APPENDIX A

Florida Department of Transportation

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JOSE ABREU
SECRETARY

MEMORANDUM

DATE: September 12, 2003

TO: Gustavo Schmidt, P.E., District Planning and Environmental Manager

FROM: Scott P. Seeburger, Project Manager

SUBJECT: **I-595 System Interchange Modification Report**
Request to Extend Study Limits
I-595 East of University Drive to East of I95
Broward County, Florida
FM No. 4052261-12-01

This memorandum serves as a Request for Extension of Study Limits for the I-595 Systems Interchange Modification Report (SIMR). The limits would be extended from University Drive to I-75 making the total project limits for the SIMR from east of I-95 to I-75. The revised project limits are consistent with the I-595 Master Plan Locally Preferred Alternative. The methodology to be used will follow that contained in the approved Methodology Letter of Understanding (MLOU), dated February 11, 2003, between the Federal Highway Administration, the Florida Department of Transportation Office of Systems Planning, and the District Four Interchange Review Committee regarding preparation of the SIMR, including the traffic factors.

Scott Seeburger
FDOT Project Manager

Gustavo Schmidt, PE
District Four Interchange Review Coordinator

Don Davis, for Jim St. John
FHWA

Peter Tyndall AICP, for Robert Krzeminski, PE
Central Office Systems Planning Office

METHODOLOGY LETTER OF UNDERSTANDING BETWEEN THE FEDERAL HIGHWAY ADMINISTRATION, THE FLORIDA DEPARTMENT OF TRANSPORTATION OFFICE OF SYSTEMS PLANNING, AND THE DISTRICT FOUR INTERCHANGE REVIEW COMMITTEE FOR PREPARING A SYSTEMS INTERCHANGE MODIFICATION REPORT (SIMR) FOR A PORTION OF I-595 IN BROWARD COUNTY

This document serves as the Methodology Letter of Understanding (MLOU) between the Federal Highway Administration, the Florida Department of Transportation Office of Systems Planning, and the District Four Interchange Review Committee, hereinafter referred to as "the Applicant", regarding preparation of a Systems Interchange Modification Report (SIMR) for a portion of I-595 in Broward County. This SIMR relates to the proposed I-595 Master Plan improvements for the section of interstate between University Drive and I-95, including interchanges at Davie Road, the Florida Turnpike, SR 7 (US 441) and I-95. The SIMR is also consistent with the recently approved Interchange Operational Analysis Report (IOAR) for the I-95/I-595 interchange. This MLOU outlines the criteria, assumptions, processes (analyses) and documentation requirements for this project. The SIMR will serve as a component of the future Project Development and Environmental (PD&E) Study for the same area.

The following sections are included in this MLOU:

1.0 PURPOSE AND NEED FOR THE PROJECT

On I-595 within the Study Area, traffic demand on the mainline exceeds FDOT minimum level of service standards in both directions.

The Florida Department of Transportation strives to attain the goals itemized in its Mission Statement. Included among these goals are:

- Develop, Operate and Preserve the State Highway System.
- Coordinate and Integrate the Transportation Facilities and Services of all Governmental Entities and the Private Sector.
- Provide S afe and Efficient Transportation Facilities and Services for the Movement of People and Goods at a Reasonable Cost.
- Develop and Continuously Maintain a comprehensive Policy Plan and Modal System Plan for a Multi-Modal Statewide Transportation System.

The improvements proposed for the portion of I-595 in Broward County support the Department's efforts to achieve these goals. The proposed system modifications examined in this SIMR will advance the Department's efforts in three major areas:

1. The proposed design will remedy a number of deficiencies, which have been identified within the corridor. These deficiencies include such areas as level of service and weaving segments within the interchanges.
2. The proposed improvements will improve the safety of the study corridor.
3. The improvements are consistent with the long range transportation plans, which has been developed for this area.

2.0 CONSIDERED ALTERNATIVES

No Build Alternative

The No Build Alternative describes the conditions that will exist in the opening year (2014) if no improvements are considered. The conditions that must be described include, at a minimum, the operating conditions along the mainline and at ramp terminals and within the Area of Influence. Since the modification for any interchange proposal is based on a comparison of the No Build and Build Alternatives, identification of the network that is considered in the No Build Alternative in each analysis year is required.

The No Build Alternative must contain the existing transportation network and any funded planned or programmed improvements open to traffic in the analysis year. The No Build alternative will include only those improvements that are elements of the MPO Transportation Improvement Program, the MPO Long Range Transportation Plan (LRTP), the Department's Adopted Five Year Work Program, local government comprehensive plans, or development mitigation improvement projects that are elements of approved development orders. The I-595

causeway and SB-to-WB and NB-to-WB ramp improvements are in the LRTP and the District Four 5-year work program.

Build Alternative

The build alternative is based on a comprehensive evaluation of alternatives in the Master Plan. Two phases for the Build Alternative will be considered. The opening year (2014) includes the proposed Phase I improvements along I-595 at the interchanges with I-95 and Florida's Turnpike. The design year (2034) includes Phase II improvements that are the ultimate build-out of the Master Plan Locally Preferred Alternative (LPA). The LPA includes no new access connections to I-595 or I-95.

The Phase I, or opening year (2014) Build Alternative improvements include:

I-95/I-595 Interchange Improvements

- Construct two lane SB-to-WB I-95 Ramp in ultimate location to meet current design standards
- Construct NB-to-WB I-95 Ramp in ultimate location
- Widen causeway to five lanes to meet current design standards

I-595/Turnpike Interchange Improvements

- Provide direct WB-to-NB ramp to Turnpike in ultimate location including a SR 84 continuous connection
- Provide exclusive NB-to-EB Turnpike ramp that is physically separated and consistent with proposed Turnpike improvements
- Provide a three lane ramp to the Turnpike and auxiliary lane to Griffin Road consistent with Turnpike and D4 plans
- Provide a NB Auxiliary lane from Griffin Road to I-595 exit ramps

I-595 EB-to-Turnpike

- Improved traffic flow through signing and elimination of weave section

The Phase II, or design year (2034) Ultimate Master Plan LPA Buildout improvements include:

- The Collector-Distributor systems from I-95 to Davie Road
- Ultimate interchange improvements at I-95
- Reversible lanes along I-595

The following table specifies the analyses that will be performed for each analysis year:

Table 1. Analysis Design

Analysis Year	Analysis
2002	1. No Build/Existing Conditions
2014	1. No Build 2. Phase I Improvements
Interim	1. Determine when mainline Phase I Improvements exceed capacity
2034	1. No Build 2. Ultimate LPA Buildout

3.0 AREA OF INFLUENCE

The area of influence for the SIMR is the I-595 mainline from University Drive to I-95 including the interchange ramps at University Drive (east ramps only), Davie Road Extension, Florida's Turnpike, SR 7 and I-95. In the westbound direction, the analysis network begins between US 1 and I-95, and extends to include the off-ramp to University Drive. In the eastbound direction, the analysis network begins at the SB-to-EB I-595 on-ramp from University Drive and extends to east of I-95 including the I-595 on-ramps from I-95.

In addition, the preliminary area of influence will include the Turnpike mainline from Griffin Road, including the interchange ramp north of Griffin Road, to the Peters Road's overpass. The area of influence is shown in **Figure 1.**

4.0 ANALYSIS YEARS

The analysis years proposed for this project are as follows:

- Existing Year: 2002
- Opening Year: 2014
- Interim Year: TBD
- Design Year: 2034

The interim year will be determined by failure of the I-595 mainline section within the area of influence.

5.0 EXISTING CONDITIONS

The existing conditions analysis documented in the SIMR will primarily be extracted from the I-95/I-595 Master Plan and updated to 2002. The following information for the SIMR will be taken from the Master Plan.

RSH Raymond, Smithand Hills, Inc.	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	I-595 SYSTEM IMR	AREA OF INFLUENCE	FIGURE 1

- Social Impacts
- Cultural Impacts
- Natural Environment
- Physical Impacts

The year 1998 was the existing year in the Master Plan. As stated in Section 4.0 above, 2002 will be used as the existing year for the SIMR. The directional design hour volumes (DDHV) developed for the I-95/I-595 IOAR will be used as well as the latest traffic count data for the I-595 and Turnpike mainline and ramps. Year 2002 average annual daily traffic (AADT) volumes are available for the mainline and 2001 AADT volumes are available for the I-95 and I-595 ramps. These volumes will be used to develop the 2002 existing year AM and PM peak hour volumes for the mainline and ramps. From this information, 2002 traffic will be estimated and verified with the 1998 existing traffic used in the I-95/I-595 Master Plan.

6.0, 7.0, 8.0 TRAVEL DEMAND FORECASTING

The Southeast Regional Planning Model (SERPM), regression analysis, traffic trend analysis, and the judgment of a team of District Four forecasting experts were used during the Master Plan to develop 2020 DDHV for No-Build and As-Planned scenarios, as well as 2020 AM and PM peak hour volumes for the LPA. It is important that the forecasting be based on the Master Plan forecasts in order to maintain consistency with the forecasted traffic that the Master Plan recommendations have been based on. The 2002 and 2020 No-Build volumes will be used to interpolate for opening year (2014) No-Build conditions.

The 2002 and 2020 As-Planned forecasts will be used to interpolate for 2014 Build conditions. In order to determine when the LPA should begin implementation, an interim year analysis will be conducted to identify the year that the Phase I improvements are expected to fail. This will be when the mainline level of service (LOS) falls below LOS D. The 2014 Build and 2020 As-Planned forecasts will be used to interpolate for the interim year conditions. Should the interim year extend beyond 2020, the 2020 As-Planned forecasts will be projected outward by applying a 2.1 percent compounded annually growth rate to 2025 and 1.8 percent compounded annually to 2034. These rates are consistent with long-term demographic growth in the I-595 travel shed and were verified against University of Florida's Bureau of Economic and Business Research data. The 2020 LPA forecasts will be projected outward to develop volumes for the design year (2034) analysis using the same procedure. The travel demand forecast for this SIMR will be in accordance to the Interchange Handbook.

9.0 DEMOGRAPHIC DATA COLLECTION AND SOURCES

The sources for demographic data (population and employment) within the project study area will include, but not be limited to:

- I-95/I-595 Master Plan
- I-95/I-595 IOAR

- Statistical Abstract, Bureau of Economic and Business Research, University of Florida
- Broward County Metropolitan Planning Organization Traffic Analysis Zone Data

10.0 DATA COLLECTION METHODOLOGY

Data utilized in the existing conditions analysis, existing year travel demand forecast, and future land forecasts will be collected from the I-95/I-595 Master Plan Study.

The most current traffic data including existing traffic counts, AADT data, and classification counts will be obtained.

Crash data obtained for the IOAR will be used for the mainline section within the Area of Influence. This information includes data for the most recent 3-year period (1998-2002) and will be summarized, along with a safety analysis to identify high crash segments/locations.

As part of the I-95/I-595 IOAR, PM peak period travel time runs were conducted on the I-595 mainline for the westbound direction only. For the SIMR, PM peak period travel time runs will be conducted on the I-595 mainline for the eastbound direction. In addition, AM peak period travel time runs will be conducted on the I-595 mainline for both directions. AM and PM peak period travel time will be conducted for both directions on the Turnpike. This data will be used to calibrate and validate the CORSIM Model for use in the operational analysis.

11.0 TRAFFIC FACTORS

The traffic factors used for the SIMR will be the same factors that were approved for use by the Federal Highway Administration for the I-95/I-595 Master Plan Study and are as follows:

Table 2. Traffic Factors

Facility	K_{30}	D_{30}
I-595	8.75%	56%
I-95	7.80%	51%
SR 84	8.75%	56%

The Applicant may propose modifications to the traffic factors during the study should supplemental data suggest more appropriate values. These modifications would employ study techniques acceptable to the FDOT and FHWA.

12.0 CONSISTENCY WITH MASTER PLANS, LGCP AND DRIs

The I-95/I-595 Master Plan will define the SIMR alternatives. They will be consistent with the approved I-95/I-595 Interchange IOAR. This SIMR will maintain consistency with the 2025 Long-

Range Transportation Plan Update, Broward County Local Government Plans and any approved DRIs. This SIMR will serve as an update to the Master Plan and require close coordination with FDOT.

13.0 OPERATIONAL ANALYSIS PROCEDURES

The Highway Capacity Manual, 2000 edition, will be used for the operational analysis of this project. Operational analysis will be performed on mainline segments, ramp merge/diverge, and ramp roadways. The applicant, based upon supplemental data, may suggest modifications or supplements to the analysis. CORSIM may be used to evaluate the weaving areas between interchanges. The CORSIM model will be validated with travel time runs collected for existing conditions. The CORSIM network will be modified accordingly to reflect future conditions for each design year.

14.0 CONCEPTUAL FUNDING PLAN/CONSTRUCTION SCHEDULE

This project will be funded exclusively with federal and state funding grants. District-dedicated revenue will serve as matching funds for Federal National Highway System and Surface Transportation Program funds. All improvements are funded in either the Department Ten-Year FIHS Work Program or the FIHS 2025 Cost Feasible Plan, and are phased for construction sometime during fiscal years 2016 to 2020.

15.0 CONSIDERATION OF OTHER INTERCHANGE PROPOSALS

The proposed Turnpike Enterprise improvements within the area of influence, in particular the I-595/Turnpike interchange, will be included as part of this SIMR. These include widening of the Turnpike mainline and reconstruction of the two flyover ramps (SB on-ramp from I-595, SB off-ramp to I-595).

16.0 METHODOLOGY LETTER OF UNDERSTANDING CONCURRENCE

This MLOU will not be binding upon the FDOT to approve the Interchange Proposal under any circumstances nor will it nullify the FDOT's right to request changes to the study design, require additional data collection, analyses or documentation that may be required at any point during the Interchange Proposal process.

Full compliance with all MLOU requirements does not obligate FDOT or FHWA to approve the Interchange Proposal. Signing by FDOT is non-binding to approve the Interchange Proposal under any circumstances.

Scott Seeburger
FDOT Project Manager

Gustavo Schmidt, P.E.
District Four Interchange Review Coordinator

for Don Davis for Jim St. John
FHWA

Peter Tyndall for Robert Krzeminski, P.E.
Central Office Systems Planning Office

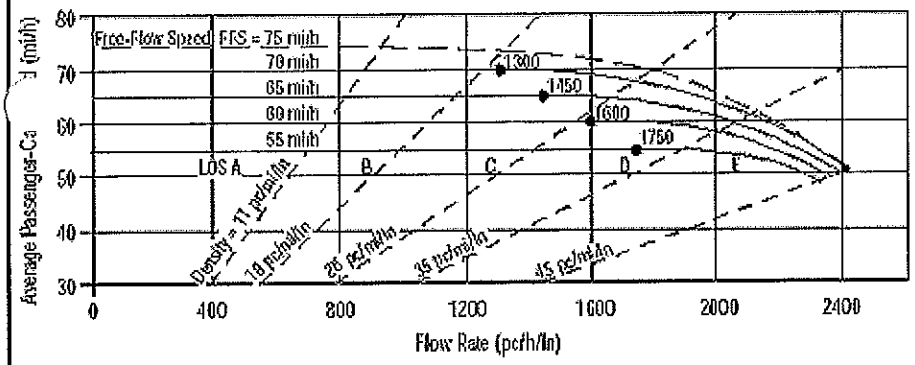
APPENDIX B

YEAR 2002
EXISTING CONDITIONS

BASIC FREEWAY SEGMENTS

I-595

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RSH
Date Performed	10/27/03
Analysis Time Period	AM

Site Information

Highway/Direction of Travel	EASTBOUND I-595
From/To	
Jurisdiction	
Analysis Year	2002

Project Description WEST OF SW 136TH AVE

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5061 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1365	pc/h/ln
S	66.4	mi/h
D = v_p / S	20.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

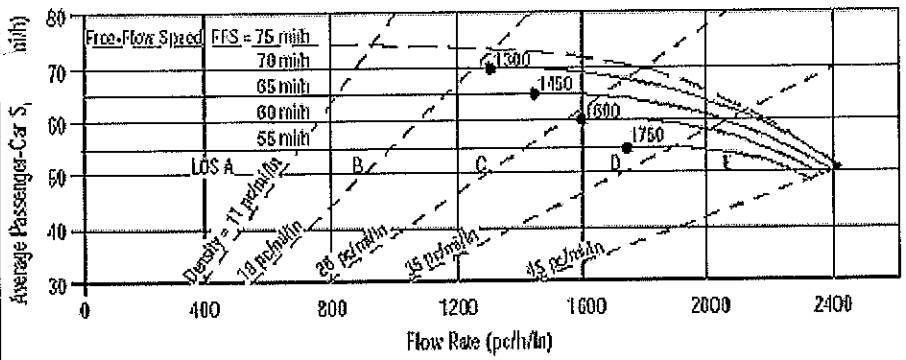
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RSH
Date Performed	10/27/03
Analysis Time Period	PM

Site Information

Highway/Direction of Travel	EASTBOUND I-595
From/To	
Jurisdiction	
Analysis Year	2002

Project Description WEST OF SW 136TH AVE

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4074 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Iculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	l/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1099	pc/h/ln
S	66.4	mi/h
D = v_p / S	16.5	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

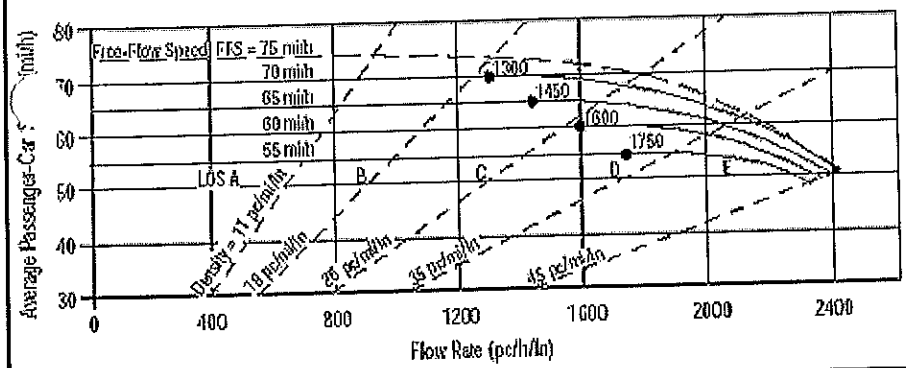
Glossary

N - Number of lanes	S - Speed
Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	10/27/2003
Analysis Time Period	AM Peak Period

Site Information

Highway/Direction of Travel	I-595 EB
From/To	Between TPKE On &I-95 Off
Jurisdiction	
Analysis Year	2002

Project Description VIADUCT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	9397 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2535	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

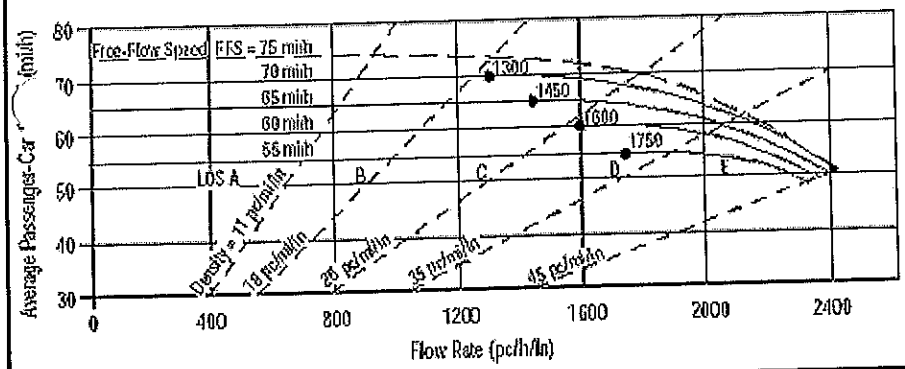
Glossary

N - Number of lanes	S - Speed
Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	10/27/2003
Analysis Time Period	PM Peak Period

Site Information

Highway/Direction of Travel	I-595 EB
From/To	Between TPKE On &I-95 Off
Jurisdiction	
Analysis Year	2002

Project Description VIADUCT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	6543 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1765	pc/h/ln
S	65.4	mi/h
D = v_p / S	27.0	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

