1390.0	24.5	70.0	1711.3
647	7.1	73.0	515.8	15.4	71.9	1106.5	19.5	71.4	1388.8	20.5	70.6	1448.9
648	9.5	72.6	686.4	15.4	71.8	1109.2	19.6	71.8	1404.0	21.4	71.0	1521.1
648	7.5	73.1	551.5	16.2	72.2	1167.8	19.7	70.3	1382.5	21.1	69.7	1469.1
649	9.5	72.5	691.7	15.8	71.7	1129.4	19.9	71.8	1427.4	21.2	71.2	1512.6
649	7.7	73.0	563.2	16.2	72.2	1169.0	19.7	70.4	1387.2	22.4	69.7	1561.9
651	9.7	72.5	705.3	15.8	71.8	1137.0	19.9	71.8	1427.3	23.0	71.1	1634.0
651	7.8	73.1	570.1	16.2	72.2	1166.9	20.4	71.7	1460.9	22.9	70.8	1620.5
653	8.0	73.1	586.8	16.2	72.3	1168.8	19.3	70.7	1363.5	21.1	69.9	1472.0
654	9.1	72.6	659.8	14.7	71.9	1054.6	18.9	71.8	1357.1	22.0	70.9	1562.4
654	7.1	73.2	519.4	15.3	72.3	1103.5	18.7	71.3	1333.7	18.8	70.6	1329.7
655	9.3	72.6	673.9	14.8	72.0	1065.5	18.6	71.9	1335.4	19.9	71.3	1420.5
655	7.3	73.2	533.2	15.5	72.3	1120.1	18.7	71.9	1344.0	22.8	71.0	1615.7
657	7.3	73.2	537.3	15.6	72.3	1127.1	20.1	71.7	1437.6	23.9	70.5	1681.4
659	7.6	73.1	553.0	16.1	72.3	1166.8	19.5	70.8	1381.2	14.5	69.3	1003.8
661	10.5	72.5	763.2	16.5	71.9	1186.2	20.5	71.7	1468.6	15.1	70.9	1071.9
661	8.1	73.1	593.5	17.0	72.1	1222.8	19.7	70.7	1395.0	19.9	69.4	1383.5
663	10.3	72.5	749.6	16.5	71.9	1182.0	20.3	71.7	1453.1	21.3	70.3	1498.9
663	8.0	73.1	587.7	16.6	72.3	1198.9	20.1	71.3	1429.0	17.9	69.7	1246.7
665	7.3	73.0	535.9	16.2	72.2	1170.9	19.6	71.6	1400.1	15.8	70.9	1119.7
667	7.6	73.0	553.1	16.3	72.3	1180.9	19.8	71.8	1419.7	22.5	70.6	1587.2
668	7.4	73.1	541.9	15.8	72.3	1142.6	18.3	69.8	1275.9	14.7	69.0	1014.9
669	10.1	72.5	729.0	16.6	71.9	1195.6	19.4	71.6	1388.3	15.1	71.1	1075.9