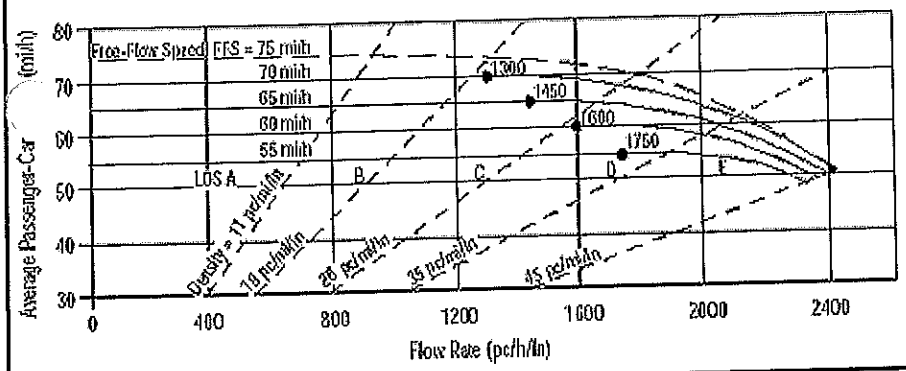
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YM
Agency or Company	RSH
Date Performed	10/27/2003
Analysis Time Period	AM Peak Hour

Site Information

Highway/Direction of Travel	EASTBOUND
From/To	
Jurisdiction	
Analysis Year	Existing

Project Description EB 595 EAST OF I95

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4847 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1307	pc/h/ln
S	66.4	mi/h
D = v_p / S	19.7	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

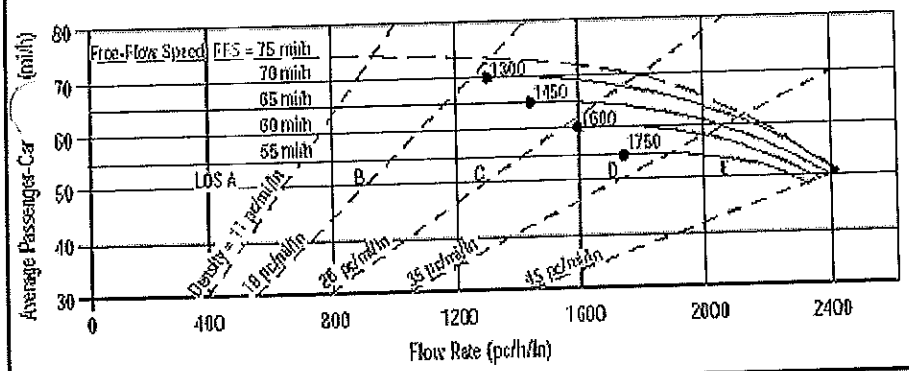
Glossary

N - Number of lanes	S - Speed
Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YM
Agency or Company	RSH
Date Performed	10/27/2003
Analysis Time Period	PM Peak Hour

Site Information

Highway/Direction of Travel	EASTBOUND
From/To	
Jurisdiction	
Analysis Year	Existing

Project Description EB 595 EAST OF I95

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3434 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	926	pc/h/ln
S	66.4	mi/h
D = v_p / S	13.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

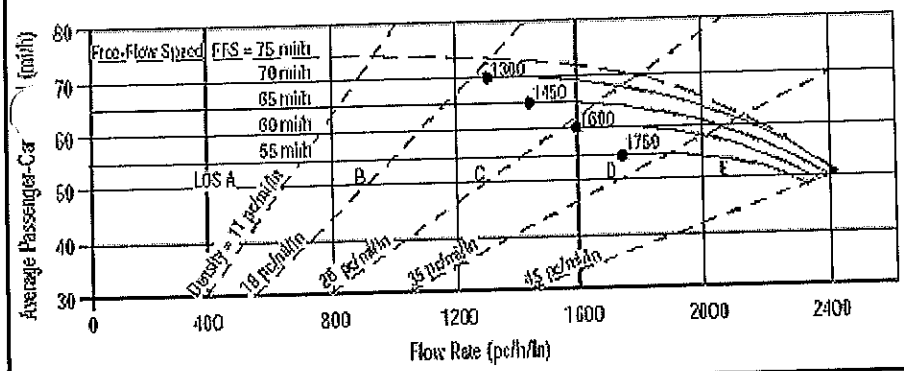
Glossary

N - Number of lanes	S - Speed
Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	PJ
Agency or Company	RSH
Date Performed	10/27/2003
Analysis Time Period	AM Peak Hour

Site Information

Highway/Direction of Travel	WESTBOUND
From/To	
Jurisdiction	
Analysis Year	Existing

Project Description WB 595 EAST OF SB 95 OFF RAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3805 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1026	pc/h/ln
S	66.4	mi/h
D = v_p / S	15.4	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

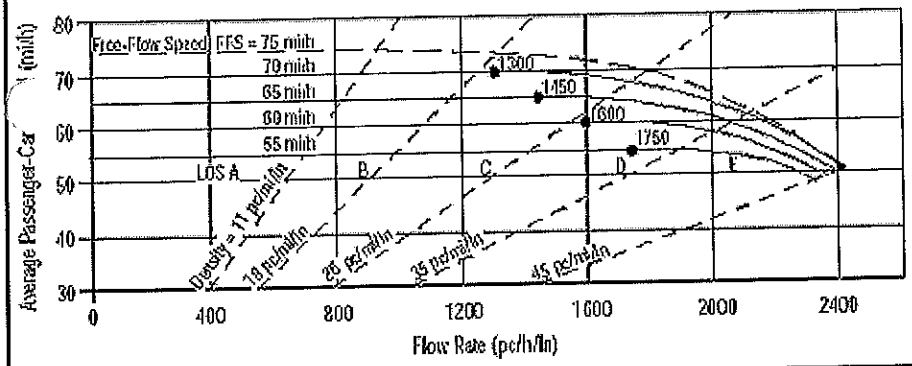
Glossary

N - Number of lanes	S - Speed
Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	PJ
Agency or Company	RSH
Date Performed	10/27/2003
Analysis Time Period	PM Peak Hour

Site Information

Highway/Direction of Travel	WESTBOUND
From/To	
Jurisdiction	
Analysis Year	Existing

Project Description WB 595 EAST OF SB 95 OFF RAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4730 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1276	pc/h/ln
S	66.4	mi/h
D = v_p / S	19.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

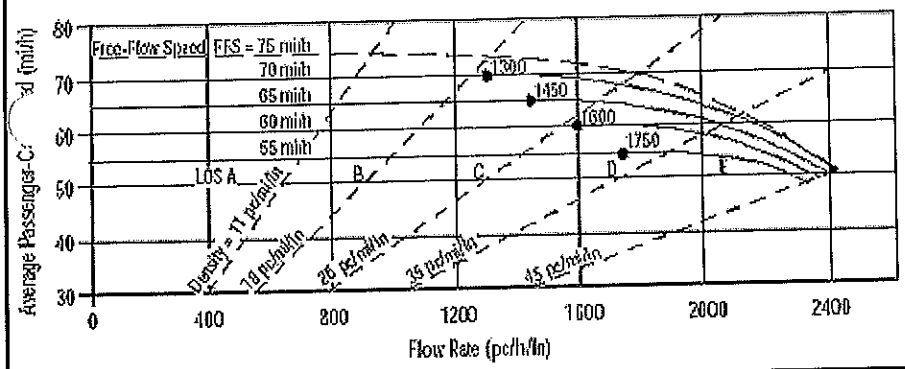
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	10/27/2003
Analysis Time Period	AM Peak Period

Site Information

Highway/Direction of Travel	I-595 WB
From/To	Between I-95 SB and SR 7/TPKE
Jurisdiction	
Analysis Year	2002

Project Description VIADUCT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	6368 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	11.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	l/mi
Number of Lanes, N	5	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	1.9	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	0.0	mi/h
FFS	66.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1374	pc/h/ln
S	66.0	mi/h
D = v_p / S	20.8	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

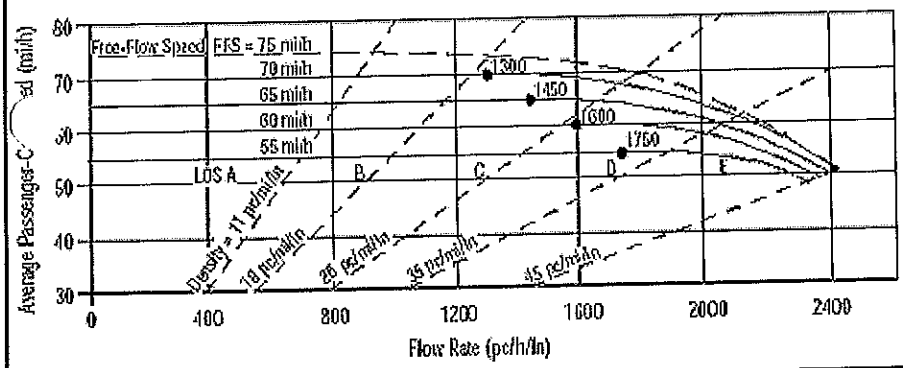
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	10/27/2003
Analysis Time Period	PM Peak Period

Site Information

Highway/Direction of Travel	I-595 WB
From/To	Between I-95 SB and SR 7/TPKE
Jurisdiction	
Analysis Year	2002

Project Description VIADUCT

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	8427 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	11.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	5	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	1.9	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	0.0	mi/h
FFS	66.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1818	pc/h/ln
S	64.6	mi/h
D = v_p / S	28.2	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

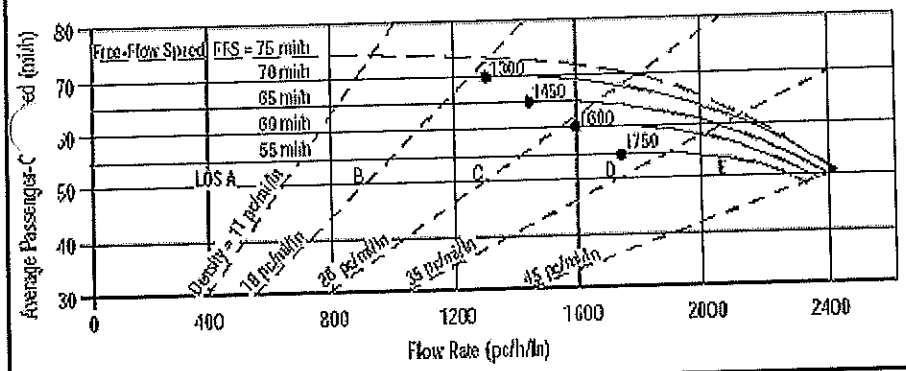
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RSH
Date Performed	10/27/03
Analysis Time Period	AM

Site Information

Highway/Direction of Travel	WESTBOUND I-595
From/To	
Jurisdiction	
Analysis Year	2002

Project Description WEST OF SW 136TH AVE

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4296 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1159	pc/h/ln
S	66.4	mi/h
D = v_p / S	17.4	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

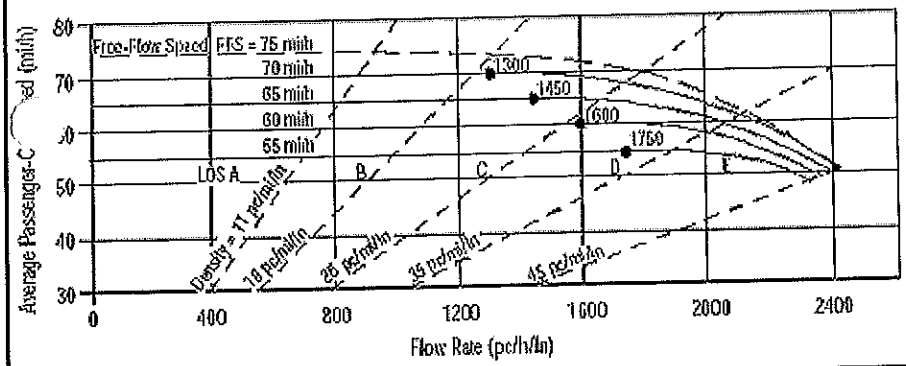
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RSH
Date Performed	10/27/03
Analysis Time Period	PM

Site Information

Highway/Direction of Travel	WESTBOUND I-595
From/To	
Jurisdiction	
Analysis Year	2002

Project Description WEST OF SW 136TH AVE

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5285 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1426	pc/h/ln
S	66.4	mi/h
D = v_p / S	21.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

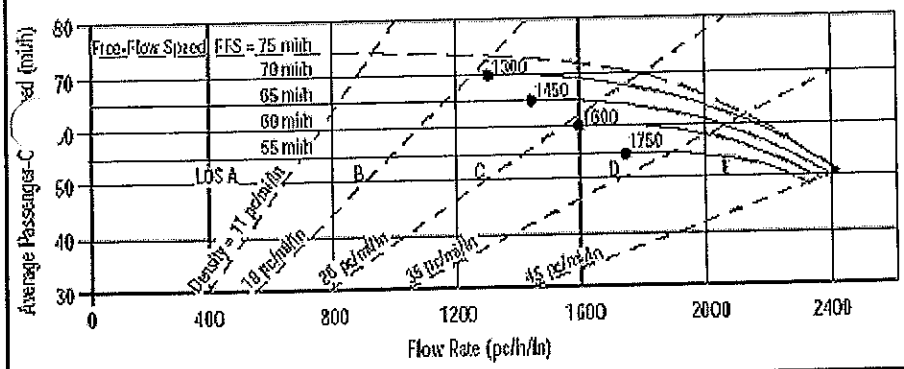
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

TURNPIKE

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/20/03
Analysis Time Period	AM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	NB
Jurisdiction	
Analysis Year	2002

Project Description TURNPIKE NORTHBOUND SOUTH OF GRIFFIN INTERCHANGE

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4651 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	l/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	3.0	mi/h
FFS	66.2	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1673	pc/h/ln
S	65.7	mi/h
D = v_p / S	25.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

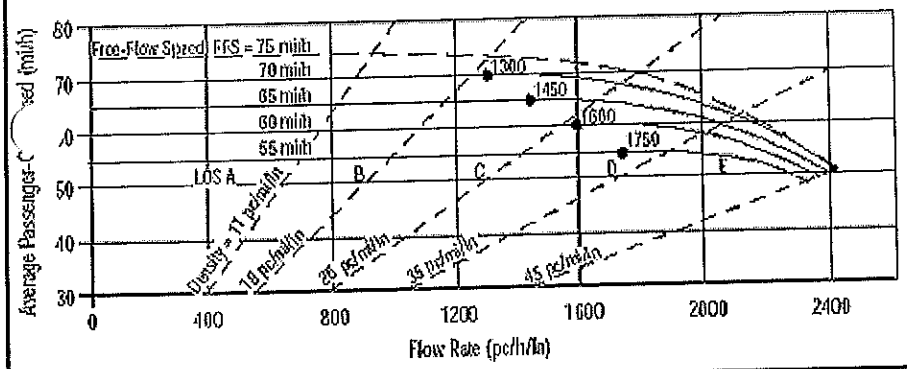
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/20/03
Analysis Time Period	PM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	NB
Jurisdiction	
Analysis Year	2002

Project Description SOUTH OF GRIFFIN INTERCHANGE

☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4136 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	3.0	mi/h
FFS	66.2	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1488	pc/h/ln
S	66.2	mi/h
D = v_p / S	22.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

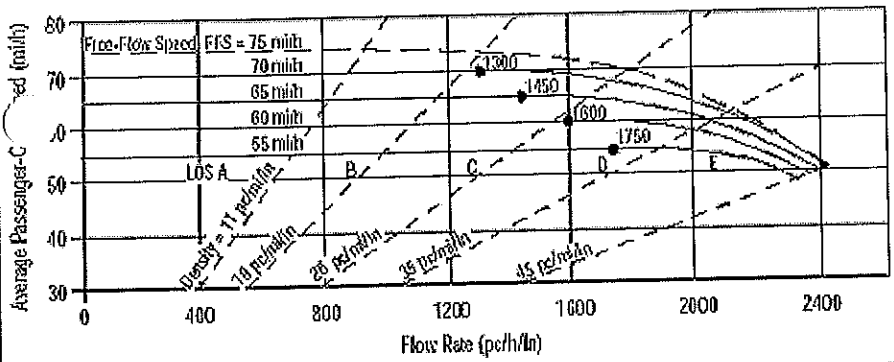
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/20/03
Analysis Time Period	PM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	NB
Jurisdiction	
Analysis Year	2002

Project Description NORTH OF I-595

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4638 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	3.0	mi/h
FFS	66.2	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1668	pc/h/ln
S	65.7	mi/h
D = v_p / S	25.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

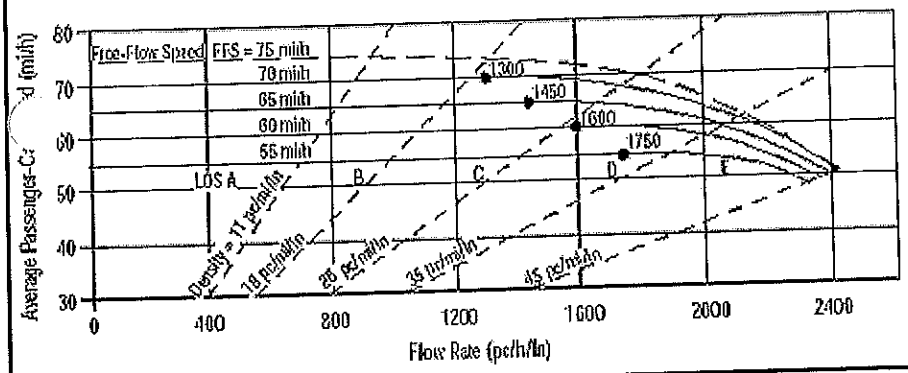
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	10/27/03
Analysis Time Period	AM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	NB
Jurisdiction	
Analysis Year	2002

Project Description NORTH OF I-595

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4765 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	75.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	3.0	mi/h
FFS	71.2	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1714	pc/h/ln
S	69.6	mi/h
D = v_p / S	24.6	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

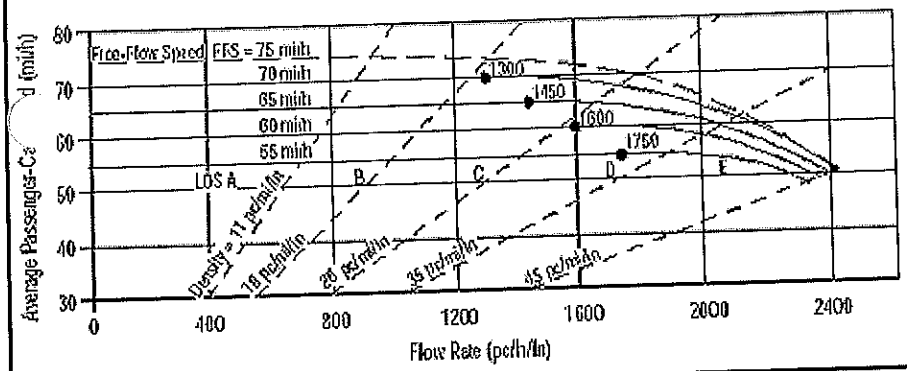
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/20/03
Analysis Time Period	AM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	SB
Jurisdiction	
Analysis Year	2002

Project Description NORTH OF I-595 OFFRAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5204 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	l/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	3.0	mi/h
FFS	66.2	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1872	pc/h/ln
S	64.1	mi/h
D = v_p / S	29.2	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

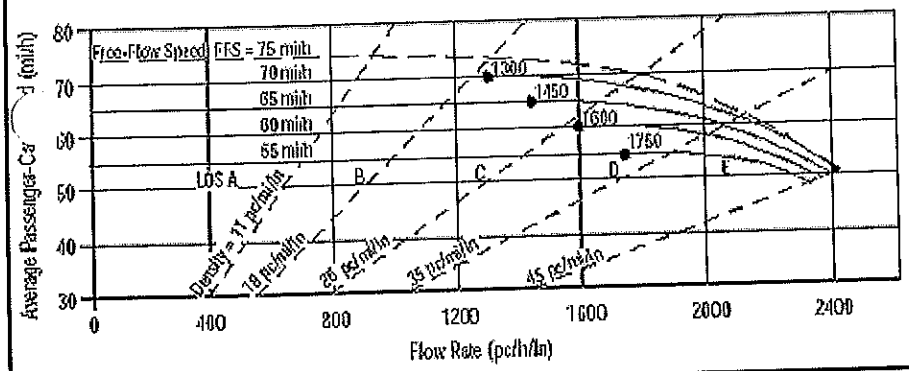
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/20/03
Analysis Time Period	PM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	SB
Jurisdiction	
Analysis Year	2002

Project Description NORTH OF I-595 OFFRAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4710 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	3.0	mi/h
FFS	66.2	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1694	pc/h/ln
S	65.6	mi/h
D = v_p / S	25.8	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

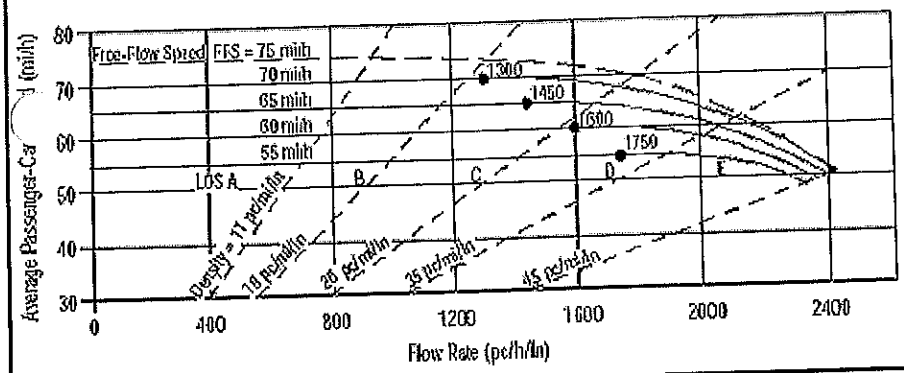
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	10/28/03
Analysis Time Period	AM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	SB
Jurisdiction	
Analysis Year	2002

Project Description TURNPIKE SOUTHBOUND SOUTH OF GRIFFIN OFF-RAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3743 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	3.0	mi/h
FFS	66.2	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1346	pc/h/ln
S	66.2	mi/h
D = v_p / S	20.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

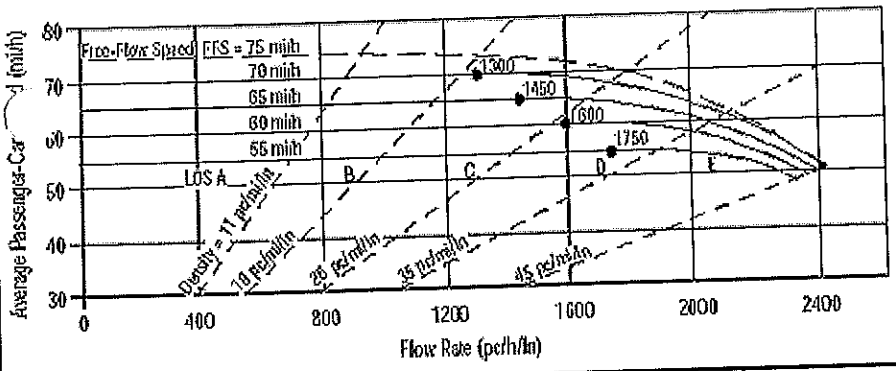
Glossary

N - Number of lanes	S - Speed
v - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	10/28/03
Analysis Time Period	PM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	SB
Jurisdiction	
Analysis Year	2002

Project Description SOUTH OF GRIFFIN OFF-RAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4307 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	l/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	3.0	mi/h
FFS	66.2	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1549	pc/h/ln
S	66.1	mi/h
D = v_p / S	23.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

RAMPS AND RAMP JUNCTIONS

I-595

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

3 South Pine Island Road
Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RSH
Date performed: 10/27/03
Analysis time period: AM Peak Volumes
Freeway/dir or travel: WESTBOUND
Junction:
Jurisdiction:
Analysis Year: 2002
Description: SR 7NB ON RAMP TO WB 595 MERGE

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	6434	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	480	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1560	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1895	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6434	480	1560	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1693	126	411	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6942	510	1659	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 0.228 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1585 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7452	9200	No
v_{R12}	2095	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.326

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_0 = 51.2 mph

Space mean speed for all vehicles, S = 52.0 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

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Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RSH
Date performed: 10/27/03
Analysis time period: PM Peak Volumes
Freeway/dir or travel: WESTBOUND
Junction:
Jurisdiction:
Analysis Year: 2002
Description: SR 7NB ON RAMP TO WB 595 MERGE

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	8198	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	596	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1840	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1895	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8198	596	1840	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	2157	157	484	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8845	634	1956	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 0.213 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1883 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9479	9200	Yes
v_{R12}	2517	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_A - 0.00627\, L$ = 22.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.342

Space mean speed in ramp influence area, S_R = 53.8 mph

Space mean speed in outer lanes, S_0 = 46.4 mph

Space mean speed for all vehicles, S = 48.2 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

3 South Pine Island Road
Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RSH
Date performed: 10/27/03
Analysis time period: AM Peak Volumes
Freeway/dir or travel: WESTBOUND
Junction:
Jurisdiction:
Analysis Year: 2002
Description: SR 84ON RAMP TO WB 595 MERGE (AFT

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5210	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	791	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	651	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2600	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5210	791	651	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1371	208	171	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5621	841	692	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 3293 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6462	6900	No
v_{R12}	4134	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_A - 0.00627\, L$ = 35.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, M_S = 0.537

Space mean speed in ramp influence area, S_R = 50.3 mph

Space mean speed in outer lanes, S_0 = 53.3 mph

Space mean speed for all vehicles, S = 51.4 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

3(South Pine Island Road
Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RSH
Date performed: 10/27/03
Analysis time period: PM Peak Volumes
Freeway/dir or travel: WESTBOUND
Junction:
Jurisdiction:
Analysis Year: 2002
Description: SR 84ON RAMP TO WB 595 MERGE (AFT

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7371	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	637	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	810	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2600	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7371	637	810	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1940	168	213	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7953	677	861	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 4660 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_O	8630	6900	Yes
v_{R12}	5337	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 44.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 1.105

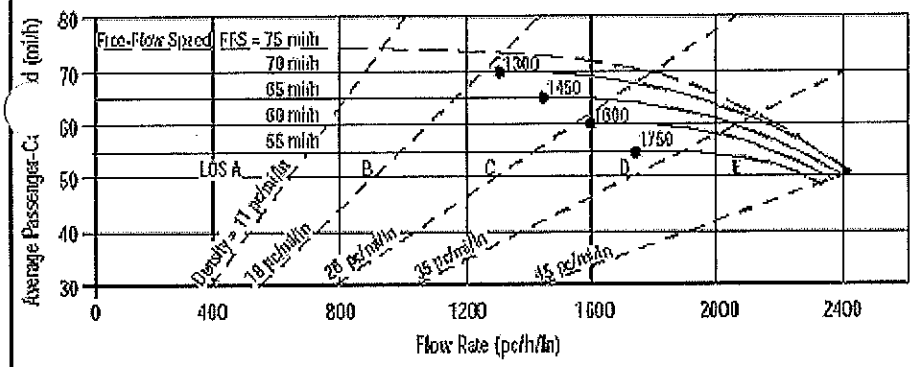
Space mean speed in ramp influence area, S_R = 40.1 mph

Space mean speed in outer lanes, S_0 = 47.5 mph

Space mean speed for all vehicles, S = 42.6 mph

TURNPIKE

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/23/03
Analysis Time Period	AM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	NB
Jurisdiction	
Analysis Year	2002

Project Description GRIFFIN ON RAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5325 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	1.5	mi/h
FFS	67.7	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1436	pc/h/ln
S	67.7	mi/h
D = v_p / S	21.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

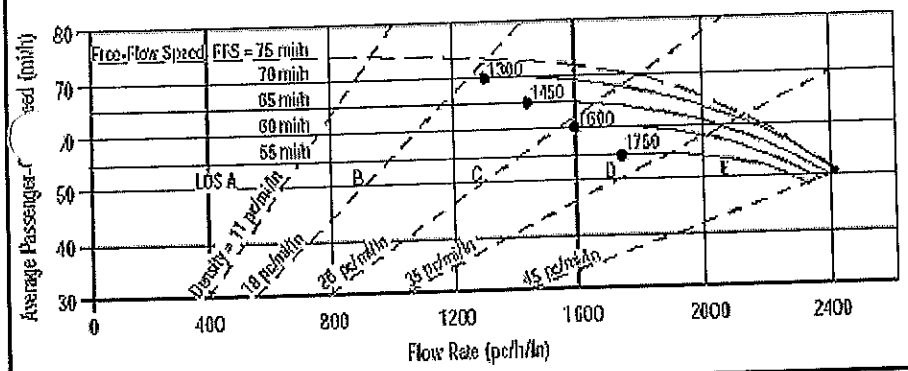
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/20/03
Analysis Time Period	PM PEAK VOLUMES

Site Information

Highway/Direction of Travel	TURNPIKE
From/To	NB
Jurisdiction	
Analysis Year	2002

Project Description GRIFFIN ON RAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4533 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	1.5	mi/h
FFS	67.7	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1223	pc/h/ln
S	67.7	mi/h
D = v_p / S	18.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

HCS2000: Ramps and Ramp Junctions Release 4.1c

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Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RS&H
Date performed: 1/8/04
Analysis time period: AM PEAK VOLUMES
Freeway/dir or travel: NB TURNPIKE
Junction:
Jurisdiction:
Analysis Year: 2002
Description: I-595 ON RAMP TO NB TURNPIKE

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3122	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1643	vph
Length of first accel/decel lane	2500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3122	1643		vph

Peak-hour factor, PHF	0.95	0.95	
Peak 15-min volume, v15	822	432	v
Trucks and buses	5	2	%
Recreational vehicles	0	0	%
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3368	1747	pcph

Estimation of V12 Merge Areas

L_{EQ} = 6210.55 (Equation 25-2 or 25-3)

P_{FM} = 0.647 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2181 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5115	7200	No
v_{R12}	3928	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_A - 0.00627\, L$ = 19.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.294

Space mean speed in ramp influence area, S_R = 61.8 mph

Space mean speed in outer lanes, S_0 = 67.5 mph

Space mean speed for all vehicles, S = 63.0 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

300 South Pine Island Road
Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RS&H
Date performed: 1/8/04
Analysis time period: PM PEAK VOLUMES
Freeway/dir or travel: NB TURNPIKE
Junction:
Jurisdiction:
Analysis Year: 2002
Description: I-595 ON RAMP TO NB TURNPIKE

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	70.0	mph
Volume on freeway	2829	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1809	vph
Length of first accel/decel lane	2500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2829	1809		vph

Peak-hour factor, PHF	0.95	0.95	
Peak 15-min volume, v15	744	476	v
Trucks and buses	5	2	%
Recreational vehicles	0	0	%
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3052	1923	pcph

Estimation of V12 Merge Areas

L_{EQ} = 6210.55 (Equation 25-2 or 25-3)

P_{FM} = 0.647 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1976 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_O	4975	7200	No
v_{R12}	3899	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

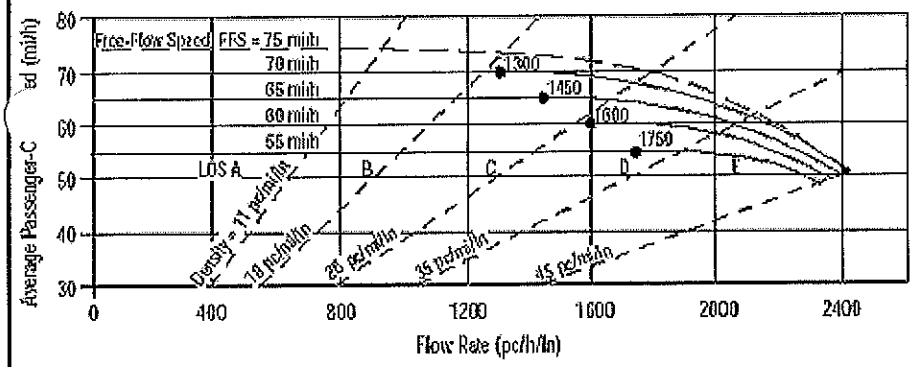
Intermediate speed variable, M_S = 0.288

Space mean speed in ramp influence area, S_R = 61.9 mph

Space mean speed in outer lanes, S_O = 67.9 mph

Space mean speed for all vehicles, S = 63.1 mph

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/20/03
Analysis Time Period	AM PEAK VOLUMES

Site Information

Highway/Direction of Travel	SB TURNPIKE
From/To	
Jurisdiction	
Analysis Year	2002

Project Description Griffin Rd off-ramp

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4183 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	l/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	1.5	mi/h
FFS	67.7	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1128	pc/h/ln
S	67.7	mi/h
D = v_p / S	16.7	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1999	158	157	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8197	639	634	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 0.212 Using Equation 4
FM

v = v (P) = 1740 pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
v FO	8836	9200	No
v R12	2379	4600	No

Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 21.9 pc/mi/ln
R R 12 A

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M = 0.336
S

Space mean speed in ramp influence area, S = 54.0 mph
R

Space mean speed in outer lanes, S = 47.9 mph
0

Space mean speed for all vehicles, S = 49.4 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

3(South Pine Island Road
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Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Diverge Analysis

Analyst: PJ
Agency/Co.: RSH
Date performed: 10/27/2003
Analysis time period: AM Peak Hour
Freeway/dir or travel: EASTBOUND
Junction:
Jurisdiction:
Analysis Year: Existing
Description: EB 595 TO SR 7 OFF RAMP DIVERGE

Freeway Data

Type of analysis	Diverge	
N(nber of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	8567	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	847	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	623	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	1276	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8567	847	623	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	2254	223	164	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9243	900	662	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v - v_F) P_{FD}$ = 4538 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v = v_{Fi}$	9243	9200	Yes
v_{12}	4538	4400	Yes
$v = v - v_{FO}$	8343	9200	No
v_R	900	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 41.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, D_S = 0.379

Space mean speed in ramp influence area, S_R = 53 mph

Space mean speed in outer lanes, S_0 = 60.5 mph

Space mean speed for all vehicles, S = 56.7 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

REYNOLDS, SMITH AND HILLS
REYNOLDS, SMITH AND HILLS

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: PJ
Agency/Co.: RSH
Date performed: 10/27/2003
Analysis time period: PM Peak Hour
Freeway/dir or travel: EASTBOUND
Junction:
Jurisdiction:
Analysis Year: Existing
Description: EB 595 TO SR 7 OFF RAMP DIVERGE

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	6199	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	673	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes
Volume on adjacent ramp	774 vph
Position of adjacent ramp	Downstream
Type of adjacent ramp	Off
Distance to adjacent ramp	1276 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6199	673	774	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1631	177	204	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6688	716	823	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 0.00 (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3320 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_i = v_F$	6688	9200	No
v_{12}	3320	4400	No
$v_{FO} = v - v_R$	5972	9200	No
v_R	716	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 30.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

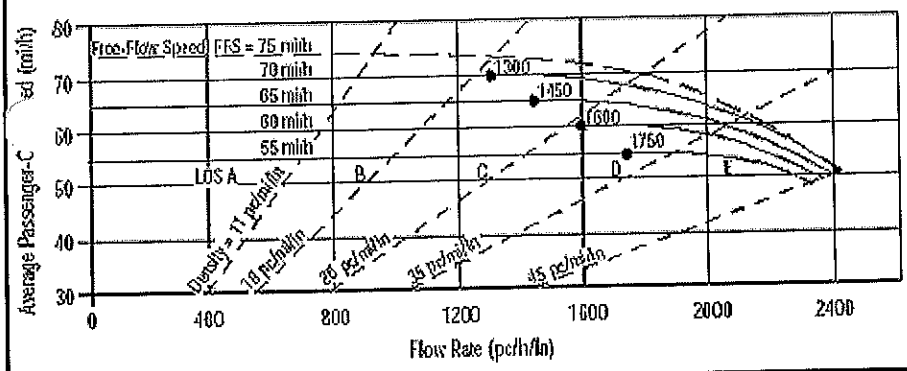
Intermediate speed variable, D_S = 0.362

Space mean speed in ramp influence area, S_R = 53 mph

Space mean speed in outer lanes, S_0 = 63.2 mph

Space mean speed for all vehicles, S = 57.9 mph

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RSH
Date Performed	10/28/03
Analysis Time Period	PM Peak Hour

Site Information

Highway/Direction of Travel	EASTBOUND
From/To	
Jurisdiction	
Analysis Year	Existing

Project Description EB 595 EAST OF SR 84OFF RAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5526 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1491	pc/h/ln
S	66.4	mi/h
D = v_p / S	22.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

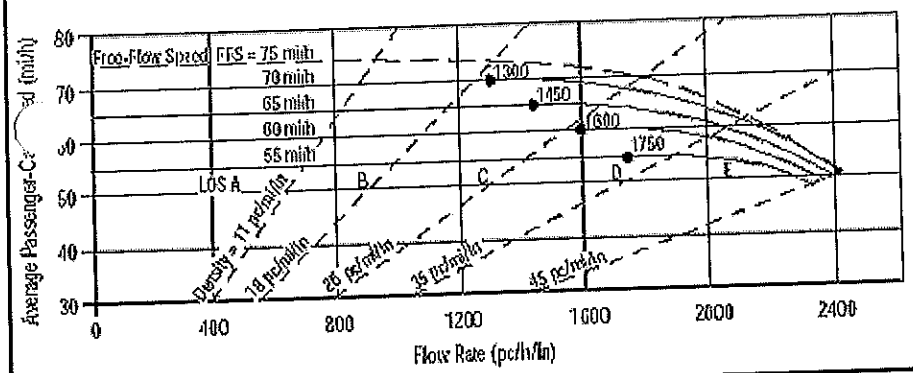
Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	
Agency or Company	RSH
Date Performed	10/28/03
Analysis Time Period	AM Peak Hour

Site Information

Highway/Direction of Travel	EASTBOUND
From/To	
Jurisdiction	
Analysis Year	Existing

Project Description EB 595 EAST OF SR84 OFF RAMP

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	7720 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.91	l/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	2.1	mi/h
f_N	1.5	mi/h
FFS	66.4	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2082	pc/h/ln
S	60.8	mi/h
D = v_p / S	34.2	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

HCS2000: Ramps and Ramp Junctions Release 4.1c

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E-mail:

Merge Analysis

Analyst: PJ
Agency/Co.: RSH
Date performed: 10/27/2003
Analysis time period: AM Peak Hour
Freeway/dir or travel: EASTBOUND
Junction:
Jurisdiction:
Analysis Year: Existing
Description: TURNPIKE ON RAMP TO 595 EB

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7097	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1454	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	846	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1750	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7097	1454	846	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1868	383	223	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7657	1546	899	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 0.600 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 4593 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9203	6900	Yes
v_{R12}	6139	4600	Yes

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 47.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 2.057

Space mean speed in ramp influence area, S_R = 23.0 mph

Space mean speed in outer lanes, S_0 = 48.9 mph

Space mean speed for all vehicles, S = 27.9 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

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Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
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Merge Analysis

Analyst: PJ
Agency/Co.: RSH
Date performed: 10/27/2003
Analysis time period: PM Peak Hour
Freeway/dir or travel: EASTBOUND
Junction:
Jurisdiction:
Analysis Year: Existing
Description: TURNPIKE ON RAMP TO 595 EB

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4752	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1126	vph
Length of first accel/decel lane	800	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	665	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1750	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4752	1126	665	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1251	296	175	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5127	1197	707	pcph

Estimation of V12 Merge Areas

L = 0.00 (Equation 25-2 or 25-3)
EQ

P = 0.600 Using Equation 1
FM

$v_{12} = v_F (P_{FM}) =$ 3076 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6324	6900	No
v_{R12}	4273	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_{R12} + 0.0078\, v_A - 0.00627\, L =$ 33.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.529$