TABLE 18 Continued

669	7.7	73.0	562.8	16.6	72.3	1195.9	19.1	71.7	1370.4	18.6	71.2	1324.4
670	7.9	73.0	577.2	16.6	72.4	1198.8	18.4	70.3	1291.4	11.9	68.2	807.8
672	9.8	72.5	712.2	15.6	71.9	1123.7	19.1	71.5	1366.1	11.9	70.7	838.4
672	7.6	73.1	556.7	16.3	72.3	1181.1	20.3	70.1	1420.8	22.1	69.2	1532.6
674	10.3	72.5	747.4	16.9	71.9	1217.1	20.7	71.6	1481.6	23.4	70.5	1649.6
674	8.0	73.1	583.9	17.0	72.2	1223.4	16.8	70.7	1185.2	16.0	70.0	1117.3
675	8.9	72.5	645.1	14.7	71.9	1059.4	17.8	71.5	1271.8	16.5	71.0	1172.9
675	7.2	73.1	523.0	14.5	72.4	1049.7	16.1	70.6	1135.2	15.7	70.5	1104.1
676	8.6	72.5	623.4	15.0	71.8	1073.7	17.3	71.5	1236.9	16.5	71.4	1176.9
676	7.1	73.1	516.6	14.1	72.3	1015.9	20.9	71.4	1491.8	18.7	67.2	1257.7
677	8.0	73.1	583.7	16.5	72.2	1188.2	17.4	71.5	1244.4	23.0	70.9	1629.2
678	7.2	73.1	524.8	14.3	72.3	1032.9	20.0	71.3	1424.2	25.5	70.2	1792.1
680	7.5	73.0	545.5	14.8	72.2	1066.3	17.9	68.9	1229.6	18.0	66.6	1202.3
682	9.2	72.4	662.4	15.6	71.7	1115.0	18.7	71.3	1330.9	18.8	70.0	1319.7
682	6.6	73.0	482.9	15.0	72.3	1081.5	17.6	71.6	1261.8	11.0	71.4	783.1
684	7.0	73.1	509.1	15.3	72.4	1108.6	17.9	71.5	1281.7	12.3	71.1	876.5
685	6.8	73.1	496.9	15.1	72.4	1092.6	17.6	71.6	1257.9	15.7	71.0	1110.7
686	6.9	73.2	505.4	15.1	72.4	1094.1	16.0	70.9	1134.4	10.8	70.2	758.5
688	9.3	72.5	675.2	14.7	71.9	1054.8	16.7	71.6	1193.6	11.9	71.4	850.5
688	6.8	73.1	496.4	14.8	72.3	1071.2	19.8	69.9	1385.4	22.8	67.5	1538.0
690	9.9	72.6	716.3	15.8	71.8	1135.1	20.1	71.5	1439.1	23.7	69.5	1646.4
690	7.7	73.1	558.9	16.0	72.2	1155.5	15.2	71.5	1084.0	10.5	71.3	751.2
691	9.0	72.5	654.5	14.4	71.9	1035.5	16.1	71.6	1149.5	11.7	71.5	839.4
691	6.6	73.1	484.7	14.6	72.3	1052.1	13.0	71.9	936.6	9.1	71.9	653.3

TABLE 18 Continued

692	8.3	72.5	598.7	12.4	71.9	893.3	13.7	71.6	978.7	9.8	71.6	705.0
692	6.3	73.1	459.8	13.1	72.4	945.6	21.0	70.5	1477.6	21.7	64.0	1389.2
693	7.2	73.1	527.9	15.4	72.2	1111.7	12.8	71.9	921.9	9.0	71.9	648.1
694	8.1	72.5	589.5	12.2	71.8	877.7	13.4	71.6	959.0	9.8	71.6	702.7
694	6.4	73.1	465.4	12.8	72.3	922.1	18.3	71.1	1300.7	18.9	70.2	1324.9
696	10.3	72.5	744.9	16.4	71.8	1174.5	19.3	71.6	1380.4	19.9	70.6	1401.2
696	7.9	73.1	580.4	16.6	72.3	1196.5	11.3	71.9	813.3	9.1	71.9	654.6
697	7.1	72.5	516.9	10.8	71.9	777.6	12.1	71.7	865.3	9.7	71.8	696.3
697	5.8	73.2	420.8	11.1	72.3	805.4	12.0	71.7	860.7	9.6	71.8	688.8
698	5.7	73.1	416.1	11.0	72.4	792.7	11.2	72.1	810.0	10.9	72.2	785.2
700	6.4	72.6	467.0	9.1	71.9	653.3	11.2	71.7	799.8	11.1	71.9	799.4
700	5.6	73.2	406.8	10.0	72.3	723.4	11.4	72.0	819.4	11.2	72.0	805.5
701	6.3	72.6	459.4	9.1	71.8	655.5	11.4	71.7	814.7	11.3	71.9	815.1
701	5.4	73.1	395.7	9.9	72.3	712.7	20.2	70.7	1425.2	16.7	62.6	1047.6
702	7.4	73.1	543.8	15.7	72.2	1133.0	10.4	72.0	751.6	11.5	71.9	824.1
703	6.1	72.6	441.5	8.3	72.0	600.2	10.2	71.7	734.5	11.4	71.8	819.3
703	5.2	73.2	378.0	9.3	72.4	673.8	10.9	72.1	782.5	12.0	72.1	866.4
704	6.2	72.5	452.8	8.4	71.9	604.0	10.4	71.8	745.9	12.0	72.0	863.8
704	5.1	73.2	373.4	9.4	72.4	679.3	19.1	71.4	1360.1	23.4	70.2	1639.1
705	7.3	73.1	535.9	14.4	72.1	1039.0	10.5	71.9	756.1	12.3	72.0	884.0
706	5.1	73.1	370.2	9.4	72.4	678.4	17.2	71.4	1230.0	19.7	70.7	1395.7
709	2.1	72.5	153.6	13.9	71.5	996.4	16.3	72.0	1170.0	20.7	71.4	1477.7
709	1.7	73.3	124.9	14.1	72.3	1016.0	17.2	71.9	1239.1	23.9	70.8	1695.2
710	0.4	72.9	25.2	15.2	72.5	1100.4	19.4	70.0	1356.0	15.2	68.4	1035.9