Space mean speed in ramp influence area, $S_R =$ 50.5 mph

Space mean speed in outer lanes, $S_0 =$ 54.4 mph

Space mean speed for all vehicles, $S =$ 51.7 mph

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst2	YLM	Freeway/Dir of Travel	I-595 EB
Agency or Company	RS&H	Junction	I-95 SB On-Ramp
Date Performed	11/23/2004	Jurisdiction	
Analysis Time Period	AM	Analysis Year	Existing

Project Description I-595 SIMR

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☐ No ☐ Off

L_{up} = ft

Vu = veh/h

Terrain Level

S_{FF} = 70.0 mph S_{FR} = 55.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☐ No ☐ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	3847	0.95	Level	5	0	0.976	1.00	4151
Ramp	1000	0.95	Level	2	0	0.990	1.00	1063
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.209 using Equation 0

V_{12}= 868 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5214	See Exhibit 25-7	No
V_{R12}	1931	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = -17.6 (pc/ m/ln)

LOS = A (Exhibit 25-4)

Speed Estimation

M_S = -0.312 (Exibit 25-19)

S_R= 78.7 mph (Exhibit 25-19)

S_0= 65.9 mph (Exhibit 25-19)

S= 70.1 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst2	YLM	Freeway/Dir of Travel	I-595 EB
Agency or Company	RS&H	Junction	I-95 SB On-Ramp
Date Performed	11/23/2004	Jurisdiction	
Analysis Time Period	PM	Analysis Year	Existing

Project Description I-595 SIMR

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☐ No ☐ Off

L_{up} = ft

Vu = veh/h

Terrain Level

S_{FF} = 70.0 mph S_{FR} = 55.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☐ No ☐ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2516	0.95	Level	5	0	0.976	1.00	2715
Ramp	918	0.95	Level	2	0	0.990	1.00	976
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.209 using Equation 0

V_{12}= 567 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3691	See Exhibit 25-7	No
V_{R12}	1543	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = -20.6 (pc/ m/ln)

LOS = A (Exhibit 25-4)

Speed Estimation

M_S = -0.321 (Exibit 25-19)

S_R= 79.0 mph (Exhibit 25-19)

S_0= 67.9 mph (Exhibit 25-19)

S= 72.2 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{Fl}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

3 South Pine Island Road
Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RSH
Date performed: 10/27/03
Analysis time period: AM Peak Volumes
Freeway/dir or travel: WESTBOUND
Junction:
Jurisdiction:
Analysis Year: 2002
Description: SR 84 ON RAMP TO WB 595 MERGE

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4878	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	809	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes
Volume on adjacent Ramp	747 vph
Position of adjacent Ramp	Downstream
Type of adjacent Ramp	On
Distance to adjacent Ramp	1243 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4878	809	747	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1284	213	197	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5263	860	794	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 0.185 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 972 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v	6123	9200	No
v_{FO}	1832	4600	No
v_{R12}			

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.318

Space mean speed in ramp influence area, S_R = 54.3 mph

Space mean speed in outer lanes, S_0 = 54.1 mph

Space mean speed for all vehicles, S = 54.1 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

3 South Pine Island Road
Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RSH
Date performed: 10/27/03
Analysis time period: PM Peak Volumes
Freeway/dir or travel: WESTBOUND
Junction:
Jurisdiction:
Analysis Year: 2002
Description: SR 84 ON RAMP TO WB 595 MERGE

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	6552	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1045	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	601	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1243	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6552	1045	601	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1724	275	158	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7069	1111	639	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 0.153 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1083 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8180	9200	No
v_{R12}	2194	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_{R12} + 0.0078 v_{R12} - 0.00627 L_A$ = 20.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.329

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_0 = 49.3 mph

Space mean speed for all vehicles, S = 50.5 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

3 South Pine Island Road
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Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RSH
Date performed: 10/27/03
Analysis time period: AM Peak Volumes
Freeway/dir or travel: WESTBOUND
Junction:
Jurisdiction:
Analysis Year: 2002
Description: SR 7 SB ON RAMP TO WB 595 MERGE

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5687	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	747	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	480	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1283	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5687	747	480	vph

Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1497	197	126	v
Trucks and buses	5	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.976	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6136	794	510	pcph

Estimation of V12 Merge Areas

L_{EQ} = 0.00 (Equation 25-2 or 25-3)

P_{FM} = 0.193 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1184 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6930	9200	No
v_{R12}	1978	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.322

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_0 = 52.4 mph

Space mean speed for all vehicles, S = 52.9 mph

HCS2000: Ramps and Ramp Junctions Release 4.1c

Reynold Smith and Hills, Inc

3 South Pine Island Road
Plantation, FL 33324

Phone: 954-474-3005 Fax: 954-474-1304
E-mail:

Merge Analysis

Analyst: YLM
Agency/Co.: RSH
Date performed: 10/27/03
Analysis time period: PM Peak Volumes
Freeway/dir or travel: WESTBOUND
Junction:
Jurisdiction:
Analysis Year: 2002
Description: SR 7 SB ON RAMP TO WB 595 MERGE

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	7597	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	601	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

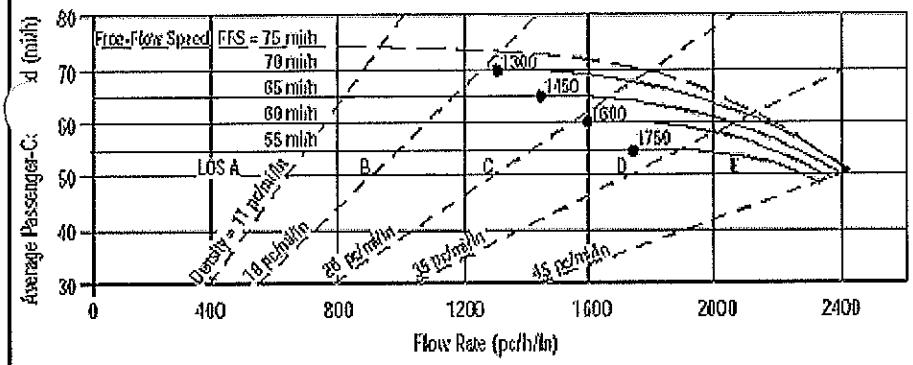
Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	596	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1283	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7597	601	596	vph

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	YLM
Agency or Company	RS&H
Date Performed	3/20/03
Analysis Time Period	PM PEAK VOLUMES

Site Information

Highway/Direction of Travel	SB TURNPIKE
From/To	
Jurisdiction	
Analysis Year	2002

Project Description Griffin Rd off-ramp

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4901 veh/h	Peak-Hour Factor, PHF	0.95
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Level
DDHV = AADT x K x D	veh/h	Grade Length	0.00mi
Driver type adjustment	1.00	Up/Down %	0.00

Calculate Flow Adjustments

	1.00	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.976

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.66	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.8	mi/h
f_N	1.5	mi/h
FFS	67.7	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1322	pc/h/ln
S	67.7	mi/h
D = v_p / S	19.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

MAJOR MERGE AND DIVERGE

HIGHWAY CAPACITY MANUAL ANALYSIS

Major Merge Area Analysis

Where a two-lane on-ramp results in a lane addition, the junction is classified as a major merge area. The Highway Capacity Manual (HCM) analysis is limited to checking capacities on approaching legs and the departing freeway. The capacity of each entering leg and the departing freeway is computed using Exhibit 25-3 (p. 25-4) and Exhibit 25-7 (p. 25-8) in the HCM 2000.

Exhibit 25-3. Approximate Capacity of Ramp Roadways

Free Flow Speed of Ramp , S_{fr} (mi.h)	Capacity (pc/h)	
	Single-Lane Ramps	Two-Lane Ramps
> 50	2200	4400
> 40 - 50	2100	4100
> 30 - 40	2000	3800
>= 20 - 30	1900	3500
< 20	1800	3200

Exhibit 25-7. Capacity Values for Merge Areas

Freeway Free-Flow Speed (mi/h)	Maximum Downstream Freeway Flow, v (pc/h) Number of Lanes in One Direction				Max. Desirable Flow Entering Influence Area, V_{r12} (pc/h)
	2	3	4	> 4	
>= 70	4800	7200	9600	2400/ln	4600
65	4700	7050	9400	2350/ln	4600
60	4600	6900	9200	2300/ln	4600
55	4500	6750	9000	2250/ln	4600

Determining Flow Rate (pc/h)

$v_i = V_i / (PHF \times f_{hv} \times f_p)$ (25-1)

v_i = flow rate for movement i under base conditions during peak 15 min of hour (pc/h)
V_i = hourly volume for movement i (vph)

PHF = peak-hour factor
freeway - 0.95
ramp - 0.95

f_{hv} = adjustment factor for heavy vehicles
freeway - 0.976
ramp - 0.99

f_p = adjustment factor for drive population
freeway - 1.0
ramp - 1.0

Major Diverge Area Analysis

When a two-lane-off-ramp results in a lane drop, it is treated as a major diverge segment. In this case, the entering demand and the departing demand on each exit leg must be checked against the capacity of the approximate entry or departure leg. Equation 25-12 allows the density across all freeway lanes to be estimated for a distance of 1,500 ft upstream of the gore area.
This density can be compared with the LOS criteria in Exhibit 24-4 to determine the LOS in the diverge area.

$D = 0.0109 * (V_F / N)$ (25-12)

D = average density across all freeway lanes for a distance of 1,500 ft upstream of diverge (pc/mi/ln)
V_F = freeway flow rate approaching diverge area (pc/h)
N = number of freeway lanes

Exhibit 25-4. LOS Criteria for Merge and Diverge Areas

LOS	Density (pc/mi/ln)
A	<= 10
B	> 10 - 20
C	> 20 - 28
D	> 28 - 35
E	> 35
F	Demand exceeds capacity

Determining Flow Rate (pc/h)

$V_F = V_i / (PHF \times f_{hv} \times f_p)$

V_F = flow rate for movement i under base conditions during peak 15 min of hour (pc/h)
V_i = hourly volume for movement i (vph)

PHF = peak-hour factor
freeway - 0.95
ramp - 0.95

f_{hv} = adjustment factor for heavy vehicles
freeway - 0.976
ramp - 0.99

f_p = adjustment factor for drive population
freeway - 1.0
ramp - 1.0

Special Cases

When a two-lane, right-hand off-ramp has a single deceleration lane and the left-hand ramp lane splits from Lane 1 of the freeway at the gore area, without a deceleration lane, the following formula needs to be used:

$V_{12} = V_R + (V_F - V_R)(P_{FD})$ $\qquad$ $V_{12\cdot} = V_{12} / (PHF \times f_{hv} \times f_p)$

V_{12} = hourly volume for movement (vph)

$V_{12\cdot}$ = flow rate for movement under base conditions during peak 15 min of hour (pc/h)

PHF = peak-hour factor
freeway - 0.95
ramp - 0.95

P_{FD}=0.450

f_{hv} = adjustment factor for heavy vehicles
freeway - 0.976
ramp - 0.99

f_p = adjustment factor for drive population
freeway - 1.0
ramp - 1.0

$D_R = 4.252 + 0.0086V_{12\cdot} - 0.009L_D$ (Eq.25-10)

D_R= density of diverge influence area(pc/mi/ln)

$V_{12\cdot}$= flow rate entering ramp influence area(pc/h)

L_D= Length of Deceleration Lane (Ft)

2002 Existing Conditions
Major Merge/Diverge Analysis

MERGE ANALYSIS

A 1.1) NB I-95 On-Ramp to EB I-595 (AM)

Approaching Freeway Volume:
Vi = 2,647 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 2,855 (pc/h) < capacity = 6,900

Ramp Volume:
Vi = 1,200 PHF = 0.95 fhv = 0.99 fp = 1.00

vi = 1,276 (pc/h) < capacity = 4,100

Departing Freeway Volume:
Vi = 3,847 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 4,149 (pc/h) < capacity = 9,200

A 1.2) NB I-95 On-Ramp to EB I-595 (PM)

Approaching Freeway Volume:
Vi = 1,473 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 1,589 (pc/h) < capacity = 6,900

Ramp Volume:
Vi = 1,043 PHF = 0.95 fhv = 0.99 fp = 1.00

vi = 1,109 (pc/h) < capacity = 4,100

Departing Freeway Volume:
Vi = 2,516 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 2,714 (pc/h) < capacity = 9,200

A 2.1) NB I-95 On-Ramp to WB I-595 (AM)

Approaching Freeway Volume:
Vi = 1,510 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 1,629 (pc/h) < capacity = 4,600

Ramp Volume:
Vi = 2,128 PHF = 0.95 fhv = 0.99 fp = 1.00

vi = 2,263 (pc/h) < capacity = 4,100

Departing Freeway Volume:
Vi = 3,638 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 3,924 (pc/h) < capacity = 6,900

2002 Existing Conditions
Major Merge/Diverge Analysis

A 2.2) NB I-95 On-Ramp to WB I-595 (PM)

Approaching Freeway Volume:
Vi = 2,477 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 2,671 (pc/h) < capacity = 4,600

Ramp Volume:
Vi = 2,550 PHF = 0.95 fhv = 0.99 fp = 1.00

vi = 2,711 (pc/h) < capacity = 4,100

Departing Freeway Volume:
Vi = 5,027 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 5,422 (pc/h) < capacity = 6,900

A 3.1) SB I-95 On-Ramp to WB I-595 (AM)

Approaching Freeway Volume:
Vi = 3,638 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 3,924 (pc/h) < capacity = 6,900

Ramp Volume:
Vi = 2,703 PHF = 0.95 fhv = 0.99 fp = 1.00

vi = 2,874 (pc/h) < capacity = 4,100

Departing Freeway Volume:
Vi = 6,368 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 6,868 (pc/h) < capacity = 11,500

A 3.2) SB I-95 On-Ramp to WB I-595 (PM)

Approaching Freeway Volume:
Vi = 5,027 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 5,422 (pc/h) < capacity = 6,900

Ramp Volume:
Vi = 3,400 PHF = 0.95 fhv = 0.99 fp = 1.00

vi = 3,615 (pc/h) < capacity = 4,100

Departing Freeway Volume:
Vi = 8,427 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 9,089 (pc/h) < capacity = 11,500

2002 Existing Conditions
Major Merge/Diverge Analysis

A 4.1) I-595 On-Ramp to SB Turnpike (AM)

Approaching Freeway Volume:
Vi = 2,436 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 2,627 (pc/h) < capacity = 7,200

Ramp Volume:
Vi = 1,747 PHF = 0.95 fhv = 0.99 fp = 1.00

vi = 1,858 (pc/h) < capacity = 4,100

Departing Freeway Volume:
Vi = 4,183 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 4,511 (pc/h) < capacity = 9,600

A 4.2) I-595 On-Ramp to SB Turnpike (PM)

Approaching Freeway Volume:
Vi = 2,598 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 2,802 (pc/h) < capacity = 7,200

Ramp Volume:
Vi = 2,303 PHF = 0.95 fhv = 0.99 fp = 1.00

vi = 2,449 (pc/h) < capacity = 4,100

Departing Freeway Volume:
Vi = 4,901 PHF = 0.95 fhv = 0.976 fp = 1.00

vi = 5,286 (pc/h) < capacity = 9,600

2002 Existing Conditions
Major Merge/Diverge Analysis

DIVERGE ANALYSIS

B 1.1 EB I-595 Off-Ramp to NB I-95 (AM)

Vi = 9,397 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 10,135 (pc/h)

N = 4

Therefore **D = 27.62 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 27.62 > 20 - 28 Exhibit 25-4 gives LOS as C in the diverge area.

Level of Service = C

B 1.2 EB I-595 Off-Ramp to NB I-95 (PM)

Vi = 6,543 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 7,057 (pc/h)

N = 4

Therefore **D = 19.23 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 19.23 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

B 2.1 EB I-595 Off-Ramp to SB I-95 (AM)

Vi = 6,097 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 6,576 (pc/h)

N = 3

Therefore **D = 23.89 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 23.89 > 20 - 28 Exhibit 25-4 gives LOS as C in the diverge area.

Level of Service = C

2002 Existing Conditions
Major Merge/Diverge Analysis

B 2.2 EB I-595 Off-Ramp to SB I-95 (PM)

Vi = 4,143 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 4,468 (pc/h)

N = 3

Therefore **D = 16.23 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 16.23 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

B 3.1 WB I-595 Off-Ramp to SB I-95 (AM)

Vi = 3,805 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 4,104 (pc/h)

N = 4

Therefore **D = 11.18 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 11.18 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

B 3.2 WB I-595 Off-Ramp to SB I-95 (PM)

Vi = 4,730 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 5,101 (pc/h)

N = 4

Therefore **D = 13.90 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 13.90 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

2002 Existing Conditions
Major Merge/Diverge Analysis

B 4.1 WB I-595 Off-Ramp NB I-95 (AM)

Vi = 2,803 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 3,023 (pc/h)

N = 3

Therefore **D = 10.98 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 10.98 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

B 4.2 WB I-595 Off-Ramp NB I-95 (PM)

Vi = 3,437 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 3,707 (pc/h)

N = 3

Therefore **D = 13.47 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 13.47 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

B 5.1 WB I-595 Off-Ramp SR 7/Turnpike (AM)

Vi = 6,368 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 6,868 (pc/h)

N = 5

Therefore **D = 14.97 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 14.97 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

2002 Existing Conditions
Major Merge/Diverge Analysis

B 5.2 WB I-595 Off-Ramp SR7/Turnpike (PM)

Vi = 8,427 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 9,089 (pc/h)

N = 5

Therefore **D = 19.81 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 19.81 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

B 6.1 WB I-595 Off-Ramp University Drive (AM)

Vi = 7,150 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 7,711 (pc/h)

N = 4

Therefore **D = 21.01 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 21.01 > 20 - 28 Exhibit 25-4 gives LOS as C in the diverge area.

Level of Service = C

B 6.2 WB I-595 Off-Ramp University Drive (PM)

Vi = 8,989 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 9,695 (pc/h)

N = 4

Therefore **D = 26.42 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 26.42 > 20 - 28 Exhibit 25-4 gives LOS as C in the diverge area.

Level of Service = C

2002 Existing Conditions
Major Merge/Diverge Analysis

B 7.1 NB Turnpike Off-Ramp I-595 (AM)

Vi = 5,325 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 5,743 (pc/h)

N = 4

Therefore **D = 15.65 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 15.65 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

B 7.2 NB Turnpike Off-Ramp I-595 (PM)

Vi = 4,533 PHF = 0.95 fhv = 0.976 fp = 1.00

V_F = 4,889 (pc/h)

N = 4

Therefore **D = 13.32 pc/mi/ln**

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 13.32 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

B 8.1 SB Turnpike Off-Ramp I-595 (AM)

V_F = 5,204 PHF = 0.95 fhv = 0.976 fp = 1.00 Pfd = 0.45

$V_{12}=V_R+(V_F-V_R)(P_{FD})$ V_R= 2768 V_{12}= 3864.2

V_{12}= 4167.601 $L_{D=}$ 2000

D = 22.09 pc/mi/ln

Therefore

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 22.09> 20-28 Exhibit 25-4 gives LOS as C in the diverge area.

Level of Service = C

2002 Existing Conditions
Major Merge/Diverge Analysis

B 8.2 SB Turnpike Off-Ramp I-595 (PM)

V_F = 4,710	PHF = 0.95	fhv = 0.976	fp = 1.00	Pfd = 0.45
$V_{12}=V_R+(V_F-V_R)(P_{FD})$	V_R= 2112	V_{12}= 3281.1		
	V_{12}= 3538.719	L_D= 2000		

D = 16.68 pc/mi/ln

Therefore

To determine the LOS in the diverge area, the above calculated density is compared with Exhibit 25-4 (p.25-5) of the HCM 2000.

For D = 16.68 > 10 - 20 Exhibit 25-4 gives LOS as B in the diverge area.

Level of Service = B

WEAVING

I-595

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/20/04
Analysis Time Period	AM Peak Period

Site Information

Freeway/Dir of Travel	I-595 EB
Weaving Seg Location	Between SW 136 and Flamingo
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.30
Weaving seg length, L (ft)	650	Weaving ratio, R	0.25
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	fHV	fp	v
Vo1	4581	0.95	5	0	1.5	1.2	0.976	1.00	4942
Vo2	0	0.95	2	0	1.5	1.2	0.990	1.00	0
Vw1	1467	0.95	2	0	1.5	1.2	0.990	1.00	1559
Vw2	480	0.95	2	0	1.5	1.2	0.990	1.00	510
Vw				2069	Vnw				4942
V									7011

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.92	0.54
Weaving and non-weaving speeds, Si (mi/h)			25.16	47.49

Number of lanes required for unconstrained operation, Nw 1.80
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	37.64
Weaving segment density, D (pc/mi/ln)	37.26
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	8465
Capacity as a 15-minute flow rate, c (veh/h)	8259
Capacity as a full-hour volume, c_h (veh/h)	7846

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/20/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	I-595 EASTBOUND
Weaving Seg Location	BETWEEN SW136AVE AND FLAMINGO
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.31
Weaving seg length, L (ft)	650	Weaving ratio, R	0.29
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	fHV	fp	v
Vo1	3594	0.95	5	0	1.5	1.2	0.976	1.00	3877
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	1181	0.95	2	0	1.5	1.2	0.990	1.00	1255
Vw2	480	0.95	2	0	1.5	1.2	0.990	1.00	510
Vw				1765	Vnw				3877
V									5642

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.27	0.43
Weaving and non-weaving speeds, Si (mi/h)			26.71	49.99

Number of lanes required for unconstrained operation, Nw 1.81
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	39.28
Weaving segment density, D (pc/mi/ln)	28.73
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	8465
Capacity as a 15-minute flow rate, c (veh/h)	8259
Capacity as a full-hour volume, c_h (veh/h)	7846

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	I-595 EASTBOUND
Weaving Seg Location	BETWEEN FLAMINGO AND HIATUS
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.20
Weaving seg length, L (ft)	1100	Weaving ratio, R	0.12
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5879	0.95	5	0	1.5	1.2	0.976	1.00	6343
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	1289	0.95	2	0	1.5	1.2	0.990	1.00	1370
Vw2	169	0.95	2	0	1.5	1.2	0.990	1.00	179
Vw				1549	Vnw				6343
V									7892

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.29	0.72		
Weaving and non-weaving speeds, Si (mi/h)	36.84	44.05		

Number of lanes required for unconstrained operation, Nw 1.24
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	42.42
Weaving segment density, D (pc/mi/ln)	46.51
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7431
Capacity as a 15-minute flow rate, c (veh/h)	7250
Capacity as a full-hour volume, c_h (veh/h)	6887

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	I-595 EASTBOUND
Weaving Seg Location	BETWEEN FLAMINGO AND HIATUS
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.20
Weaving seg length, L (ft)	1100	Weaving ratio, R	0.12
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4639	0.95	5	0	1.5	1.2	0.976	1.00	5005
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	1038	0.95	2	0	1.5	1.2	0.990	1.00	1103
Vw2	136	0.95	2	0	1.5	1.2	0.990	1.00	144
Vw				1247	Vnw				5005
V									6252

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.03	0.54		
Weaving and non-weaving speeds, Si (mi/h)	39.57	47.50		

Number of lanes required for unconstrained operation, Nw 1.21
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	45.68
Weaving segment density, D (pc/mi/ln)	34.22
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	7411
Capacity as a 15-minute flow rate, c (veh/h)	7230
Capacity as a full-hour volume, c_h (veh/h)	6868

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	I-595 EASTBOUND
Weaving Seg Location	BETWEEN HIATUS AND NOB HILL
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.11
Weaving seg length, L (ft)	1030	Weaving ratio, R	0.49
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	6752	0.95	5	0	1.5	1.2	0.976	1.00	7285
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	436	0.95	2	0	1.5	1.2	0.990	1.00	463
Vw2	416	0.95	2	0	1.5	1.2	0.990	1.00	442
Vw				905	Vnw				7285
V									8190

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.20	0.59		
Weaving and non-weaving speeds, Si (mi/h)	37.77	46.44		

Number of lanes required for unconstrained operation, Nw 0.87
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	45.29
Weaving segment density, D (pc/mi/ln)	45.21
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7884
Capacity as a 15-minute flow rate, c (veh/h)	7692
Capacity as a full-hour volume, c_h (veh/h)	7307

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/14/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	I-595 EASTBOUND
Weaving Seg Location	BETWEEN HIATUS AND NOB HILL
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.12
Weaving seg length, L (ft)	1030	Weaving ratio, R	0.47
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5274	0.95	5	0	1.5	1.2	0.976	1.00	5690
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	403	0.95	2	0	1.5	1.2	0.990	1.00	428
Vw2	351	0.95	2	0	1.5	1.2	0.990	1.00	373
Vw				801	Vnw				5690
V									6491

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.98	0.46		
Weaving and non-weaving speeds, Si (mi/h)	40.26	49.32		

Number of lanes required for unconstrained operation, Nw 0.90
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	47.99
Weaving segment density, D (pc/mi/ln)	33.82
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	7805
Capacity as a 15-minute flow rate, c (veh/h)	7615
Capacity as a full-hour volume, c_h (veh/h)	7234

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/14/04
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	I-595 EASTBOUND
Weaving Seg Location	BETWEEN NOB HILL AND PINE IS
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.20
Weaving seg length, L (ft)	1000	Weaving ratio, R	0.47
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	fHV	fp	v
Vo1	6405	0.95	5	0	1.5	1.2	0.976	1.00	6910
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	870	0.95	2	0	1.5	1.2	0.990	1.00	924
Vw2	783	0.95	2	0	1.5	1.2	0.990	1.00	832
Vw				1756	Vnw				6910
V									8666

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.54	0.89		
Weaving and non-weaving speeds, Si (mi/h)	34.67	41.41		

Number of lanes required for unconstrained operation, Nw 1.27
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	39.84
Weaving segment density, D (pc/mi/ln)	54.38
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7293
Capacity as a 15-minute flow rate, c (veh/h)	7115
Capacity as a full-hour volume, c_h (veh/h)	6759

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/20/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	I-595 EASTBOUND
Weaving Seg Location	BETWEEN NOB HILL AND PINE IS
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.22
Weaving seg length, L (ft)	1000	Weaving ratio, R	0.44
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4995	0.95	5	0	1.5	1.2	0.976	1.00	5389
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	790	0.95	2	0	1.5	1.2	0.990	1.00	839
Vw2	630	0.95	2	0	1.5	1.2	0.990	1.00	669
Vw				1508	Vnw				5389
V									6897

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.27	0.70		
Weaving and non-weaving speeds, Si (mi/h)	37.01	44.41		

Number of lanes required for unconstrained operation, Nw 1.29
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	42.55
Weaving segment density, D (pc/mi/ln)	40.52
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7193
Capacity as a 15-minute flow rate, c (veh/h)	7018
Capacity as a full-hour volume, c_h (veh/h)	6667

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	10/27/2003
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	EASTBOUND I-595
Weaving Seg Location	PINE ISLAND AND UNIVERSITY
Jurisdiction	
Analysis Year	

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.30
Weaving seg length, L (ft)	500	Weaving ratio, R	0.43
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5843	0.95	5	0	1.5	1.2	0.976	1.00	6304
Vo2	0	0.95	2	0	1.5	1.2	0.990	1.00	0
Vw1	1432	0.95	2	0	1.5	1.2	0.990	1.00	1522
Vw2	1067	0.95	2	0	1.5	1.2	0.990	1.00	1134
Vw				2656	Vnw				6304
V									8960

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			7.63	1.21
Weaving and non-weaving speeds, Si (mi/h)			20.79	37.61

Number of lanes required for unconstrained operation, Nw 1.50
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ If Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	30.34
Weaving segment density, D (pc/mi/ln)	73.83
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	5979
Capacity as a 15-minute flow rate, c (veh/h)	5833
Capacity as a full-hour volume, c_h (veh/h)	5541

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	EASTBOUND I-595
Weaving Seg Location	PINE ISLAND AND UNIVERSITY
Jurisdiction	
Analysis Year	

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.39
Weaving seg length, L (ft)	500	Weaving ratio, R	0.33
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4006	0.95	5	0	1.5	1.2	0.976	1.00	4322
Vo2	0	0.95	2	0	1.5	1.2	0.990	1.00	0
Vw1	1779	0.95	2	0	1.5	1.2	0.990	1.00	1891
Vw2	859	0.95	2	0	1.5	1.2	0.990	1.00	913
Vw				2804	Vnw				4322
V									7126

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			7.16	1.20
Weaving and non-weaving speeds, Si (mi/h)			21.12	37.73

Number of lanes required for unconstrained operation, Nw: 1.75
Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	28.81
Weaving segment density, D (pc/mi/ln)	61.83
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	5660
Capacity as a 15-minute flow rate, c (veh/h)	5522
Capacity as a full-hour volume, c_h (veh/h)	5246

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	PJ
Agency/Company	RSH
Date Performed	9/16/04
Analysis Time Period	AM Peak Hour

Site Information

Freeway/Dir of Travel	Eastbound
Weaving Seg Location	Between University and Davie
Jurisdiction	
Analysis Year	Existing

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	C
Weaving number of lanes, N	5	Volume ratio, VR	0.29
Weaving seg length, L (ft)	2300	Weaving ratio, R	0.17
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	6463	0.95	5	0	1.5	1.2	0.976	1.00	6973
Vo2	15	0.95	2	0	1.5	1.2	0.990	1.00	15
Vw1	2199	0.95	2	0	1.5	1.2	0.990	1.00	2337
Vw2	447	0.95	2	0	1.5	1.2	0.990	1.00	475
Vw				2812	Vnw				6988
V									9800

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.30	6.00		
c (Exhibit 24-6)	0.80	1.10		
d (Exhibit 24-6)	0.60	0.60		
Weaving intensity factor, Wi	0.59	0.37		
Weaving and non-weaving speeds, Si (mi/h)	46.42	51.62		

Number of lanes required for unconstrained operation, Nw: 2.48
Maximum number of lanes, Nw (max): 3.00

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	50.01
Weaving segment density, D (pc/mi/ln)	39.19
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	10590
Capacity as a 15-minute flow rate, c (veh/h)	10332
Capacity as a full-hour volume, c_h (veh/h)	9815

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	PJ
Agency/Company	RSH
Date Performed	9/16/04
Analysis Time Period	PM Peak Hour

Site Information

Freeway/Dir of Travel	Eastbound
Weaving Seg Location	Between University and Davie
Jurisdiction	
Analysis Year	Existing

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	C
Weaving number of lanes, N	5	Volume ratio, VR	0.31
Weaving seg length, L (ft)	2300	Weaving ratio, R	0.16
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4518	0.95	5	0	1.5	1.2	0.976	1.00	4874
Vo2	25	0.95	2	0	1.5	1.2	0.990	1.00	26
Vw1	1757	0.95	2	0	1.5	1.2	0.990	1.00	1867
Vw2	347	0.95	2	0	1.5	1.2	0.990	1.00	368
Vw				2235	Vnw				4900
V									7135

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.30	6.00		
c (Exhibit 24-6)	0.80	1.10		
d (Exhibit 24-6)	0.60	0.60		
Weaving intensity factor, Wi	0.48	0.29		
Weaving and non-weaving speeds, Si (mi/h)	48.77	53.73		

Number of lanes required for unconstrained operation, Nw: 2.49
Maximum number of lanes, Nw (max): 3.00

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	52.07
Weaving segment density, D (pc/mi/ln)	27.41
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	10256
Capacity as a 15-minute flow rate, c (veh/h)	10006
Capacity as a full-hour volume, c_h (veh/h)	9506

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YM
Agency/Company	RSH
Date Performed	9/16/04
Analysis Time Period	AM Peak Hour

Site Information

Freeway/Dir of Travel	Eastbound
Weaving Seg Location	Between Davie Rd and Turnpike
Jurisdiction	
Analysis Year	Existing

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	B
Weaving number of lanes, N	5	Volume ratio, VR	0.26
Weaving seg length, L (ft)	1960	Weaving ratio, R	0.48
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	fHV	fp	v
Vo1	7251	0.95	5	0	1.5	1.2	0.976	1.00	7823
Vo2	329	0.95	2	0	1.5	1.2	0.990	1.00	349
Vw1	1411	0.95	2	0	1.5	1.2	0.990	1.00	1500
Vw2	1316	0.95	2	0	1.5	1.2	0.990	1.00	1399
Vw				2899	Vnw				8172
V									11071

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.66	0.40		
Weaving and non-weaving speeds, Si (mi/h)	45.08	50.62		

Number of lanes required for unconstrained operation, Nw 1.45
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	49.04
Weaving segment density, D (pc/mi/ln)	45.15
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	10641
Capacity as a 15-minute flow rate, c (veh/h)	10381
Capacity as a full-hour volume, c_h (veh/h)	9862

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YM
Agency/Company	RSH
Date Performed	9/16/04
Analysis Time Period	PM Peak Hour

Site Information

Freeway/Dir of Travel	Eastbound
Weaving Seg Location	Between Davie and Turnpike
Jurisdiction	
Analysis Year	Existing

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	B
Weaving number of lanes, N	5	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1960	Weaving ratio, R	0.48
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5140	0.95	5	0	1.5	1.2	0.976	1.00	5545
Vo2	265	0.95	2	0	1.5	1.2	0.990	1.00	281
Vw1	1135	0.95	2	0	1.5	1.2	0.990	1.00	1206
Vw2	1059	0.95	2	0	1.5	1.2	0.990	1.00	1125
Vw				2331	Vnw				5826
V									8157

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.56	0.33		
Weaving and non-weaving speeds, Si (mi/h)	47.11	52.51		

Number of lanes required for unconstrained operation, Nw 1.54
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	50.84
Weaving segment density, D (pc/mi/ln)	32.09
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	10445
Capacity as a 15-minute flow rate, c (veh/h)	10190
Capacity as a full-hour volume, c_h (veh/h)	9680

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	AM Peak Period

Site Information

Freeway/Dir of Travel	I-595 WB
Weaving Seg Location	Between Flamingo and SW 136th
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	B
Weaving number of lanes, N	4	Volume ratio, VR	0.30
Weaving seg length, L (ft)	1250	Weaving ratio, R	0.28
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	fHV	fp	v
Vo1	3825	0.95	5	0	1.5	1.2	0.976	1.00	4126
Vo2	0	0.95	2	0	1.5	1.2	0.990	1.00	0
Vw1	1217	0.95	2	0	1.5	1.2	0.990	1.00	1293
Vw2	471	0.95	2	0	1.5	1.2	0.990	1.00	500
Vw				1793	Vnw				4126
V									5919

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.67	0.41		
Weaving and non-weaving speeds, Si (mi/h)	44.93	50.47		

Number of lanes required for unconstrained operation, Nw 1.54
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	48.65
Weaving segment density, D (pc/mi/ln)	30.41
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	7862
Capacity as a 15-minute flow rate, c (veh/h)	7670
Capacity as a full-hour volume, c_h (veh/h)	7286

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	PM Peak Period

Site Information

Freeway/Dir of Travel	I-595 WB
Weaving Seg Location	Between Flamingo and SW 136th
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	B
Weaving number of lanes, N	4	Volume ratio, VR	0.28
Weaving seg length, L (ft)	1250	Weaving ratio, R	0.20
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4896	0.95	5	0	1.5	1.2	0.976	1.00	5282
Vo2	0	0.95	2	0	1.5	1.2	0.990	1.00	0
Vw1	1512	0.95	2	0	1.5	1.2	0.990	1.00	1607
Vw2	389	0.95	2	0	1.5	1.2	0.990	1.00	413
Vw				2020	Vnw				5282
V									7302

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.74	0.45		
Weaving and non-weaving speeds, Si (mi/h)	43.69	49.55		

Number of lanes required for unconstrained operation, Nw 1.45
Maximum number of lanes, Nw (max) 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	47.78
Weaving segment density, D (pc/mi/ln)	38.21
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	8042
Capacity as a 15-minute flow rate, c (veh/h)	7846
Capacity as a full-hour volume, c_h (veh/h)	7454

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	I-595 WESTBOUND
Weaving Seg Location	BETWEEN HIATUS AND FLAMINGO
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.20
Weaving seg length, L (ft)	1050	Weaving ratio, R	0.14
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4864	0.95	5	0	1.5	1.2	0.976	1.00	5247
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	1074	0.95	2	0	1.5	1.2	0.990	1.00	1141
Vw2	178	0.95	2	0	1.5	1.2	0.990	1.00	189
Vw				1330	Vnw				5247
V									6577

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.13	0.60		
Weaving and non-weaving speeds, Si (mi/h)	38.43	46.23		

Number of lanes required for unconstrained operation, Nw 1.22
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.41
Weaving segment density, D (pc/mi/ln)	37.03
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7345
Capacity as a 15-minute flow rate, c (veh/h)	7166
Capacity as a full-hour volume, c_h (veh/h)	6808

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
I. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	I-595 WESTBOUND
Weaving Seg Location	BETWEEN HIATUS AND FLAMINGO
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.19
Weaving seg length, L (ft)	1050	Weaving ratio, R	0.10
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	6258	0.95	5	0	1.5	1.2	0.976	1.00	6752
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	1340	0.95	2	0	1.5	1.2	0.990	1.00	1424
Vw2	150	0.95	2	0	1.5	1.2	0.990	1.00	159
Vw				1583	Vnw				6752
V									8335

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.39	0.78		
Weaving and non-weaving speeds, Si (mi/h)	35.88	43.01		

Number of lanes required for unconstrained operation, Nw 1.22
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	41.45
Weaving segment density, D (pc/mi/ln)	50.27
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7420
Capacity as a 15-minute flow rate, c (veh/h)	7239
Capacity as a full-hour volume, c_h (veh/h)	6877

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	I-595 WESTBOUND
Weaving Seg Location	BETWEEN NOB HILL AND HIATUS
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.12
Weaving seg length, L (ft)	1000	Weaving ratio, R	0.43
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5499	0.95	5	0	1.5	1.2	0.976	1.00	5933
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	439	0.95	2	0	1.5	1.2	0.990	1.00	466
Vw2	329	0.95	2	0	1.5	1.2	0.990	1.00	349
Vw				815	Vnw				5933
V									6748

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.04	0.49		
Weaving and non-weaving speeds, Si (mi/h)	39.56	48.63		

Number of lanes required for unconstrained operation, Nw 0.89
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	47.32
Weaving segment density, D (pc/mi/ln)	35.65
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7793
Capacity as a 15-minute flow rate, c (veh/h)	7603
Capacity as a full-hour volume, c_h (veh/h)	7223

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	I-595 WESTBOUND
Weaving Seg Location	BETWEEN NOB HILL AND HIATUS
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.10
Weaving seg length, L (ft)	1000	Weaving ratio, R	0.49
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	7178	0.95	5	0	1.5	1.2	0.976	1.00	7744
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	420	0.95	2	0	1.5	1.2	0.990	1.00	446
Vw2	410	0.95	2	0	1.5	1.2	0.990	1.00	435
Vw				881	Vnw				7744
V									8625

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.27	0.63		
Weaving and non-weaving speeds, Si (mi/h)	37.06	45.74		

Number of lanes required for unconstrained operation, Nw 0.83
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.67
Weaving segment density, D (pc/mi/ln)	48.27
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7907
Capacity as a 15-minute flow rate, c (veh/h)	7714
Capacity as a full-hour volume, c_h (veh/h)	7328

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/16/04
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	I-595 WESTBOUND
Weaving Seg Location	BETWEEN PINE AND NOB HILL
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.27
Weaving seg length, L (ft)	1080	Weaving ratio, R	0.45
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	fHV	fp	v
Vo1	4826	0.95	5	0	1.5	1.2	0.976	1.00	5206
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	1002	0.95	2	0	1.5	1.2	0.990	1.00	1065
Vw2	824	0.95	2	0	1.5	1.2	0.990	1.00	876
Vw				1941	Vnw				5206
V									7147

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.17	0.47
Weaving and non-weaving speeds, Si (mi/h)			26.98	49.04