TABLE 18 Continued

712	3.3	73.1	241.2	15.9	72.0	1146.1	19.2	71.7	1373.0	15.9	70.9	1124.4
712	2.2	73.6	158.7	15.7	72.5	1137.3	17.7	71.5	1269.1	24.9	70.1	1746.6
714	2.2	73.7	159.8	14.5	72.6	1052.6	19.3	68.2	1313.7	13.7	65.6	897.3
716	6.2	72.8	453.7	18.0	71.5	1289.1	20.5	71.3	1460.8	14.5	70.5	1022.9
716	3.3	73.5	241.8	16.9	72.4	1225.0	19.7	69.3	1362.8	22.6	68.5	1544.3
718	10.5	72.3	756.3	17.7	71.6	1267.5	20.7	71.5	1479.5	24.2	70.6	1709.2
718	7.8	73.1	570.9	16.2	72.3	1172.5	21.1	70.8	1493.9	21.6	65.2	1405.1
719	6.6	73.1	478.9	14.8	72.2	1070.8	16.5	70.8	1166.8	16.8	69.8	1168.9
720	9.5	72.5	689.7	15.4	71.8	1103.8	17.3	71.5	1235.9	18.1	70.9	1282.5
720	6.9	73.1	506.8	15.2	72.3	1100.5	17.2	71.1	1226.7	15.3	66.6	1016.4
721	6.7	73.1	486.6	14.6	72.3	1056.9	13.3	71.8	952.5	9.5	71.6	682.0
722	8.2	72.5	596.1	12.8	71.9	916.7	14.0	71.6	1001.7	10.2	71.6	732.6
722	6.2	73.1	452.1	13.2	72.4	957.6	12.0	71.9	865.2	9.2	71.9	662.7
723	7.5	72.5	545.5	11.4	71.8	821.6	12.6	71.6	904.1	9.9	71.6	709.2
723	6.0	73.2	439.6	11.9	72.3	857.3	14.5	71.2	1033.0	22.1	70.2	1553.9
724	5.8	72.6	419.4	8.8	72.0	636.5	13.8	71.8	989.3	22.5	70.8	1594.1
724	4.8	73.2	347.9	9.8	72.5	713.2	18.9	70.9	1337.2	23.9	68.8	1647.7
725	1.8	72.9	130.7	14.6	72.0	1049.3	18.1	71.7	1298.6	24.9	70.0	1739.7
725	1.2	73.5	90.7	14.4	72.6	1044.6	20.3	70.9	1437.2	19.9	64.1	1274.5
726	1.7	73.7	122.4	14.9	72.5	1081.2	19.7	68.1	1342.8	24.1	64.6	1555.1
727	4.5	72.6	329.4	16.1	71.5	1147.8	19.4	71.3	1382.6	25.0	68.6	1715.1
727	2.4	73.7	177.5	15.2	72.4	1101.8	21.7	70.7	1531.5	19.4	62.8	1218.0
728	2.7	73.6	197.1	15.9	72.3	1147.5	15.1	71.4	1081.0	16.2	71.1	1155.0
787	10.0	72.2	718.5	13.3	72.1	958.6	14.1	72.1	1016.1	16.5	72.0	1191.0