Number of lanes required for unconstrained operation, Nw 1.50
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	40.13
Weaving segment density, D (pc/mi/ln)	44.52
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	6934
Capacity as a 15-minute flow rate, c (veh/h)	6765
Capacity as a full-hour volume, c_h (veh/h)	6427

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/20/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	I-595 WESTBOUND
Weaving Seg Location	BETWEEN PINE AND NOB HILL
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.27
Weaving seg length, L (ft)	1080	Weaving ratio, R	0.46
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	6338	0.95	5	0	1.5	1.2	0.976	1.00	6838
Vo2	0	0.90	0	0	1.5	1.2	1.000	1.00	0
Vw1	1250	0.95	2	0	1.5	1.2	0.990	1.00	1328
Vw2	1080	0.95	2	0	1.5	1.2	0.990	1.00	1148
Vw				2476	Vnw				6838
V									9314

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			4.06	0.65
Weaving and non-weaving speeds, Si (mi/h)			24.88	45.31

Number of lanes required for unconstrained operation, Nw: 1.53
Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	37.19
Weaving segment density, D (pc/mi/ln)	62.61
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	6970
Capacity as a 15-minute flow rate, c (veh/h)	6800
Capacity as a full-hour volume, c_h (veh/h)	6460

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/20/04
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	WESTBOUND I-595
Weaving Seg Location	UNIVERSITY AND PINE ISLAND
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	B
Weaving number of lanes, N	4	Volume ratio, VR	0.25
Weaving seg length, L (ft)	800	Weaving ratio, R	0.39
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4999	0.95	5	0	1.5	1.2	0.976	1.00	5393
Vo2	0	0.95	2	0	1.5	1.2	0.990	1.00	0
Vw1	1002	0.95	2	0	1.5	1.2	0.990	1.00	1065
Vw2	651	0.95	2	0	1.5	1.2	0.990	1.00	692
Vw				1757	Vnw				5393
V									7150

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.87	0.47		
Weaving and non-weaving speeds, Si (mi/h)	41.78	48.96		

Number of lanes required for unconstrained operation, Nw: 1.69
Maximum number of lanes, Nw (max): 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	46.98
Weaving segment density, D (pc/mi/ln)	38.05
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7866
Capacity as a 15-minute flow rate, c (veh/h)	7674
Capacity as a full-hour volume, c_h (veh/h)	7290

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/20/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	WESTBOUND I-595
Weaving Seg Location	UNIVERSITY AND PINE ISLAND
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	B
Weaving number of lanes, N	4	Volume ratio, VR	0.25
Weaving seg length, L (ft)	800	Weaving ratio, R	0.37
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	6608	0.95	5	0	1.5	1.2	0.976	1.00	7129
Vo2	0	0.95	2	0	1.5	1.2	0.990	1.00	0
Vw1	1400	0.95	2	0	1.5	1.2	0.990	1.00	1488
Vw2	810	0.95	2	0	1.5	1.2	0.990	1.00	861
Vw				2349	Vnw				7129
V									9478

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	1.06	0.63		
Weaving and non-weaving speeds, Si (mi/h)	39.27	45.63		

Number of lanes required for unconstrained operation, Nw: 1.75
Maximum number of lanes, Nw (max): 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.87
Weaving segment density, D (pc/mi/ln)	54.02
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7851
Capacity as a 15-minute flow rate, c (veh/h)	7660
Capacity as a full-hour volume, c_h (veh/h)	7277

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RSH
Date Performed	9/20/04
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	595 WB
Weaving Seg Location	Between Turnpike and Davie
Jurisdiction	
Analysis Year	2002 EXISTING

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	B
Weaving number of lanes, N	5	Volume ratio, VR	0.26
Weaving seg length, L (ft)	1550	Weaving ratio, R	0.45
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5902	0.95	5	0	1.5	1.2	0.976	1.00	6367
Vo2	312	0.95	2	0	1.5	1.2	0.990	1.00	331
Vw1	1248	0.95	2	0	1.5	1.2	0.990	1.00	1326
Vw2	1012	0.95	2	0	1.5	1.2	0.990	1.00	1075
Vw				2401	Vnw				6698
V									9099

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.65	0.38		
Weaving and non-weaving speeds, Si (mi/h)	45.28	51.32		

Number of lanes required for unconstrained operation, Nw: 1.57
Maximum number of lanes, Nw (max): 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	49.57
Weaving segment density, D (pc/mi/ln)	36.71
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	10401
Capacity as a 15-minute flow rate, c (veh/h)	10147
Capacity as a full-hour volume, c_h (veh/h)	9640

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RSH
Date Performed	9/20/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	595 WB
Weaving Seg Location	Between Turnpike and Davie
Jurisdiction	
Analysis Year	2002 EXISTING

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	B
Weaving number of lanes, N	5	Volume ratio, VR	0.26
Weaving seg length, L (ft)	1550	Weaving ratio, R	0.46
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	fHV	fp	v
Vo1	7517	0.95	5	0	1.5	1.2	0.976	1.00	8110
Vo2	368	0.95	2	0	1.5	1.2	0.990	1.00	391
Vw1	1472	0.95	2	0	1.5	1.2	0.990	1.00	1564
Vw2	1277	0.95	2	0	1.5	1.2	0.990	1.00	1357
Vw				2921	Vnw				8501
V									11422

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.00		
b (Exhibit 24-6)	2.20	6.00		
c (Exhibit 24-6)	0.70	1.00		
d (Exhibit 24-6)	0.50	0.50		
Weaving intensity factor, Wi	0.75	0.46		
Weaving and non-weaving speeds, Si (mi/h)	43.53	49.36		

Number of lanes required for unconstrained operation, Nw: 1.56
Maximum number of lanes, Nw (max): 3.50

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	47.73
Weaving segment density, D (pc/mi/ln)	47.86
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	10469
Capacity as a 15-minute flow rate, c (veh/h)	10214
Capacity as a full-hour volume, c_h (veh/h)	9703

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

TURNPIKE

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	10/28/03
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	TURNPIKE NB
Weaving Seg Location	TO I-595
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	45	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.55
Weaving seg length, L (ft)	750	Weaving ratio, R	0.28
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1433	0.95	2	0	1.5	1.2	0.990	1.00	1523
Vo2	790	0.95	2	0	1.5	1.2	0.990	1.00	839
Vw1	1978	0.95	2	0	1.5	1.2	0.990	1.00	2102
Vw2	770	0.95	2	0	1.5	1.2	0.990	1.00	818
Vw				2920	Vnw				2362
V									5282

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			4.92	0.93
Weaving and non-weaving speeds, Si (mi/h)			20.92	33.18

Number of lanes required for unconstrained operation, Nw 2.37
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	25.06
Weaving segment density, D (pc/mi/ln)	52.70
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	5765
Capacity as a 15-minute flow rate, c (veh/h)	5708
Capacity as a full-hour volume, c_h (veh/h)	5423

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	10/28/03
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	TURNPIKE NB
Weaving Seg Location	TO I-595
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	45	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.56
Weaving seg length, L (ft)	750	Weaving ratio, R	0.44
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	908	0.95	2	0	1.5	1.2	0.990	1.00	965
Vo2	772	0.95	2	0	1.5	1.2	0.990	1.00	820
Vw1	1204	0.95	2	0	1.5	1.2	0.990	1.00	1280
Vw2	932	0.95	2	0	1.5	1.2	0.990	1.00	990
Vw				2270	Vnw				1785
V									4055

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.84	0.67
Weaving and non-weaving speeds, Si (mi/h)			22.23	35.98

Number of lanes required for unconstrained operation, Nw: 2.32
Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	26.73
Weaving segment density, D (pc/mi/ln)	37.93
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	5765
Capacity as a 15-minute flow rate, c (veh/h)	5708
Capacity as a full-hour volume, c_h (veh/h)	5423

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	10/28/03
Analysis Time Period	AM

Site Information

Freeway/Dir of Travel	TURNPIKE SB
Weaving Seg Location	FROM I-595
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	45	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.50
Weaving seg length, L (ft)	650	Weaving ratio, R	0.47
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	845	0.95	2	0	1.5	1.2	0.990	1.00	898
Vo2	838	0.95	2	0	1.5	1.2	0.990	1.00	890
Vw1	902	0.95	2	0	1.5	1.2	0.990	1.00	958
Vw2	805	0.95	2	0	1.5	1.2	0.990	1.00	855
Vw				1813	Vnw				1788
V									3601

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.54	0.55
Weaving and non-weaving speeds, Si (mi/h)			22.71	37.58

Number of lanes required for unconstrained operation, Nw: 2.09
Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	28.26
Weaving segment density, D (pc/mi/ln)	31.85
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	5635
Capacity as a 15-minute flow rate, c (veh/h)	5579
Capacity as a full-hour volume, c_h (veh/h)	5300

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	YLM
Agency/Company	RS&H
Date Performed	9/20/04
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	TURNPIKE
Weaving Seg Location	FROM I-595
Jurisdiction	
Analysis Year	2002

Inputs

Freeway free-flow speed, SFF (mi/h)	45	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.45
Weaving seg length, L (ft)	650	Weaving ratio, R	0.39
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1589	0.95	2	0	1.5	1.2	0.990	1.00	1689
Vo2	686	0.95	2	0	1.5	1.2	0.990	1.00	729
Vw1	1123	0.95	2	0	1.5	1.2	0.990	1.00	1193
Vw2	714	0.95	2	0	1.5	1.2	0.990	1.00	759
Vw				1952	Vnw				2418
V									4370

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.92	0.61
Weaving and non-weaving speeds, Si (mi/h)			22.11	36.79

Number of lanes required for unconstrained operation, Nw: 1.97
Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	28.37
Weaving segment density, D (pc/mi/ln)	38.51
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	5635
Capacity as a 15-minute flow rate, c (veh/h)	5579
Capacity as a full-hour volume, c_h (veh/h)	5300

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

SIGNALIZED INTERSECTIONS

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 EB/136th Avenue*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/8/04*	Jurisdiction	
Time Period	*AM Peak*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*2*	*2*	*1*	*0*	*0*	*0*	*0*	*2*	*1*	*2*	*2*	*0*
Lane group	*L*	*T*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*569*	*1168*	*83*					*427*	*617*	*204*	*597*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	Thru & RT	SB Only	07	08
Timing	G = *45.0*	G =	G =	G =	G = *37.0*	G = *25.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =

Duration of Analysis, T = *0.25* | Cycle Length, C = *123.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*599*	*1229*	*35*					*449*	*597*	*215*	*628*	
Lane group capacity, c	*1256*	*1294*	*1583*					*1064*	*1133*	*698*	*1927*	
v/c ratio, X	*0.48*	*0.95*	*0.02*					*0.42*	*0.53*	*0.31*	*0.33*	
Total green ratio, g/C	*0.37*	*0.37*	*1.00*					*0.30*	*0.72*	*0.20*	*0.54*	
Uniform delay, d_1	*30.0*	*37.9*	*0.0*					*34.4*	*8.0*	*41.6*	*15.5*	
Progression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*1.3*	*15.6*	*0.0*					*1.2*	*1.8*	*1.1*	*0.5*	
Initial queue delay, d_3												

Control delay	31.3	53.5	0.0					35.7	9.7	42.8	16.0	
Lane group LOS	C	D	A					D	A	D	B	
Approach delay	45.3						20.9			22.8		
Approach LOS	D						C			C		
Intersection delay	33.4			X_c = 0.62			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information

Analyst	*YLM*
Agency or Co.	*RSH*
Date Performed	*9/8/04*
Time Period	*PM Peak*

Site Information

Intersection	*SR 84 EB/136th Avenue*
Area Type	*All other areas*
Jurisdiction	
Analysis Year	*Existing 2002*
Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*2*	*2*	*1*	*0*	*0*	*0*	*0*	*2*	*1*	*2*	*2*	*0*
Lane group	*L*	*T*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*572*	*962*	*78*					*232*	*364*	*585*	*1191*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	Thru & RT	SB Only	07	08
Timing	G = *45.0*	G =	G =	G =	G = *37.0*	G = *25.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *123.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*602*	*1013*	*29*					*244*	*331*	*616*	*1254*	
Lane group capacity, c	*1256*	*1294*	*1583*					*1064*	*1133*	*698*	*1927*	
v/c ratio, X	*0.48*	*0.78*	*0.02*					*0.23*	*0.29*	*0.88*	*0.65*	
Total green ratio, g/C	*0.37*	*0.37*	*1.00*					*0.30*	*0.72*	*0.20*	*0.54*	
Uniform delay, d_1	*30.0*	*34.7*	*0.0*					*32.3*	*6.3*	*47.6*	*19.7*	
Progression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*1.3*	*4.8*	*0.0*					*0.5*	*0.7*	*15.1*	*1.7*	
Initial queue delay, d_3												

Control delay	31.3	39.4	0.0					32.8	6.9	62.6	21.5	
Lane group LOS	C	D	A					C	A	E	C	
Approach delay	35.8						17.9			35.0		
Approach LOS	D						B			D		
Intersection delay	32.9			X_c = 0.70			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 WB/136th Avenue*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/8/04*	Jurisdiction	
Time Period	*AM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*2*	*2*	*1*	*1*	*3*	*0*	*0*	*2*	*1*
Lane group				*L*	*T*	*R*	*L*	*T*			*T*	*R*
Volume, V (vph)				*374*	*616*	*853*	*112*	*884*			*427*	*187*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR volumes	*0*			*0*	*0*	*50*				*0*	*0*	*50*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = *40.0*	G =	G =	G =	G = *30.0*	G = *25.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *1.00*						Cycle Length, C = *111.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*394*	*648*	*845*	*118*	*931*			*449*	*144*
Lane group capacity, c				*1237*	*1275*	*1583*	*398*	*2748*			*956*	*1084*
v/c ratio, X				*0.32*	*0.51*	*0.53*	*0.30*	*0.34*			*0.47*	*0.13*
Total green ratio, g/C				*0.36*	*0.36*	*1.00*	*0.23*	*0.54*			*0.27*	*0.68*
Uniform delay, d_1				*25.7*	*27.8*	*0.0*	*35.7*	*14.3*			*33.9*	*6.1*
Progression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	*1.000*
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	*0.50*
Incremental delay, d_2				*0.7*	*1.5*	*1.3*	*1.9*	*0.3*			*1.7*	*0.3*
Initial queue delay, d_3												

Control delay				26.3	29.3	1.3	37.6	14.7			35.5	6.3
Lane group LOS				C	C	A	D	B			D	A
Approach delay				16.1			17.3			28.4		
Approach LOS				B			B			C		
Intersection delay	18.5			X_c = 0.53			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 WB/136th Avenue*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/8/04*	Jurisdiction	
Time Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*2*	*2*	*1*	*1*	*3*	*0*	*0*	*2*	*1*
Lane group				*L*	*T*	*R*	*L*	*T*			*T*	*R*
Volume, V (vph)				*791*	*907*	*357*	*54*	*750*			*985*	*463*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR volumes	*0*			*0*	*0*	*50*				*0*	*0*	*50*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = *40.0*	G =	G =	G =	G = *30.0*	G = *25.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *1.00*						Cycle Length, C = *111.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*833*	*955*	*323*	*57*	*789*			*1037*	*435*
Lane group capacity, c				*1237*	*1275*	*1583*	*398*	*2748*			*956*	*1084*
v/c ratio, X				*0.67*	*0.75*	*0.20*	*0.14*	*0.29*			*1.08*	*0.40*
Total green ratio, g/C				*0.36*	*0.36*	*1.00*	*0.23*	*0.54*			*0.27*	*0.68*
Uniform delay, d_1				*30.0*	*31.1*	*0.0*	*34.4*	*13.9*			*40.5*	*7.6*
Progression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	*1.000*
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	*0.50*
Incremental delay, d_2				*3.0*	*4.2*	*0.3*	*0.8*	*0.3*			*173.7*	*1.1*
Initial queue delay, d_3												

Control delay				33.0	35.3	0.3	35.2	14.1			214.2	8.7
Lane group LOS				C	D	A	D	B			F	A
Approach delay				29.0			15.6			153.5		
Approach LOS				C			B			F		
Intersection delay	67.8			X_c = 0.70			Intersection LOS			E		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 EB/Flamingo Road*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/8/04*	Jurisdiction	
Time Period	*AM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*5*	*1*	*2*	*3*	*0*
Lane group	*L*	*LT*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*887*	*639*	*118*					*1262*	*460*	*618*	*336*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *25.0*	G =	G =	G =	G = *20.0*	G = *20.0*	G =	G =
	Y = *6.5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *81.5*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*626*	*981*	*72*					*1328*	*432*	*651*	*354*	
Lane group capacity, c	*543*	*1068*	*1583*					*2079*	*971*	*842*	*2807*	
v/c ratio, X	*1.15*	*0.92*	*0.05*					*0.64*	*0.44*	*0.77*	*0.13*	
Total green ratio, g/C	*0.31*	*0.31*	*1.00*					*0.25*	*0.61*	*0.25*	*0.55*	
Uniform delay, d_1	*28.3*	*27.3*	*0.0*					*27.5*	*8.4*	*28.6*	*8.8*	
Progression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*88.3*	*13.8*	*0.1*					*1.5*	*1.5*	*6.8*	*0.1*	
Initial queue delay, d_3												

Control delay	116.5	41.1	0.1					29.0	9.8	35.5	8.9	
Lane group LOS	F	D	A					C	A	D	A	
Approach delay	67.4						24.3			26.1		
Approach LOS	E						C			C		
Intersection delay	41.0			X_c = 0.88			Intersection LOS			D		

HCS2000™ DETAILED REPORT

General Information

Analyst	*YLM*
Agency or Co.	*RSH*
Date Performed	*9/8/04*
Time Period	*PM Peak Hour*

Site Information

Intersection	*SR 84 EB/Flamingo Road*
Area Type	*All other areas*
Jurisdiction	
Analysis Year	*Existing 2002*
Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*5*	*1*	*2*	*3*	*0*
Lane group	*L*	*LT*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*616*	*465*	*278*					*551*	*439*	*575*	*770*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *25.0*	G =	G =	G =	G = *20.0*	G = *20.0*	G =	G =
	Y = *6.5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *81.5*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*434*	*703*	*240*					*580*	*409*	*605*	*811*	
Lane group capacity, c	*543*	*1069*	*1583*					*2079*	*971*	*842*	*2807*	
v/c ratio, X	*0.80*	*0.66*	*0.15*					*0.28*	*0.42*	*0.72*	*0.29*	
Total green ratio, g/C	*0.31*	*0.31*	*1.00*					*0.25*	*0.61*	*0.25*	*0.55*	
Uniform delay, d_1	*25.9*	*24.5*	*0.0*					*24.9*	*8.2*	*28.2*	*9.7*	
Progression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*11.7*	*3.2*	*0.2*					*0.3*	*1.3*	*5.2*	*0.3*	
Initial queue delay, d_3												

Control delay	37.6	27.7	0.2					25.2	9.6	33.4	10.0	
Lane group LOS	D	C	A					C	A	C	A	
Approach delay	26.0						18.8			20.0		
Approach LOS	C						B			B		
Intersection delay	21.9			X_c = 0.61			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	YLM	Intersection	SR 84 WB/Flamingo Road
Agency or Co.	RSH	Area Type	All other areas
Date Performed	9/8/04	Jurisdiction	
Time Period	AM Peak Hour	Analysis Year	Existing 2002
		Project ID	I - 595 SIMR