TABLE 18 Continued

787	9.8	72.3	706.1	12.8	72.2	926.4	14.5	72.0	1042.5	15.2	71.6	1085.2
789	10.5	72.4	762.2	12.6	72.3	910.4	14.2	72.2	1024.0	14.7	72.0	1054.3
789	10.6	72.4	764.2	13.4	72.3	970.9	13.9	71.7	997.0	16.6	69.5	1152.9
790	10.2	72.4	736.5	12.8	72.3	928.3	12.1	71.7	868.8	10.5	71.8	754.9
791	5.7	73.2	419.0	11.1	72.3	801.0	11.9	72.0	857.8	11.3	72.2	818.4
792	7.3	72.5	528.0	10.1	71.8	724.0	7.3	72.5	528.0	10.1	71.8	724.0
792	6.0	73.1	436.7	11.0	72.3	793.2	12.4	71.7	889.0	11.4	71.9	821.2

Segment 3—Trucks=5%

Southbound Traffic									
	Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
165	9.6	75.2	722.9	10.4	75.3	784.1	11.9	75.0	889.0
277	8.7	74.9	647.8	10.1	75.3	757.8	10.4	74.6	776.3
279	8.7	74.8	651.5	10.1	75.3	757.2	8.3	74.8	617.4
281	8.6	74.9	642.0	10.1	75.4	762.0	8.4	75.0	626.4
283	12.8	75.0	962.3	15.1	74.3	1121.5	11.4	73.0	828.8
286	13.7	74.8	1026.2	16.2	74.3	1204.4	15.3	72.7	1109.9
287	13.6	75.1	1018.6	15.5	74.2	1150.1	13.5	72.0	973.6
289	13.8	75.0	1032.5	15.0	74.1	1112.4	10.4	73.2	762.1
294	14.3	74.9	1068.9	16.5	74.0	1219.6	16.0	73.3	1172.8
295	15.0	75.0	1124.9	17.0	74.2	1261.3	14.7	73.5	1078.0
298	15.2	75.0	1141.8	18.4	74.1	1363.2	20.1	72.6	1457.3
299	17.0	75.0	1275.5	19.4	74.2	1440.3	17.1	72.9	1249.4

TABLE 18 Continued

302	16.1	75.1	1206.0	17.5	74.7	1303.4	25.9	71.8	1862.3
303	18.4	74.8	1375.2	21.1	74.7	1579.1	20.6	72.2	1489.3
306	24.1	73.4	1771.7	25.2	72.1	1817.2	26.6	69.4	1846.0
307	23.0	74.1	1706.1	22.8	73.2	1668.2	15.5	71.9	1117.5
312	20.6	74.2	1527.4	21.6	73.5	1588.0	21.7	72.8	1576.8
314	22.2	73.7	1636.9	23.0	72.9	1680.4	24.8	71.6	1778.5
318	19.7	74.3	1466.4	21.6	73.8	1591.9	21.1	73.0	1539.3
319	19.6	74.1	1454.5	21.0	73.6	1544.6	20.9	73.0	1525.5
321	19.5	74.4	1448.5	22.6	73.4	1655.2	27.3	71.5	1953.5
322	20.9	74.2	1553.7	22.6	73.8	1666.6	21.4	72.8	1554.9
325	19.6	74.5	1461.8	22.3	73.7	1639.8	24.1	72.0	1733.9
326	20.5	74.4	1523.9	21.7	73.6	1600.7	19.4	72.7	1413.5
329	21.5	74.0	1586.2	23.2	72.8	1687.9	25.8	70.1	1810.2
330	22.7	73.8	1678.0	22.2	72.6	1613.8	15.4	71.0	1093.9
333	22.3	73.1	1631.7	23.2	71.7	1666.8	24.0	70.1	1682.6
334	22.2	73.7	1633.6	22.2	73.1	1622.5	17.9	72.8	1302.7
338	21.7	73.8	1601.7	21.6	73.6	1592.2	17.8	73.8	1312.6
342	22.1	73.0	1614.7	23.5	71.6	1683.9	26.2	70.0	1833.9
576	11.8	75.1	883.7	14.3	75.0	1072.2	15.3	73.2	1123.1
Northbound Traffic									
718	15.2	75.1	1143.5	16.3	74.9	1219.7	21.5	74.0	1590.1
720	18.0	74.4	1338.8	19.4	74.1	1440.2	14.0	73.3	1027.9
723	16.7	74.3	1240.8	18.7	73.7	1379.3	22.3	71.9	1605.5
724	17.3	74.3	1284.5	18.4	74.1	1363.4	13.5	73.8	995.4