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	0	0	1	2	1	2	3	0	0	5	1
Lane group				L	LT	R	L	T			T	R
Volume, V (vph)				432	132	443	296	1853			522	462
% Heavy vehicles, %HV				2	2	2	2	2			2	2
Peak-hour factor, PHF				0.95	0.95	0.95	0.95	0.95			0.95	0.95
Pretimed (P) or actuated (A)				P	P	P	P	P			P	P
Start-up lost time, l_1				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Extension of effective green, e				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Arrival type, AT				3	3	3	3	3			3	3
Unit extension, UE				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Filtering/metering, I				1.000	1.000	1.000	1.000	1.000			1.000	1.000
Initial unmet demand, Q_b				0.0	0.0	0.0	0.0	0.0			0.0	0.0
d / Bike / RTOR volumes	0			0	0	50				0	0	50
Lane width				12.0	12.0	12.0	12.0	12.0			12.0	12.0
Parking / Grade / Parking	N		N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B				0	0	0	0	0			0	0
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = 25.0	G =	G =	G =	G = 20.0	G = 20.0	G =	G =
	Y = 6.5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 81.5		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				305	289	414	312	1951			549	434
Lane group capacity, c				543	1058	1583	842	2807			2079	1000
v/c ratio, X				0.56	0.27	0.26	0.37	0.70			0.26	0.43
Total green ratio, g/C				0.31	0.31	1.00	0.25	0.55			0.25	0.63
Uniform delay, d_1				23.7	21.4	0.0	25.5	13.3			24.8	7.6
Progression factor, PF				1.000	1.000	0.950	1.000	1.000			1.000	1.000
Delay calibration, k				0.50	0.50	0.50	0.50	0.50			0.50	0.50
Incremental delay, d_2				4.2	0.6	0.4	1.3	1.4			0.3	1.4
Initial queue delay, d_3												

Control delay				27.8	22.0	0.4	26.8	14.7			25.1	9.0	
Lane group LOS				C	C	A	C	B			C	A	
Approach delay				14.9			16.4			18.0			
Approach LOS				B			B			B			
Intersection delay	16.4			X_c = 0.65			Intersection LOS			B			

HCS2000™ DETAILED REPORT

General Information

Analyst	*YLM*
Agency or Co.	*RSH*
Date Performed	*9/8/04*
Time Period	*PM Peak Hour*

Site Information

Intersection	*SR 84 WB/Flamingo Road*
Area Type	*All other areas*
Jurisdiction	
Analysis Year	*Existing 2002*
Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*1*	*2*	*1*	*2*	*3*	*0*	*0*	*5*	*1*
Lane group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Volume, V (vph)				*609*	*257*	*661*	*121*	*1046*			*736*	*387*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR volumes	*0*			*0*	*0*	*50*				*0*	*0*	*50*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = *25.0*	G =	G =	G =	G = *20.0*	G = *20.0*	G =	G =
	Y = *6.5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *81.5*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*429*	*483*	*643*	*127*	*1101*			*775*	*355*
Lane group capacity, c				*543*	*1062*	*1583*	*842*	*2807*			*2079*	*1000*
v/c ratio, X				*0.79*	*0.45*	*0.41*	*0.15*	*0.39*			*0.37*	*0.35*
Total green ratio, g/C				*0.31*	*0.31*	*1.00*	*0.25*	*0.55*			*0.25*	*0.63*
Uniform delay, d_1				*25.8*	*22.8*	*0.0*	*24.1*	*10.4*			*25.5*	*7.1*
Progression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	*1.000*
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	*0.50*
Incremental delay, d_2				*11.2*	*1.4*	*0.8*	*0.4*	*0.4*			*0.5*	*1.0*
Initial queue delay, d_3												

Control delay				37.0	24.2	0.8	24.5	10.8			26.1	8.1
Lane group LOS				D	C	A	C	B			C	A
Approach delay				18.0			12.3			20.4		
Approach LOS				B			B			C		
Intersection delay	16.9			X_c = 0.53			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information

Analyst	*YLM*
Agency or Co.	*RSH*
Date Performed	*9/8/04*
Time Period	*AM Peak Hour*

Site Information

Intersection	*SR 84 EB/Hiatus Rd*
Area Type	*All other areas*
Jurisdiction	
Analysis Year	*Existing 2002*
Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*3*	*1*	*2*	*2*	*0*
Lane group	*L*	*LT*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*516*	*851*	*119*					*317*	*562*	*269*	*395*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *35.0*	G =	G =	G =	G = *35.0*	G = *25.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *111.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*364*	*1075*	*73*					*334*	*539*	*283*	*416*	
Lane group capacity, c	*558*	*1106*	*1583*					*1145*	*927*	*1082*	*2072*	
v/c ratio, X	*0.65*	*0.97*	*0.05*					*0.29*	*0.58*	*0.26*	*0.20*	
Total green ratio, g/C	*0.32*	*0.32*	*1.00*					*0.23*	*0.59*	*0.32*	*0.59*	
Uniform delay, d_1	*32.8*	*37.5*	*0.0*					*35.7*	*14.5*	*28.4*	*10.8*	
Progression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*5.8*	*21.1*	*0.1*					*0.6*	*2.7*	*0.6*	*0.2*	
Initial queue delay, d_3												

Control delay	38.6	58.6	0.1					36.3	17.1	28.9	11.0	
Lane group LOS	D	E	A					D	B	C	B	
Approach delay	51.0						24.5			18.3		
Approach LOS	D						C			B		
Intersection delay	36.1			X_c = 0.53			Intersection LOS			D		

HCS2000™ DETAILED REPORT

General Information

Analyst	*YLM*
Agency or Co.	*RSH*
te Performed	*9/8/04*
ime Period	*PM Peak Hour*

Site Information

Intersection	*SR 84 EB/Hiatus Rd*
Area Type	*All other areas*
Jurisdiction	
Analysis Year	*Existing 2002*
Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*3*	*1*	*2*	*2*	*0*
Lane group	*L*	*LT*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*207*	*396*	*254*					*328*	*256*	*159*	*754*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
d / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *35.0*	G =	G =	G =	G = *35.0*	G = *25.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *111.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*146*	*489*	*215*					*345*	*217*	*167*	*794*	
Lane group capacity, c	*558*	*1107*	*1583*					*1145*	*927*	*1082*	*2072*	
v/c ratio, X	*0.26*	*0.44*	*0.14*					*0.30*	*0.23*	*0.15*	*0.38*	
Total green ratio, g/C	*0.32*	*0.32*	*1.00*					*0.23*	*0.59*	*0.32*	*0.59*	
Uniform delay, d_1	*28.4*	*30.2*	*0.0*					*35.7*	*11.0*	*27.3*	*12.3*	
ogression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*1.1*	*1.3*	*0.2*					*0.7*	*0.6*	*0.3*	*0.5*	
Initial queue delay, d_3												

Control delay	29.5	31.5	0.2				36.4	11.6	27.7	12.8		
Lane group LOS	C	C	A				D	B	C	B		
Approach delay	23.2					26.8			15.4			
,proach LOS	C					C			B			
Intersection delay	20.9			X_c = 0.40		Intersection LOS			C			

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	YLM	Intersection	SR 84 WB/Hiatus Rd
Agency or Co.	RSH	Area Type	All other areas
Date Performed	9/8/04	Jurisdiction	
Time Period	AM Peak Hour	Analysis Year	Existing 2002
		Project ID	I - 595 SIMR

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	0	0	1	2	1	1	2	0	0	4	1
Lane group				L	LT	R	L	T			T	R
Volume, V (vph)				309	85	147	203	630			355	422
% Heavy vehicles, %HV				2	2	2	2	2			2	2
Peak-hour factor, PHF				0.95	0.95	0.95	0.95	0.95			0.95	0.95
Pretimed (P) or actuated (A)				P	P	P	P	P			P	P
Start-up lost time, l_1				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Extension of effective green, e				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Arrival type, AT				3	3	3	3	3			3	3
Unit extension, UE				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Filtering/metering, I				1.000	1.000	1.000	1.000	1.000			1.000	1.000
Initial unmet demand, Q_b				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Ped / Bike / RTOR volumes	0			0	0	50				0	0	50
Lane width				12.0	12.0	12.0	12.0	12.0			12.0	12.0
Parking / Grade / Parking	N		N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B				0	0	0	0	0			0	0
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = 35.0	G =	G =	G =	G = 35.0	G = 25.0	G =	G =
	Y = 6	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 111.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				218	196	102	214	663			374	392
Lane group capacity, c				558	1086	1583	399	2072			2137	1084
v/c ratio, X				0.39	0.18	0.06	0.54	0.32			0.18	0.36
Total green ratio, g/C				0.32	0.32	1.00	0.23	0.59			0.32	0.68
Uniform delay, d_1				29.7	27.6	0.0	37.9	11.7			27.5	7.3
Progression factor, PF				1.000	1.000	0.950	1.000	1.000			1.000	1.000
Delay calibration, k				0.50	0.50	0.50	0.50	0.50			0.50	0.50
Incremental delay, d_2				2.1	0.4	0.1	5.1	0.4			0.2	0.9
Initial queue delay, d_3												

Control delay				31.7	28.0	0.1	43.0	12.1			27.7	8.3	
Lane group LOS				C	C	A	D	B			C	A	
Approach delay				24.0			19.7			17.8			
,proach LOS				C			B			B			
Intersection delay	20.0			X_c = 0.41			Intersection LOS			C			

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 WB/Hiatus Rd*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/8/04*	Jurisdiction	
Time Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*0*	*4*	*1*
Lane group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Volume, V (vph)				*639*	*151*	*208*	*201*	*334*			*274*	*257*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR volumes	*0*			*0*	*0*	*50*				*0*	*0*	*50*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = *35.0*	G =	G =	G =	G = *35.0*	G = *25.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *111.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*451*	*381*	*166*	*212*	*352*			*288*	*218*
Lane group capacity, c				*558*	*1084*	*1583*	*399*	*2072*			*2137*	*1084*
v/c ratio, X				*0.81*	*0.35*	*0.10*	*0.53*	*0.17*			*0.13*	*0.20*
Total green ratio, g/C				*0.32*	*0.32*	*1.00*	*0.23*	*0.59*			*0.32*	*0.68*
Uniform delay, d_1				*34.9*	*29.3*	*0.0*	*37.8*	*10.6*			*27.2*	*6.4*
Progression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	*1.000*
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	*0.50*
Incremental delay, d_2				*11.9*	*0.9*	*0.1*	*5.0*	*0.2*			*0.1*	*0.4*
Initial queue delay, d_3												

Control delay				46.9	30.2	0.1	42.8	10.8			27.3	6.8	
Lane group LOS				D	C	A	D	B			C	A	
Approach delay				32.7			22.8			18.5			
›roach LOS				C			C			B			
Intersection delay	26.5			X_c = 0.49			Intersection LOS			C			

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 EB- Nob Hill Road*
Agency or Co.	*RSH*	Area Type	*All other areas*
te Performed	*9/8/04*	Jurisdiction	
..ne Period	*AM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*3*	*1*	*2*	*2*	*0*
Lane group	*L*	*LT*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*396*	*1135*	*240*					*646*	*458*	*813*	*163*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
d / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *35.0*	G =	G =	G =	G = *42.0*	G = *50.0*	G =	G =
	Y = *5.5*	Y =	Y =	Y =	Y = *5.5*	Y = *5.5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *143.5*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*209*	*1403*	*200*					*680*	*429*	*856*	*172*	
Lane group capacity, c	*432*	*857*	*1583*					*1772*	*998*	*1005*	*2405*	
v/c ratio, X	*0.48*	*1.64*	*0.13*					*0.38*	*0.43*	*0.85*	*0.07*	
Total green ratio, g/C	*0.24*	*0.24*	*1.00*					*0.35*	*0.63*	*0.29*	*0.68*	
Uniform delay, d_1	*46.5*	*54.3*	*0.0*					*35.2*	*13.4*	*47.8*	*7.7*	
..gression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*3.8*	*292.0*	*0.2*					*0.6*	*1.4*	*9.1*	*0.1*	
Initial queue delay, d_3												

Control delay	50.3	346.2	0.2					35.8	14.8	56.9	7.8	
Lane group LOS	D	F	A					D	B	E	A	
Approach delay	273.9						27.7			48.7		
,proach LOS	F						C			D		
Intersection delay	146.1			X_c = 0.88			Intersection LOS			F		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 EB- Nob Hill Road*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/8/04*	Jurisdiction	
Time Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*3*	*1*	*2*	*2*	*0*
Lane group	*L*	*LT*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*320*	*352*	*189*					*784*	*322*	*584*	*970*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *35.0*	G =	G =	G =	G = *42.0*	G = *50.0*	G =	G =
	Y = *5.5*	Y =	Y =	Y =	Y = *5.5*	Y = *5.5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *143.5*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*169*	*539*	*146*					*825*	*286*	*615*	*1021*	
Lane group capacity, c	*432*	*850*	*1583*					*1772*	*998*	*1005*	*2405*	
v/c ratio, X	*0.39*	*0.63*	*0.09*					*0.47*	*0.29*	*0.61*	*0.42*	
Total green ratio, g/C	*0.24*	*0.24*	*1.00*					*0.35*	*0.63*	*0.29*	*0.68*	
Uniform delay, d_1	*45.3*	*48.5*	*0.0*					*36.4*	*11.9*	*43.7*	*10.4*	
Progression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*2.7*	*3.6*	*0.1*					*0.9*	*0.7*	*2.8*	*0.6*	
Initial queue delay, d_3												

Control delay	48.0	52.1	0.1					37.2	12.7	46.5	10.9	
Lane group LOS	D	D	A					D	B	D	B	
Approach delay	42.4						30.9			24.3		
proach LOS	D						C			C		
Intersection delay	30.6			X_c = 0.56			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 WB - Nob Hill Road*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/8/04*	Jurisdiction	
Time Period	*AM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*0*	*4*	*1*
Lane group				*L*	*LTR*	*R*	*L*	*T*			*T*	*R*
Volume, V (vph)				*373*	*95*	*358*	*199*	*843*			*603*	*368*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR volumes	*0*			*0*	*0*	*50*				*0*	*0*	*50*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = *40.0*	G =	G =	G =	G = *42.0*	G = *50.0*	G =	G =
	Y = *5.5*	Y =	Y =	Y =	Y = *5.5*	Y = *5.5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *148.5*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*263*	*337*	*217*	*209*	*887*			*635*	*335*
Lane group capacity, c				*477*	*891*	*1583*	*596*	*2324*			*1918*	*933*
v/c ratio, X				*0.55*	*0.38*	*0.14*	*0.35*	*0.38*			*0.33*	*0.36*
Total green ratio, g/C				*0.27*	*0.27*	*1.00*	*0.34*	*0.66*			*0.28*	*0.59*
Uniform delay, d_1				*46.6*	*44.1*	*0.0*	*37.0*	*11.7*			*42.1*	*15.9*
Progression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	*1.000*
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	*0.50*
Incremental delay, d_2				*4.5*	*1.2*	*0.2*	*1.6*	*0.5*			*0.5*	*1.1*
Initial queue delay, d_3												

Control delay				51.1	45.4	0.2	38.7	12.2			42.6	17.0	
Lane group LOS				D	D	A	D	B			D	B	
Approach delay				35.2			17.2			33.7			
Approach LOS				D			B			C			
Intersection delay	27.9			X_c = 0.43			Intersection LOS			C			

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 WB - Nob Hill Road*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/8/04*	Jurisdiction	
Time Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*0*	*4*	*1*
Lane group				*L*	*LTR*	*R*	*L*	*T*			*T*	*R*
Volume, V (vph)				*521*	*205*	*926*	*153*	*951*			*1033*	*493*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR volumes	*0*			*0*	*0*	*50*				*0*	*0*	*50*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = *40.0*	G =	G =	G =	G = *42.0*	G = *50.0*	G =	G =
	Y = *5.5*	Y =	Y =	Y =	Y = *5.5*	Y = *5.5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *148.5*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*367*	*701*	*618*	*161*	*1001*			*1087*	*466*
Lane group capacity, c				*477*	*880*	*1583*	*596*	*2324*			*1918*	*933*
v/c ratio, X				*0.77*	*0.80*	*0.39*	*0.27*	*0.43*			*0.57*	*0.50*
Total green ratio, g/C				*0.27*	*0.27*	*1.00*	*0.34*	*0.66*			*0.28*	*0.59*
Uniform delay, d_1				*50.0*	*50.5*	*0.0*	*35.9*	*12.2*			*45.5*	*17.8*
Progression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	*1.000*
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	*0.50*
Incremental delay, d_2				*11.3*	*7.4*	*0.7*	*1.1*	*0.6*			*1.2*	*1.9*
Initial queue delay, d_3												

Control delay				61.3	57.9	0.7	37.1	12.8			46.7	19.7
Lane group LOS				E	E	A	D	B			D	B
Approach delay				37.7			16.2			38.6		
Approach LOS				D			B			D		
Intersection delay	32.3			X_c = 0.54			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 EB- Pine Island Road*
Agency or Co.	*RSH*	Area Type	*All other areas*
te Performed	*9/8/04*	Jurisdiction	
.me Period	*AM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*3*	*1*	*2*	*2*	*0*
Lane group	*L*	*LT*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*637*	*1062*	*480*					*887*	*553*	*764*	*162*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
d / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G = *45.0*	G =	G =
	Y = *7*	Y =	Y =	Y =	Y = *6*	Y = *7*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *145.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*336*	*1453*	*453*					*934*	*529*	*804*	*171*	
Lane group capacity, c	*549*	*1086*	*1583*					*1578*	*1059*	*829*	*2099*	
v/c ratio, X	*0.61*	*1.34*	*0.29*					*0.59*	*0.50*	*0.97*	*0.08*	
Total green ratio, g/C	*0.31*	*0.31*	*1.00*					*0.31*	*0.67*	*0.24*	*0.59*	
Uniform delay, d_1	*42.6*	*50.0*	*0.0*					*42.2*	*11.9*	*54.5*	*12.6*	
ogression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*5.0*	*158.4*	*0.5*					*1.6*	*1.7*	*24.7*	*0.1*	
Initial queue delay, d_3												

Control delay	47.6	208.4	0.5					43.9	13.6	79.2	12.7	
Lane group LOS	D	F	A					D	B	E	B	
Approach delay	142.3						32.9			67.5		
proach LOS	F						C			E		
Intersection delay	92.5			X_c = 0.97			Intersection LOS			F		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 EB- Pine Island Road*
Agency or Co.	*RSH*	Area Type	*All other areas*
te Performed	*9/8/04*	Jurisdiction	
ime Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*3*	*1*	*2*	*2*	*0*
Lane group	*L*	*LT*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*487*	*375*	*471*					*868*	*213*	*605*	*1107*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
d / Bike / RTOR volumes	*0*	*0*	*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G = *45.0*	G =	G =
	Y = *7*	Y =	Y =	Y =	Y = *6*	Y = *7*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *145.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*257*	*651*	*443*					*914*	*172*	*637*	*1165*	
Lane group capacity, c	*549*	*1077*	*1583*					*1578*	*1059*	*829*	*2099*	
v/c ratio, X	*0.47*	*0.60*	*0.28*					*0.58*	*0.16*	*0.77*	*0.56*	
Total green ratio, g/C	*0.31*	*0.31*	*1.00*					*0.31*	*0.67*	*0.24*	*0.59*	
Uniform delay, d_1	*40.3*	*42.4*	*0.0*					*42.0*	*8.9*	*51.2*	*17.9*	
gression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*2.9*	*2.5*	*0.4*					*1.6*	*0.3*	*6.8*	*1.1*	
Initial queue delay, d_3												

Control delay	43.2	45.0	0.4					43.6	9.2	58.0	19.0	
Lane group LOS	D	D	A					D	A	E	B	
Approach delay	30.0						38.2			32.8		
proach LOS	C						D			C		
Intersection delay	33.3			X_c = 0.64			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information

Analyst	*YLM*
Agency or Co.	*RSH*
Date Performed	*9/8/04*
Time Period	*AM Peak Hour*

Site Information

Intersection	*SR 84 WB- Pine Island Road*
Area Type	*All other areas*
Jurisdiction	
Analysis Year	*Existing 2002*
Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*1*	*2*	*1*	*2*	*2*	*0*	*0*	*4*	*1*
Lane group				*L*	*LTR*	*R*	*L*	*T*			*TR*	*R*
Volume, V (vph)				*214*	*202*	*511*	*281*	*1243*			*712*	*471*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR volumes	*0*			*0*	*0*	*50*				*0*	*0*	*50*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = *30.0*	G =	G =	G =	G = *45.0*	G = *35.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *7*	Y = *6*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *129.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*113*	*567*	*243*	*296*	*1308*			*749*	*443*
Lane group capacity, c				*412*	*763*	*1583*	*1198*	*2387*			*1840*	*871*
v/c ratio, X				*0.27*	*0.74*	*0.15*	*0.25*	*0.55*			*0.41*	*0.51*
Total green ratio, g/C				*0.23*	*0.23*	*1.00*	*0.35*	*0.67*			*0.27*	*0.55*
Uniform delay, d_1				*40.6*	*45.9*	*0.0*	*29.9*	*10.8*			*38.5*	*18.1*
Progression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	*1.000*
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	*0.50*
Incremental delay, d_2				*1.6*	*6.5*	*0.2*	*0.5*	*0.9*			*0.7*	*2.1*
Initial queue delay, d_3												