TABLE 18 Continued

727	17.4	74.3	1288.7	19.9	73.7	1463.8	22.7	71.8	1629.8
728	18.6	74.2	1379.1	19.4	73.6	1431.2	13.3	72.8	964.6
729	15.8	74.6	1175.5	18.7	74.3	1389.2	24.5	71.8	1755.3
731	15.3	75.2	1153.5	15.5	75.0	1163.3	15.6	75.0	1170.1
732	16.3	74.5	1216.3	18.2	73.9	1343.9	17.2	73.5	1264.0
736	15.4	74.6	1146.1	17.5	73.8	1288.1	18.8	72.6	1368.0
737	16.2	74.6	1206.4	17.8	74.0	1314.5	17.7	73.3	1293.3
739	16.5	74.5	1232.3	17.4	74.1	1291.0	15.1	73.8	1115.1
746	15.8	74.7	1183.2	18.8	73.6	1387.8	23.2	70.8	1640.3
747	17.3	74.6	1288.8	18.7	73.8	1383.0	11.2	72.9	818.9
750	17.3	74.6	1292.3	19.0	73.6	1399.3	20.8	71.3	1478.5
751	17.7	74.3	1312.7	17.4	72.9	1270.6	8.7	72.0	623.2
753	15.6	74.6	1164.3	17.3	74.0	1279.1	18.4	73.3	1349.7
754	14.5	74.8	1084.4	15.2	73.9	1126.2	15.8	73.9	1169.8
755	13.8	74.7	1034.0	14.8	74.1	1097.6	11.8	74.4	874.1
758	12.0	74.9	902.1	14.2	74.4	1056.4	16.7	73.7	1231.0
759	12.2	75.0	918.3	14.1	74.6	1048.4	11.5	73.9	850.1
762	13.7	75.0	1026.8	16.2	74.1	1198.8	20.5	72.0	1476.8
763	13.4	75.1	1004.2	15.3	74.0	1131.5	11.6	69.2	804.3
767	13.3	75.3	997.9	14.1	74.4	1046.5	7.9	74.4	590.7
771	12.1	75.0	908.6	13.2	74.1	976.2	8.4	73.7	621.2
774	11.6	74.9	865.3	12.8	74.0	947.3	12.0	73.7	881.8
776	9.3	75.3	702.2	10.1	74.2	746.9	9.1	74.1	673.6
777	8.6	75.2	648.1	9.4	74.3	698.0	6.3	74.7	470.6

TABLE 18 Continued

783	13.0	75.2	976.3	14.0	74.2	1037.9	9.0	74.3	669.8
784	12.6	75.0	941.7	13.7	74.1	1016.9	13.2	73.4	965.6
787	8.9	75.3	671.8	10.1	74.4	748.5	9.9	74.3	737.4
789	14.6	75.0	1094.6	17.6	74.1	1306.3	23.3	72.2	1683.4