Control delay				42.2	52.4	0.2	30.4	11.8			39.2	20.2	
Lane group LOS				D	D	A	C	B			D	C	
Approach delay				37.4			15.2			32.1			
Approach LOS				D			B			C			
Intersection delay	26.1			X_c = 0.60			Intersection LOS			C			

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	YLM	Intersection	SR 84 WB- Pine Island Road
Agency or Co.	RSH	Area Type	All other areas
Date Performed	9/8/04	Jurisdiction	
Time Period	PM Peak Hour	Analysis Year	Existing 2002
		Project ID	I - 595 SIMR

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	0	0	1	2	1	2	2	0	0	4	1
Lane group				L	LTR	R	L	T			TR	R
Volume, V (vph)				714	446	782	275	1080			998	716
% Heavy vehicles, %HV				2	2	2	2	2			2	2
Peak-hour factor, PHF				0.95	0.95	0.95	0.95	0.95			0.95	0.95
Pretimed (P) or actuated (A)				P	P	P	P	P			P	P
Start-up lost time, l_1				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Extension of effective green, e				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Arrival type, AT				3	3	3	3	3			3	3
Unit extension, UE				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Filtering/metering, I				1.000	1.000	1.000	1.000	1.000			1.000	1.000
Initial unmet demand, Q_b				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Ped / Bike / RTOR volumes	0			0	0	50				0	0	50
Lane width				12.0	12.0	12.0	12.0	12.0			12.0	12.0
Parking / Grade / Parking	N		N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B				0	0	0	0	0			0	0
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = 30.0	G =	G =	G =	G = 45.0	G = 35.0	G =	G =
	Y = 6	Y =	Y =	Y =	Y = 7	Y = 6	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 129.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				376	1230	386	289	1137			1051	701
Lane group capacity, c				412	773	1583	1198	2387			1840	871
v/c ratio, X				0.91	1.59	0.24	0.24	0.48			0.57	0.80
Total green ratio, g/C				0.23	0.23	1.00	0.35	0.67			0.27	0.55
Uniform delay, d_1				48.2	49.5	0.0	29.9	10.1			40.5	23.4
Progression factor, PF				1.000	1.000	0.950	1.000	1.000			1.000	1.000
Delay calibration, k				0.50	0.50	0.50	0.50	0.50			0.50	0.50
Incremental delay, d_2				27.0	272.2	0.4	0.5	0.7			1.3	7.8
Initial queue delay, d_3												

Control delay				75.3	321.7	0.4	30.3	10.8			41.8	31.2	
Lane group LOS				E	F	A	C	B			D	C	
Approach delay				212.9			14.7			37.6			
proach LOS				F			B			D			
Intersection delay	98.8			X_c = 0.76			Intersection LOS			F			

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 EB- University Drive*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/9/04*	Jurisdiction	
Time Period	*AM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*3*	*1*	*2*	*3*	*0*
Lane group	*L*	*LTR*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*353*	*946*	*618*					*837*	*740*	*326*	*1811*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*		*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *45.0*	G =	G =	G =	G = *25.0*	G = *50.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *138.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*186*	*1481*	*299*					*881*	*726*	*343*	*1906*	
Lane group capacity, c	*577*	*1112*	*1583*					*1842*	*1159*	*622*	*2985*	
v/c ratio, X	*0.32*	*1.33*	*0.19*					*0.48*	*0.63*	*0.55*	*0.64*	
Total green ratio, g/C	*0.33*	*0.33*	*1.00*					*0.36*	*0.73*	*0.18*	*0.59*	
Uniform delay, d_1	*35.0*	*46.5*	*0.0*					*33.9*	*9.2*	*51.4*	*18.8*	
Progression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*1.5*	*155.6*	*0.3*					*0.9*	*2.6*	*3.5*	*1.1*	
Initial queue delay, d_3												

Control delay	36.5	202.1	0.3					34.8	11.7	54.9	19.9	
Lane group LOS	D	F	A					C	B	D	B	
Approach delay	155.7						24.4			25.2		
›proach LOS	F						C			C		
Intersection delay	69.1			X_c = 0.89			Intersection LOS			E		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 EB- University Drive*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/9/04*	Jurisdiction	
Time Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*3*	*1*	*2*	*3*	*0*
Lane group	*L*	*LTR*	*R*					*T*	*R*	*L*	*T*	
Volume, V (vph)	*575*	*256*	*724*					*1055*	*865*	*257*	*1848*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e	*2.0*	*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT	*3*	*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE	*3.0*	*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I	*1.000*	*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b	*0.0*	*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR volumes	*0*		*50*	*0*			*0*	*0*	*50*			
Lane width	*12.0*	*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B	*0*	*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	SB Only	Thru & RT	07	08
Timing	G = *45.0*	G =	G =	G =	G = *25.0*	G = *50.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *138.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	*303*	*925*	*355*					*1111*	*858*	*271*	*1945*	
Lane group capacity, c	*577*	*1070*	*1583*					*1842*	*1159*	*622*	*2985*	
v/c ratio, X	*0.53*	*0.86*	*0.22*					*0.60*	*0.74*	*0.44*	*0.65*	
Total green ratio, g/C	*0.33*	*0.33*	*1.00*					*0.36*	*0.73*	*0.18*	*0.59*	
Uniform delay, d_1	*37.8*	*43.6*	*0.0*					*35.9*	*10.8*	*50.2*	*19.1*	
Progression factor, PF	*1.000*	*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k	*0.50*	*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2	*3.4*	*9.3*	*0.3*					*1.5*	*4.3*	*2.2*	*1.1*	
Initial queue delay, d_3												

Control delay	41.2	52.9	0.3					37.4	15.1	52.4	20.2	
Lane group LOS	D	D	A					D	B	D	C	
Approach delay	38.9						27.7			24.1		
,proach LOS	D						C			C		
Intersection delay	29.4			X_c = 0.73			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 WB- University Drive*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/9/04*	Jurisdiction	
Time Period	*AM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*1*	*2*	*1*	*2*	*3*	*0*	*0*	*4*	*0*
Lane group				*L*	*LTR*	*R*	*L*	*T*			*TR*	
Volume, V (vph)				*611*	*8*	*966*	*28*	*1162*			*1526*	*204*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR volumes	*0*			*0*		*50*				*0*	*0*	*50*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = *45.0*	G =	G =	G =	G = *50.0*	G = *20.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *133.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*431*	*538*	*646*	*29*	*1223*			*1768*	
Lane group capacity, c				*599*	*1070*	*1583*	*516*	*2906*			*2514*	
v/c ratio, X				*0.72*	*0.50*	*0.41*	*0.06*	*0.42*			*0.70*	
Total green ratio, g/C				*0.34*	*0.34*	*1.00*	*0.15*	*0.57*			*0.38*	
Uniform delay, d_1				*38.5*	*35.1*	*0.0*	*48.4*	*16.1*			*35.2*	
Progression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	
Incremental delay, d_2				*7.3*	*1.7*	*0.8*	*0.2*	*0.4*			*1.7*	
Initial queue delay, d_3												

Control delay				45.8	36.8	0.8	48.6	16.5			36.9	
Lane group LOS				D	D	A	D	B			D	
Approach delay				24.8			17.3			36.9		
proach LOS				C			B			D		
Intersection delay	27.4			X_c = 0.60			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR 84 WB- University Drive*
Agency or Co.	*RSH*	Area Type	*All other areas*
te Performed	*9/9/04*	Jurisdiction	
..ne Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*1*	*2*	*1*	*2*	*3*	*0*	*0*	*4*	*0*
Lane group				*L*	*LTR*	*R*	*L*	*T*			*TR*	
Volume, V (vph)				*490*	*35*	*832*	*221*	*1409*			*1615*	*252*
% Heavy vehicles, %HV				*2*	*2*	*2*	*2*	*2*			*2*	*2*
Peak-hour factor, PHF				*0.95*	*0.95*	*0.95*	*0.95*	*0.95*			*0.95*	*0.95*
Pretimed (P) or actuated (A)				*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up lost time, l_1				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	
Extension of effective green, e				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	
Arrival type, AT				*3*	*3*	*3*	*3*	*3*			*3*	
Unit extension, UE				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	
Filtering/metering, I				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	
Initial unmet demand, Q_b				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	
..d / Bike / RTOR volumes	*0*			*0*		*85*				*0*	*0*	*20*
Lane width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*	*0*	*0*	*0*			*0*	
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	Thru & RT	NB Only	07	08
Timing	G = *45.0*	G =	G =	G =	G = *50.0*	G = *20.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *133.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*346*	*466*	*527*	*233*	*1483*			*1944*	
Lane group capacity, c				*599*	*1078*	*1583*	*516*	*2906*			*2501*	
v/c ratio, X				*0.58*	*0.43*	*0.33*	*0.45*	*0.51*			*0.78*	
Total green ratio, g/C				*0.34*	*0.34*	*1.00*	*0.15*	*0.57*			*0.38*	
Uniform delay, d_1				*36.2*	*34.1*	*0.0*	*51.5*	*17.2*			*36.6*	
..gression factor, PF				*1.000*	*1.000*	*0.950*	*1.000*	*1.000*			*1.000*	
Delay calibration, k				*0.50*	*0.50*	*0.50*	*0.50*	*0.50*			*0.50*	
Incremental delay, d_2				*4.0*	*1.3*	*0.6*	*2.8*	*0.6*			*2.5*	
Initial queue delay, d_3												

Control delay				40.2	35.4	0.6	54.3	17.9			39.0		
Lane group LOS				D	D	A	D	B			D		
Approach delay				22.9			22.8			39.0			
Approach LOS				C			C			D			
Intersection delay	29.2			X_c = 0.64			Intersection LOS			C			

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	YLM	Intersection	SR-84 EB / Davie Rd.
Agency or Co.	RSH	Area Type	All other areas
Date Performed	9/9/04	Jurisdiction	
Time Period	AM Peak Hour	Analysis Year	Existing 2002
		Project ID	I - 595 SIMR

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	0	3	1	0	0	0	0	2	1	1	2	0
Lane group		LT	R					TR	R	L	T	
Volume, V (vph)	79	350	553					451	1275	20	1264	
% Heavy vehicles, %HV	2	2	2					2	2	2	2	
Peak-hour factor, PHF	0.95	0.95	0.95					0.95	0.95	0.95	0.95	
Pretimed (P) or actuated (A)	P	P	P					P	P	P	P	
Start-up lost time, l_1		2.0	2.0					2.0	2.0	2.0	2.0	
Extension of effective green, e		2.0	2.0					2.0	2.0	2.0	2.0	
Arrival type, AT		3	3					3	3	3	3	
Unit extension, UE		3.0	3.0					3.0	3.0	3.0	3.0	
Filtering/metering, I		1.000	1.000					1.000	1.000	1.000	1.000	
Initial unmet demand, Q_b		0.0	0.0					0.0	0.0	0.0	0.0	
Ped / Bike / RTOR volumes	0	0	90	0			0		100			
Lane width		12.0	12.0					12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N		N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0	0					0	0	0	0	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	NS Perm	SB Only	07	08
Timing	G = 40.0	G =	G =	G =	G = 30.0	G = 60.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 4	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 144.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		451	487					722	990	21	1331	
Lane group capacity, c		1400	1583					699	824	851	2335	
v/c ratio, X		0.32	0.31					1.03	1.20	0.02	0.57	
Total green ratio, g/C		0.28	1.00					0.21	0.52	0.66	0.66	
Uniform delay, d_1		41.2	0.0					57.0	34.5	19.8	13.4	
Progression factor, PF		1.000	0.950					1.000	1.000	1.000	1.000	
Delay calibration, k		0.50	0.50					0.50	0.50	0.50	0.50	
Incremental delay, d_2		0.6	0.5					42.8	102.2	0.1	1.0	
Initial queue delay, d_3												

Control delay		41.9	0.5					99.8	136.7	19.8	14.4	
Lane group LOS		D	A					F	F	B	B	
Approach delay	20.4						121.1			14.5		
Approach LOS	C						F			B		
Intersection delay	61.5			X_c = 0.00			Intersection LOS			E		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR-84 EB / Davie Rd.*
Agency or Co.	*RSH*	Area Type	*All other areas*
te Performed	*9/9/04*	Jurisdiction	
ime Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*3*	*1*	*0*	*0*	*0*	*0*	*2*	*1*	*1*	*2*	*0*
Lane group		*LT*	*R*					*TR*	*R*	*L*	*T*	
Volume, V (vph)	*163*	*317*	*663*					*650*	*981*	*26*	*1434*	
% Heavy vehicles, %HV	*2*	*2*	*2*					*2*	*2*	*2*	*2*	
Peak-hour factor, PHF	*0.95*	*0.95*	*0.95*					*0.95*	*0.95*	*0.95*	*0.95*	
Pretimed (P) or actuated (A)	*P*	*P*	*P*					*P*	*P*	*P*	*P*	
Start-up lost time, l_1		*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Extension of effective green, e		*2.0*	*2.0*					*2.0*	*2.0*	*2.0*	*2.0*	
Arrival type, AT		*3*	*3*					*3*	*3*	*3*	*3*	
Unit extension, UE		*3.0*	*3.0*					*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/metering, I		*1.000*	*1.000*					*1.000*	*1.000*	*1.000*	*1.000*	
Initial unmet demand, Q_b		*0.0*	*0.0*					*0.0*	*0.0*	*0.0*	*0.0*	
d / Bike / RTOR volumes	*0*	*0*	*90*	*0*			*0*		*100*			
Lane width		*12.0*	*12.0*					*12.0*	*12.0*	*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking maneuvers, N_m												
Buses stopping, N_B		*0*	*0*					*0*	*0*	*0*	*0*	
Min. time for pedestrians, G_p												

Phasing	EB Only	02	03	04	NS Perm	SB Only	07	08
Timing	G = *40.0*	G =	G =	G =	G = *30.0*	G = *60.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *4*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *144.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		*506*	*603*					*869*	*742*	*27*	*1509*	
Lane group capacity, c		*1389*	*1583*					*714*	*824*	*851*	*2335*	
v/c ratio, X		*0.36*	*0.38*					*1.22*	*0.90*	*0.03*	*0.65*	
Total green ratio, g/C		*0.28*	*1.00*					*0.21*	*0.52*	*0.66*	*0.66*	
Uniform delay, d_1		*41.8*	*0.0*					*57.0*	*31.1*	*19.8*	*14.5*	
gression factor, PF		*1.000*	*0.950*					*1.000*	*1.000*	*1.000*	*1.000*	
Delay calibration, k		*0.50*	*0.50*					*0.50*	*0.50*	*0.50*	*0.50*	
Incremental delay, d_2		*0.7*	*0.7*					*110.2*	*14.8*	*0.1*	*1.4*	
Initial queue delay, d_3												

Control delay		42.5	0.7					167.2	46.0	19.9	15.9	
Lane group LOS		D	A					F	D	B	B	
Approach delay	19.8						111.4			16.0		
proach LOS	B						F			B		
Intersection delay	53.1			X_c = 0.00			Intersection LOS			D		

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR-84WB / Davie Rd.*
Agency or Co.	*RSH*	Area Type	*All other areas*
Date Performed	*9/9/04*	Jurisdiction	
Time Period	*AM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*2*	*1*	*0*	*2*	*0*	*0*	*0*	*0*	*0*
Lane group				*L*	*T*		*L*					
Volume, V (vph)				*1284*	*40*		*530*					
% Heavy vehicles, %HV				*2*	*2*		*2*					
Peak-hour factor, PHF				*0.95*	*0.90*		*0.95*					
Pretimed (P) or actuated (A)				*P*	*P*		*P*					
Start-up lost time, l_1				*2.0*	*2.0*		*2.0*					
Extension of effective green, e				*2.0*	*2.0*		*2.0*					
Arrival type, AT				*3*	*3*		*3*					
Unit extension, UE				*3.0*	*3.0*		*3.0*					
Filtering/metering, I				*1.000*	*1.000*		*1.000*	*1.000*				
Initial unmet demand, Q_b				*0.0*	*0.0*		*0.0*					
Ped / Bike / RTOR volumes	*0*									*0*		
Lane width				*12.0*	*12.0*		*12.0*					
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*		*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*		*0*					
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	NB Only	06	07	08
Timing	G = *60.0*	G =	G =	G =	G = *70.0*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *6*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *140.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*1352*	*44*		*558*					
Lane group capacity, c				*1471*	*798*		*1717*					
v/c ratio, X				*0.92*	*0.06*		*0.32*					
Total green ratio, g/C				*0.43*	*0.43*		*0.50*					
Uniform delay, d_1				*37.7*	*23.4*		*20.9*					
Progression factor, PF				*1.000*	*1.000*		*1.000*					
Delay calibration, k				*0.50*	*0.50*		*0.50*					
Incremental delay, d_2				*10.7*	*0.1*		*0.5*					
Initial queue delay, d_3												

Control delay				48.4	23.5		21.4						
Lane group LOS				D	C		C						
Approach delay				47.7			21.4						
Approach LOS				D			C						
Intersection delay	40.2			X_c = 0.60			Intersection LOS			D			

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	*YLM*	Intersection	*SR-84WB / Davie Rd.*
Agency or Co.	*RSH*	Area Type	*All other areas*
e Performed	*9/9/04*	Jurisdiction	
ime Period	*PM Peak Hour*	Analysis Year	*Existing 2002*
		Project ID	*I - 595 SIMR*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	*0*	*0*	*0*	*2*	*1*	*0*	*2*	*0*	*0*	*0*	*0*	*0*
Lane group				*L*	*T*		*L*					
Volume, V (vph)				*1460*	*185*		*813*					
% Heavy vehicles, %HV				*2*	*2*		*2*					
Peak-hour factor, PHF				*0.95*	*0.90*		*0.95*					
Pretimed (P) or actuated (A)				*P*	*P*		*P*					
Start-up lost time, l_1				*2.0*	*2.0*		*2.0*					
Extension of effective green, e				*2.0*	*2.0*		*2.0*					
Arrival type, AT				*3*	*3*		*3*					
Unit extension, UE				*3.0*	*3.0*		*3.0*					
Filtering/metering, I				*1.000*	*1.000*		*1.000*	*1.000*				
Initial unmet demand, Q_b				*0.0*	*0.0*		*0.0*					
d / Bike / RTOR volumes	*0*									*0*		
Lane width				*12.0*	*12.0*		*12.0*					
Parking / Grade / Parking	*N*		*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*		*N*
Parking maneuvers, N_m												
Buses stopping, N_B				*0*	*0*		*0*					
Min. time for pedestrians, G_p												

Phasing	WB Only	02	03	04	NB Only	06	07	08
Timing	G = *60.0*	G =	G =	G =	G = *70.0*	G =	G =	G =
	Y = *4*	Y =	Y =	Y =	Y = *6*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *140.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v				*1537*	*206*		*856*					
Lane group capacity, c				*1471*	*798*		*1717*					
v/c ratio, X				*1.04*	*0.26*		*0.50*					
Total green ratio, g/C				*0.43*	*0.43*		*0.50*					
Uniform delay, d_1				*40.0*	*25.7*		*23.3*					
gression factor, PF				*1.000*	*1.000*		*1.000*					
Delay calibration, k				*0.50*	*0.50*		*0.50*					
Incremental delay, d_2				*36.1*	*0.8*		*1.0*					
Initial queue delay, d_3												

Control delay				76.1	26.5		24.3						
Lane group LOS				E	C		C						
Approach delay				70.3			24.3						
Approach LOS				E			C						
Intersection delay	55.1			X_c = 0.75			Intersection LOS			E			