Segment 3—Trucks=15%

Southbound Traffic									
	Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
165	9.3	75.1	700.1	10.5	75.3	790.4	12.1	75.0	905.5
277	8.6	75.0	642.8	10.0	75.2	750.4	10.6	74.3	787.9
279	8.7	74.9	651.5	10.0	75.0	746.9	8.4	74.7	627.3
281	8.5	75.0	641.1	10.0	75.1	747.3	8.6	74.9	640.1
283	12.3	75.2	924.6	15.2	74.1	1123.5	11.9	72.9	866.6
286	13.7	74.8	1027.1	16.0	74.0	1181.1	15.6	72.7	1135.8
287	13.5	74.9	1006.5	15.6	73.9	1151.5	13.8	71.3	983.8
289	13.8	74.8	1028.1	15.3	73.7	1129.5	10.3	72.6	748.0
294	14.5	74.6	1083.9	16.4	73.4	1205.8	16.0	72.7	1163.8
295	15.0	74.5	1119.0	17.0	74.0	1255.4	14.8	73.3	1081.3
298	15.2	74.8	1133.9	18.4	73.8	1358.0	20.0	72.6	1448.0
299	16.9	74.5	1255.9	19.2	73.8	1416.5	17.7	72.8	1291.9
302	24.2	53.9	1304.9	27.1	46.0	1248.4	36.2	48.5	1757.4
303	81.8	25.2	2064.8	96.1	12.9	1240.6	110.4	8.8	970.6
306	30.1	68.7	2066.2	26.8	60.3	1618.1	27.5	57.8	1589.8

TABLE 18 Continued

307	23.9	72.9	1737.5	21.3	72.5	1547.3	14.8	71.0	1052.4
312	21.1	72.3	1525.9	21.7	71.1	1540.3	21.2	70.7	1496.0
314	23.4	70.7	1655.4	23.3	69.6	1617.8	24.7	67.9	1678.1
318	19.7	73.1	1440.7	21.5	72.6	1559.4	20.8	72.1	1496.4
319	19.6	72.7	1426.4	21.0	72.1	1514.2	20.3	71.2	1448.5
321	19.0	73.3	1395.7	22.4	72.7	1626.8	26.9	71.4	1924.1
322	20.5	73.3	1502.6	22.5	73.1	1643.8	21.3	72.4	1544.4
325	19.5	73.6	1432.8	21.9	73.3	1602.2	23.6	72.0	1700.9
326	19.9	73.5	1463.8	21.8	73.7	1608.1	19.2	72.8	1396.2
329	23.1	71.2	1641.2	24.5	67.5	1649.4	26.6	64.6	1715.9
330	23.7	72.4	1714.7	22.0	69.8	1536.9	15.8	67.1	1062.1
333	24.4	70.8	1727.0	23.7	66.1	1568.7	25.0	64.3	1607.2
334	23.7	72.5	1717.3	21.8	70.1	1525.9	18.0	69.4	1245.4
338	22.8	72.5	1653.1	21.9	71.5	1567.7	17.6	70.7	1247.6
342	23.7	71.1	1686.5	24.3	68.1	1651.9	26.7	65.6	1753.0
576	12.3	74.9	917.9	14.3	74.8	1065.6	15.1	73.1	1099.1
Northbound Traffic									
718	14.9	75.2	1117.8	16.5	74.7	1233.4	21.7	73.3	1591.7
720	18.2	73.9	1346.8	19.8	73.0	1445.0	14.2	71.8	1015.8
723	17.5	73.3	1283.5	19.6	71.4	1401.3	22.3	69.1	1540.8
724	18.1	73.9	1335.7	18.2	73.1	1327.5	13.5	72.9	984.5
727	18.0	73.5	1324.9	20.1	72.0	1445.3	23.0	70.4	1615.8
728	19.2	73.7	1416.1	19.3	72.5	1396.9	13.5	71.3	961.1
729	16.2	74.1	1196.9	19.3	72.8	1402.4	24.5	70.2	1720.8

TABLE 18 Continued

731	14.8	75.3	1113.7	15.8	74.8	1184.6	15.9	74.8	1188.4
732	16.8	73.9	1242.8	18.0	73.4	1320.0	17.3	73.1	1261.1
736	15.4	74.1	1139.9	17.6	73.9	1299.9	18.8	72.8	1366.4
737	15.9	74.2	1176.0	18.3	74.0	1355.0	17.5	73.4	1287.4
739	15.9	74.1	1178.0	17.8	74.2	1319.0	15.4	74.0	1138.9
746	17.2	73.6	1265.5	19.2	70.7	1354.8	23.9	67.0	1600.0
747	18.7	74.0	1385.8	18.2	72.5	1315.6	11.2	70.8	791.9
750	18.0	73.9	1327.1	19.0	72.8	1381.6	20.7	70.7	1460.5
751	18.1	73.3	1326.6	17.2	71.3	1226.9	9.6	69.2	663.7
753	15.4	74.2	1144.0	17.7	73.9	1311.4	18.5	73.0	1348.3
754	14.5	74.3	1075.6	15.2	73.7	1116.3	16.2	73.3	1187.4
755	13.5	74.3	1004.6	14.9	74.5	1112.2	12.2	74.2	900.6
758	11.6	74.6	866.7	14.4	74.7	1077.1	17.0	73.6	1248.8
759	11.8	74.7	882.3	14.1	74.8	1054.2	11.9	73.9	875.3
762	13.8	74.7	1030.5	16.7	73.6	1227.4	20.4	71.1	1446.2
763	13.6	74.5	1009.6	15.7	73.2	1145.2	11.8	67.4	794.0
767	13.3	74.8	997.2	14.2	73.9	1050.2	7.9	73.7	582.6
771	12.2	74.7	912.9	13.6	73.9	1005.1	8.1	73.4	592.8
774	11.3	74.6	843.6	13.2	74.0	974.2	11.9	73.8	877.6
776	8.5	75.1	636.1	10.7	74.2	792.8	9.3	73.9	683.8
777	8.2	75.1	612.6	9.6	74.2	713.7	6.6	74.5	489.1
783	13.2	74.5	979.8	14.2	73.7	1049.2	8.9	73.8	654.9
784	12.4	74.6	927.7	13.8	73.9	1022.5	13.3	73.5	978.8
787	8.6	75.1	646.0	10.2	74.3	758.8	10.3	74.1	765.3

TABLE 18 Continued

789	14.1	74.4	1051.4	17.9	73.7	1315.3	24.0	71.9	1723.5

Segment 3—Trucks=25%

Southbound Traffic									
	Left lane			Middle lane			Right lane		
Link	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)	Density (vpmpl)	Speed (mph)	Volume (vphpl)
165	9.0	75.3	673.9	10.8	75.0	808.2	12.2	74.8	913.9
277	8.1	75.0	609.9	10.4	74.9	776.9	10.7	74.2	793.9
279	8.2	74.8	613.4	10.4	75.0	780.1	8.5	74.6	635.2
281	8.2	74.8	610.7	10.2	74.9	765.3	8.6	74.8	643.9
283	11.9	74.9	888.8	15.7	73.7	1158.5	11.9	72.6	866.0
286	13.6	74.7	1012.0	16.4	73.5	1204.6	15.6	72.2	1127.1
287	13.2	74.8	986.6	15.4	73.2	1124.8	14.3	71.0	1016.8
289	13.5	74.6	1007.0	15.1	72.6	1096.2	11.1	71.2	791.5
294	15.5	73.9	1147.4	16.3	71.0	1154.0	16.2	70.2	1134.8
295	15.5	74.1	1150.5	16.6	73.4	1221.2	14.7	72.7	1069.5
298	27.4	46.4	1272.9	31.6	38.5	1215.5	36.6	36.3	1330.5
299	68.9	25.4	1747.2	73.3	15.0	1095.4	84.0	9.9	830.6
302	87.6	23.8	2080.1	100.3	9.3	933.3	110.7	6.3	697.0
303	86.0	25.8	2214.9	100.3	10.7	1071.6	104.9	6.5	679.7
306	29.3	69.2	2027.6	25.4	58.2	1480.4	26.3	55.3	1450.8
307	23.2	72.6	1681.4	19.6	69.9	1373.2	15.0	67.6	1017.3
312	21.2	70.8	1499.7	21.3	67.0	1424.6	21.1	65.6	1383.2
314	24.9	66.8	1665.6	22.7	63.8	1450.1	24.9	62.8	1561.1

TABLE 18 Continued

318	19.9	72.8	1445.0	20.3	71.0	1438.1	20.3	69.8	1416.3
319	19.7	72.6	1429.4	19.7	70.2	1381.0	19.6	69.3	1358.1
321	19.0	72.9	1386.9	21.6	70.8	1526.2	25.9	69.8	1806.0
322	20.0	72.9	1460.7	21.6	71.6	1542.4	20.8	71.0	1473.9
325	18.7	73.5	1374.8	21.1	72.8	1533.5	22.8	71.4	1625.2
326	22.7	64.4	1461.4	25.1	60.1	1507.1	23.4	56.6	1322.4
329	25.8	69.0	1777.8	25.5	60.0	1530.2	27.9	57.0	1590.7
330	25.9	71.8	1859.2	20.7	65.2	1352.9	16.1	62.4	1004.5
333	26.0	70.4	1831.5	24.0	62.4	1496.8	25.1	60.3	1511.0
334	25.1	72.2	1813.9	20.9	68.4	1427.2	18.0	66.6	1196.9
338	24.1	72.7	1752.4	20.9	69.5	1450.1	16.7	68.0	1138.7
342	25.3	70.1	1776.3	24.4	63.8	1552.5	26.7	60.6	1619.2
576	12.5	74.1	923.5	14.5	74.0	1070.2	15.0	72.5	1088.8
Northbound Traffic									
718	14.5	74.0	1071.4	17.4	72.5	1264.7	22.3	71.5	1593.4
720	18.8	73.8	1388.2	19.8	70.9	1400.4	14.7	68.9	1013.4
723	18.8	72.6	1363.6	20.2	67.9	1371.5	22.9	66.0	1508.2
724	18.9	72.9	1374.7	18.4	70.3	1295.1	14.2	69.1	979.6
727	21.4	71.0	1518.9	21.4	64.3	1375.9	23.8	62.1	1480.4
728	21.4	73.0	1560.3	18.1	69.2	1254.7	14.1	67.4	949.5
729	16.3	72.8	1186.8	20.2	69.8	1409.2	25.6	67.2	1723.3
731	14.0	75.3	1057.1	16.3	74.7	1214.6	16.3	74.5	1215.3
732	18.0	73.5	1320.5	17.5	72.1	1259.8	17.0	71.4	1212.3
736	15.9	73.5	1167.6	17.2	73.7	1270.1	18.5	72.5	1337.1

TABLE 18 Continued

737	16.0	73.4	1175.4	18.2	73.5	1336.1	17.6	72.9	1284.7
739	15.8	73.6	1164.0	17.8	74.0	1314.2	15.4	73.8	1132.2
746	18.9	71.9	1358.3	20.2	65.4	1320.6	24.8	60.7	1504.5
747	19.8	73.4	1452.4	17.5	69.7	1218.4	12.2	67.0	817.1
750	18.7	72.9	1360.5	19.4	70.8	1373.4	21.3	68.3	1456.5
751	18.4	72.7	1333.8	17.4	68.8	1194.6	10.7	65.0	696.4
753	15.4	73.5	1133.3	17.7	74.0	1305.7	18.4	73.0	1343.6
754	14.7	73.7	1084.6	15.1	72.3	1090.2	16.0	71.9	1150.7
755	13.8	73.8	1018.6	14.7	74.0	1088.8	12.3	73.6	902.8
758	11.5	74.1	853.0	14.3	74.4	1060.8	17.2	73.6	1264.5
759	11.3	74.3	838.8	14.4	74.7	1076.8	12.2	74.0	900.7
762	14.5	73.9	1070.6	17.1	71.4	1217.9	20.4	69.2	1411.2
763	14.2	73.9	1049.3	15.6	71.5	1116.8	12.1	64.1	772.4
767	13.7	74.3	1014.7	13.5	72.7	978.3	8.5	71.5	609.6
771	11.8	74.0	871.2	13.7	73.6	1006.0	8.8	72.3	633.6
774	11.1	73.9	817.6	13.1	73.9	968.9	12.4	73.5	909.7
776	8.6	74.5	640.9	10.4	74.4	777.0	9.5	73.9	703.6
777	8.0	74.4	593.6	9.6	74.5	714.1	6.9	74.6	514.0
783	13.4	73.8	991.0	13.7	72.8	997.7	9.7	72.3	698.8
784	11.9	73.9	882.7	14.0	74.0	1032.8	13.8	73.2	1010.3
787	8.2	74.5	612.9	10.5	74.7	781.4	10.3	74.2	765.2
789	14.0	74.0	1037.3	18.3	72.9	1330.9	23.8	71.2	1691.9

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